Badin Business Park LLC

201 Isabella Street
Suite 500
Pittsburgh, PA 15212-5858 USA
Tel: 1 412 315 2900

May 27, 2022

North Carolina Department of Environmental Quality
Sushma Masemore
Director, Division of Water Resources
1617 Mail Service Center
Raleigh, NC 27699-1617

Re: Badin Business Park LLC March 9, 2022, Technical Meeting

Dear Ms. Masemore,

Badin Business Park LLC ("BBP") appreciates the time that the Department spent with our team on March 09,2022 reviewing potential solutions for the fluoride discharge issues that we are experiencing at Outfall 005.

Below is a summary of the information presented by BBP and discussed by the parties:

1. BBP provided a summary of the current Outfall 005 drainage area as well as an updated understanding of the sources of fluoride in the discharge. Studies performed by BBP demonstrate the majority of the fluoride entering the system is a result of groundwater infiltrating the very old storm sewer systems. As explained by BBP, although progress has been made to reduce the amount of fluoride in the discharge, BBP has not been able to entirely eliminate the low concentrations of fluoride in the stormwater discharge.
2. BBP provided a brief background of Little Mountain Creek and spoke to water quality information collected by BBP between 2019 and 2021 which illustrates that fluoride and total cyanide concentrations in Little Mountain Creek downstream of BBP were below chronic criteria. In addition, BBP discussed the collection of flow data in Little Mountain Creek since 2019. Table 1 summarizes BBP's Little Mountain Creek data.
3. A summary of recent activities at the site were shared, specifically the source identification and control activities BBP undertook. While these actions have made fluoride reductions across the site, they have been unsuccessful at bringing Outfall 005 into consistent compliance with the fluoride limit. BBP reviewed, in detail, information related to a soil excavation in the former Bath Mill area that was completed in October 2021; as part of this effort, approximately 2,000 tons of soil materials were excavated and disposed of offsite. Although only a small portion of these soils were shown to contain fluoride and at very low concentrations, the excavation conservatively encompassed roughly 4,000 square feet. To date, as discussed, we have not seen quantifiable benefits from this source removal activity.
4. BBP discussed a proposal for a direct discharge to Little Mountain Creek which was developed based on 7Q10 information for Little Mountain Creek shared by the

Department as a follow up to our February 2021 meeting. BBP spent considerable time and effort to investigate the potential for a direct discharge to Little Mountain Creek with the understanding that the Department would consider a mixing zone similar to that afforded an adjacent discharger only to find out that we would be required to reengage USGS to provide a new 7Q10 determination.

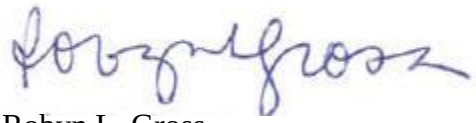
a. As discussed during our meeting, USGS performed a desktop analysis for ungauged streams that compared similar stream types to Little Mountain Creek which resulted in an estimated 7Q10 value of approximately 0.04 cfs. This result was considerably lower than a prior finding by USGS. After USGS was informed of its prior determination, USGS recommended a study be undertaken to confirm the previous assessment as they could not locate the basis for the prior determination in their files due to age.
b. Importantly, BBP requested during the meeting and is again asking DWR to consider permitting a new direct discharge to Little Mountain Creek utilizing the previously determined 7Q10 with a condition that BBP monitor Little Mountain Creek and obtain new flow information to support a new 7Q10 determination as recommended by USGS.
c. While the Department indicated that a permit requiring instream monitoring would require approval by US EPA, BBP explored this avenue and Attachment 1 includes a memo summarizing recommended permitting approaches which could be utilized to ensure a new discharge to Little Mountain Creek would be protective of human health and the environment as well as provides examples where similar concepts have been approved and permitted in EPA Region 4.
d. In addition, BBP is already working with the USGS to establish a flow monitoring station in Little Mountain Creek in order to update the historic 7Q10 determination.

5. Finally, we discussed the Department's request for BBP to explore treatment alternatives for Outfall 005. As we mentioned during the meeting, BBP continues to explore options for compliance, but our initial assessment showed traditional treatment options (i.e., reverse osmosis, adsorption, coagulation/filtration, lime/soda ash softening) are not viable, as the flows at this Outfall are highly variable and dependent on both rainfall and groundwater elevation. Treatment of a stormwater discharge in its entirety is not realistic using traditional treatment technologies for fluoride.
    a. Attachment 2 is a technology review for the removal of fluoride from industrial wastewaters prepared for EPA in 2020 which provides further details regarding the limitations.
    b. Prior to the conclusion of the meeting, we discussed the completion of a document similar to an Engineering Alternatives Analysis used for new or expansion permit for wastewater treatment plants to aid in assessing potential solutions for Outfall 005.
    c. BBP also introduced current efforts to update the hydrogeologic model for the site. One of the associated tasks will look to validate a conceptualization to divert groundwater around the site thereby reducing the potential for fluoride

containing groundwater to infiltrate into the storm sewer. The work plan for this effort is being developed and will be shared with the Department upon completion.

Again, we appreciate the Department's time and cooperation on this matter. Should you have questions, please contact me at 412.389.1768 or Robyn.Gross@alcoa.com.

Sincerely,



Robyn L. Gross
Director, Asset Management Americas
Badin Business Park LLC

cc via email:
Richard Rogers, NCDEQ
Michael Scott, NCDEQ
Joy Hicks, NCDEQ
Jason Mibroda, Alcoa Corp.
Cameron Henley, Moore & VanAllen

Table 1: Monthly Average Flowrate for Little Mountain Creek (USG/min)	
Nov-2019	2,256
Dec-2019	3,990
Jan-2020	4,003
Feb-2020	6,013
Mar-2020	2,536
Apr-2020	2,957
May-2020	69,114
Jun-2020	5,679
Jul-2020	2,594
Aug-2020	747
Sep-2020	1,078
Oct-2020	3,196
Nov-2020	6,790
Dec-2020	10,024
Jan-2021	15,915
Feb-2021	24,130
Mar-2021	10,375
Apr-2021	3,483
May-2021	930
Jun-2021	488
Jul-2021	658
Aug-2021	1,322
Sep-2021	1,989
Oct-2021	4,120
Nov-2021	140
Dec-2021	2,205

ftn Associates Ltd.
water resources / environmental consultants
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 • (501) 225-7779 • Fax (501) 225-6738

TECHNICAL MEMORANDUM

DATE: May 18, 2022

TO: **Robyn Gross and Jason Mibroda**
Alcoa Corporation

FROM: **Philip Massirer and Nathan Siria**
FTN Associates, Ltd.

SUBJECT: Hydrograph-Controlled Release Permitting Approaches for
Proposed New Outfall to Little Mountain Creek at Badin Business Park
FTN No. R06010-1805-005

1.0 INTRODUCTION

This technical memorandum provides an overview of hydrograph-controlled release (HCR) permitting approaches and describes two specific ways than an HCR approach could be implemented for the proposed new outfall to Little Mountain Creek at Badin Business Park (BBP). The proposed new outfall would receive water that would be diverted from the eastern drainage line within the Outfall 005 drainage area into a proposed pipeline that would carry the water directly to Little Mountain Creek just upstream of the Highway 740 bridge. HCR permit limits for this outfall would allow the discharge to utilize the assimilative capacity of the creek while maintaining water quality standards in the creek.

2.0 OVERVIEW OF HCRs

The fundamental concept of an HCR is that the effluent flow rate is allowed to vary over time but is controlled to ensure that water quality standards are maintained in the receiving stream. The effluent flow rate can increase during periods when the assimilative capacity of the receiving stream is greater, but it must be decreased during periods when the assimilative capacity of the receiving stream is less. For most wastewater facilities, this requires a storage basin to hold treated wastewater so that it can discharged according to the assimilative capacity of the stream.

The HCR concept has been utilized since the 1980's when it was first promoted for effluent "releases" from wastewater lagoons (EPA 1984; Zirschsky and Thomas 1987). Since then, it has been used in permits for various types of discharges, including effluent from industrial sites.

HCRs can be expressed in National Pollutant Discharge Elimination System (NPDES) permits in various ways, including the following:

A. Specify a permit limit for "discharge flow as percent of stream flow" (parameter code 01352 in EPA's Permit Compliance System (PCS) and Integrated Compliance Information System (ICIS) databases). This is probably the most common method of expressing HCR limits in a permit. The permit limit for discharge flow as percent of stream flow is calculated using the common equation for complete mixing of effluent and upstream flow:

$$Allowable\ percentage = 100\%\ x\ \frac{(WQ\ standard - Upstream\ conc.)}{(Effluent\ conc. - WQ\ standard)}$$

The permit would still include average and maximum limits for concentrations, but the limits for effluent concentration and effluent flow (as a percentage of the upstream flow) are dependent on each other. A more stringent limit for effluent concentration allows a higher limit for effluent flow as a percentage of upstream flow. Conversely, a less stringent limit for effluent concentration results in a lower limit for effluent flow as a percentage of upstream flow.

B. Specify a permit limit in pounds per day per cfs of stream flow. This method is less commonly used, but the load component (pounds per day) eliminates the large number of possible combinations of limits for effluent concentration and effluent flow rate. Because the load component incorporates both flow and concentration, there is usually no need to include an additional limit for effluent concentration.

C. Specify limits for effluent flow, concentration, or load that apply for certain ranges of upstream flow. This method was used for several discharges in the lower portions of the Pee Dee and Waccamaw River basins in South Carolina. A modeling study led by the US Geological Survey (USGS) resulted in a three-tier set of allowable loadings for each discharge. Each tier was defined based on the flow rate in the Pee Dee River or Waccamaw River (Conrads et al. 2003).

Most HCR discharges are not based on a single critical flow (e.g., 7Q10) because they are designed to be protective of water quality standards for all hydrologic conditions, not just at critical flow.

3.0 EXAMPLES OF HCRs IN EPA REGION 4

A query on EPA's Environmental Compliance and History Online (ECHO) web site showed 36 NPDES permits that currently require (or recently required) reporting of "discharge flow as percent of stream flow". These permits were issued for facilities in eight different states, including four states in EPA Region 4 (Florida, Georgia, Kentucky, and South Carolina). Additionally, a permit with an HCR discharge was issued in Alabama in 2013 but the HCR discharge was discontinued in 2018.

Attached to this memo are three examples of currently effective HCR permits that were issued by states within EPA Region 4. The HCR components of these permits are summarized below.

A. FL0000281 - Packaging Corporation of America: This permit regulates discharges from an industrial wastewater treatment system for an unbleached kraft linerboard production facility. The receiving water is the Withlacoochee River. Outfall D-001 has a daily maximum limit of 20% for discharge flow as a percent of stream flow, although this parameter is labeled as RWC (Receiving Water Concentration) in the table of limits. In this permit, RWC does not represent the concentration of a particular constituent, but instead represents the "concentration" (percentage) of effluent in the river; this is the same as instream waste concentration (IWC) that is used in some fact sheets for NPDES permits. RWC is calculated as the average daily effluent flow rate divided by the instantaneous downstream (not upstream) flow rate using provisional data from a specific USGS gauge at 7:00 am each day. (Note: The USGS periodically reviews provisional flow data and sometimes makes slight adjustments before deeming the data as "approved"; the review might occur a month or more after the provisional data were recorded.) Using an instantaneous stream flow value instead of a daily average is necessary in order for the permittee to know how to set the effluent pumping rate for that day (the exact value for the daily average stream flow will not be known until the end of the day).

   This permit also restricts the discharge of 5-day biochemical oxygen demand (BOD5) to either 14, 12, 10, 8, 6, 4, or 2 pounds per day per cfs of river flow depending on the dissolved oxygen (DO) levels in the effluent and upstream in the river.

B. GA0003280 - King America Finishing, Inc.: This facility is a textile mill that discharges a combination of process water, cooling water, and stormwater into the Ogeechee River. The permit does not allow the 24-hour average effluent flow to exceed either 8% of the upstream flow or 3.1 million gallons per day (MGD), whichever is smaller. The upstream flow rate is specified in the permit to be an instantaneous daily reading at 8:00 am at a USGS gauge.

C. GA0024911 - City of Adel: This is a municipal wastewater treatment facility that discharges to a small creek with an upstream drainage area of approximately 23 square miles. The permit specifies a daily maximum limit of either 14% or 25% (depending on the month of the year) for discharge as percent of stream flow. The permit also specifies that the percentage is to be calculated using downstream flow. There are no active USGS flow gauges on this stream; therefore, it appears that the permittee operates a flow monitoring system themselves.

The permit also prohibits the daily maximum effluent flow from exceeding 4.3 MGD, which is the facility's design flow for treatment. This maximum limit for effluent flow is unusual and is counter to the basic premise of an HCR that allows facilities to treat wastewater at a constant rate and store the treated effluent as necessary until the stream has sufficient assimilative capacity, at which time the maximum allowable effluent flow rate should be dependent on the assimilative capacity of the stream rather than the treatment rate.

4.0 IMPLEMENTATION OF AN HCR APPROACH AT BBP

For the proposed new outfall in Little Mountain Creek, the preferred approach for implementing an HCR is to specify a permit limit for discharge as percent of stream flow. Recommendations for the flow monitoring and reporting details are as follows:

- Measure stream flow at Highway 740 (just downstream of the proposed outfall) on a continuous basis (intervals no greater than hourly). If this gauging system is set up and operated by the USGS, stream flow data will likely be recorded at 15-minute intervals.
- Measure effluent flow with a totalizer or on a continuous basis (intervals no greater than hourly).
- For each day, calculate 24-hour averages of stream flow at Highway 740 and effluent flow.
- 24-hour average upstream flow = 24-hour average stream flow at Highway 740 minus 24-hour average effluent flow.
- Discharge flow as percent of stream flow = 100% times 24-hour average effluent flow divided by 24-hour average upstream flow.

If the stream flow gauging station is set up and operated by the USGS, it is assumed here that they would prefer to set up the gauging station at the Highway 740 bridge rather than a short distance upstream of the proposed outfall. Most of the USGS flow gauges are located at bridges, probably because of three advantages: 1) access, 2) lack of shading on solar panels that are installed to provide power for the measurement and telemetry devices, and 3) ease of high flow measurements with an acoustic doppler current profiler (ADCP). However, it is possible that the USGS might be willing to set up the flow gauge upstream of where the proposed pipeline will enter Little Mountain Creek, as long as BBP would provide USGS with all-weather access to the gauging site.

It is interesting to note that two of the three example HCR permits described in Section 3 specify limits based on downstream flow rather than upstream flow. Calculating permit limits based on downstream flow vs. upstream flow is a simple math exercise, but from an operational standpoint, using downstream flow creates the equivalent of a circular reference in a spreadsheet when it comes to controlling the effluent flow (this effect is more pronounced when the effluent flow is a relatively large percentage of the upstream flow). This is why it is recommended by FTN to use upstream flow, even if the flow gauge is located downstream of the discharge.

In addition to the limit for discharge as percent of stream flow, the permit would need to include monthly average and daily maximum limits for concentrations of fluoride and cyanide. Using the equation presented in Section 2 with upstream concentrations of 0.09 mg/L fluoride and zero cyanide, and water quality standards to protect from chronic toxicity (1.8 mg/L fluoride and 5.0 µg/L cyanide), the recommended limits are:

- Monthly average concentration limits = 3.94 mg/L fluoride and 11.25 µg/L cyanide.
- Daily maximum limit for discharge flow as percent of stream flow = 80%.

The daily maximum concentration limits would be equal to the criteria to protect from acute toxicity (24 mg/L fluoride and 46.6 µg/L cyanide).

If BBP prefers higher limits for concentrations, then the limit for discharge flow as percent of stream flow would decrease. Conversely, if BBP prefers a higher limit for discharge flow as percent of stream flow, the concentration limits would become more stringent.

An alternative HCR permitting approach would consist of permit limits for pounds per day per cfs of upstream flow instead of discharge flow as percent of stream flow. Like the approach recommended above, this approach would be protective of instream water quality standards at all hydrologic conditions. However, the details of implementing this approach can be somewhat complicated for certain situations.

5.0 ADVANTAGES OF AN HCR APPROACH AT BBP

Any permitting approach for the proposed new outfall in Little Mountain Creek must comply with the North Carolina Water Quality Standards, including the following requirement: "Toxic substance standards to protect aquatic life from chronic toxicity shall be protected using the 7Q10 flow" (15A NCAC 02B .0206 (a)(2)). A permit limit for discharge flow as percent of stream flow complies with that requirement because it will be protective of instream water quality standards at 7Q10 conditions, regardless of whether the 7Q10 is zero or non-zero. Additionally, the limit will be protective of instream water quality standards at all other hydrologic conditions. If the upstream flow is zero, the allowable effluent flow will be zero (i.e., the entrance to the pipeline will have to be completely closed to make sure there is no discharge at the outfall). If the upstream flow is any non-zero number, the allowable effluent flow will be 80% of that number, which will be protective of water quality standards. Zero upstream flow is expected to be rare in Little Mountain Creek based on USGS daily flow data for Dutchmans Creek (gage number 02123567; about 5-6 miles southeast of BBP), where zero flow occurred during only 1 year out of 19 years of record. The drainage area at the Dutchmans Creek flow gauge is 3.44 square miles, which is smaller than the drainage area of Little Mountain Creek at Highway 740 (approximately 5.6 square miles).

The recommended limits shown in Section 4 will be protective of water quality standards in the stream and are expected to be achievable by BBP based on available information. This information includes a long-term daily hydrologic analysis as well as limited water quality data collected by BBP in the eastern drainage line within the Outfall 005 drainage area (the drainage line that will be diverted to the proposed new outfall).

The long-term daily hydrologic analysis consisted of data and calculations to estimate upstream flows in Little Mountain Creek and effluent flows from the proposed new outfall for each day during a 19-year period. The 19-year period was selected because it represented the continuous period of record for USGS daily flow data for Dutchmans Creek. Daily upstream flows in Little Mountain Creek were estimated as Dutchmans Creek flows multiplied times the ratio of drainage areas for the two streams. Daily effluent flows for the proposed new outfall were estimated as the sum of surface runoff and subsurface inflow entering the eastern drainage line within the Outfall 005 drainage area. Surface runoff was estimated using the SCS curve number method. Subsurface inflow was estimated by representing shallow groundwater within the drainage area as a linear reservoir and then adding groundwater inputs from outside the drainage area. The curve numbers, groundwater recession coefficient, and external groundwater inputs were calibrated by adjusting their values so that the predicted effluent flows would provide a reasonable match to continuous flow data collected by BBP in the eastern drainage line during November 2019 - October 2020.

The results of the long-term daily hydrologic analysis showed that effluent flows for the proposed new outfall are expected to be less than 80% of the upstream flow approximately 99.4% of the time without controlling the flow entering the pipeline. For the small percentage of time that flow entering the pipeline will need to be restricted or shut off, the flow in the eastern drainage line will bypass the pipeline and drain to Outfall 005. This is not expected to have a measurable effect on long-term compliance at Outfall 005 because it will happen infrequently.

6.0 REFERENCES

Conrads, Paul A, William P. Martello, and Nancy R. Sullins. 2003. “Living with a Large Reduction in Permited Loading by Using a Hydrograph-Controlled Release Scheme”. Environmental Monitoring and Assessment, January 2003. https://www.researchgate.net/publication/10871043_Living_with_a_Large_Reduction_in_Permited_Loading_by_Using_a_Hydrograph-Controlled_Release_Scheme.

EPA. 1984. “A Practical Technology: Hydrograph Controlled Release Lagoons, A Promising Modification”. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=200045JF.TXT.

Zirschsky, John, and Richard Thomas. 1987. “State of the Art Hydrograph Controlled Release (HCR) Lagoons”. Journal of Water Pollution Control Federation, Vol. 59, No. 7 (July 1987), pp. 695-698. https://www.jstor.org/stable/25043324.

We appreciate the opportunity to work with you on this project. If you have any questions or comments regarding this memorandum, please do not hesitate to call me or Nathan Siria, at (501) 225-7779.

PHM/dlc

R:\WP_FILES\06010-1805-005\2022-05-18 FTN TM TO BADIN - HCR PERMITTING APPROACHES\2022-05-18 FTN TM TO BADIN - HCR PERMITTING APPROACHES.DOCX

Florida Department of Environmental Protection

Northeast District
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

April 27, 2018

In the Matter of an
Application for Permit by:

W. Kirk Thomas, Mill Manager
Valdosta Operations
Packaging Corporation of America
Post Office Box 1048
Valdosta, Georgia 31603-1048
Val_Environmental@packagingcorp.com

File Number: FL0000281-007-IW1S
Hamilton County
Packaging Corporation of America - Valdosta Operations

PERMIT ISSUANCE

Enclosed is Permit Number FL0000281 to operate the Packaging Corporation of America - Valdosta Operations, issued under Chapter 403**,** Florida Statutes. This permit is for the operation renewal for the 14 million gallons per day (MGD) average design flow industrial wastewater treatment system for an unbleached kraft linerboard production facility. The facility is located at latitude 30º 41' 38.16" N, longitude 83º 18' 18.21" W, on 5495 Clyattville-Lake Park Road, Valdosta, Georgia 31601 in Lowndes County, with discharge location in Hamilton County, Florida.

Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any.

Any party to this order (permit) has the right to seek judicial review of the permit action under Section 120.68, Florida Statutes, by the filing of a notice of appeal under Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department of Environmental Protection, Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when this document is filed with the Clerk of the Department.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Thomas G. Kallemeyn
Permitting Program Administrator

CERTIFICATE OF SERVICE
The undersigned duly designated deputy clerk hereby certifies that this permit and all copies were sent on the filing date below to the following listed persons:

USEPA-Region IV, r4npdespermits@epa.gov
Hamilton County Commissioners, rleary@putnam-fl.com
Hamilton County Health Department, Sallie.Ford@flhealth.gov
United States Fish & Wildlife Service, heath_rauschenberger@fws.gov
Florida Fish & Wildlife Conservation Commission,
fwcconservationplanningservices@myfwc.com
US Army Corps, sean.l.gallagher@saj02.usace.army.mil
Warren Zwanka, SRWMD, WPZ@srwmd.org
Elsa Potts, PE, FDEP
Jeff Martin, PE, FDEP
Tom Kallemeyn, FDEP

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to Section 120.52, F. S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Elizabeth Williamson

April 27, 2018
Clerk **Date**

Florida Department of Environmental Protection

Northeast District
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMITTEE:

Packaging Corporation of America

PERMIT NUMBER:	FL0000281 (Major)
FILE NUMBER:	FL0000281-007
ISSUANCE DATE:	**April 27, 2018**
EFFECTIVE DATE:	**April 27, 2018**
EXPIRATION DATE:	**April 26, 2023**

RESPONSIBLE OFFICIAL:
W. Kirk Thomas, Mill Manager -Valdosta Operations
Packaging Corporation of America
Post Office Box 1048
Valdosta, Georgia 31603-1048
Phone: (229) 559-7911
Email: Val_Environmental@packagingcorp.com

FACILITY:

Packaging Corporation of America - Valdosta Operations
5495 Clyattville – Lake Park Road
Valdosta, Georgia 31601
Latitude: 30° 41' 38.16" N Longitude: 83° 18' 18.21" W
Discharge located in Hamilton County, Florida

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

FACILITY DESCRIPTION:
This permit is for the operation renewal for the 14 million gallons per day (MGD) average design flow industrial wastewater treatment system for an unbleached kraft linerboard production facility.

WASTEWATER TREATMENT:
Treatment consists of a mechanical bar screen at the influent to the wastewater lift station prior to the primary clarifier, a manual bar screen for the auxiliary wastewater lift station bypass line, and a back-up manual bar screen in the channel downstream from the mechanical bar screen. The wastewater lift station pumps wastewater consisting of process and non-process wastewater from the mill manufacturing operations, and storm water, to a primary clarifier and associated sludge ponds for treatment for settleable solids removal.

Secondary treatment is accomplished in a series of seven ponds covering approximately 850 acres with nutrient addition to the individual ponds as needed, and coagulant/precipitant at the discharge from Pond 6 for incremental emergency color reduction. Pond 1 has been taken out of service and is not currently being used for secondary treatment, but may be returned to service after solids removal at a later date. There are three facultative ponds, followed by an aerated stabilization basin, a 350-acre facultative impoundment, and a final polishing pond (Pond 7), prior to a final effluent pumping station and associated conveyance system which discharges final treated effluent from outfall D-001 to the Withlacoochee River, a Class III fresh surface water of the state.

The facility is located at latitude 30º 41' 38.16" N, longitude 83º 18' 18.21" W, on 5495 Clyattville-Lake Park Road, Valdosta, Georgia 31601 in Lowndes County, with discharge location in Hamilton County, Florida.

The pump station is designed to convey 55 MGD maximum of effluent to outfall D-001. The pump station includes bar screens, a post aeration chamber, Parshall flume for effluent flow monitoring, and effluent pumps which convey the effluent to a final concrete control splitter structure identified as station 001B and then to outfall D-001. Approximately 13,000 L.F. of 48-inch HDPE transmission pipe conveys the effluent from EFF-1 to station 001B. The effluent gravity flows into the Withlacoochee River through outfall D-001. Under high-river stage the control structure splits the flow to a 5th port in order to prevent overflow of effluent from the control structure and damage from backpressure to the diffuser system and associated effluent conveyance system. A culvert with a minimum 8 square foot opening in the control dam of Jumping Gully Creek is provided to allow normal flow from Jumping Gully Creek to pass unrestricted to the Withlacoochee River. Outfall D-001 discharges into a segment of the Withlacoochee wherein a site-specific alternative water quality criterion (SSAC) for dissolved oxygen (DO) has been established and continued beginning since 1990.

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 55.0 MGD Daily Maximum Flow permitted discharge to Withlacoochee River, Class III Fresh Waters, (WBID# 3315) which is approximately 150 feet in length under water diffuser. The point of discharge is located approximately at latitude 30° 37' 22" N, longitude 83° 16' 10" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements and other conditions set forth in this Cover Sheet and Part I through Part IX on pages 1 through 23 of this permit.

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge process wastewater from Outfall D-001 to Withlacoochee River. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.3:

			Effluent Limitations		Monitoring Requirements			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
Flow (Effluent)	MGD	Max	Report	Monthly Average	Continuous	Recording Flow Meter with Totalizer	EFF-1	
			Report	Daily Maximum				
Flow (Upstream River)	CFS	Max	Report	Daily Maximum	Daily	Calculated	CAL-1	See I.A.6
Flow (Downstream River)	CFS	Max	Report	Daily Maximum	Daily	Calculated	CAL-1	See I.A.5
Flow (RWC)	Percentage		20 % RWC	Daily Maximum	Daily	Calculated	CAL-1	See I.A.4
pH	s.u.	Min	6.0	Daily Minimum	Daily	In-situ	EFF-1	See I.A.10
		Max	9.0	Daily Maximum				
Oxygen, Dissolved (DO)	mg/L	Min	1.5	Daily Minimum	Daily	In-situ	EFF-1	See I.A.10
Biochemical Oxygen Demand-5	lb/day	Max	5,550	Annual Average	Daily	24-hr TPC	EFF-1	See I.A.8
		Max	7,792	Monthly Average				
		Max	15,585	Daily Maximum				

			Effluent Limitations		**Monitoring Requirements**			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
Solids, Total Suspended	lb/day	Max	10,760	Monthly Average	Weekly	24-hr TPC	EFF-1	
		Max	16,140	Daily Maximum				
Color, True	PCU	Max	See I.A.9	Daily Maximum	Daily	Calculated	CAL-1	See I.A.9, See I.A.10
Turbidity	NTU	Max	103	Daily Maximum	Weekly	Grab	EFF-1	See I.A.10
Specific Conductance	umhos /cm	Max	3,900	Daily Maximum	Weekly	Grab	EFF-1	See I.A.10
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	Weekly	In-situ	EFF-1	
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Nitrogen, Total	lb/day	Max	Report	Daily Maximum	Quarterly	Calculated	CAL-1	
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Nitrogen, Ammonia, Total (as N)	mg/L	Max	1.40	Daily Maximum	Monthly	Grab	EFF-1	See I.A.10
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Phosphorus, Total (as P)	lb/day	Max	Report	Daily Maximum	Quarterly	Calculated	CAL-1	
Oil and Grease	mg/L	Max	5.9	Daily Maximum	Quarterly	Grab	EFF-1	See I.A.10
Lead, Total Recoverable	ug/L	Max	9.6	Daily Maximum	Quarterly	Grab	EFF-1	See I.A.10

			Effluent Limitations		Monitoring Requirements			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	EFF-1	
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Ceriodaphnia dubia*)	percent	Min	35	Single Sample collected on Days 1, 3, and 5	Annually	Grab	EFF-1	See I.A.13
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Pimephales promelas*)	percent	Min	35	Single Sample collected on Days 1, 3, and 5	Annually	Grab	EFF-1	See I.A.13
Mercury, Total Recoverable	ug/L	Max	Report	Daily Maximum	Annually	Grab	EFF-1	See I.A.14
Oxygen, Dissolved (DO)	mg/L	Max Min	Report	Daily Maximum Daily Minimum Monthly Average	Daily	In-situ	SWU-1	
pH	s.u.	Max	Report	Daily Maximum	Weekly	In-situ	SWU-1	
		Min	Report	Daily Minimum				
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	Weekly	In-situ	SWU-1	
Specific Conductance	umhos/ cm	Max	Report	Daily Maximum	Weekly	Grab	SWU-1	
Color, True	PCU	Max	Report	Daily Maximum	Daily	Grab	SWU-1	
Turbidity	NTU	Max	Report	Daily Maximum	Weekly	Grab	SWU-1	
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	

			Effluent Limitations		**Monitoring Requirements**			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
			Report	Annual Geometric Mean				See I.A.11 & 12
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	See I.A.11 & 12
			Report	Annual Geometric Mean				
Oil and Grease	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	
Lead, Total Recoverable	ug/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWU-1	
Oxygen, Dissolved (DO)	mg/L	Max Min	Report	Daily Maximum Daily Minimum Monthly Average	Daily	In-situ	SWD-1	
pH	s.u.	Max	Report	Daily Maximum	Weekly	In-situ	SWD-1	
		Min	Report	Daily Minimum				
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	Weekly	In-situ	SWD-1	
Specific Conductance	umhos /cm	Max	Report	Daily Maximum	Weekly	Grab	SWD-1	
Color, True	PCU	Max	Report	Daily Maximum	Weekly	Grab	SWD-1	

			Effluent Limitations		Monitoring Requirements			
Parameter	**Units**	**Max/ Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
Turbidity	NTU	Max	Report	Daily Maximum	Weekly	Grab	SWD-1	
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	See I.A.11 & 12
		Max	Report	Annual Geometric Mean				
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	See I.A.11 & 12
		Max	Report	Annual Geometric Mean				
Oil and Grease	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	
Lead, Total Recoverable	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	Quarterly	Grab	SWD-1	

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site	Description of Monitoring Site
EFF-1	Effluent control structure following the Parshall flume flow meter. No chemical addition, including defoamers, shall occur after the sampling location.
CAL-1	Calculated Value.
SWD-2	In the Withlacoochee River at the USGS Gauging Station at Pinetta, Florida. See I.A.5
SWU-1	In the Withlacoochee River, located approximately 100 feet up stream (north) of outfall D-001 (located near the confluence of Jumping Gully Creek and the Withlacoochee River). Streamside samples will be taken from the east riverbank, approximately four to five feet out from the water's edge.
SWD-1	In the Withlacoochee River, near Florida Highway 150 Bridge. Streamside samples will be taken approximately four to five feet out from the water's edge or mid-river from the bridge, as appropriate.

3. The discharge shall not contain components that settle to form putrescent deposits or float as debris, scum, oil, or other matter. [62-302.500(1)(a)]

4. The Receiving Water Concentration (RWC) shall be calculated daily and reported monthly on the DMR. The RWC shall be calculated as the average daily effluent flow rate at EFF-1 divided by the daily downstream river flow rate as measured in the Withlacoochee River at the USGS Gauging Station at Pinetta, Florida per Note I.A.5. The daily RWC shall not exceed 20 percent after mixing.

5. The daily downstream river flow at SWD-2 shall be reported as the USGS gauging station value at 07:00 am, as published at the USGS website when the data is available online. If the website data is not available, the Permittee may obtain a USGS reading via telephone if available, or the Permittee shall take a manual stage reading at the USGS gauging station before 12:00 noon, and shall use the corresponding USGS flow rating to report the daily river flow that day.

6. The daily upstream river flow shall be calculated using the downstream flow reading and subtracting the 24-hour effluent discharge flow. The upstream river flow value is used to calculate the pounds per day of BOD_5 for each cubic foot/second (cfs) of river flow, in accordance with I.A.8.

7. Effluent, upstream, and downstream samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the TAN standard.

8. If the upstream dissolved oxygen level is greater than or equal to 6.0 mg/L and the effluent dissolved oxygen is greater than or equal to 3.5 mg/L then the BOD_5 limit shall be 14 lbs/day/cfs.

   If both of the above conditions are not met then the BOD_5 shall be limited as follows:

Upstream Dissolved Oxygen	BOD_5 Limit (lb/day/river cfs)
Upstream DO > 4.5 mg/L	12 lb/day/cfs
4.4 mg/L< Upstream DO ≤ 4.5 mg/L	10 lb/day/cfs
4.3 mg/L< Upstream DO ≤ 4.4 mg/L	8 lb/day/cfs

4.2 mg/L< Upstream DO ≤ 4.3 mg/L	6 lb/day/cfs
4.1 mg/L< Upstream DO ≤ 4.3 mg/L	4 lb/day/cfs
Upstream DO ≤4.1 mg/L	2 lb/day/cfs

9. Color limits were established to meet the transparency standard of FAC Rule 62-302.530(68), in the receiving water based upon full mixing. Full mixing was determined to be a length of 1,171 feet from outfall structure D-001 in conjunction with the mixing zones established in Part I.A.10. Therefore, full mixing length is recognized for demonstrating compliance with the transparency standard in the receiving water.

   From the effective date of this permit the permittee shall sample EFF-1 daily and discharge shall comply with the following effluent limitation:

   The seasonal color limit shall be calculated as follows:

   May 1- November 30:

   $Ce = (50/RWC) + Cu$

   December 1 – April 30:

   $Ce = (50/RWC) + 125$, whenever measured $Cu \leq 125$ PCU
   $Ce = (50/RWC) + Cu$, whenever measured $Cu > 125$ PCU

   where:

   Ce = effluent color limitation, PCU
   Cu = upstream color, PCU, monitored per Part I.A.1.
   RWC = receiving water concentration, calculated per Part I.A.4.

   The permittee shall calculate the maximum allowable effluent color, measured as true color per NCASI Technical Bulletin 253, also available as HACH Program 125, for each day based on the RWC and upstream color, and shall prepare a table of the daily calculated RWC, maximum effluent color limit, and the measured effluent color value. This table shall be submitted as an attachment to the DMR.

10. Mixing zones are hereby established for the following effluent parameters based on the Maximum instream waste concentration of the permittee's discharge into the Withlacoochee River. The Permittee's discharge shall not cause an exceedance of Rule 62-302.530, F.A.C., Class III fresh water quality criteria outside the described mixing zones for each parameter identified below with the exception of dissolved oxygen in accordance with the Department approved site-specific alternative criteria (SSAC). The SSAC approved on February 14, 1990 (DEP File No. VE-24-334), allows the dissolved oxygen outside of the mixing zone to not be lowered to any less than 4.0 mg/L during the months of June through October. The receiving water shall at no time have in excess of 20 percent mill effluent as calculated pursuant to Part I.A.4:

		Length Downstream from Outfall D-001
a.	Dissolved oxygen	1,171 ft.
b.	Specific Conductance	853 ft.
c.	Chronic Whole Effluent Toxicity	1,171 ft.
d.	pH	1,171 ft.
e.	Turbidity	828 ft.

f.	Total Ammonia Nitrogen as N	663 ft.
g.	Total Recoverable Lead	972 ft.
h.	Transparency	1,171 ft.
i.	Oil & Grease	396 ft.

11. To evaluate narrative nutrient criteria as well as demonstrate that the discharge shall not cause an imbalance in natural populations of flora or fauna, the Permittee shall conduct the Department approved bioassessment Plan of Study (POS) on the second (year 2019) and fourth years (year 2021) of the permit term. Based upon the results of the required bioassessment sampling, or Department bioassessments of the Withlacoochee River, the permit may be reopened as necessary (in accordance with Part VII.F of the permit) to include biointegrity monitoring, reporting or limitations in accordance with FAC Rule 62-302.530(47)(a) and (b). *[62-302.531(2)(c)]*

12. The Permittee shall monitor for total nitrogen (TN) and total phosphorus (TP) upstream and downstream of the point of discharge and calculate the annual geometric mean concentrations of TN and TP. The annual geometric mean concentrations of TN or TP shall be calculated once per calendar year using all data collected during the period. *[62-302.531(6)]*

13. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

    a. Effluent Limitation
       (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 35% effluent. [Rules 62-302.530(61) and 62-4.241(2)(b), F.A.C.]
       (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4 and 62-4.241(2)(a), F.A.C.]

    b. Monitoring Frequency
       (1) Routine toxicity tests shall be conducted annually, the first starting within 1 year from the last chronic test and lasting for the duration of this permit.

    c. Sampling Requirements
       (1) For each routine test or additional follow-up test conducted, single grab samples of final effluent shall be collected on days 1, 3 and 5 and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
       (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
       (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

    d. Test Requirements
       (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **70%**, **35%**, **20%**, and **10%** final effluent.
       (2) The permittee shall conduct a daphnid, ***Ceriodaphnia dubia***, Survival and Reproduction Test and a fathead minnow, ***Pimephales promelas***, Larval Survival and Growth Test, concurrently.
       (3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
       (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements
(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test, or any other test acceptability criteria are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (***Ceriodaphnia dubia***) and Section 11.11 (***Pimephales promelas***). The repeat test shall begin within 21 days after the last day of the invalid test.
(3) If 100% mortality occurs in all effluent concentrations for either species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as the calculated IC25 for each test species.
(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed or ***emailed*** to the Department at the address below ***within 30 days*** after the last day of the test.
(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed or ***emailed within 30 days*** after the last day of the second valid additional follow-up test.
(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
(5) The same bioassay data shall not be reported as the results of more than one test.
(6) All bioassay laboratory reports shall be mailed or ***emailed within 30 days*** to Jacksonville *only*:

Florida Department of Environmental Protection
Northeast District – Wastewater Section
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

g. Test Failures
A test fails when the test results do not meet the limits in 13.a.(1).
(1) Additional Follow-up Tests:
(a) If a routine test does not meet the chronic toxicity limitation in 13.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 13.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The additional follow-up tests shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 70%, 35%, 20%, and 10% effluent. The permittee may modify the dilution series in the additional follow-up tests to more accurately bracket the toxicity such that at least

two dilutions above and two dilutions below the target concentration and a control (0% effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(2) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
   (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
   (b) The Department shall review and approve the plan before initiation.
   (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
   (d) Progress reports shall be submitted quarterly to the Department at the address above.
   (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 13.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 13.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
   (f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in 13.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests.
   (g) If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(3) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in 13.(a)(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(4) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]

14. EPA Method 1631E shall be used to analyze for total recoverable mercury or other clean techniques approved for analysis such as Method 245.1 or Method 245.7 where the method detection limit is equal to or less than 25 ng/L. If the values detected are below the water quality standard the mercury is in compliance and does not trigger the need for a minimization plan. However, if testing results are above the water quality standard of 0.012 ug/L, the permittee shall contact and discuss with the DEP NED wastewater section within 30 days of receipt of the results prior to submitting, preparing and implementing a mercury minimization plan addressing sources of mercury. *[62-304.900, 62-302 FAC, 62-4 FAC]*

15. If conventional effluent discharge restrictions and other factors (e.g., weather) result in the Permittee's holding pond #6 level to exceed 85 inches of impounded effluent, the Permittee will be allowed to utilize a temporary alternative discharge strategy until the holding pond level is below 85 inches of level (the emergency spillway from Pond 6 to Pond 7 is at level 132 inches elevation). The Permittee will be allowed to utilize this temporary alternative discharge strategy by observing the following requirements:
   a. The Permittee must notify the Department (i.e., e-mail or written correspondence) one (1) business day in advance of its intent to utilize the temporary alternative discharge allowance. Report holding pond #6 elevation.

b. The Permittee must notify the Department (i.e., e-mail or written correspondence) one (1) business day after ceasing to utilize the temporary alternative discharge allowance. Report holding pond #6 elevation.
c. While utilizing this temporary alternative discharge allowance, the Permittee must provide the Department with daily updates with respect to the actual volume of effluent discharged to the receiving stream and the calculations used to determine the allowable discharge volume.
d. The Permittee must use the following algorithm to determine the allowable volume of treated effluent that can be discharged to the receiving stream:
    i. Available Receiving Stream D.O., lb_oxygen = Upstream river flow, MGD * (Upstream D.O. mg/L – 4.0 mg/L limit) * 8.34
    ii. Allowable Mill Effluent Discharge, MGD = Available Receiving Stream D.O., lb_oxygen / (8.34 x 9 mg/L BOD**)

    **Conservative assumption based on 5-year daily actual maximum discharge

The Permittee must adhere to all other effluent limitations and monitoring requirements. *[62-620.620]*

B. Other Limitations and Monitoring and Reporting Requirements

1. The sample collection, analytical test methods, and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-601, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at http://www.dep.state.fl.us/labs/library/index.htm. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:

    a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

    b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

    c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

    When the analytical results are below method detection or practical quantitation limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

    Where necessary, the permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

    With respect to this Permit, the Department approves all effluent and receiving water color monitoring to be measured using the NCASI method authorized in the previous Permits to this facility [NCASI

Technical Bulletin No.253 for color, reported in Platinum-Cobalt Units (PCU), specifying the color as True Color; also available as HACH Program 125]

The Department approves the use of HACH Method 8195 as an alternative to EPA Method 180.1, Rev 2.0, and the use of the Modified HACH Method 8195, i.e., HACH Method 8195 using Ratio Instrument Design, for use with samples with turbidity greater than 40 NTU.

2. The permittee shall provide safe access points for obtaining representative influent and effluent samples which are required by this permit. *[62-620.320(6)]*

3. Monitoring requirements under this permit are effective on the first day of the second month following permit issuance. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, toxicity, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Unless specified otherwise in this permit, monitoring results for each monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Mail or Electronically Submit by
Monthly	first day of month - last day of month	28th day of following month
Toxicity	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semi-annual	January 1 - June 30 July 1 - December 30	July 28 January 28
Annual	January 1 - December 31	January 28

The permittee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/, unless the permittee has a waiver from the Department in accordance with 40 CFR 127.15. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation.

[62-620.610(18)][62-600.680(1)]

4. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Northeast District Office at the address specified below:

Florida Department of Environmental Protection
Northeast District
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256

Phone (904) 256-1700; FAX (904) 256-1590
(All FAX copies and e-mails shall be followed by original copies.) *[62-620.305]*

5. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C. *[62-620.305]*

6. If there is no discharge from the facility on a day when the facility would normally sample, the sample shall be collected on the day of the next discharge. *[62-620.320(6)]*

II. SLUDGE MANAGEMENT REQUIREMENTS

1. Section II is not applicable to this facility.

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL LAND APPLICATION REQUIREMENTS

1. Section IV is not applicable to this facility.

V. OPERATION AND MAINTENANCE REQUIREMENTS

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a person who is qualified by formal training and/or practical experience in the field of water pollution control. *[62-620.320(6)]*

2. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.

   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronically recorded data in the Process Information system for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;

   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;

   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;

   d. A copy of the current permit;

   e. A copy of any required record drawings; and

   f. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules.

   [62-620.350]

VI. SCHEDULES

1. The following improvement actions shall be completed according to the following schedule. The Best Management Practices (BMP) Plan shall be prepared and implemented in accordance with Part VII of this permit.

Improvement Action	Completion Date
a. Continue implementing the existing BMP Plan	Issuance date of permit

[62-620.320(6)]

2. The permittee is not authorized to discharge to waters of the state after the expiration date of this permit, unless:

   a. The permittee has applied for renewal of this permit at least 180 days before the expiration date of this permit using the appropriate forms listed in Rule 62-620.910, F.A.C., and in the manner established in the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.; or

   b. The permittee has made complete the application for renewal of this permit before the permit expiration date.

   [62-620.335(1)-(4)]

VII. BEST MANAGEMENT PRACTICES/STORMWATER POLLUTION PREVENTION PLANS

A. Specific Conditions Applicable to All Permits

1. Drawings, plans, documents or specifications submitted by the permittee, not attached hereto, but retained on file at the Northeast District Office, are made a part hereof.

2. Where required by Chapter 471 (P.E.) or Chapter 492 (P.G.) FS, applicable portions of reports to be submitted under this permit, shall be signed and sealed by the professional(s) who prepared them.

3. This permit satisfies Industrial Wastewater program permitting requirements only and does not authorize operation of this facility prior to obtaining any other permits required by local, state or federal agencies.

4. The permittee shall provide verbal notice to the Department as soon as practical after discovery of a sinkhole within an area for the management or application of wastewater or sludge. The permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department in a written report within 7 days of the sinkhole discovery.

B. Specific Conditions Related to Construction

1. This section is not applicable to this facility.

C. Duty to Reapply

1 The permittee shall apply for renewal of this permit at least 180 days before the expiration date of the permit using the appropriate forms listed in Rule 62-620.910, FAC, including submittal of the appropriate processing fee set forth in Rule 62-4.050, FAC. The existing permit shall not expire until the Department has taken final action on the application renewal in accordance with the provisions of Rules 62-620.335(3) and (4), FAC.

D. Specific Conditions Related to Best Management Practices

1. **BMP Plan:**

   For purposes of this part, the terms "pollutant" or "pollutants" refer to any substance listed as toxic under Section 307(a)(1) of the Clean Water Act (the "Act"), oil, as defined in Section 311(a)(1) of the Act, and any substance listed as hazardous under Section 311 of the Act. The permittee shall develop and implement a Best Management Practices (BMP) plan which prevents, or minimizes, the potential for the release of pollutants from ancillary activities, including material storage areas; plant site runoff;

in-plant transfer, process and material handling areas; loading and unloading operations; and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. **Implementation:**

The BMP plan shall be implemented in accordance with the schedule contained in Part VI of this permit.

3. **General Requirements:**

The BMP plan shall:

a. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps.

b. Establish specific objectives for the control of pollutants.

(1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural conditions (e.g., precipitation), or other circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.

c. Establish specific best management practices to meet the objectives identified under paragraph b. of this subsection, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented.

d. Be reviewed by plant engineering staff and plant manager.

4. **Documentation:**

The permittee shall maintain the BMP plan at the facility and shall make the plan available to the Department upon request.

5. **BMP Plan Modification:**

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.

6. **Modification for Ineffectiveness:**

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of significant amounts of pollutants to surface waters and the specific objectives and requirements under paragraphs b. and c. of item 3, the permit shall be subject to modification pursuant to rule 62-620.325, FAC, to incorporate revised BMP requirements.

E. Specific Conditions Related to Existing Manufacturing, Commercial, Mining, and Silviculture Wastewater Facilities or Activities

1. Existing manufacturing, commercial, mining, and silvicultural wastewater facilities or activities that discharge into surface waters shall notify the Department as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following levels
(1) One hundred micrograms per liter,
(2) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony, or
(3) Five times the maximum concentration value reported for that pollutant in the permit application.

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following levels
(1) Five hundred micrograms per liter,
(2) One milligram per liter for antimony, or
(3) Ten times the maximum concentration value reported for that pollutant in the permit application.

F. Reopener Clause

1. The permit or Bioassessment Plan of Study (see Part I.A.11) may be revised, or alternatively, revoked and reissued in accordance with the provisions contained in Rules 62-620.325 and 62-620.345, FAC, if applicable, or to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act (the Act), as amended, if the effluent standards, limitations, or water quality standards so issued or approved:

   a. Contain different conditions or is otherwise more stringent than any condition in the permit/or;

   b. Control any pollutant not addressed in the permit.

   c. The standard or limitation has been duly adopted by the Department.

   The permit as revised or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

2. The permit may be reopened to adjust effluent limitations or monitoring requirements should future Water Quality Based Effluent Limitation determinations, water quality studies, DEP approved changes in water quality standards, or other information show a need for a different limitation or monitoring requirement.

3. The Department may develop a revised or additional Total Maximum Daily Loads (TMDL) during the life of the permit. Once a new or revised TMDL has been established and adopted by rule, the Department may revise this permit to incorporate the final findings of the TMDL.

VIII. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1)]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications or conditions of this permit constitute grounds for revocation and enforcement action by the Department. *[62-620.610(2)]*

3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3)]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4)]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6)]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7)]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8)]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

    a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

    b. Have access to and copy any records that shall be kept under the conditions of this permit;

    c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

[62-620.610(9)]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10)]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11)]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12)]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13)]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14)]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15)]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16)]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to

enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

a. A description of the anticipated noncompliance;

b. The period of the anticipated noncompliance, including dates and times; and

c. Steps being taken to prevent future occurrence of the noncompliance.

[62-620.610(17)]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-601, and 62-610, F.A.C., and 40 CFR 136, as appropriate.

    a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.

    b. If the permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

    c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

    d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

    e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.

    f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

    [62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*

20. The permittee shall report to the Department's Northeast District any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    a. The following shall be included as information which must be reported within 24 hours under this condition:
        (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,

(2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
(3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
(4) Any unauthorized discharge to surface or ground waters.

b. Oral reports as required by this subsection shall be provided as follows:

(1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph (a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WARNING POINT TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee becomes aware of the discharge. The permittee, to the extent known, shall provide the following information to the State Warning Point:

(a) Name, address, and telephone number of person reporting;
(b) Name, address, and telephone number of permittee or responsible person for the discharge;
(c) Date and time of the discharge and status of discharge (ongoing or ceased);
(d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
(e) Estimated amount of the discharge;
(f) Location or address of the discharge;
(g) Source and cause of the discharge;
(h) Whether the discharge was contained on-site, and cleanup actions taken to date;
(i) Description of area affected by the discharge, including name of water body affected, if any; and
(j) Other persons or agencies contacted.

(2) Oral reports, not otherwise required to be provided pursuant to subparagraph b.1 above, shall be provided to the Department's Northeast District within 24 hours from the time the permittee becomes aware of the circumstances.

c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Northeast District shall waive the written report.

[62-620.610(20)]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions VIII. 17, 18 or 19 of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition VIII.20 of this permit. *[62-620.610(21)]*

22. Bypass Provisions.

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.

b. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:
(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been

installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Permit Condition VIII. 22. c. of this permit.

c. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition VIII. 20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition VIII. 22. b.(1) through (3) of this permit.

e. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition VIII. 22. b. through d. of this permit.

[62-620.610(22)]

23. Upset Provisions.

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee.

(1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.

b. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required in Permit Condition VIII.5. of this permit; and

(4) The permittee complied with any remedial measures required under Permit Condition VIII. 5. of this permit.

c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the permittee.

d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENTOF
ENVIRONMENTAL PROTECTION

Thomas G. Kallemeyn
Permitting Program Administrator
DATE: APRIL 27, 2018

Attachment(s):
Discharge Monitoring Report

FACT SHEET
FOR
STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY PERMIT

PERMIT NUMBER:	FL0000281 – 007 (Major)
FACILITY NAME:	PCA – Valdosta Operations
FACILITY LOCATION:	5495 Clyattville-Lake Park Road Valdosta, Georgia 31601 Discharge located in Hamilton County, Florida
NAME OF PERMITTEE:	Packaging Corporation of America
PERMIT WRITER:	Jeff Martin, PE, D. A. Vo, PE

1. SUMMARY OF APPLICATION

a. Chronology of Application

Application Number: FL0000281 – 007 – IW1S

Application Submittal Date: August 15, 2017

RAI: September 14, 2017

RAI responses: December 15, 2017, January 4, and 25, 2018

Effective Date (notify applicant): January 25, 2018
Preliminary permit to applicant: January 25, 2018
Draft permit to applicant and EPA: February 9, 2018
Publish notice of draft: March 1, 2018
No public comments received and no comments received from any agency.

Notice of Intent April 2, 2018
Publication of Intent April 12, 2018
Final Permit Issuance: April 27, 2018

b. Type of Facility

This permit is for the operation renewal for the 14 MGD average (design) flow industrial wastewater treatment system for an unbleached kraft liner board production facility.

SIC Code: 2631 - Paperboard Mills

c. Facility Capacity

	Treatment Capacity (MGD Average Daily flow)	Disposal Capacity (MGD Average Daily flow)
Existing	14.00	14.00
Proposed Increase	0.00	0.00
Proposed Total	14.00	14.00

d. Description of Wastewater Treatment

Treatment consists of a mechanical bar screen at the influent to the wastewater lift station prior to the primary clarifier, a manual bar screen for the auxiliary wastewater lift station bypass line, and a back-up manual bar screen in the channel downstream from the mechanical bar screen. The wastewater lift station pumps wastewater consisting of process and non-process wastewater from the mill manufacturing operations, and storm water, to a primary clarifier and associated sludge ponds for treatment for settleable solids removal.

Secondary treatment is accomplished in a series of seven ponds covering approximately 850 acres with nutrient addition to the individual ponds as needed, and coagulant/precipitant at the discharge from Pond 6 for incremental emergency color reduction. Pond 1 has been taken out of service and is not currently being used for secondary treatment, but may be returned to service after solids removal at a later date. There are three facultative ponds, followed by an aerated stabilization basin, a 350-acre facultative impoundment, and a final polishing pond (Pond 7), prior to a final effluent pumping station and associated conveyance system which discharges final treated effluent from outfall D-001 to the Withlacoochee River, a Class III fresh surface water of the state. The facility is located at latitude 30º 41' 38.16" N, longitude 83º 18' 18.21" W, on 5495 Clyattville -Lake Park Road, Valdosta, Georgia 31601 in Lowndes County, with discharge location in Hamilton County, Florida.

The pump station is designed to convey 55 MGD maximum of effluent to outfall D-001. The pump station includes bar screens, a post aeration chamber, Parshall flume for effluent flow monitoring, and effluent pumps which convey the effluent to a final concrete control splitter structure identified as station 001B and then to outfall D-001. Approximately 13,000 L.F. of 48-inch HDPE transmission pipe conveys the effluent from EFF-1 to station 001B. The effluent gravity flows into the Withlacoochee River through outfall D-001. Under high-river stage the control structure splits the flow to a 5th port in order to prevent overflow of effluent from the control structure and damage from backpressure to the diffuser system and associated effluent conveyance system. A culvert with a minimum 8 square foot opening in the control dam of Jumping Gully Creek is provided to allow normal flow from Jumping Gully Creek to pass unrestricted to the Withlacoochee River. Outfall D-001 discharges into a segment of the Withlacoochee wherein a site-specific alternative water quality criterion (SSAC) for dissolved oxygen (DO) has been established and continued beginning since 1990.

e. Description of Effluent Disposal and Land Application Sites (as reported by applicant)

Monitoring Group D-001:

Class III Fresh Waters, Withlacoochee River, WBID 3315.

Pollutants which are present in significant quantities or which are subject to permit limitations are as follows:

Parameter	Units	Reported Daily Min/Max	Reported 30-day Max	Reported Annual Average
pH	SU	7.1-8.9	7.6-8.3	-
Biochemical Oxygen Demand - 5	MG/L	34	20	6
Solids, Total Suspended	MG/L	82	40	9

For Outfall D-001, the following table includes the list of Impaired Waters and the parameter(s) of concern from the applicable EPA and FDEP 303(d) Lists:

Receiving Waterbody	Outfall (D-001)		Downstream of Outfall	
WBID	WBID 3315		WBID 3315A	
303(d)	EPA 303 (d) List (Version: 11/2010)	DEP 303 (d) List (11/17/2017)	EPA 303 (d) List (Version: 12/2012)	DEP 303 (d) List (11/17/2017)
Listed Impaired Parameters	Mercury, nutrients	Mercury in fish tissue.	n/a	Mercury in fish tissue.

Table 1 – DEP Verified WID List

These water bodies are not impaired and there is mercury TMDL for the State. Based on three facility effluent samples, mercury was not detected (below the MDL using EPA method 1631B).

Water Quality modeling was conducted by Rick Roberts, P.E., the consultant for PCA. He reviewed and considered effluent and stream parameters such as total ammonia nitrogen, conductivity, turbidity, DO, color, transparency, the BOD-DO sag and stream flow conditions. His model runs considered seasonal stream flow conditions (low and high). The report reviewed the mixing zones for DO, specific conductivity, chronic whole effluent toxicity, pH, turbidity, total ammonia nitrogen as N, total recoverable lead, transparency, and oil and grease taking into consideration the limitations and the aerial extent for the size of each mixing zone.

Monitoring results indicate PCA meets the applicable effluent limitations established under this permit.

2. SUMMARY OF SURFACE WATER DISCHARGE

Some changes were made to existing mixing zones. An anti-degradation analysis is provided in section 4 below.

The Department does not anticipate adverse impacts on threatened or endangered species as a result of permit issuance.

The long hydraulic retention time of the treatment system combined with gravity flow design, good pond level management, and effective treatment helps mitigate the impact of any temporary power outages, upsets or unavoidable bypasses. The design of the final aeration chamber and the gravity flow system also minimize the potential for any upset to occur as a result of a power outage at the final discharge structure.

Because of the very large surface area of the effluent system and its gravity flow design, sudden heavy rainfall at the facility or the treatment system can have a major effect on the effluent discharge volume during the period of heavy rain and on the ability of the treatment system to mitigate the impact of that increase in volume. The Pond 6 control valve is automated to help restrict flow from Pond 6 during such events, to minimize the chance of exceeding a permit limit due to sudden excess rainfall during periods of significantly restricted discharge flow.

During extended periods of low river flow, color and BOD lb/cfs become significant limiting factors on the discharge volume and can potentially create an emergency situation. When color is a significant restricting parameter for the discharge, PCA has the ability to add a small amount of precipitant/ coagulant to the effluent leaving Pond 6 to achieve some reduction in color so the effluent will meet color limitations at a slightly higher discharge volume. This ability is a key component of the operating procedures that are typically used for such conditions. There are times however when, as a result of the very low river flow and the corresponding low color, the effluent cannot be sufficiently treated with precipitant/coagulant to lower the effluent color sufficiently to the permit's color limitations and still maintain normal discharge flow. Effluent is retained in the ponds in such situations, in order to ensure compliance with permit limitations. Similarly, BOD lb/day/cfs can be a significant restriction on the discharge at very low flow or low river DO conditions, with the same requirement to retain effluent volume.

When either of these circumstances continue over an extended period, it results in unavoidable, and at times, critically high pond levels and a concomitant threat that those ponds could overtop or be breached if levels become too high. When pond levels are too high, the ability of the system to react to upsets and accommodate heavy rainfall events is compromised. This threat is made worse by the potential for heavy localized rainfall on the treatment system. Heavy rainfall events can result in significant sudden increases in effluent pond levels. The risk is illustrated by an extreme event with just over 9 inches of rain in less than 3 days in late June 2012, most of it within a 24 hour period on June 26, 2012 with a loss of 18 inches freeboard at Pond 6 by June 27, 2012.

The 2013 Permit implemented changes in discharge limits relative to color and BOD to better accommodate the wider range of weather cycles that were experienced over the last two permit terms and that can be expected to recur. The changes helped provide additional discharge flexibility to help keep the pond levels sufficiently low and minimize or eliminate the possibility of uncontrolled discharge of untreated or partially treated wastewater from the ponds, while maintaining the natural seasonal variability of the River. However, as discussed further below, additional discharge flexibility

is needed to address these weather-related conditions. PCA is seeking a slight increase in the technology-based effluent limitation for BOD in order to better address weather extremes that are beyond PCA's control and reflect increased production rates at the mill. This slight increase will minimize impoundment during periods of high river flow when the river's assimilative capacity is greatest and help avoid unnecessarily raising pond levels following high rainfall events, with the same risks due to high pond levels as discussed above. This change will not have an adverse effect on the River, as is also discussed below.

Part of the emergency operation procedures include river flow averaging for determination of the allowable effluent discharge limit (see "River Flow" Form 2 CS Technical Memorandum Attachment) or use of the land application system (see "Normal Operation in Extended Drought Periods" Form 2CS Technical Memorandum Attachment).

Over the course of prior permits, PCA began adding precipitant/coagulant (as described in "Emergency Operations" Form 2CS Technical Memorandum Attachment) under more "routine" operations during drought conditions to more proactively manage pond inventory, since the duration or severity of drought cannot be predicted. The Department concurred that this procedure was appropriate and it will continue to be used as needed on this more routine basis.

As mentioned above, some increased discharge flexibility was included in the last permit cycle, to recognize naturally occurring conditions in the river. Modelling data provided with that application demonstrated that a limit of 14 lb BOD/day/cfs during higher DO river conditions is protective of the river. Similarly, the Withlacoochee River is typically naturally high in color during the winter and early spring (i.e., it is a seasonal black water river), and the biota is accustomed to higher color and lower transparency during this period. Using a seasonally adjusted background value in the color limit calculation maintains the normal seasonal variability of the river while reducing the severe restriction on the discharge due to drought-induced conditions, with the same benefit of reducing the risk for an uncontrolled discharge. However, as discussed below, PCA is seeking a slight increase in the TBEL for BOD to provide additional discharge flexibility during high river flow conditions to better address these weather extremes that are outside of its control and accommodate increased production. These changes will not cause any adverse impacts to the river and will maintain normal seasonal variability in the river.

3. BASIS FOR PERMIT LIMITATIONS AND MONITORING REQUIREMENTS

This facility is authorized to discharge process wastewater from Outfall D-001 to Withlacoochee River based on the following:

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Effluent					
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Ceriodaphnia dubia)*	percent	Min	35	Single Sample	62-302.530(20) & (61) FAC and 62-4.241(2)(b), F.A.C.

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Chronic Whole Effluent Toxicity, 7-Day IC25 (*Pimephales promelas*)	percent	Min	35	Single Sample	62-302.530(20) & (61) FAC and 62-4.241(2)(b), F.A.C.
Flow (effluent)	MGD	Max	Report	Daily Maximum	62-620, FAC
Flow (upstream river)	CFS	Max	Report	Daily Maximum	62-620, FAC
Flow (downstream river)	CFS	Max	Report	Daily Maximum	62-620, FAC
Flow (Receiving Water Concentration)	percentage	Max	20 %	Daily Maximum	62-620, FAC
pH	s.u.	Min	6.0	Daily Minimum	62-302.530, FAC, 40 CFR Part 430.33 Subpart C
		Max	9.0	Daily Maximum	62-302.530, FAC (Mixing Zone)
Oxygen, Dissolved (DO)	mg/L	Min	1.5	Daily Minimum	62-302.530, FAC, 62-4.244 FAC (Mixing Zone). An SSAC has been developed for DO in the Withlacoochee.
Biochemical Oxygen Demand-5	lb/day	Max	5,550	Annual Average	62-302.530, FAC, 40 CFR Part 430.33 Subpart C
		Max	7,792	Monthly Average	
		Max	15,585	Daily Maximum	
Solids, Total Suspended	lb/day	Max	10,760	Monthly Average	40 CFR Part 430.33 Subpart C
		Max	16,140	Daily Maximum	
True Color	PCU	-	-	-	62-302.530, 62-4.244 FAC (Mixing Zone)
Turbidity	NTU	Max	103	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Specific Conductance	umhos/cm	Max	3,900	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	62-302.530, FAC
Nitrogen, Total	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Nitrogen, Total	lb/day	Max	Report	Daily Maximum	62-302.530, FAC
Nitrogen, Kjeldahl, Total (as N)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Nitrogen, Ammonia, Total (as N)	mg/L	Max	1.40	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Phosphorus, Total (as P)	lb/day	Max	Report	Daily Maximum	62-302.530, FAC
Oil and Grease	mg/L	Max	5.9	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Lead, Total Recoverable	ug/L	Max	9.6	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Mercury, Total Recoverable	ug/L	Max	Report	Daily Maximum	62-302.530, FAC
Upstream					
Oxygen, Dissolved (DO)	mg/L	Min	Report	Daily Minimum, Daily Maximum, Monthly Avg.	62-302.530, 62-4.244 FAC (Mixing Zone)
pH	s.u.	Max	Report	Daily Maximum	62-302.530, FAC
		Min	Report	Daily Minimum	62-302.530, FAC
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	62-302.530, FAC
Specific Conductance	umhos/cm	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
True Color	PCU	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Turbidity	NTU	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Nitrogen, Total	mg/L	Max	Report	Daily Maximum Annual Geometric Mean	62-302.530, FAC
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum Annual Geometric Mean	62-302.530, FAC
Oil and Grease	mg/L	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Lead, Total Recoverable	ug/L	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Downstream					
Oxygen, Dissolved (DO)	mg/L	Max	Report	Daily Minimum, Daily Maximum, Monthly Avg.	62-302.530, 62-4.244 FAC (Mixing Zone)
pH	s.u.	Max	Report	Daily Maximum	62-302.530, FAC
		Min	Report	Daily Minimum	62-302.530, FAC
Temperature (ºC), Water	Deg ºC	Max	Report	Daily Maximum	62-302.530, FAC
Specific Conductance	umhos/cm	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
True Color	PCU	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Turbidity	NTU	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Nitrogen, Total	mg/L	Max	Report	Daily Maximum Annual Geometric Mean	62-302.530, FAC
Nitrogen, Ammonia, Total (as N)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC
Phosphorus, Total (as P)	mg/L	Max	Report	Daily Maximum Annual Geometric Mean	62-302.530, FAC
Oil and Grease	mg/L	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Lead, Total Recoverable	mg/L	Max	Report	Daily Maximum	62-302.530, 62-4.244 FAC (Mixing Zone)
Hardness, Total (as CaCO3)	mg/L	Max	Report	Daily Maximum	62-302.530, FAC

Mixing zones have been established as follows:

	Length Downstream from Outfall D-001	
a.	Dissolved oxygen	1,171 ft.
b.	Specific Conductance	853 ft.
c.	Chronic Whole Effluent Toxicity	1,171 ft.
d.	pH	1,171 ft.
e.	Turbidity	828 ft.
f.	Total Ammonia as N	663 ft.
g.	Total Recoverable Lead	972 ft.
h.	Transparency	1,171 ft.
i.	Oil & Grease	396 ft.

This facility has provided reasonable assurance that the discharge will not adversely affect the designated use of the receiving water. Fifth year inspection data, as well as all other available data, have been evaluated in accordance with the Department's reasonable assurance procedures to ensure that no limits other than those included in this permit are needed to maintain Florida water quality standards.

This facility is required to conduct chronic toxicity tests for this discharge based on Rule 62-620.620(3)(a)1, FAC.

Based on this analysis anti-degradation requirements have been fully met by the permittee. The revised effluent limits (for BOD5) does not result in a violation of effluent guidelines or water quality standards outside of the mixing zone.

In relation to BOD5, the increase in BOD5 loading rates under the specific conditions detailed in Part I.A.8 of the permit is allowable due to events beyond the permittee's control. In situations of extended low river flow, the effluent is limited by color and BOD. Also during periods of low river DO, BOD becomes the limiting discharge factor. During such times the effluent must be retained in the pond system to ensure compliance with permit limitations. When either of these circumstances occur, critically high pond levels can result and may lead to overtopping of ponds or a pond breach. Allowing the facility to discharge more effluent during favorable conditions (i.e. when DO levels are high in the river) will allow the facility more control over maintaining proper pond levels. It should be noted that only the daily BOD5 and monthly average limits have been changed. The annual average BOD5 loading rate remains the same.

4. EXPANDED OR REVISED DISCHARGES TO SURFACE WATERS: ANTI-DEGRADATION REQUIREMENTS

Review of DO, BOD and TSS Sampling

All applicants for new or expanded discharges to surface waters are required to comply with the Anti-degradation requirements of Rule 62-302.300, and Rule 62-4.242, F.A.C.

The anti-degradation and back-sliding evaluation considered the increase of the final effluent limits. The anti-degradation analysis provides for holding the flow and annual average mass loading at the current levels.

Back-sliding does not apply since the Permittee has installed and properly operated and maintained required treatment facilities but still has been unable to meet permit limitations. The revised effluent limits (for BOD5) do not result in a violation of effluent guidelines or water quality standards outside of the mixing zone. The receiving water body is not impaired based on DEP lists. It has been determined that "existing uses" of the receiving water body, Class III fresh water, will be maintained with the proposed discharge.

It is evident that the discharge will not "cause or contribute to violations of water quality standards." Receiving waters meet the water quality standards with the discharge as demonstrated above. This analysis indicates that the receiving waters meet standards in the absence of the discharge except that due to the natural stream, a DO SSAC is set at 4.0 mg/L minimum, which is the same criteria since 1990, as in previous NPDES permits.

A review of the submitted model for DO and BOD, uses appropriate ambient temperature data and K constant values. Ambient review temperature data indicates that the 95th percentile temperature is 27 ^{o} C and the predicted DO stream minimum value is greater than the SSAC minimum value of 4.0 mg/L.

Numeric Nutrient Criteria (NNC) Evaluation

The nutrient criteria for the Withlacoochee River has a nitrate-nitrogen level established at 0.35 mg/L. the upstream of the discharge average 0.38 mg/L and the downstream avenges 0.37 mg/L. the TN criteria is 0.30 mg/L for TP and 1.87 mg/L for TN. The annual geometric mean for TP of the river sampling was below 0.15 mg/L over the 2013 -2016 period, and the TN of the river sampling was below 1.50 mg/L over the 2013 -2016 period. For the period of 2014 through 2016 the chlorophyll-a have ranged from 0.96 to 2.35 ug/L which is below the "problem" threshold level of 3.2 ug/L. In consideration of the biological and water quality scores for the receiving waters, the stream in this basin meeting the NNC TN And TP and nitrate criteria.

The permit applicant was informed that the Department may be developing a TMDL for their receiving waters in the near future, and that reductions in their discharge of any pollutants of concern may be required. Current Florida rules also incorporate nutrient numeric criteria (NNC) and a permit reopener clause is included in this permit as a specific condition for all of these considerations.

Biological Assessments: SCI, RPS and LVI Results: A review of the Integrated Water Quality Assessment for Florida: *305(b) Report and 303(d) List Update*, dated November 17, 2017, indicates that there are no listed parameters for this water body for the mixing zone parameters (ID # 3315, Withlacoochee River Basin). EPA decision document dated December 2010, listed mercury and nutrients. The facility meets the mercury WQ standard at the end of pipe and the DEP has submitted to EPA to delist this WBID for nutrients. Historic SCI scores above and below this discharge indicate meeting the current healthy DEP criteria. Permit specific condition number I.A.11 requires continuation of bioassessments (SCI sampling or other appropriate sampling) every two years.

Year	Reference Site Score (upstream)	Test Site Score (downstream)
2015	80 Exceptional	74 Exceptional
2013	52 Healthy	43 Healthy
2011	43 Healthy	35 Healthy
2009	48 Healthy	51 Healthy

Table 2 - SCI scores at this basin

After a review of the SCI scores and results, two conclusions may be drawn from this data:

1) the discharge does not adversely impact the SCI scores/ Water Quality (comparing upstream to downstream) and
2) the SCI scores indicate good water quality overall at 35 or higher.

Biological assessment of flora in the Withlacoochee River near the PCA discharge was also conducted during the current permit term. Two temporally-independent Rapid Periphyton Surveys (RPS) and Linear Vegetative Surreys (LVS) assessments were conducted, one in 2015 and one in 2016. Both sets of assessments indicate no imbalance of flora either upstream or downstream of the PCA discharge.

The facility will conduct SCIs in the next renewal period for 2019 and 2021.

Total recoverable mercury: The facility conducted sampling, collecting 8 samples from 2012 through 2016 and all sample results using Method 1631E were below the water quality level of 0.012 ug/L. Annual sampling will be conducted by the facility in the permit renewal and if future sampling results are above 0.012 ug/L, the PCA will contact the DEP and prepare and implement a mercury minimization plan.

Bacteriological Sampling**: T**he facility sends all domestic wastewater to the local POTW and the IW waste stream is not a likely source of e. coli and other fecal coliform bacteria and not reasonably likely to be present in the effluent and is not monitored.

Whole Effluent Toxicity Test Results

Current permit requires annual freshwater chronic definitive tests with dilutions of 100%, 70%, 35%, 20%, and 10% final effluent with grab samples. If IC25 is less than 35% effluent, then 2 additional definitive tests are required. Satisfactory test results have occurred.

Date Tests Performed	Date Report Received, Lab	**Test Results**	**PCA -- FL0000281 Comments**
8.06.13 annual	9.09.13 Marinco	CD pass IC25 > 100% and LC50 > 100%. FM pass IC25 > 100% and LC50 > 100%.	CD 6-day test. Cond ~ 2300. QA 3/13/14 jo
7.29.14 annual	8.27.14 Marinco	CD pass IC25 > 100% and LC50 > 100%. FM pass IC25 > 100% and LC50 > 100%.	All CD repro > controls. 6-day test. Cond ~ 2600.
7.28.15 annual	8.19.15 Marinco	CD pass IC25 > 100% and LC50 > 100%. FM pass IC25 > 100% and LC50 > 100%.	CD 6-day test. Cond ~ 2500.
8.23.16 annual	9.21.16 Marinco	CD pass IC25 > 100% and LC50 > 100%. FM pass IC25 > 100% and LC50 > 100%.	CD 6-day test. FM all growth > controls. Cond ~ 2900.
4.11.17 annual	4.27.17 Marinco	CD pass IC25 > 86.3% and LC50 > 100%. FM pass IC25 > 100% and LC50 > 100%.	CD 6-day test. FM all growth > controls. Cond ~ 2900.

Table 3 WET Test Results

Moderating Provisions. Moderating provisions (provided in Subsection 62-302.300[10] and Rules 62-4 and 62-6, F.A.C., and described in Sections 62-302.300, 62-4.244, 62-302.800, 62-4.243, F.A.C., and Sections 403.201 and 373.414, F.S.) include mixing zones, zones of discharge, site-specific alternative criteria, exemptions, and variances. These provisions are intended to moderate the applicability of water quality standards where it has been determined that, under certain special circumstances, the social, economic, and environmental costs of such applicability outweigh the benefits.

It has been determined that the expected degradation is "necessary or desirable under federal standards and under circumstances which are clearly in the public interest." This determination requires consideration of a balancing test and an options review.

Balancing test: It has been determined that the degradation is important to and beneficial to public health, safety, and welfare, and this benefit outweighs adverse impacts on fish and wildlife or recreation. There was a small decrease in the length of the lead mixing zone based on more recent river hardness data, however the permit end of pipe limitation did not change. The turbidity mixing zone length was increased to better reflect naturally occurring conditions in the receiving water. It should be noted that the mixing zone size for toxicity has remained the same and ammonia has remained the same.

1) As a major employer for the region, the discharge is clearly in the public interest. The discharge is permittable.
2) The degradation is in the public interest, so the analysis proceeds to the options review.

Options review: It has been determined that reuse or other options are not available that could minimize or eliminate the need to lower water quality.

1) Since reuse or other options are not available, the applicant demonstrated that they are not economically and technologically reasonable.
2) No other options are reasonable, and therefore anti-degradation requirements have been met.

3) Reuse is determined not to be reasonable, the request to increase the concentration of the effluent discharged within the existing mixing zone to the surface water would be permittable.

Discharge Criteria Due to Extreme Weather Conditions

As reported to DEP by PCA, On June 14, 2017, there was unexpected, heavy local rain at the PCA site. There was a 7" to 9" rainfall in a 24-hour period, the heaviest being the early hours of 6/7/17. With continued rainfall, PCA was concerned for pond dam integrity.

PCA was able to contain upper ponds as much as currently feasible to reduce downstream pond levels and allow some flexibility in volume retention. However, PCA reached only 26" from overflow at Pond 6. For every 1" of rain at Pond 6, that can be an instantaneous impact of 2-3" of level, and that would not include the later impact of upstream ponds flow into Pond 6. This is a significant land mass for inflow to the WWTS during precipitation events, even with PCA operating the backup Land Application System to relieve some of the pond volume.

PCA also was able to reduce or reuse water in the mill to the best of their capabilities. This includes some temporary reduction and reuse measures that are not long term sustainable.

PCA proposed a temporary discharge scenario to lower our Pond 6 level to 85", ultimately as a preemptive means to manage potential rainfall in the forecast. One inch of Pond 6 level is approximately 10 million gallons of volume.

Level and flow are monitored with a staff gage, electronic level transmitter, and electronic flow meter. Staff gage is checked manually once daily and electronic meter data are fed continuously to data archiving system. The emergency spillway from Pond 6 to Pond 7 is at level 132 inches elevation, leaving 47" of freeboard until bypass into Pond 7. This may seem like a generous amount of freeboard; however, 85" represents a level well above typical operating levels but still allows an adequate safety factor for dam integrity. Further, Pond 7 has a significantly smaller volume relative to Pond 6 and all major retention is done in Pond 6. As discussed in June 2017 when this criteria was utilized, 1" of rain has an instantaneous impact of 2-3" of level in the pond directly, in addition to substantial land runoff from the surrounding drainage basin and upper ponds flowing downstream through the treatment system. The proposed 85" level would provide retention of significant rainfall without compromising dam safety.

Calculation Estimates: Note**: bold** values vary daily

Conservatively Assume:
River flow = 230 cfs = **149** MGD
Downstream D.O. = **4.7** mg/L
River water quality std = downstream limit 4.0 mg/L (Part I.A.10 in our NPDES permit)
Mill effluent BOD = estimate at approx. **13** mg/L
1 lb BOD consumes 1 lb D.O.
Mill effluent D.O. = **8** mg/L
Mill water use = 11 MGD

Conceptual Temporary Technical Approach:
'Surplus' downstream river D.O. = **4.7** – 4.0 = 0.7 mg/L x 8.34 x **149** MGD = **870** lb Oxygen surplus
Mill BOD discharge at 11 MGD = **13** mg/L BOD x 8.34 x 11 MGD = **1,200** lb/d BOD
Allowable mill discharge that consumes 'surplus' D.O. = 870/1200 x 11 MGD = 8 MGD discharge (does not account for effluent D.O., therefore conservative assumption)

PCA Proposal
Allow mill, on a daily basis, to use the above calculation (with real-time values available) to determine allowable additional discharge not to exceed a downstream river D.O less than 4.0 mg/L, until we have better inventory conditions.

DEP Review
DEP reviewed this proposal by using the Streeter-Phelps model and the model results indicate that the DO sag downstream under these conservative assumptions would meet the permit limit of 4.0 mg/L (see attachment A).

Permit Specific Condition
If conventional effluent discharge restrictions and other factors (e.g., weather) result in the Permittee's holding pond #6 level to exceed 85 inches of impounded effluent, the Permittee will be allowed to utilize a temporary alternative discharge strategy until the holding pond level is below 85 inches of level (the emergency spillway from Pond 6 to Pond 7 is at level 132 inches elevation). This temporary allowance provides for a discharge rate of treated effluent that does not compromise downstream dissolved oxygen minimum standards and also protects the integrity of the Permittee's wastewater treatment pond dam. Further, the algorithm used to calculate the temporary alternative discharge allowance incorporates conservative assumptions regarding receiving stream flow, in-stream dissolved oxygen, and the treated effluent BOD concentration. The Permittee will be allowed to utilize this temporary alternative discharge strategy by observing the following requirements:

1. The Permittee must notify the Department (i.e., e-mail or written correspondence) one (1) business day in advance of its intent to utilize the temporary alternative discharge allowance.
2. The Permittee must notify the Department (i.e., e-mail or written correspondence) one (1) business day after ceasing to utilize the temporary alternative discharge allowance.
3. While utilizing this temporary alternative discharge allowance, the Permittee must provide the Department with daily updates with respect to the actual volume of effluent discharged to the receiving stream and the calculations used to determine the allowable discharge volume.
4. The Permittee must use the following algorithm to determine the allowable volume of treated effluent that can be discharged to the receiving stream:
    a. Available Receiving Stream D.O., lb_oxygen = Upstream river flow, MGD * (Upstream D.O. mg/L – 4.0 mg/L limit) * 8.34
    b. Allowable Mill Effluent Discharge, MGD = Available Receiving Stream D.O., lb_oxygen / (8.34 x 9 mg/L BOD**)

5. The Permittee must adhere to all other effluent limitations and monitoring requirements.

**Conservative assumption based on 5-year daily actual maximum discharge

5. DISCUSSION OF CHANGES TO PERMIT LIMITATIONS

a. The daily maximum technology based limitation for BOD is increasing from 14,168 lbs/day to 15,585 lbs/day and the monthly average BOD limit is increasing from 7,084 lbs/day to 7,792 lbs/day. The annual average loading for BOD will not change. This increase in the daily maximum and monthly average will minimize or eliminate the possibility of future bypasses, emergency operations, or critically high ponds levels.

b. The effluent limit for total recoverable lead will be maintained at 9.6 ug/L, however due to hardness data collected during the last permit cycle and the proposed mixing zone length required is changed from 989 feet to 972 feet.

c. Due to water conservation efforts in the mill process and low rainfall during the last few years, several times the facility's discharge has been unable to meet the specific conductance permit limitation. The specific conductance limitation remains at 3900 umhos/cm with the mixing zone length reduced from 959 feet to 853 feet.

d. Three excursions over the current turbidity limitation were noted last year during a drought period. The turbidity limitation remains at 103 NTU with a corresponding mixing zone length of 828 feet.

e. The chronic toxicity discharge limit will be maintain the NOEC with IC25 endpoint in the chronic toxicity bioassays with 35% effluent is based on 62-4.244(1)(f), FAC, which directs the mixing zone to be no larger than necessary. The chronic toxicity limit for the mixing zone size has been revised based on toxicity results over the last permit cycle.

f. The total ammonia nitrogen limitation will be 1.40 mg/L, with a mixing zone length of 663 feet after a review of the change in WQ standard from unionized ammonia to TAN.

g. The facility conducted sampling for total recoverable mercury and annual sampling will be required.

6. TECHNOLOGY BASED EFFLUENT LIMITATIONS

This facility is subject to technology based effluent limitations in accordance with 40 CFR Part 430 Subpart C for BOD_5 and TSS. The limitations are calculated based on the air-dry pounds of product produced daily.

As the result of solids accumulation that has occurred gradually over the many years of operation, the first facultative stabilization pond (Pond 1) was taken out of service in 2013 to allow more effective management of these accumulated solids, and remains in this operational mode currently. The pond is used for managing events, such as high BOD or conductivity loading to the treatment system; during which wastewater may be recirculated from Pond 3 discharge back through Pond 1 using temporary equipment. The intention is that Pond 1 will remain out of service for an extended time for solids management, and the pond may or may not be returned to service. The final Pond 1 use decision will be made when further evaluation of the residual solids' volume, dewatering capability, and disposal requirements is completed, and the Department will be advised.

Based on the submitted data, it was reported that the maximum annual average production rate expressed as off-machine production (i.e., 12 consecutive months), expressed as off-machine production at 10% moisture (air-dry paper tons), was achieved during the period from January 2015 through December 2015 with an average of 1690 air-dry paper tons (ADPT) per day.

The calculated technology-based effluent guideline limits are shown below for BOD_5 (5-day) and TSS:

BPT Calculation of BOD (5-day) and TSS Effluent Guideline Limit (40 CFR Part 430 Subpart C – BPT unbleached kraft)					
Parameter	Average Production (1000 lb/day)	Guideline Factor		Limits (lb/day)	
		Average	Maximum	Average	Maximum
BOD_5 (5-day)	3380 (average for the year 2016)	2.8	5.6	9464	18928
TSS	3380 (average for the year 2016)	6.0	12.0	20280	40560

The limitations in the permit are more stringent than the technology-based effluent guidelines above. The permit limitations will be maintained with the adjustments as outlined in the discussion section above.

Under 40 CFR Subpart C (Unbleached Kraft Subcategory), the Permittee is not using chlorophenolic-containing biocides and they certify to the DEP that they are not using these biocides. Therefore, PCA is not subject to limits for Pentachlorophenol and for Trichlorophenol.

7. GROUND WATER MONITORING REQUIREMENTS

This section is not applicable to this facility.

8. PERMIT SCHEDULES

A schedule is not included in the wastewater permit.

9. BEST MANAGEMENT PRACTICES/STORMWATER POLLUTION PREVENTION PLANS

As stated in Section VII of the permit, a Best Management Practices (BMP) Plan is required for the facility, pursuant to Rule 62-620.100(m), F.A.C., and 40 CFR Part 122.44(k). The plan provides a facility-specific approach for the minimizing of pollutant discharge from ancillary activities.

10. ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

This permit is not accompanied by an AO and has not entered into a CO with the Department.

11. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

No variances were requested for this facility.

12. THE ADMINISTRATIVE RECORD

The administrative record including application, draft permit, fact sheet, public notice (after release), comments received and additional information is available for public inspection during normal business hours at the location specified in item 14. Copies will be provided at a minimal charge per page.

13. PROPOSED SCHEDULE FOR PERMIT ISSUANCE

Draft Permit and Public Notice to Applicant and EPA	February 9, 2018
Public Comment Period	Beginning: March 1, 2018 Ending: March 30, 2018
Notice of Intent to Issue	April 2, 2018
Notice of Permit Issuance	April 27, 2018

14. DEP CONTACT

Additional information concerning the permit and proposed schedule for permit issuance may be obtained during normal business hours from:

Jeff Martin, P.E.
FDEP Northeast District office
8800 Baymeadows Way West, Suite 100
Jacksonville, Florida 32256
Telephone: (904) 256-1700

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Packaging Corporation of America
MAILING ADDRESS: Post Office Box 1048
Valdosta, Georgia 31603-1048

PERMIT NUMBER: FL0000281

LIMIT: Final
CLASS SIZE: MA
REPORT FREQUENCY: Monthly
PROGRAM: Industrial

FACILITY: Packaging Corporation of America - Valdosta Operations
LOCATION: 5495 Clyattville-Lake Park Road
Valdosta, Georgia 31601

MONITORING GROUP NUMBER: D-001
MONITORING GROUP DESCRIPTION: Discharge to Withlacoochee River
RE-SUBMITTED DMR: ☐
NO DISCHARGE FROM SITE: ☐

COUNTY: Hamilton
OFFICE: Northeast District

MONITORING PERIOD: **From:** _____ **To:** _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow (Effluent)	Sample Measurement										
PARM Code 50050 1 Mon. Site No. EFF-1	Permit Requirement	Report (Monthly Avg.)	Report (Day.Max.)	MGD						Continuous	Flow Totalizer
Flow (Upstream River)	Sample Measurement										
PARM Code 50050 Q Mon. Site No. CAL-1	Permit Requirement		Report (Day.Max.)	CFS						Daily; 24 hours	Calculated
Flow (Downstream River)	Sample Measurement										
PARM Code 50050 R Mon. Site No. CAL-1	Permit Requirement		Report (Day.Max.)	CFS						Daily; 24 hours	Calculated
Discharge Flow as percent of stream flow	Sample Measurement										
PARM Code 01352 P Mon. Site No. CAL-1	Permit Requirement						20 % (Day.Max.)	percent		Daily; 24 hours	Calculated
pH	Sample Measurement										
PARM Code 00400 1 Mon. Site No. EFF-1	Permit Requirement				6.0 (Day.Min.)		9.0 (Day.Max.)	s.u.		Daily; 24 hours	In-situ
Oxygen, Dissolved (DO)	Sample Measurement										
PARM Code 00300 1 Mon. Site No. EFF-1	Permit Requirement				1.5 (Day.Min.)			mg/L		Daily; 24 hours	In-situ

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE

COMMENTS --- or EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Packaging Corporation of America - Valdosta Operations MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0000281
MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Biochemical Oxygen Demand-5	Sample Measurement										
PARM Code 00310 Y Mon. Site No. EFF-1	Permit Requirement		5550 (An.Avg.)	lb/day						Daily; 24 hours	24-hr TPC
Biochemical Oxygen Demand-5	Sample Measurement										
PARM Code 00310 1 Mon. Site No. EFF-1	Permit Requirement	7792 (Mo.Avg.)	15585 (Day.Max.)	lb/day						Daily; 24 hours	24-hr TPC
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 1 Mon. Site No. EFF-1	Permit Requirement	10760 (Mo.Avg.)	16140 (Day.Max.)	lb/day						Weekly	24-hr TPC
True Color	Sample Measurement										
PARM Code 00080 1 Mon. Site No. CAL-1	Permit Requirement						Report (Day.Max.)	PCU		Daily; 24 hours	Calculated
Turbidity	Sample Measurement										
PARM Code 00070 1 Mon. Site No. EFF-1	Permit Requirement						103 (Day.Max.)	NTU		Weekly	Grab
Specific Conductance	Sample Measurement										
PARM Code 00095 1 Mon. Site No. EFF-1	Permit Requirement						3900 (Day.Max.)	umhos/cm		Weekly	Grab
Temperature (ºC), Water	Sample Measurement										
PARM Code 00010 1 Mon. Site No. EFF-1	Permit Requirement						Report (Day.Max.)	Deg ºC		Weekly	In-situ
Nitrogen, Ammonia, Total (as N)	Sample Measurement										
PARM Code 00610 1 Mon. Site No. EFF-1	Permit Requirement						1.40 (Day.Max.)	mg/L		Monthly	Grab
Oxygen, Dissolved (DO)	Sample Measurement										
PARM Code 00300 Q Mon. Site No. SWU-1	Permit Requirement				Report (Day.Min.)	Report (Mon. Avg)	Report (Day. Max)	mg/L		Daily; 24 hours	In-situ
pH	Sample Measurement										
PARM Code 00400 Q Mon. Site No. SWU-1	Permit Requirement				Report (Day.Min.)		Report (Day.Max.)	s.u.		Weekly	In-situ
Temperature (ºC), Water	Sample Measurement										
PARM Code 00010 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	Deg ºC		Weekly	In-situ

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Packaging Corporation of America - Valdosta Operations MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0000281
MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Specific Conductance	Sample Measurement										
PARM Code 00095 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	umhos/cm		Weekly	Grab
True Color	Sample Measurement										
PARM Code 00080 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	PCU		Daily; 24 hours	Grab
Turbidity	Sample Measurement										
PARM Code 00070 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	NTU		Weekly	Grab
Oxygen, Dissolved (DO)	Sample Measurement										
PARM Code 00300 R Mon. Site No. SWD-1	Permit Requirement				Report (Day.Min.)	Report (Mon. Avg)	Report (Day.Max.)	mg/L		Daily; 24 hours	In-situ
pH	Sample Measurement										
PARM Code 00400 R Mon. Site No. SWD-1	Permit Requirement				Report (Day.Min.)		Report (Day.Max.)	s.u.		Weekly	In-situ
Temperature (ºC), Water	Sample Measurement										
PARM Code 00010 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	Deg ºC		Weekly	In-situ
Specific Conductance	Sample Measurement										
PARM Code 00095 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	umhos/cm		Weekly	Grab
True Color	Sample Measurement										
PARM Code 00080 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	PCU		Weekly	Grab
Turbidity	Sample Measurement										
PARM Code 00070 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	NTU		Weekly	Grab

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME:	Packaging Corporation of America	PERMIT NUMBER:	FL0000281		
MAILING ADDRESS:	Post Office Box 1048				
	Valdosta, Georgia 31603-1048	LIMIT:	Final	REPORT FREQUENCY:	**Quarterly**
		CLASS SIZE:	MA	PROGRAM:	Industrial
FACILITY:	Packaging Corporation of America - Valdosta Operations	MONITORING GROUP NUMBER:	D-001		
LOCATION:	5495 Clyattville-Lake Park Road	MONITORING GROUP DESCRIPTION:	Discharge to Withlacoochee River		
	Valdosta, Georgia 31601	RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Hamilton				
OFFICE:	Northeast District	**MONITORING PERIOD:**	**From:** _____ **To:** _____		

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Nitrogen, Total	Sample Measurement										
PARM Code 00600 1 Mon. Site No. EFF-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 Q Mon. Site No. CAL-1	Permit Requirement		Report (Day.Max.)	lb/day						Quarterly	Calculated
Nitrogen, Kjeldahl, Total (as N)	Sample Measurement										
PARM Code 00625 1 Mon. Site No. EFF-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 1 Mon. Site No. EFF-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE

COMMENTS --- or EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Packaging Corporation of America - Valdosta Operations MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0000281
MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 Q Mon. Site No. CAL-1	Permit Requirement		Report (Day.Max.)	lb/day						Quarterly	Calculated
Oil and Grease	Sample Measurement										
PARM Code 00556 1 Mon. Site No. EFF-1	Permit Requirement						5.9 (Day.Max.)	mg/L		Quarterly	Grab
Lead, Total Recoverable	Sample Measurement										
PARM Code 01114 1 Mon. Site No. EFF-1	Permit Requirement						9.6 (Day.Max.)	ug/L		Quarterly	Grab
Hardness, Total (as CaCO3)	Sample Measurement										
PARM Code 00900 1 Mon. Site No. EFF-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 R Mon. Site No. SWU-1	Permit Requirement					Report (Annual Geometric Mean)	Report (Day.Max.)	mg/L		Quarterly	Grab
Nitrogen, Ammonia, Total (as N)	Sample Measurement										
PARM Code 00610 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 R Mon. Site No. SWU-1	Permit Requirement					Report (Annual Geometric Mean)	Report (Day.Max.)	mg/L		Quarterly	Grab
Oil and Grease	Sample Measurement										
PARM Code 00556 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Lead, Total Recoverable	Sample Measurement										
PARM Code 01114 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	ug/L		Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Packaging Corporation of America - Valdosta Operations MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0000281
MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Hardness, Total (as CaCO3)	Sample Measurement										
PARM Code 00900 Q Mon. Site No. SWU-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 S Mon. Site No. SWD-1	Permit Requirement					Report (Annual Geometric Mean)	Report (Day.Max.)	mg/L		Quarterly	Grab
Nitrogen, Ammonia, Total (as N)	Sample Measurement										
PARM Code 00610 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 S Mon. Site No. SWD-1	Permit Requirement					Report (Annual Geometric Mean)	Report (Day.Max.)	mg/L		Quarterly	Grab
Oil and Grease	Sample Measurement										
PARM Code 00556 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Lead, Total Recoverable	Sample Measurement										
PARM Code 01114 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab
Hardness, Total (as CaCO3)	Sample Measurement										
PARM Code 00900 R Mon. Site No. SWD-1	Permit Requirement						Report (Day.Max.)	mg/L		Quarterly	Grab

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME:	Packaging Corporation of America	PERMIT NUMBER:	FL0000281		
MAILING ADDRESS:	Post Office Box 1048 Valdosta, Georgia 31603-1048	LIMIT:	Final	REPORT FREQUENCY:	Send Toxicity **Monthly**
		CLASS SIZE:	MA	PROGRAM:	Industrial
FACILITY:	Packaging Corporation of America - Valdosta Operations	MONITORING GROUP NUMBER:	D-001		
LOCATION:	5495 Clyattville-Lake Park Road Valdosta, Georgia 31601	MONITORING GROUP DESCRIPTION:	Discharge to Withlacoochee River		
		RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Hamilton				
OFFICE:	Northeast District	**MONITORING PERIOD:**	**From:** _____	**To:** _____	

Parameter		Quantity or Loading		Units	Quality or Concentration Results *			Units	No. Ex.	Frequency of Analysis	Sample Type
7-DAY CHRONIC STATRE *Ceriodaphnia dubia* (Routine)	Sample Measurement										
PARM Code TRP3B P Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		Annually	Grab
7-DAY CHRONIC STATRE *Ceriodaphnia dubia* (Additional)	Sample Measurement										
PARM Code TRP3B Q Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		As needed	Grab
7-DAY CHRONIC STATRE *Ceriodaphnia dubia* (Additional)	Sample Measurement										
PARM Code TRP3B R Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		As needed	Grab
7-DAY CHRONIC STATRE *Pimephales promelas* (Routine)	Sample Measurement										
PARM Code TRP6C P Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		Annually	Grab
7-DAY CHRONIC STATRE *Pimephales promelas* (Additional)	Sample Measurement										
PARM Code TRP6C Q Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		As needed	Grab
7-DAY CHRONIC STATRE *Pimephales promelas* (Additional)	Sample Measurement										
PARM Code TRP6C R Mon. Site No. EFF-1	Permit Requirement				35 (Min.)			percent		As needed	Grab

*ENTER **"MNR"** IN THE RESULTS COLUMN FOR EACH TEST THAT WAS NOT DONE THIS MONTH.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE

COMMENTS --- or EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME:	Packaging Corporation of America	PERMIT NUMBER:	FL0000281		
MAILING ADDRESS:	Post Office Box 1048				
	Valdosta, Georgia 31603-1048	LIMIT:	Final	REPORT FREQUENCY:	**Annual**
		CLASS SIZE:	MA	PROGRAM:	Industrial
FACILITY:	Packaging Corporation of America - Valdosta Operations	MONITORING GROUP NUMBER:	D-001		
LOCATION:	5495 Clyattville-Lake Park Road	MONITORING GROUP DESCRIPTION:	Discharge to Withlacoochee River		
	Valdosta, Georgia 31601	RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Hamilton				
OFFICE:	Northeast District	**MONITORING PERIOD:**	**From: _____**	**To: _____**	

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Mercury, Total Recoverable	Sample Measurement										
PARM Code 71901 1 Mon. Site No. EFF-1	Permit Requirement						Report (Max.)	ug/L		Annually	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

PRINT NAME & TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE

COMMENTS -- or EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

INSTRUCTIONS FOR COMPLETING THE WASTEWATER DISCHARGE MONITORING REPORT

Read these instructions before completing the DMR. Hard copies and/or electronic copies of the required parts of the DMR were provided with the permit. All required information shall be completed in full and typed or printed in ink. A signed, original DMR shall be mailed to the address printed on the DMR by the 28th of the month following the monitoring period. The DMR shall not be submitted before the end of the monitoring period.

The DMR consists of three parts--A, B, and D--all of which may or may not be applicable to every facility. Facilities may have one or more Part A's for reporting effluent or reclaimed water data. All domestic wastewater facilities will have a Part B for reporting daily sample results. Part D is used for reporting ground water monitoring well data.

When results are not available, the following codes should be used on parts A and D of the DMR and an explanation provided where appropriate. Note: Codes used on Part B for raw data are different.

CODE	DESCRIPTION/INSTRUCTIONS
ANC	Analysis not conducted.
DRY	Dry Well
FLD	Flood disaster.
IFS	Insufficient flow for sampling.
LS	Lost sample.
MNR	Monitoring not required this period.

CODE	DESCRIPTION/INSTRUCTIONS
NOD	No discharge from/to site.
OPS	Operations were shutdown so no sample could be taken.
OTH	Other. Please enter an explanation of why monitoring data were not available.
SEF	Sampling equipment failure.

When reporting analytical results that fall below a laboratory's reported method detection limits or practical quantification limits, the following instructions should be used:

1. Results greater than or equal to the PQL shall be reported as the measured quantity.
2. Results less than the PQL and greater than or equal to the MDL shall be reported as the laboratory's MDL value. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.
3. Results less than the MDL shall be reported by entering a less than sign ("<") followed by the laboratory's MDL value, e.g. < 0.001. A value of one-half the MDL or one-half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limitation.

PART A -DISCHARGE MONITORING REPORT (DMR)

Part A of the DMR is comprised of one or more sections, each having its own header information. Facility information is preprinted in the header as well as the monitoring group number, whether the limits and monitoring requirements are interim or final, and the required submittal frequency (e.g. monthly, annually, quarterly, etc.). Submit Part A based on the required reporting frequency in the header and the instructions shown in the permit. The following should be completed by the permittee or authorized representative:

Resubmitted DMR: Check this box if this DMR is being re-submitted because there was information missing from or information that needed correction on a previously submitted DMR. The information that is being revised should be clearly noted on the re-submitted DMR (e.g. highlight, circle, etc.)
No Discharge From Site: Check this box if no discharge occurs and, as a result, there are no data or codes to be entered for all of the parameters on the DMR for the entire monitoring group number; however, if the monitoring group includes other monitoring locations (e.g., influent sampling), the "NOD" code should be used to individually denote those parameters for which there was no discharge.
Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Sample Measurement: Before filling in sample measurements in the table, check to see that the data collected correspond to the limit indicated on the DMR (i.e. interim or final) and that the data correspond to the monitoring group number in the header. Enter the data or calculated results for each parameter on this row in the non-shaded area above the limit. Be sure the result being entered corresponds to the appropriate statistical base code (e.g. annual average, monthly average, single sample maximum, etc.) and units.
No. Ex.: Enter the number of sample measurements during the monitoring period that exceeded the permit limit for each parameter in the non-shaded area. If none, enter zero.
Frequency of Analysis: The shaded areas in this column contain the minimum number of times the measurement is required to be made according to the permit. Enter the actual number of times the measurement was made in the space above the shaded area.
Sample Type: The shaded areas in this column contain the type of sample (e.g. grab, composite, continuous) required by the permit. Enter the actual sample type that was taken in the space above the shaded area.
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comment and Explanation of Any Violations: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation. If more space is needed, reference all attachments in this area.

PART B - DAILY SAMPLE RESULTS

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Daily Monitoring Results: Transfer all analytical data from your facility's laboratory or a contract laboratory's data sheets for all day(s) that samples were collected. Record the data in the units indicated. Table 1 in Chapter 62-160, F.A.C., contains a complete list of all the data qualifier codes that your laboratory may use when reporting analytical results. However, when transferring numerical results onto Part B of the DMR, only the following data qualifier codes should be used and an explanation provided where appropriate.

CODE	DESCRIPTION/INSTRUCTIONS
<	The compound was analyzed for but not detected.
A	Value reported is the mean (average) of two or more determinations.
J	Estimated value, value not accurate.
Q	Sample held beyond the actual holding time.
Y	Laboratory analysis was from an unpreserved or improperly preserved sample.

To calculate the monthly average, add each reported value to get a total. For flow, divide this total by the number of days in the month. For all other parameters, divide the total by the number of observations.
Plant Staffing: List the name, certificate number, and class of all state certified operators operating the facility during the monitoring period. Use additional sheets as necessary.

PART D - GROUND WATER MONITORING REPORT

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Date Sample Obtained: Enter the date the sample was taken. Also, check whether or not the well was purged before sampling.
Time Sample Obtained: Enter the time the sample was taken.
Sample Measurement: Record the results of the analysis. If the result was below the minimum detection limit, indicate that.
Detection Limits: Record the detection limits of the analytical methods used.
Analysis Method: Indicate the analytical method used. Record the method number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Sampling Equipment Used: Indicate the procedure used to collect the sample (e.g. airlift, bucket/bailer, centrifugal pump, etc.)
Samples Filtered: Indicate whether the sample obtained was filtered by laboratory (L), filtered in field (F), or unfiltered (N).
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comments and Explanation: Use this space to make any comments on or explanations of results that are unexpected. If more space is needed, reference all attachments in this area.

SPECIAL INSTRUCTIONS FOR LIMITED WET WEATHER DISCHARGES

Flow (Limited Wet Weather Discharge): Enter the measured average flow rate during the period of discharge or divide gallons discharged by duration of discharge (converted into days). Record in million gallons per day (MGD).
Flow (Upstream): Enter the average flow rate in the receiving stream upstream from the point of discharge for the period of discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Actual Stream Dilution Ratio: To calculate the Actual Stream Dilution Ratio, divide the average upstream flow rate by the average discharge flow rate. Enter the Actual Stream Dilution Ratio accurate to the nearest 0.1.
No. of Days the SDF > Stream Dilution Ratio: For each day of discharge, compare the minimum Stream Dilution Factor (SDF) from the permit to the calculated Stream Dilution Ratio. On Part B of the DMR, enter an asterisk (*) if the SDF is greater than the Stream Dilution Ratio on any day of discharge. On Part A of the DMR, add up the days with an "*" and record the total number of days the Stream Dilution Factor was greater than the Stream Dilution Ratio.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in duration of discharge.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in duration of discharge.
Actual Rainfall: Enter the actual rainfall for each day on Part B. Enter the actual cumulative rainfall to date for this calendar year and the actual total monthly rainfall on Part A. The cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this DMR contains data.
Rainfall During Average Rainfall Year: On Part A, enter the total monthly rainfall during the average rainfall year and the cumulative rainfall for the average rainfall year. The cumulative rainfall for the average rainfall year is the amount of rain, in inches, which fell during the average rainfall year from January through the month for which this DMR contains data.
No. of Days LWWD Activated During Calendar Year: Enter the cumulative number of days that the limited wet weather discharge was activated since January 1 of the current year.
Reason for Discharge: Attach to the DMR a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Summary Page

Name of Facility King America Finishing, Inc.

NPDES Permit No. GA0003280

This permit is a reissuance of an extended NPDES permit for King America Finishing, Inc. The facility is a textile mill that performs preparation (includes scouring, de-sizing, bleaching, mercerization, etc.), dyeing, finishing, and flame-retardant treatment of woven cotton and synthetic/cotton blended fabrics. A maximum of 2.770 MGD of process water, cooling water, and stormwater is discharged to the Ogeechee River in the Ogeechee River Basin. The permit expired on November 30, 2018 and became administratively extended.

The permit was placed on public notice from September 30, 2020 to November 20, 2020.

Please Note The Following Changes to the Proposed NPDES Permit From The Existing Permit

Parts I.A.1, I.A.2, and I.A.3 – Effluent Limitations and Monitoring Requirements

- Added three tiers of effluent limitations to ensure that the technology based effluent limits accurately reflect production levels without restricting facility operations.
- Modified the production-based effluent limitations for BOD_5, sulfide, total phenols, and total chromium based on updated production information.
- Modified the COD effluent limitations (*Tier 1*) from 5,500 lbs/day daily average and 11,000 lbs/day daily maximum to 5,328 lbs/day daily average and 10,656 lbs/day daily maximum based on the production-based effluent limitation guidelines.
- Reduced the monitoring frequency for TSS from 5/week to 1/week based on performance.
- Reduced the monitoring frequency for sulfide from 7/week to 3/week based on performance.
- Replaced the previously misapplied concentration-based effluent limits of 30 mg/L daily average and 45 mg/L daily maximum for TSS with report only requirements.
- Reduced the monitoring frequency for total phenols from 1/week to once every two months based on performance.
- Reduced the monitoring frequency for total chromium from 1/week to once every two months based on performance.

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- Replaced the concentration-based effluent limits of 1.2 mg/L daily average and 2.0 mg/L daily maximum for total chromium with report only requirements due to the lack of any reasonable potential for the discharge to cause or contribute to a violation of Georgia's Water Quality Standards for chromium.

- Removed instream monitoring for total hardness as sufficient data was collected to characterize the receiving stream so that site-specific data may be used when conducting a reasonable potential analysis for hardness-dependent metals.

- Modified the ammonia mass-based effluent limits from 260 lbs/day daily average and 520 lbs/day daily maximum to 181 lbs/day daily average and 336 lbs/day based on the facility's permitted daily average flow and the concentration-based effluent limitations noted in the wasteload allocation.

- Added monthly monitoring for organic nitrogen and nitrate/nitrite per *Georgia's Plan for the Adoption of Water Quality Standards for Nutrients (2013).*

- Reduced the monitoring frequency for total Kjeldahl nitrogen, total nitrogen, and orthophosphate from 1/week to 1/month based on best professional judgement.

- Removed monitoring requirements and effluent limit of 1.6 mg/L daily maximum for formaldehyde due to concerns over the accuracy of available analytical methods due to matrix interference. Any potential toxic effects of formaldehyde will be captured through the whole effluent toxicity testing required in the permit.

- Removed the instream limits for color of Δ80 ADMI based on information provided from a color study and permit sampling which indicated no reasonable potential for the effluent to cause or contribute to a violation of Georgia's narrative Water Quality Standard for color.

- Removed sodium monitoring based on best professional judgement as there is no numeric water quality standard for sodium to compare against. Any potential toxic effects of sodium will be captured through the whole effluent toxicity testing required in the permit.

- Removed peroxide monitoring based on best professional judgement as there is no numeric water quality standard for peroxide to compare against. Any potential toxic effects of peroxide will be captured through the whole effluent toxicity testing required in the permit.

- Removed THPC monitoring based on best professional judgement as there is no numeric water quality standard for THPC to compare against. Any potential toxic effects of THPC will be captured through the whole effluent toxicity testing required in the permit.

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- Added escherichia coli effluent limitations of 126 #/100mL daily average and 410 #/100 mL which will replace the fecal coliform effluent limitations subject to EPA approval of the proposed changes to the GA. Comp. R. & Regs. which adopt e. coli and enterococci as pathogen indicators for waters designated as fishing, coastal fishing, and drinking water. EPD will provide written authorization for the change.

Part I.A.4 – Surface Water Monitoring Requirements

- Removed instream formaldehyde monitoring based on best professional judgement as there is no numeric water quality standard for formaldehyde to compare against. Any potential toxic effects of formaldehyde will be captured through the instream whole effluent toxicity testing required in the permit.

- Removed instream sodium monitoring based on best professional judgement as there is no numeric water quality standard for sodium to compare against. Any potential toxic effects of sodium will be captured through the instream whole effluent toxicity testing required in the permit.

- Removed instream sulfide monitoring based on best professional judgement as there is no numeric water quality standard for sulfide to compare against. Any potential toxic effects of sulfide will be captured through the instream whole effluent toxicity testing required in the permit.

- Removed instream peroxide monitoring based on best professional judgement as there is no numeric water quality standard for peroxide to compare against. Any potential toxic effects of peroxide will be captured through the instream whole effluent toxicity testing required in the permit.

- Added a requirement that downstream specific conductance and whole effluent toxicity testing be conducted concurrently to verify that the downstream sampling location is representative of the effluent plume within the Ogeechee River.

Part III.C – Special Conditions

- Paragraphs 2 and 3 from the previous permit have been removed as they have been consolidated and expressed in Part I.A.4. Paragraphs 2 and 3 previously outlined the instream sampling requirements for the facility.

- Paragraphs 4-7 from the previous permit have been consolidated and included as paragraph 3 in this permit. Paragraphs 4-7 previously outlined effluent and instream whole effluent toxicity testing requirements.

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- Paragraph 8-10 and 12 from the previous permit are one-time requirements that have been completed and have been removed from this permit. Paragraphs 8 and 9 previously outlined a mercury characterization study and a potential mercury minimization plan. Paragraph 10 previously included requirements for a color study. Paragraph 12 previously required Perfluorooctane sulfonate (PFOS) sampling.

- Paragraph 11 from the previous permit has been removed as the contents of the language are included in the permit's boilerplate language. Paragraph 11 previously required an annual certification outlining any change in processes or wastewater characteristics.

- Added Paragraph 2 requiring characterization a Per- and Polyfluoroalkyl Substances (PFAS) Characterization Study.

- Added language to Paragraph 3 requiring the permittee to prepare a Toxicity Identification Evaluation work plan and conduct a Toxicity Identification Evaluation (TIE) and Toxicity Reduction Evaluation (TRE) in the event that two WET tests are failed.

- Added language to Paragraph 3 requiring a modified dilution series and additional IC25 reporting for chronic WET tests.

- Added Paragraph 4 addressing the facility's Sludge Management Plan approved August 31, 2020.

- Added Paragraph 5 requiring a written notification of increased production prior to granting coverage under the Tier 2 or Tier 3 effluent limitations for higher levels of production.

Standard Conditions & Boilerplate Modifications

The permit boilerplate includes modified language or added language consistent with other NPDES permits.

Final Permit Determinations and Public Comments

☐ Final issued permit did not change from the draft permit placed on public notice.

☒ Public comments were received during public notice period.

☒ Public hearing was held on November 17, 2020.

☒ Final permit includes changes from the draft permit placed on public notice. See attached permit revisions and/or permit fact sheet revisions document(s)

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Revisions to Draft Permit

Name of Facility King America Finishing, Inc.

NPDES Permit No. GA0003280

Were there any revisions between the draft proposed NPDES permit placed on public notice and the final proposed NPDES permit? If yes, specify: ☒ Yes ☐ No

Part I.A.1 – Effluent Limitations and Monitoring Requirements

- Revised the monitoring frequency for COD from 3/Week to 5/Week.

- Revised the fecal coliform effluent limitations from seasonal limitations of 500 #/100mL daily average and 500 #/100mL daily maximum (May-Oct) and 1,000 #/100mL daily average and 4,000 #/100mL daily maximum (Nov-Apr) to year-round effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum.

- Added escherichia coli effluent limitations of 126 #/100mL daily average and 410 #/100mL daily maximum which will replace the fecal coliform effluent limitations upon EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. EPD will provide written authorization for the change.

Part I.A.2 – Effluent Limitations and Monitoring Requirements

- Revised the monitoring frequency for COD from 3/Week to 5/Week.

- Revised the fecal coliform effluent limitations from seasonal limitations of 500 #/100mL daily average and 500 #/100mL daily maximum (May-Oct) and 1,000 #/100mL daily average and 4,000 #/100mL daily maximum (Nov-Apr) to year-round effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum.

- Added escherichia coli effluent limitations of 126 #/100mL daily average and 410 #/100mL daily maximum which will replace the fecal coliform effluent limitations upon EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. EPD will provide written authorization for the change.

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Revisions to Draft Permit

- Added a requirement that the permittee submit a written notification of increased production to obtain coverage under the "Tier 2" effluent limitations.

Part I.A.3 – Effluent Limitations and Monitoring Requirements

- Revised the monitoring frequency for COD from 3/Week to 5/Week.

- Revised the fecal coliform effluent limitations from seasonal limitations of 500 #/100mL daily average and 500 #/100mL daily maximum (May-Oct) and 1,000 #/100mL daily average and 4,000 #/100mL daily maximum (Nov-Apr) to year-round effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum.

- Added escherichia coli effluent limitations of 126 #/100mL daily average and 410 #/100mL daily maximum which will replace the fecal coliform effluent limitations upon EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. EPD will provide written authorization for the change.

- Added a requirement that the permittee submit a written notification of increased production to obtain coverage under the "Tier 3" effluent limitations.

Part I.A.4 – Surface Water Monitoring Requirements

- Revised the monitoring frequency for instream acute WET tests using *Ceriodaphnia dubia* from 1/Quarter to 1/Month.

Part I.D – Reporting Requirements

- Updated to the new e-Reporting Phase II compliance date of December 21, 2025, per 40 CFR 127.16. The revision to the rule became effective January 4, 2021.

Part III.C – Special Conditions

- Modified the PFAS characterization study language to clarify what per- and polyfluoroalkyl substances must be characterized. The revised language requires that the permittee characterize all PFAS used in processing or manufacturing at the facility or believed present in the process wastewater or sludge due to contact with any raw materials, intermediate products, finished products, byproducts, or waste products.

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Revisions to Draft Permit

- Modified the PFAS characterization study to indicate that, where applicable, draft analytical method 1633 should be used to analyze the PFAS compounds.

- Revised the WET testing requirements to require the reporting of the 25% inhibition concentration (IC25) when conducting chronic WET tests.

- Modified the chronic WET test dilution series to 0%, 2%, 4%, 8%, 16%, 32%, 64%, 100%.

- Added detailed requirements and interim milestones for the completion of a Toxicity Identification Evaluation (TIE) work plan, TIE/TRE, and additional data gathering activities.

- Added a special condition for the permittee to submit a written notification of increased production to obtain coverage under the "Tier 2" or "Tier 3" effluent limitations.

The permittee has been made aware of these changes

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Revisions to Draft Fact Sheet

Name of Facility King America Finishing, Inc.

NPDES Permit No. GA0003280

Were there any revisions between the draft proposed NPDES permit fact sheet placed on public notice and the final proposed NPDES permit fact sheet? If yes, specify:

☒ Yes ☐ No

Section 1.8 – Description of the Wastewater Treatment Facility

- Updated the wastewater treatment facility description to reference dredging that occurred in Fall 2021.

Section 3.3 – Georgia 305(b)/303(d) List Documents

- The receiving waterbody stream segment has been reclassified as the Ogeechee River from Nevill's Creek to Hwy 301 based on the approved 2020 Integrated 305(b)/303(d) Report.

Section 4.1 – Water Quality Based Effluent Limitations (WQBELs) & Technology Based Effluent Limitations (TBELs)

- The boilerplate language for water quality based effluent limitations and technology based effluent limitations has been updated.

Section 4.2 – Reasonable Potential Analysis

- The boilerplate language for reasonable potential analysis has been updated.

Section 4.3 – Whole Effluent Toxicity

- The narrative surrounding WET testing has been moved to Section 4.3.

- The WET testing narrative has been revised as the monitoring frequency for instream acute WET tests using *Ceriodaphnia dubia* has been returned to 1/Month as was included in the previous permit.

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Revisions to Draft Fact Sheet

Section 4.4 – Conventional Pollutants: Outfall 001 & Instream Discussions

- Revised the fecal coliform narrative to reflect the change from seasonal effluent limitations to year-round effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum.

- Added escherichia coli to replace the fecal coliform effluent limitations subject to EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. EPD will provide written authorization for the change.

Section 4.9 – Comparison & Summary of Water Quality vs. Technology Based Effluent Limits

- Updated the effluent limitation comparison table to reflect the change from seasonal effluent limitations to year-round effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum.

- Updated the effluent limitation comparison table to include e. coli effluent limitations of 126 #/100mL daily average and 410 #/100mL daily maximum.

Section 5.1 – Special Conditions

- Modified the narrative to discuss the addition of IC25 reporting and a modified dilution series for chronic WET tests.

- Added narrative regarding the requirements and interim milestones for the completion of a Toxicity Identification Evaluation (TIE) work plan, TIE/TRE, and additional data gathering activities

- Modified the fact sheet to reflect the revised sludge management plan approved on October 7, 2021, which adds additional sludge disposal locations.

- Added narrative requiring a written notification of increased production to obtain coverage under the “Tier 2” or “Tier 3” effluent limitations.

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Revisions to Draft Fact Sheet

Section 5.3 – Anti-Backsliding

- Removed the anti-backsliding narrative for fecal coliform whose effluent limitations have been returned to 200 #/100mL daily average and 400 #/100mL daily maximum.

Appendix C

- Updated the reasonable potential analysis to include the revised water quality standards for cadmium.

The permittee has been made aware of these changes.

Public Comments and EPD Responses on Draft NPDES Permit
King America Finishing, Inc. – Permit No. GA0003280

Table of Contents

Due to the volume of comments received and the number of topics covered in a comment, EPD has summarized and grouped comments together based on the topic.

Acronyms

CFR – Code of Federal Regulations
COD – Chemical Oxygen Demand
CWA – Clean Water Act
EAD – Environmental Administrative Decisions
EPA – Environmental Protection Agency
EPD – Environmental Protection Division
GA. Comp. R. & Regs. – Georgia Rules and Regulations for the Water Quality Control Act
IC25 – Inhibition Concentration 25%
IWC – Instream Waste Concentration
KAF – King America Finishing, Inc.
LOEC – Lowest Observed Effect Concentration
NOEC – No Observed Effect Concentration
NPDES – National Pollutant Discharge Elimination System
ORK – Ogeechee Riverkeeper
PFAS – Per- and Polyfluoroalkyl Substances
PFOA – Perfluorooctanoic Acid
PFOS – Perfluorooctane Sulfonate
POTW – Publicly Owned Treatment Works
qPCR - Quantitative Polymerase Chain Reaction
TBEL – Technology Based Effluent Limitation
TDS – Total Dissolved Solids
THPC – Tetrakis (hydroxymethyl) Phosphonium Chloride
TIE – Toxicity Identification Evaluation
TMDL – Total Maximum Daily Load
TRE – Toxicity Reduction Evaluation
TRI – Toxics Release Inventory
TSCA – Toxic Substances Control Act
TSS – Total Suspended Solids
USC – United States Code
WET – Whole Effluent Toxicity
WQBEL – Water Quality Based Effluent Limitation

Public Comments and EPD Responses on Draft NPDES Permit
King America Finishing, Inc. – Permit No. GA0003280

COMMENT RECEIVED	EPD RESPONSE
General	
1. The fish kill caused by King America has ruined our once thriving business. We have seen first-hand how this amazing resource has been affected. The visual changes in the color of our river and our sandbars. Milliken now operates much like King America by over exceeding their limits and paying fines. In no way should their permits be altered to allow more leniency. 2. The Ogeechee River remains vulnerable to the stressors that contributed to the largest fish-kill in Georgia's history, and global warming will only serve to exacerbate the ongoing water quality issues that contributed to this disaster by increasing the severity of droughts and the frequency of destructively high-water temperatures. This leads us to the dire conclusion that any changes to any of the 57 NPDES permits affecting this water basin will likely require more stringent requirements rather than more lenient ones. 3. The public needs to be confident that there is rigorous attention to pollutants emitted by the Milliken Plant. Casual discussions with stakeholder groups using the river, in my opinion, reveals a reduction in confidence that issues related to the Milliken Plant have been effectively addressed. Although these are often relayed in the form of anecdotes, weakening testing requirements and failure to include PFAS will not help with this erosion of confidence. 4. My Labrador Retriever, who swam in the river daily, died of squamous cell carcinoma of the mouth shortly after the pollution, and that disease is rare but can be caused, in particular, by exposure to	EPD has evaluated the submitted permit application and supporting documentation and proposed a NPDES permit in accordance with applicable Federal and State regulations ensuring the permit is legal, enforceable, and protective of water quality standards, human health, and the environment. Where less stringent effluent limitations have been applied, the rationale has been based on the allowable exceptions defined in Section 402(o)(2) of the CWA (33 U.S.C. § 1342(o)(2)). The implementation of such revised limitations will not result in a violation of a water quality standard under Section 303 of the CWA (33 U.S.C. § 1313) applicable to such waters.

COMMENT RECEIVED	EPD RESPONSE
formaldehyde, which, guess what, was one of the pollutants identified in the King Finishing case. I refuse to lose another beloved friend and therefore support the strictest possible measures to keep the Ogeechee River clean and safe. 5. The permit should be protective of human health and the environment. This includes recreational activities such as fishing and kayaking, and the protection of our drinking water resources.	
<u>Monitoring Frequency of Constituents</u>	
1. There should be more frequent testing of constituents, not less as you propose. Milliken has repeatedly failed to operate this plant in compliance with the current permit and should not be allowed to reduce any environmental requirements related to operations or testing. The draft permit improperly allows for a reduction in testing frequency. The Milliken has not been able to consistently meet EPA water quality standards as evidenced by the record of violations. These violations do not support less frequent testing and reducing parameters tested, changes that are indicated in a side-by-side comparison of the current and NPDES proposed permit. Reductions in frequency of testing	EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Section 8.1.3, p. 8-5, directs that "the permit writer should establish monitoring frequencies sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost to the permittee." EPD evaluated the available data and determined for several parameters a reduction of monitoring frequencies could be granted without increasing the risk for undetected events of noncompliance, refer to Appendix D of the Fact Sheet for additional information. Effluent monitoring frequency reductions were proposed in the draft permit for TSS, COD, sulfide, total phenols, and total chromium. Based on public comments received, EPD has returned the monitoring frequency for COD to 5/Week. The facility has not displayed non-compliance with the TBELs for COD, but COD is a useful indicator of

COMMENT RECEIVED	EPD RESPONSE
could lead to a less rapid response to discharge-related increases of the chemicals listed in the permit.	wastewater treatment efficiency and process controls, as evidenced by prior corrective action plans for the KAF facility. Additionally, the draft permit reduced the instream monitoring frequency of acute WET testing for *ceriodaphnia dubia.* Based on EPD's review of WET testing, instream acute toxicity has not been detected for *ceriodaphnia dubia* as part of the historical WET testing. However, in consideration of the commentors concerns and the periodic toxicity exhibited in the effluent, EPD has returned the monitoring frequency for acute *ceriodaphnia dubia* WET testing to once per month. EPD additionally reduced the monitoring frequencies for total Kjeldahl nitrogen, total nitrogen, and orthophosphate in the draft permit. These constituents did not have effluent limitations and monitoring was included to aide in the future development of numeric nutrient criteria. Monthly monitoring data is sufficient to collect the data needed to develop and calibrate EPD water quality models. The proposed, reduced monitoring frequency remains unchanged in the final permit for these constituents.
<u>Per- and Polyfluoroalkyl Substances (PFAS)</u>	
The discharge of a specific pollutant (or group of pollutants) cannot be permitted if it is not disclosed in a NPDES permit application. The Clean Water Act generally prohibits pollutant discharges to streams and rivers. The NPDES permitting program is a limited exception to that prohibition, and discharges under the program cannot be approved unless they are adequately disclosed. The Environmental Protection Agency has stressed the need for disclosure of pollutants during the permitting process:	The EPA Environmental Appeals Board's decision in *re: Ketchikan Pulp Company*, 7 E.A.D. 605 (EPA) (1998) and the decision in *Piney Run Pres. Ass'n v. Cty. Comm'rs of Carroll Cty., Maryland,* 268 F.3d 255 (4th Cir. 2001) contemplates when a "permit shield" is granted for pollutants not addressed in the NPDES permit. The comment as it pertains to Clean Water Act compliance under the current permit is inapplicable to the permit reissuance process under consideration now

COMMENT RECEIVED	EPD RESPONSE
> [D]ischargers have a duty to be aware of any significant pollutant levels in their discharge. [...] Most important, [the disclosure requirements] provide the information which the permit writers need to determine what pollutants are likely to be discharged in significant amounts and to set appropriate permit limits. [...] [P]ermit writers need to know what pollutants are present in an effluent to determine approval permit limits in the absence of applicable effluent guidelines. The EPA Environmental Appeals Board's decision in re: Ketchikan Pulp Company further emphasized the importance of disclosure. In Piney Run Pres. Ass'n v. Cty. Comm'rs of Carroll Cty., Maryland, the court followed Ketchikan and stated: > The Ketchikan decision therefore made clear that a permit holder is in compliance with the [Clean Water Act] even if it discharges pollutants that are not listed in its permit, as long as it only discharges pollutants that have been adequately disclosed to the permitting authority. [...] To the extent that a permitholder discharges a pollutant that it did not disclose, it violates the NPDES permit and the [Clean Water Act]. Milliken failed to disclose PFAS in its permit application, in violation of the Clean Water Act. Sampling discussed below establishes that the facility is discharging PFAS. The failure to disclose the presence of PFAS should result in EPD remanding the permit to Milliken to disclose fully such PFAS discharges.	and should be raised separately. Regarding the aspects of the comment which apply to the permit reissuance, while important for developing our regulatory framework, the cases are largely inapplicable to this draft permit which explicitly considers per- and polyfluoroalkyl substances (PFAS) through a special condition requiring a PFAS Characterization Study. PFAS are emerging pollutants of concern and significant resources are currently being employed at the national and state levels to develop multi-media and multi-program research and risk communication plans to address PFAS. As this response to comments is being drafted, US EPA has yet to promulgate instream water quality criteria and has not yet developed any 40 C.F.R. § 136 approved wastewater analytical test methods for this category of pollutants. EPA has however published draft analytical method 1633 for 40 PFAS compounds since the draft permit was placed on public notice. While not nationally required for compliance monitoring, the draft method is recommended for use in individual permits. Where applicable, draft method 1633 will be used for the PFAS Characterization Study required in Part III.C.2 of the permit. EPD continues to stay engaged and is following US EPA's progress as it evaluates PFAS as it relates to discharges from point sources to surface waters. The proposed permit expands upon the PFAS Characterization Study required in the previous permit and will serve to assist in the identification of potential sources of PFAS from the facility. EPD may reevaluate the permit based on the results of the PFAS Characterization Study and, if necessary, modify the permit in accordance with 40 C.F.R. § 122.62(a)(2).

COMMENT RECEIVED	EPD RESPONSE
For all pollutants, the Clean Water Act requires permitting agencies to impose technology-based effluent limitations. If these limits are not enough to ensure compliance with water quality standards, then water quality-based effluent limits must be included. EPD has apparently not evaluated any limits on PFAS, which is understandable since the permittee did not disclose them. But EPD should insist on such disclosure and develop permit terms accordingly. Technology-based effluent limits are "the minimum level of control that must be imposed in a permit." These limits "are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and water quality-based effluent limitations." As EPA has recognized, "technology-based limits aim to prevent pollution by requiring polluters to install and implement various forms of technology designed to reduce the pollution discharged into the nation's waters." When EPA has not issued a national effluent limitation guideline for a particular industry, permitting agencies must implement technology-based effluent limits on a case-by-case basis using their "best professional judgment." There are available technologies used to reduce the discharge of PFOAs from industrial wastewater. Although it is beyond the expertise of the Riverkeeper to design wastewater treatment systems, it has been widely reported that effective technologies include activated carbon treatment, ion exchange resins, and high-pressure membranes, like nanofiltration or reverse osmosis.	40 C.F.R. § 125.3(c) allows for technology-based treatment requirements to be imposed on a case-by-case basis under Section 402(a)(1) of the CWA, to the extent that EPA-promulgated effluent limitations are inapplicable. EPA has already promulgated applicable effluent limitation guidelines at 40 C.F.R. 410 – Subpart D for woven fabric finishing and commission finishing which apply to the facility's operations. US EPA recently issued its *Effluent Guidelines Program Plan 14*, EPA-821-R-21-001 (Jan. 2021) fulfilling its requirements at Section 304(m) of the CWA (33 U.S.C. § 1314(m)) to biennially publish a plan for new and revised effluent limitations guidelines. As part of this plan, US EPA has indicated its intent to conduct a Multi-industry Detailed Study of industrial PFAS use, treatment, and discharges to surface water and POTWs focusing on five-point source categories: PFAS manufacturers, pulp and paper manufacturers, textile and carpet manufacturers, airports, and metal finishers. US EPA has indicated that further study is required of textile manufacturers, prior to initiating any revised rulemaking. US EPA has since issued its *Preliminary Effluent Guidelines Program Plan 15*, EPA-821-R-21-003 (Sep. 2021) and *Multi-Industry Per- and Polyfluoroalkyl Substances (PFAS) Study – 2021 Preliminary Report*, EPA-821-R-21-004 (Sep. 2021) which reaffirms EPA's intent to conduct a separate detailed study to collect and review information and data on the use, treatment, and discharge of PFAS from textiles and carpet manufacturers. Per- and polyfluoroalkyl substances (PFAS) are an extensive group of man-made chemicals which are emerging pollutants of concern. Significant resources are currently being employed at the national and state levels to develop multi-media and multi-program research and risk

COMMENT RECEIVED	EPD RESPONSE
	communication plans to address PFAS. As this response to comments is being drafted, US EPA has yet to promulgate instream water quality criteria and has developed only a limited number of draft wastewater analytical test methods. EPD continues to stay engaged and is following US EPA's progress as it evaluates PFAS as it relates to discharges from point sources to surface waters. Hence, Part III.C.2 of the permit requires a PFAS Characterization Study while the CWA framework for potentially regulating PFAS discharges pursuant to the NPDES program is under development. EPD may reevaluate the permit based on the results of the PFAS Characterization Study and, if necessary, modify the permit in accordance with 40 C.F.R. § 122.62(a)(2).
EPD must ensure that Georgia water quality standards will not be violated by the discharge. If there is a "reasonable potential" that water quality standards will be exceeded, EPD must include water quality-based effluent limits in the permit as well. Georgia water quality standards provide: "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." Ga. Comp. R. & Regs. 391-3-6-.03(5)(e). PFAS are known to harm human health, and they certainly qualify as toxic substances under state law. Two of the most commonly studied PFAS, perfluorooctanoic acid ("PFOA") and perfluorooctane sulfonate ("PFOS"), have been found to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, lower birth weight and size, obesity, decreased immune response to vaccines, reduced hormone levels and delayed puberty.	Where numeric criteria have not been established whole effluent biomonitoring may be used to develop a whole effluent toxicity (WET) limit. The proposed permit contains whole effluent toxicity limits, consistent with EPD's *NPDES Reasonable Potential Procedures* (2003). This approach is necessary and appropriate for the protection of Georgia water quality criteria in accordance with GA. Comp. R. & Regs. 391-3-6-.03(5)(e). During the development of the draft permit, EPD determined King America Finishing does not discharge to a reach of the Ogeechee River that has a designated use for drinking water and there are no surface water drinking water intakes in the downstream vicinity of the discharge. The referenced US EPA drinking water advisories/standards only address exposure through drinking water ingestion (not exposure via consumption of food sources or skin contact) and are not directly applicable to instream water quality standards for point source discharges to surface waters. (*Clarification about the Appropriate*

COMMENT RECEIVED	EPD RESPONSE
EPA established a lifetime health advisory of 70 ppt for the combined concentrations of PFOA and PFOS in drinking water. Since then, in June 2018, the Agency for Toxic Substances and Disease Registry released an updated Draft Toxicological Profile for PFOA, PFOS, and other PFAS. The report suggested that many of the chemicals are much more harmful than previously thought. For instance, the minimum risk levels, or the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health, was determined to be only 11 ppt for PFOA, and 7 ppt for PFOS. Epidemiological studies show that many of these same health outcomes result from exposure to other PFAS. Given these harms, states like Michigan, New York, New Hampshire, New Jersey, and Vermont have acknowledged the dangers of these compounds and have either proposed or finalized drinking water standards for various PFAS at 20 ppt and lower.	*Application of the PFOA and PFOS Drinking Water Health Advisories, (Nov. 2016))* EPD does however acknowledge the emerging concerns regarding PFAS and the efforts to develop on a national level a comprehensive PFAS Action Plan. US EPA's action plan is a multi-media, multi-program, national research, management, and risk communication plan to address PFAS in drinking water, identify and clean up PFAS contamination, expand monitoring of PFAS in manufacturing, increase PFAS scientific research, and exercise effective enforcement tools. Of specific interest during the permitting process are US EPA's efforts to develop water quality criteria for PFAS, identify industrial sources that may warrant further study and regulations, and continued efforts to develop analytical methods. In conjunction with the national response for PFAS, EPD is working on furthering the objectives of the action plan on a state level. Part III.C.2 of the permit requires a PFAS Characterization Study to determine and quantify the potential the facility has to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal. To learn more about this class of chemicals and EPD's investigation and response to them, please visit our webpage at: https://epd.georgia.gov/pfoa-and-pfos-information.
1. PFAS are also harmful to the environment. They have been shown to cause harmful effects in fish, amphibians, mollusks, and other aquatic invertebrates — resulting in developmental and reproductive impacts, behavioral changes, adverse effects to livers, disruption to endocrine	Fish consumption advisories are risk-based recommendations on the amount of fish from a specific waterbody that is safe to consume (e.g., servings per day, week, month, or year). The recommendation is informed by the measured concentration of contaminants in a sample of

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systems, and weakened immune systems. Moreover, they are extremely resistant to breaking down in the environment, can travel long distances, and bio-accumulate in organisms. EPD must ensure that residents who fish, boat, and swim downstream of the discharge are protected. Many people fish for sustenance and recreate downstream of Milliken's discharge location. Emerging research is showing that PFAS—even at low levels—are harmful. In addition, one of the key characteristics of the class is that they bio-accumulate in many fish species. We have evidence, discussed below, that downstream fish are being contaminated with PFAS from the facility and thus are being caught and eaten by Georgia citizens. As part of the ORK and Milliken sampling event in December 2018, two separate effluent samples were analyzed by 2 independent laboratories for 21 perfluoroalkyl substances (PFAS) including PFOS and PFOA using EPA Method 537 (Modified). This sampling indicated that 11 of 23 PFAS analytes were present at concentrations above the reporting limit. Further, these data indicated that the sum of PFOS and PFOA concentrations were between 203 and 227 ng/L(ppt). Although the effluent and the Ogeechee River are not drinking water sources, these concentrations greatly exceed EPA's established human health advisory level of 70 parts per trillion (ppt) for PFOS and PFOA combined in drinking water and indicate a continuous source of PFASs to the Ogeechee River which is utilized by residents for fish consumption. No plausible source of these pollutants other than this textile mill exists. The documented presence of these pollutants requires that EPD remand the permit to the permittee for full disclosure of its discharge of these chemicals.	fish that are representative of a specific waterbody. The underlying basis for the recommendation is an established toxicity criterion, which represents a level of contaminant that an individual can be exposed to every day without experiencing adverse health effects. Instream water quality criteria do not inform or help develop fish tissue advisories. At this time, neither GA EPD nor US EPA has developed instream water quality standards or fish consumption guidelines for PFAS. EPD acknowledges the emerging concerns regarding PFAS and is working on furthering the objectives of US EPA's PFAS Action Plan on a state level. Specifically, for the KAF facility, a PFAS Characterization Study has been included at Part III.C.2 of the permit to determine and quantify the potential the facility has to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal. EPD may consider more targeted actions, such as fish tissue studies, as more information becomes available.

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In addition to effluent sampling, ORK has conducted, and is in the process of collecting, fish tissues representative of the type and size of fish typically consumed from the Ogeechee River and analyzing these representative fish species for PFOA and PFOS. Fish were collected from the Ogeechee River between the Interstate 16 and Highway 80 bridges. This is approximately 38 miles downstream of the Milliken discharge. A total of 7 fish were collected and PFOS was detected in all 7 fish. The fish were filleted and submitted to an analytical laboratory for analysis for PFOS and PFOA. Five of the 7 fish contained PFOS at concentrations in excess of 10 µg/kg. Based on the Consortium Best Practices guidelines, PFOS tissue concentrations in a majority of the samples would result in a fish consumption advisory for this section of the Ogeechee River of 2 meals per week to be protective of human health. Using EPA's 2016 Drinking Water Health Advisory reference dose (RfD) of $2x10^{-5}$ milligrams per kilogram per day, a fish consumption limit can be developed. Specifically, the Great Lakes Consortium for Fish Consumption Advisories developed the Best Practice for Perfluorooctane Sulfonate (PFOS) Guidelines which contains recommendations for consumption of fish containing PFOS based on EPA's RfD. The guidelines assessed a meal size of 227 grams (1/2 pound) of raw fish per meal for a 70 kg adult. This data calls for further action. Admittedly, this data is limited and more information is needed. It should not be the Riverkeeper's job to collect this data. Rather, the State should require the company to collect this data and submit it to EPD as part of a proper disclosure of	

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its PFAS-related discharges. Thus, the permit should be withdrawn and the company should be required to make a proper disclosure of its PFAS-related discharges and the results of a properly designed fish tissue sampling protocol at which point, if appropriate, TBELs, WQBELs, and appropriate monitoring conditions should be imposed. 2. A fish tissue study is long overdue and should be completed before the permit is granted. The presence of per- and polyfluoroalkyl substances (PFAS) in fish tissue downstream of this plant raises serious concerns for those of us that consume fish and shellfish taken from waters around our homes. A permit should not be issued without a fish tissue study, which should have already been completed under the terms of the previous permit. We would like to express our alarm regarding news that the Riverkeeper has taken samples indicating that Milliken has been discharging a harmful class of long-lasting chemicals known as PFAS, despite submitting reports to the contrary to EPD. The Riverkeeper reports that these carcinogens appear to be accumulating in fish. EPD can begin to address this disturbing development by conducting the comprehensive fish tissue study that was part of the fish kill litigation settlement but canceled due to Milliken' erroneous reporting. ORK has discovered that Milliken has been discharging a harmful class of chemicals known as PFAs, despite submitting reports to GA EPD suggesting otherwise. ORK has also discovered that these carcinogens are appearing in the fish people consume. A permit	

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should include standards and guidelines for PFAs and fish consumption. It is essential that people know what they are eating and are not exposed to harmful chemicals. A comprehensive fish tissue study should be done before any new permit is issued. A threat has been identified by the Ogeechee Riverkeeper of PFA bioconcentration in fish tissues. PFAs are an acknowledged emerging threat to water quality and human health. The permit should be amended to address this new threat. People have the right to know what contaminants are in the fishes they are consuming and to have the EPD work towards setting recommendations in the form of consumption advisories for those contaminants. Included in this effort should be the reduction of PFAs to the river basin. Other states have consumption advisories for PFOs/PFAs (Michigan is an example). PFAS can accumulate and stay in the human body for long periods of time. There is evidence that exposure to PFAS can lead to adverse health outcomes in humans. The most-studied PFAS chemicals are PFOA and PFOS. Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animals. The most consistent findings are increased cholesterol levels among exposed populations, with more limited findings related to low infant birth weights, effects on the immune system, cancer (for PFOA), and thyroid hormone disruption (for PFOS). Why would you allow these possibilities? ORK's discovery of PFAS/PFOS in Ogeechee River fish demonstrates Milliken/King America's lack of transparency regarding their past/current production line. That the fish tissue study called for under the 2013 permit has not been completed is reason	

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enough to delay EPD issuing the permit as it now stands. It took ORK spending its own time and money collecting samples and submitting them to an independent laboratory to again prove that these compounds are present in the facility's effluent. Recognizing that subsistence fishing is still practiced on the Ogeechee for several populations, Milliken must be required to complete a fish tissue survey focused on emerging contaminants that are found in the company's discharge.	
Part III.C.2 of the draft permit contains requirements for a Per-and Polyfluoroalkyl Substances (PFAS) Characterization Study. KAF asserts that the legal, analytical, and scientific framework regarding PFAS, when considered as a broad chemical group rather than specific non-polymeric or polymeric compounds, is too uncertain at this time to allow for clear implementation of a broad characterization requirement like the one proposed in the draft permit. KAF requests that the PFAS characterization requirement be removed from the draft permit.	In accordance with 40 C.F.R. § 122.21(g)(13), "applicants shall provide to the Director, at his or her request, such other information as the Director may reasonably require to assess the discharges of the facility and to determine whether to issue an NPDES permit." Additionally, consistent with US EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Section 6.2.1.5, p. 6-15, the permit writer may require monitoring for pollutants which are expected present in the discharge based on the raw materials stored or used, products or by-products of the facility operation, or available data and information on similar facilities. Hence, EPD is requiring KAF to characterize the discharge of pollutants. US EPA has identified textile mills as potential contributors of PFAS as part of their manufacturing process (*Effluent Guidelines Program Plan 14*, EPA-821-R-21-001 (Jan. 2021)). In conjunction with the national response for PFAS, EPD is working on furthering the objectives US EPA's PFAS Action Plan on a state level. The PFAS Characterization Study required in the permit will serve to assist in the identification of potential sources of PFAS from the facility. This permit condition is

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	necessary and appropriate for the protection of Georgia water quality criteria in accordance with GA. Comp. R. & Regs. 391-3-6-.03(5)(e).
KAF objects to the specific language of Part III.C.2.a, which requires that the permittee characterize, within one (1) month, all per-and polyfluoroalkyl substances (PFAS) employed by the facility. PFAS is a broad class of chemicals that includes thousands of non-polymeric and polymeric compounds, the vast majority of which are not currently regulated under environmental or worker protection laws. Because of this, and because PFAS are commonly provided to manufacturers in proprietary formulations, the specific chemical identity of PFAS compounds is not required to be disclosed by the manufacturer and is often not readily available to the permittee. Most notably, PFAS compounds are not typically identified (and are not required to be identified) as hazardous components on Safety Data Sheets. Any characterization effort by the permittee will depend on the willingness and capability of suppliers to provide accurate information to the permittee, and any characterization requirement imposed by the Georgia EPD should consider and allow for this constraint. Specifically, any permittee – including KAF – would need more than one month just to work with suppliers in an effort to obtain this information, and the permit language should clearly acknowledge that the characterization is limited to the information provided by the suppliers. The permit language should also recognize the possibility that this information will be considered proprietary and may not be provided by suppliers voluntarily.	Part III.C.2 of the proposed permit requires that the permittee characterize and report all per- and polyfluoroalkyl substances (PFAS) used in processing or manufacturing facility at the facility or believed present in the facility's wastewater or sludge and submit a report to EPD. In addition, the report should identify any PFAS known or believed to be present in the facility's wastewater or sludge, including any PFAS compounds found in raw materials, residual PFAS compounds from previous activities, and breakdown products. Where such characterizations are reliant on third-party manufacturer's data, the characterization should at a minimum include any PFAS which is required to be identified as part of the Toxic Substances Control Act (TSCA) and Toxic Release Inventory (TRI) reporting requirements. The permittee shall identify where such third-party information is identified as confidential business information so that EPD may obtain the information independently, as necessary. For PFAS data obtained by the permittee which is identified as confidential under the Georgia Open Records Act, O.C.G.A § 50-18-70, *et seq.*, the permittee shall submit to EPD a "protected" and "redacted" version of the information accompanied by an affidavit supporting the permittee's confidentiality claims in accordance with EPD procedures. The permittee has been given ample notice regarding the PFAS Characterization Study and the requirement to characterize all PFAS used in processing or manufacturing at the facility or believed present in the facility's wastewater or sludge within one month of the effective date

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	of the permit. The proposed permit condition remains unchanged from the draft permit.
Technology-Based Effluent Limitations	
The permit establishes three tiers of TBEL mass-based limits which are related to production. However, it is unclear how those limitations are to be applied. This will result in confusion regarding the status of compliance at the facility. The permit requires that the average daily production (in terms of pounds of product/day) be reported each month and could result in the limits changing on a monthly basis as production changes. For daily average discharge limitations, this approach is straightforward. Once the average daily production is known for the month, the average discharge load is calculated and compared to the daily average limitation for the appropriate tier. However, this approach is problematic for the daily maximum limitation. Since production may change from day to day, compliance with the daily maximum limitation should be based on the limitation established for the tier based on production for that day, not the tier based on the average daily production value which may allow a higher discharge load. This will make it challenging to determine if the facility is in or out of compliance. The permit should be modified to define how the limit changes and provide a justification for using average daily production values to establish daily maximum limitations.	The daily average and daily maximum effluent limitations established in the permit are based on a reasonable measure of the facility's actual production rate consistent with US EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Sections 5.2.2.5 and 5.2.2.7. This level of production represents a long-term average production rate that is expected to exist during the permit term and is subsequently used to calculate both the daily average and daily maximum effluent limitations. The use of daily production values to establish dynamic daily maximum effluent limits, as the commentor has suggested, are contrary to the long-standing US EPA guidance for establishing production-based effluent limitations. As part of the permit application process, the permittee requested consideration that the production levels return to the historical levels achieved in 2011. To accurately reflect production levels without restricting facility operations, EPD has established 3 tiers of effluent limitations. The permittee will be required to comply with the tiered permit limitations based on the monthly average production levels (lbs/day). EPD appreciates the commentor's concerns regarding the status of compliance with a tier-based approach to effluent limitations. To provide further transparency, EPD has adopted certain elements of the production-based limitations for the automotive manufacturing industry

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	established at 40 C.F.R. § 122.45(b)(2)(ii)(A)(2). The revised permit includes a requirement that the permittee notify EPD in writing at least two business days prior to the month they expect to be operating at a higher level of production (higher than Tier 1). The notice shall specify the anticipated level and the period during which the permittee expects to operate at the alternate level. New notice is required to cover a period or production level not covered by prior notice or, if during two consecutive months otherwise covered by a notice, the production level at the permitted facility does not in fact meet the higher level designated in the notice.
It defies reason that limits be based on the facility's production levels. The health of the Ogeechee River itself must be the sole determiner of the limits and restricts you set. The draft permit improperly bases limits on the facility's production levels, not the health of the river. We agree with the Riverkeeper's objection to tiered limitations based on the facility's self-reported production levels rather than setting thresholds that best protect the river. This is another example of prioritizing the permittee's interest in controlling costs over the public interest in a safe, clean, and diverse environment. Presumably, higher production levels would be accompanied by higher revenues that could cover the costs of keeping pollutant discharges low enough to be protective. The facility's production levels have no bearing on the river's resiliency and should not be used as an excuse to allow increased pollution levels. Restrictions on discharge levels should be based on models of river health and current available science, not on facility production goals.	When drafting a National Pollutant Discharge Elimination System (NPDES) permit, a permit writer must consider the impact of the proposed pollutants in a discharge on the quality of the receiving water. Water quality goals for a waterbody are defined by state water quality criteria or standards. By analyzing the effect of a pollutant in the discharge on the receiving water, a permit writer could find that technology-based effluent limitations (TBELs) alone will not achieve the applicable water quality standards or protect downstream users. In such cases, the Clean Water Act (CWA) and its implementing regulations require development of water quality-based effluent limitations (WQBELs). WQBELs help meet the CWA objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters and the goal of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (fishable/swimmable). WQBELs are designed to protect water quality by ensuring water quality standards are met in the receiving water and the designated use and downstream uses are protected. On the basis of the requirements of 40

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	C.F.R §125.3(a), additional or more stringent effluent limitations and conditions, such as WQBELs, are imposed when TBELs are not sufficient to protect water quality. (US EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Ch. 6, p. 6-1) TBELs aim to prevent pollution by requiring a minimum level of effluent quality that is attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the State. TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and WQBELs. The NPDES regulations at 40 C.F.R. §125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA section 301(b), that represent the minimum level of control that must be imposed in a permit. The regulation also requires permit writers to include in permits additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. (US EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Ch. 5, p. 5-1) The draft permit placed on public notice evaluates the need for both TBELs and WQBELs for pollutants of concern (see Fact Sheet). Where more stringent WQBELs are required, they have been included in the permit. WQBELs are developed to protect designated uses and water quality criteria and can originate from modeling (WLAs), TMDLs, and other EPD policies (e.g., reasonable potential analysis). WQBELs are not always more stringent than TBELs, in which case the more stringent TBELs are included in the NPDES permit. An example of such a situation in this permit is BOD_5 for which the calculated production-based TBELs were more stringent than the corresponding WQBELs. At

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	the highest tier of production, TBELs of 423 lbs/day daily average and 846 lbs/day daily maximum are required. Conversely, the applicable WQBELs based on water quality modeling (WLA) for BOD_5 would be 776 lbs/day daily average and 1,551 lbs/daily maximum. As such, production-based TBELs were included in the permit as they are more stringent than the modeled WQBELs for BOD_5.
Water Quality-Based Effluent Limitations	
The Draft permit does not include limitations for cyanide and uses the highest reported cyanide concentration (18 µg/L) as a basis for a reasonable potential analysis. However, during a joint sampling event between ORK and Milliken, cyanide was detected at 120 µg/L. Using the reasonable potential approach detailed in Ga. Comp. R. & Regs. 391-3-6.-06(4)(d)5(ii), the permittee is required to monitor for cyanide for a period of 10 months. Specifically, there are less than 10 data points (only 1 result of 18 µg/L for cyanide was reported in the permit application). The resulting instream concentration of 5.83 µg/L (based on the 120 µg/L result) is greater than half of the chronic cyanide criterion of 5.2 µg/L. Thus, additional monitoring is required. If additional data has been generated, the data should be made public and the Fact Sheet for the permit should be updated describing the results of a reasonable potential analysis for cyanide in the discharge.	The extent of the December 2018 joint sampling event between ORK and the permittee was limited to parameters specifically included in the 2013 NPDES permit. Split sampling was thus not conducted for cyanide nor is the permittee required to submit third-party data as part of the NPDES permit application. In addition to the cyanide sampling conducted in preparation for the NPDES application, the permittee submitted additional results of a split sampling analysis conducted in June 2019; whereas the sample results were 22 µg/L and 26 µg/L with an average of the split sample results as 24 µg/L. Based on EPDs review and analysis, there is no reasonable potential for the cyanide to cause or contribute to an instream violation of Georgia Water Quality Standards, thus effluent limits have not been included in the permit.
KAF notes that Georgia EPD has chosen to retain several water-quality based effluent limitations that were proposed for Georgia EPD to consider in Consent Decree 6:12-CV-00058 (the "Consent Decree") settling litigation between KAF and the Ogeechee Riverkeeper (the	EPD has retained several water-quality based effluent limitations originally proposed for consideration in Consent Decree 6:12-CV-00058. Where such water-quality based effluent limitations were included and retained, the limitations were considered to be an

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"Riverkeeper") in 2013. Those limits include sulfide, TDS, and ammonia at Tier 1 production levels and COD, sulfide, TDS, and ammonia at Tier 2 and Tier 3 production levels. While KAF does not object to Georgia EPD's selection of those specific permit limitations, the company does not believe it is appropriate to use the Consent Decree as the basis for those limits in this reissuance of the permit as is currently stated. Specifically, KAF directs Georgia EPD's attention to footnote 2 on pages 30 and 31 of the permit rationale. The purpose of the Consent Decree was to settle Clean Water Act violations that allegedly occurred in 2011 and 2012. It was not to establish water-quality based effluent limitations. Georgia EPD should reconsider the stated basis for those current limits and rely on a basis that is legally supportable.	appropriate numeric translation to attain and maintain Georgia's narrative water quality criteria and will fully protect the receiving water's designated use. The proposed permit and basis for effluent limits remains unchanged.
1. With specific regard to fecal coliform, as noted above, the draft permit weakens the protections from the prior permit. The 2013 Milliken permit included a concentration-based discharge limitation for fecal coliform, which allowed a daily maximum discharge of 200 colonies per 100 millimeters (200 cfu/100mL) and a 400 cfu/100mL daily maximum. EPD's new proposed permit allows an increase of this discharge, permitting for the months of May through October a daily average of 500 cfu/100mL and a daily maximum of 500 cfu/100mL. During the months between November and April, the permit allows a daily average of 1,000 cfu/100mL and a daily maximum of 4,000 #/100mL. We object to this change in permit terms based upon the anti-backsliding law. Additionally, for water bodies where contact recreation activities are anticipated to occur, the Georgia water quality standard provides that fecal coliform are not to exceed a geometric mean of 200 cfu/100mL. If it can be demonstrated that fecal coliform levels from non-human	The designated use for the Ogeechee River at the discharge location is fishing/secondary contact recreation. Fecal coliform is the currently approved bacterial indicator for the protection of secondary contact recreation in and on the water. (GA R. & Regs. 391-3-6-.03(6)(c)) On September 25, 2015, the facility began operation of a septic tank system under general permit GAG278093. All sanitary wastewater from the facility was re-directed to the septic system, thereby eliminating sanitary wastewater from the direct discharge to the Ogeechee River. On October 9, 2015, a series of dye tests were performed confirming that the sanitary wastewater was isolated from the discharge covered under this permit. Furthermore, in July of 2017, Milliken conducted a Quantitative Polymerase Chain Reaction (qPCR) DNA test which indicated no human-based fecal coliform was detected while simultaneously indicating that fecal coliform from non-human sources exceeded 200 cfu/100mL.

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sources exceed 200cfu/100mL occasionally (emphasis added), then the allowable geometric mean for fecal coliform shall not exceed 500 cfu/100mL in free-flowing streams during the summer recreational months (May to October). In July of 2017, Milliken conducted a Quantitative Polymerase Chain Reaction (qPCR) DNA test to determine the amount of human-based fecal coliform present in the sample. The result of this single test was that no human-based fecal coliform was detected. The amount of human-derived fecal coliform in all other samples is unknown. One test should not be the basis for this weakening of the permit. To demonstrate compliance with this regulation, the permit should be modified to include additional qPCR testing a minimum of monthly to demonstrate that the discharge continues to contain no human-based fecal coliform counts. Based on the permit application data, it further appears that the summer standard of 500 cfu/100mL will also be consistently (not occasionally) exceeded. Thus, EPD should establish a compliance schedule requiring Milliken to identify and implement alternatives to achieve the Georgia water quality standard of 500 cfu/100 mL as daily maximum and daily average limitations. Without a compliance schedule, the discharge is likely to continue to exceed the established permit limitation without any clear date when the facility will be compliant with the permit. 2. Fecal coliform is another issue. The plant has demonstrated its inability to answer the question of why they violate this parameter so frequently. It is past time to bring this facility into compliance on fecal coliform. Reducing requirements on this parameter is laughable, and yet Milliken/King America's request that EPD lower effluent limitations is borne out in the draft permit put out for public comment by the EPD.	The removal of sanitary wastewater has not eliminated fecal coliform exceedances and there is a reasonable potential for the discharge to cause or contribute to an instream violation of Georgia's Water Quality Standards for fecal coliform. Historical data indicates that the levels of fecal coliform in the discharge exceed not only the current effluent limitations of 200 #/100mL daily average and 400 #/100mL daily maximum, but also the seasonal effluent limitations included in the proposed draft permit based on the contributions of non-human sources. In response to exceedances of the effluent limitations in the current permit, the permittee is required as part of Consent Order EPD-WP-9076, issued May 05, 2021, to conduct an alternatives analysis regarding treatment technology that will evaluate alternatives to allow the facility to consistently meet fecal coliform effluent limitations while simultaneously consistently meeting the effluent limitations for other parameters in the NPDES Permit. Implementation of this condition requires the permittee to meet the current fecal coliform effluent limitations of 200 #/100mL daily average and 400#/100mL daily maximum. Considering that the consent order requires the evaluation and selection of treatment technologies to meet the 200 #/100mL daily average and 400 #/100mL fecal coliform effluent limitations, it is no longer justified to backslide through the inclusion of less stringent effluent limitations. The proposed permit has been revised retaining the current effluent limits of 200 #/100mL daily average and 400 #/100mL daily maximum. The permittee is expected to be in compliance with the effluent limitations for fecal coliform upon the effective date of the permit. Exceedances of the fecal coliform effluent limitations will be handled by EPD's compliance office.

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	Additionally, as part of the 2019 Triennial Review process, EPD is finalizing recommendations to replace fecal coliform and adopt *Escherichia coli (e. coli)* and *enterococci* as pathogen indicators for waters designated as fishing, coastal fishing, and drinking water. The proposed criteria must be approved by the DNR Board and the US EPA before they can take effect and be used in NPDES permits. In anticipation of approval during the upcoming permit term, the permit includes language which allows for the transition from fecal coliform effluent limitations discussed above to year-round *e. coli* effluent limitations of 126 #/100mL daily average (expressed as a geometric mean) and 410 #/100mL daily maximum. The *e. coli* limitations were calculated to yield the same gastrointestinal illness rate as the fecal coliform limitations and therefore are equivalently protective of human health and do not constitute backsliding.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: Since sanitary sewage is no longer discharged to the wastewater treatment plant to be treated, KAF no longer has any human or industrially-related source of pathogens directed to the permitted outfall. This has been confirmed through dye tests and analysis of the effluent for human gene biomarkers.	Fecal coliform is the currently approved bacterial indicator for waters designated as fishing and for the protection of secondary contact recreation in and on the water. (GA R. & Regs. 391-3-6-.03(6)(c)) The current Georgia water quality criteria for fecal coliform does not apply specifically to human sources and the proposed criteria does not distinguish between human and non-human sources at all, hence the exclusion of sanitary wastewater is not a justifiable basis for the removal of fecal coliform effluent limitations nor a guarantee that pathogens are absent from the facility's discharge that may cause harm to humans recreating in and on the water. Review of the renewal application and all data submitted by the permittee during the last permit term indicates a persistent and highly variable presence of fecal coliform in the discharge which frequently exceeds Georgia's instream water quality standards and current permit

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	limits. Fecal coliform bacterium are highly variable in the receiving stream after treatment and dilution is not considered in EPD's reasonable potential analysis as bacteria have the inherent ability to reproduce in the receiving stream. WQBELs have been applied for fecal coliform based on the facility's reasonable potential to cause or contribute to a violation of Georgia's water quality criteria for fecal coliform. EPD has also included provisions to replace the fecal coliform effluent limitations with *e. coli* effluent limitations during the permit term subject to EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. The transition to *e. coli* is discussed in more detail in the above EPD Responses and in Sections 4.4 and 5.2 of the Fact Sheet.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: The fecal coliform limitations in the current permit were originally added based on a condition in the Consent Decree between KAF and the Ogeechee Riverkeeper. The Consent Decree specifically states that its conditions are not contingent upon the EPD's adoption any limitations, and the Consent Decree in no way prohibits or discourages the Georgia EPD from making modifications to any limits in future permits based on new information.	Based on a review of the permitting files, EPD agrees that Consent Decree 6:12-CV-00058 was the original basis for the fecal coliform effluent limit. However, EPD is required to review the renewal application and all data submitted by the permittee during the last permit term. The data received indicates a persistent and highly variable presence of fecal coliform in the discharge which frequently exceeds Georgia's instream water quality standards. Fecal coliform bacterium are highly variable in the receiving stream after treatment and dilution is not considered in EPD's reasonable potential analysis as bacteria have the inherent ability to reproduce in the receiving stream. WQBELs have been applied for fecal coliform based on the facility's reasonable potential to cause or contribute to a violation of Georgia's water quality criteria for fecal coliform.

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	These effluent limitations are independent of the conditions established in the consent decree (Civil Action No. 6:12-CV-00058) between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper signed on January 15, 2014. EPD has also included provisions to replace the fecal coliform effluent limitations with *e. coli* effluent limitations during the permit term subject to EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. The transition to *e. coli* is discussed in more detail in the above EPD Responses and in Sections 4.4 and 5.2 of the Fact Sheet.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: Fecal coliform is common in water and soil due to wildlife. The KAF wastewater facility, like all rural outdoor environments, is exposed to wildlife, with alligators and waterfowl attracted to the ponds and other treatment units. This wildlife is likely to contaminate the ponds and other treatment units with fecal coliform, and these sources are outside of the reasonable control of KAF.	Fecal coliform is the currently approved bacterial indicator for waters designated as fishing and for the protection of secondary contact recreation in and on the water. (GA R. & Regs. 391-3-6-.03(6)(c)) The current Georgia water quality criteria for fecal coliform does not apply specifically to human sources and the proposed criteria does not distinguish between human and non-human sources at all, hence the exclusion of sanitary wastewater is not a justifiable basis for the removal of fecal coliform effluent limitations nor a guarantee that pathogens are absent from the facility's discharge that may cause harm to humans recreating in and on the water. Furthermore, the permittee is required as part of Consent Order EPD-WP-9076, issued May 05, 2021, to conduct an alternatives analysis regarding treatment technology that will evaluate alternatives to allow the facility to consistently meet fecal coliform effluent limitations while simultaneously consistently meeting the effluent limitations for other parameters in the NPDES Permit.

COMMENT RECEIVED	EPD RESPONSE
	EPD has also included provisions to replace the fecal coliform effluent limitations with *e. coli* effluent limitations during the permit term subject to EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. The transition to *e. coli* is discussed in more detail in the above EPD Responses and in Sections 4.4 and 5.2 of the Fact Sheet.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: The EPD has demonstrated that it has the freedom to use professional judgement to exclude bacterial indicator limitations from NPDES permits. In the 2016 Ogeechee River TMDL document (and other TMDLs), the EPD states the following: *Municipal and industrial wastewater treatment facilities with the potential for fecal coliform in their discharge are given end-of-pipe limits to meet the applicable water quality standard. An exception is constructed wetland systems, which have a natural level of fecal coliform input from animals attracted to the artificial wetlands.* The Richmond Hill – Elbow Swamp Constructed Wetlands Facility is specifically mentioned in this TMDL as a facility that qualifies for this exclusion from bacterial indicator limitations, even though the Georgia EPD is aware that Richmond Hill's effluent contains fecal coliform. KAF requests that the same professional judgement be applied to the renewed KAF permit.	The *Total Maximum Daily Load Evaluation for Eight Stream Segments in the Ogeechee River Basin for Fecal Coliform (2016)* established allowable pollutant loadings and other quantifiable parameters to return the identified stream segments to supporting their designated use. TMDLs are site-specific evaluations which consider wasteload allocations (point sources) and load allocations (non-point sources) within a watershed in order to determine a pollution reduction target. This specific TMDL determined that point source discharges were not the primary source of fecal coliform and that bacterial contributions from the constructed wetland system did not require a wasteload allocation. The lack of a wasteload allocation in a TMDL does not preclude the inclusion of effluent limitations within an NPDES permit, nor do the circumstances at the King America Finishing facility mirror that of the example provided by the commenter. Nonetheless, based on EPD's best professional judgement and reasonable potential analysis, fecal coliform limitations have since been applied at the final effluent following an upgrade of the Richmond Hill – Elbow Swamp Constructed Wetlands Facility

COMMENT RECEIVED	EPD RESPONSE
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: Other states have demonstrated flexibility with this issue. Milliken has facilities in the State of South Carolina that have manufacturing processes and wastewater treatment facilities like those at the KAF facility. When the potential for effluent bacterial indicator limitations was considered, the State of South Carolina allowed for two common-sense approaches at these Milliken facilities: i. At two facilities, sanitary sewage going to the wastewater treatment plant was pre-disinfected and South Carolina required indicator bacteria to be sampled at an internal outfall after the treatment. Effluent sampling and limitations were not required. ii. At one facility, sanitary sewage was segregated and pumped to a POTW. The facility was considered to have no reasonable potential going forward. Effluent sampling and limitations were not required. KAF believes that the Georgia EPD has the same flexibility regarding effluent bacterial indicator limitations.	Georgia EPD is not knowledgeable on how the state of South Carolina analyzes reasonable potential for bacteria and EPD does not determine our RPA nor establish effluent limitations based on other state's determinations.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: No additional measures, outside of continuous effluent disinfection, can be reasonably expected to prevent intermittent exceedances of the fecal coliform indicator bacteria. Effluent disinfection may require storage of large quantities of hazardous materials, such as gaseous chlorine or bleach, only a few yards from a natural wetland and less than half a mile	Effluent disinfection is an extremely common form of wastewater treatment with several demonstrated treatment technologies (e.g., chlorination, ozonation, ultraviolet radiation, microfiltration). The permittee's concerns that the use of chemical disinfection could impact compliance with other permit terms and limitations and spills may result from the storage of hazardous chemicals have no legal basis for the elimination of fecal coliform effluent limitations. Furthermore, the permittee is required as part of Consent Order EPD-WP-9076, issued

COMMENT RECEIVED	EPD RESPONSE
from the Ogeechee River. Chemical disinfection of the effluent would also likely result in the discharge of additional salts, disinfection byproducts, and toxicants. Such chemical disinfection of the discharge could impact KAF's compliance with other permit terms and limitations. Given the low risk associated with the natural sources of this bacteria, the much higher risk from the storage and discharge of hazardous chemicals is unwarranted.	May 05, 2021, to conduct an alternatives analysis regarding treatment technology that will evaluate alternatives to allow the facility to consistently meet fecal coliform effluent limitations while simultaneously consistently meeting the effluent limitations for other parameters in the NPDES Permit.
KAF requests that the fecal coliform limitations be excluded from the renewed permit, on the following basis: KAF expects that most other industrial wastewater treatment plants in the State of Georgia are exposed to wildlife and have the same potential for natural sources of fecal contamination. If the Georgia EPD establishes a general policy that NPDES permits for these discharges must have bacterial indicator monitoring and limitations, regardless of whether the site has human or industrially-related sources of pathogens, this would undoubtedly result in significant cost and an unnecessary burden for industry in the State of Georgia, without providing a significant benefit to the environment. KAF encourages the application of common-sense approaches to this potential issue statewide, such as the sanitary sewage segregation implemented at our facility.	EPD evaluates permits on a case-by-case basis and considers information provided within the specific permit application and permit compliance history. Fecal coliform is the currently approved bacterial indicator for waters designated as fishing and for the protection of secondary contact recreation in and on the water. (GA R. & Regs. 391-3-6-.03(6)(c)) The facility's discharge has demonstrated the reasonable potential cause or contribute to a violation of Georgia's water quality criteria for fecal coliform thus effluent limitations are required.

COMMENT RECEIVED	EPD RESPONSE
Anti-Backsliding Regulations / Removal of Monitoring Requirements	
1. Section 402(o) of the CWA prohibits backsliding, or the reissuance of a permit with "effluent limitations which are less stringent than the comparable effluent limitations in the previous permit." 33 U.S.C. § 1342(o)(1). The draft permit reduces and/or eliminates certain permit limits and also reduces and/or eliminates monitoring frequency for a number of parameters of concern. We oppose any such backsliding in the permit. In 2013, EPD issued the current permit which set out certain limits and conditions. These permit conditions were imposed to ensure that the facility met the CWA and did not violate any applicable state water quality laws. Presumably, EPD believed these permit terms and conditions were necessary and appropriate to protect water quality in the Ogeechee River. The draft permit, however, contains lower effluent limitations for a number of parameters of concern including fecal coliform, formaldehyde, total suspended solids (TSS), color, total phenols, and total chromium. It also weakens monitoring requirements for chemical oxygen demand (COD), TSS, total phenols, total chromium, total Kjeldahl Nitrogen, total Nitrogen, color, sodium, peroxide, total mercury, and sulfide. Riverkeeper opposes all such instances of backsliding and requests that EPD maintain or strengthen the permit terms and conditions as they existed in the previous permit. We particularly believe that the permit should not be weakened given that the permittee has failed to meet the terms of the current permit as evidenced by the numerous permit exceedances it has reported.	Reductions in monitoring frequency do not constitute backsliding as defined in Section 402(o) of the CWA (33 U.S.C. § 1342(o)) and 40 C.F.R. § 122.44(l). Comments relating to the reduction of monitoring frequencies have been addressed separately in this response to comments document. In general, the term "anti-backsliding" refers to the statutory and regulatory provisions established at 33 U.S.C. § 1342(o) that prohibit renewal, reissuance, or modification of an existing NPDES permit that contains effluent limitations less stringent than those established in the previous permit. There are, however; exceptions to this prohibition established at 33 U.S.C. § 1342(o)(2) and at 33 U.S.C. § 1313(d)(4) which allow for less stringent effluent limitations to be applied, provided they comply with the "safety-clause" established at 33 U.S.C. § 1342(o)(3). Less stringent effluent limitations have been applied for TSS, total phenols, and chromium, total, and effluent limitations have been removed for formaldehyde and color based on the allowable backsliding exceptions. Section 5.3 of the fact sheet identifies the applicable exception for each instance where less stringent effluent limitations or monitoring have been applied. The implementation of such revised limitations will not result in a violation of a water quality standard under Section 303 of the CWA (33 U.S.C. § 1313) applicable to such waters. The legal rationale for allowing instances of backsliding is already addressed at length in the draft permit's fact sheet, but EPD has provided

COMMENT RECEIVED	EPD RESPONSE
2. Less than a decade ago the facility was responsible for a massive fish kill which decimated wildlife in the Ogeechee River and endangered the public health of nearby communities and homes. Now you want to loosen regulations when due to the facility's history of negligence regulations should be stricter. Testing and discharge mitigation efforts should be strengthened and enforced for all hazardous chemicals in use at the King America Finishing Plant. 3. Despite the fact that the present owner of the facility, Milliken & Company, has repeatedly violated the existing permit, this draft permit proposes eliminating the testing of serious parameters and constituents, including formaldehyde and the flame retardant THPC.	additional narrative regarding formaldehyde in this response to comments as it was specifically identified by several commenters. Georgia does not have an instream numeric water quality criterion for formaldehyde nor does US EPA have a national recommended water quality criterion. Consistent with EPD's *NPDES Reasonable Potential Procedures* (2003), where numeric criteria have not been established whole effluent biomonitoring may be used to develop a whole effluent toxicity (WET) limit. This approach is necessary and appropriate for the protection of Georgia water quality criteria in accordance with GA. Comp. R. & Regs. 391-3-6-.03(5)(e). Whole effluent toxicity testing is thus more suitable to identify any toxicity exhibited by formaldehyde in the effluent and provides the added benefit of identifying any potential additive and synergistic effects on the effluent as a whole. Additionally, historical formaldehyde analytical results have shown considerable issues with quality control and quality assurance as well as matrix interference due to the co-extraction of other matrix contaminants. Such issues can cause false positive results, overreporting of formaldehyde concentrations, and overall analysis accuracy issues which limit the suitability of formaldehyde sampling for the determination of aquatic toxicity. Commenters have additionally expressed concerns related to the removal of monitoring requirements for THPC, sodium, and peroxide in the effluent. THPC, sodium, and peroxide do not have numeric water quality criteria with which to conduct a reasonable potential analysis against, and as previously discussed above, effluent WET testing is the appropriate compliance standard to ensure the protection of Georgia water quality criteria.

<table>
<tr><th>COMMENT RECEIVED</th><th>EPD RESPONSE</th></tr>
<tr><td></td><td>Similarly, the instream monitoring requirements for formaldehyde, sodium, peroxide, and sulfide were removed as there are no numeric water quality criteria with which to compare the instream data against to determine whether the receiving waterbody is supporting its designated use.</td></tr>
<tr><td colspan="2"><u>Whole Effluent Toxicity</u></td></tr>
<tr><td>1. Due to the past fish kill and continued permit violations, any new permit should be more strict on toxicity.

Milliken has continually failed to meet EPA standards, with 12 violations in the last 12 quarters. Failure to meet standards is not an argument for lowering those standards. Any new permit should be stricter on toxicity limits.

In May of 2011, the Ogeechee River experienced one of the largest fish kills in our state's history. 38,00+/- fish were killed along with alligators, turtles, and birds over a 77-mile stretch of the river. This trail of devastation began in Screven County, just downstream of the discharge pipe of a textile treatment facility – King America Finishing (KAF), Inc., now Milliken. Ogeechee Riverkeeper (ORK) sued KAF in 2012 for violations of the Clean Water Act. The settlement agreement put in place comprehensive and stringent environmental protections.

2. Considering the plant's recent track record on ongoing toxicity issues and continued multiple permit violations, as well as the plant's history</td><td>The current permit requires WET testing at the frequencies listed below. Based on the submitted WET testing results from December 2013 – May 2021, the number of tests and percentage of violations have been summarized below.

<table>
<tr><th></th><th colspan="4">Effluent Data</th><th colspan="3">Instream Data</th></tr>
<tr><th></th><th colspan="2">Acute WET</th><th colspan="2">Chronic WET</th><th colspan="2">Acute WET</th><th>Chronic WET</th></tr>
<tr><th></th><th>C. dubia</th><th>P. Promelas</th><th>C. dubia</th><th>P. Promelas</th><th>C. dubia</th><th>P. Promelas</th><th>C. dubia</th></tr>
<tr><th></th><th>2/Week</th><th>1/Year</th><th>1/Month</th><th>1/Year</th><th>1/Month</th><th>1/Year</th><th>1/Month</th></tr>
<tr><td># of Tests</td><td>912</td><td>11</td><td>124</td><td>11</td><td>131</td><td>8</td><td>119</td></tr>
<tr><td># of Viol.</td><td>15</td><td>1</td><td>4</td><td>0</td><td>0</td><td>0</td><td>4</td></tr>
<tr><td>% Viol.</td><td>1.64</td><td>9.09</td><td>3.23</td><td>0</td><td>0</td><td>0</td><td>3.36</td></tr>
</table>

Instream acute toxicity has not been detected for ceriodaphnia dubia as part of the historical WET testing. However, in consideration of the commentors concerns and the periodic toxicity exhibited in the effluent, EPD has returned the monitoring frequency for acute ceriodaphnia dubia WET testing to once per month.</td></tr>
</table>

COMMENT RECEIVED	EPD RESPONSE
of the disastrous fish kill in 2011, any new permit should be more strict on toxicity. The company should be made to upgrade its wastewater treatment operation further until it can consistently pass its WET testing.	
As you know, the toxicity of the effluent has been the Riverkeeper's primary concern since the fish kill, which was itself the result of a toxic discharge event. Since the last permit iteration, both the company and Riverkeeper have conducted toxicity sampling and both the company's and the Riverkeeper's sampling results have identified toxicity as an ongoing concern. Although a significant number of chronic toxicity tests have been either at the permit limit or have violated the limit, the draft permit has maintained the monitoring frequency for whole effluent testing established in the prior permit. Further, many of the testing frequency reductions have been justified because of ongoing aquatic toxicity testing; however, the permit does not increase this toxicity testing to ensure compliance. We believe that the frequency of the toxicity sampling must be increased as further explained below. Given the high variability exhibited in the chronic tests and the number of periodic violations, we believe chronic toxicity testing must occur weekly. We agree and support the change to the permit that requires that if two test results violate the limit of ≥ 8% effluent or are acutely toxic (LC50<100%), a toxicity identification and reduction evaluation (TI/RE) be implemented in accordance with federal Environmental Protection Agency ("EPA") guidance. The initiation of a TI/RE should require the development of a compliance schedule. This schedule should establish milestones to identify the toxicants, develop and identify alternatives to	Historical WET testing does not demonstrate a distinguishable trend of the effluent becoming more toxic overtime nor are there indicators that toxicity has been experienced instream which has not been identified through effluent WET testing. Hence, the proposed monitoring frequency of monthly for chronic toxicity testing for the water flea is sufficient to identify toxicity in the effluent. Additionally, due to the fact that the NOEC is limited to the concentrations tested, the coefficient of variation is limited by the selected dilution series and is subject to uncertainty. The commentor has also raised concerns over the selection of the dilution series for the chronic WET testing as well as the lack of IC25 reporting. As is noted by the commentor, the NOEC is the state of Georgia's metric for determining compliance with WET requirements, not the IC25. To provide additional transparency regarding WET testing results, EPD has required the IC25 to be reported to supplement the NOEC. EPD has additionally evaluated the selected dilution series for the chronic WET testing and has established in the permit a defined dilution series of Control, 2%, 4%, 8%, 16%, 32%, 64%, 100%. The revised dilution series includes two additional test concentrations to provide a more precise concentration-response relationship near the IWC using a modified 0.5 dilution factor in order to increase the precision of effect concentrations estimated from those relationships.

COMMENT RECEIVED	EPD RESPONSE
remove the toxicants, and bring the facility back into compliance with the permit limit. This request to increase chronic toxicity testing for the water flea, *Ceriodaphnia dubia*, to weekly is based on the following: • The effluent has been observed to be chronically toxic and has become more toxic over time; • The effluent exhibits substantial variability (coefficient of variation of 60%); • The discharge has experienced long periods of time where the discharge NOEC (No Observed Effect Concentration) was at the limit of 8% effluent, and • For tests in which inhibition concentration (IC25) data are available, the tests predict effects on reproduction at or near the instream waste concentrations The facility has been required to analyze for chronic toxicity at a frequency of monthly since 2013 using *Ceriodaphnia dubia*. The limitation for chronic toxicity is established as a NOEC of ≥8%. This is approximately the instream waste concentration under fully mixed 7Q10 flow conditions. As a result, nearly the entire river flow is allocated to the facility for dilution prior to determining compliance. The 25% inhibition concentration (IC25) should be used as the point estimate for chronic toxicity; however, this value was not available in the Pre-Draft permit document. Because the NOEC is a function of the dilution series used, the results do not reflect the true variability of the effluent. Additionally, the NOEC determination is influenced by the variability of the testing, which can mask both toxic and non-toxic samples. The IC25 is independent of test sensitivity and is therefore a	The modified dilution series has been included to increase confidence in results near the IWC at the expense of losing precision when the NOEC lies within the 32% - 100% range. The modified dilution series will also negatively impact the ability to accurately compare historical WET results with those obtained moving forward. The draft permit placed on public notice also included stricter toxicity requirements by including a special condition, at Part III.C.3.e for the permittee to perform a TIE/TRE in the event that two WET tests are failed. The proposed permit goes further and includes revisions to the TIE/TRE special conditions requiring more explicit obligations within the TIE/TRE process and where applicable; establishes a schedule for the completion of such obligations

COMMENT RECEIVED	EPD RESPONSE
better indication of actual sample toxicity. However, the test reports identified above were reviewed to determine the dilution series utilized. From this review, the dilution series for chronic aquatic toxicity testing is 100%, 80%, 65%, 50%, 25%, 8% and 6.25%. Although the compliance limit of 8% is bracketed, typically the critical concentration (≥8% effluent) is bracketed by 2 concentrations both above and below 8%. This was not the case for the tests reviewed as most tests only had one exposure concentration less than 8% effluent. Assuming a similar dilution series was used for all of the tests, the data indicate that the effluent is highly variable with NOEC values ranging from a low of 5% effluent to a high of 84% effluent. For the most toxic test result collected in December 2018 (NOEC = 5% effluent), ORK collected and split a sample with Milliken. The ORK test indicated that the lowest observable effect concentration was 10% effluent and the IC25 was 10.6% effluent. The test run by Milliken reported that the NOEC was less than the lowest concentration tested (6.25% effluent). In the review of the May 2018 test report, it was noted that reproduction levels in both the 6.25% and 25% exposure concentrations were significantly different than the control while the 8% concentration was not significantly different. The report states that the NOEC is 8% for this test period. This scenario would be classified as a non-significant effect bracketed by significant effects (response 6 in the USEPA guidance (2002)). As such, the test would be considered valid and the NOEC should be reported as the concentration below the LOEC of 6.25%. Thus, the NOEC should have been reported as <6.25% effluent, not 8% as reported. The available data illustrate the following:	

COMMENT RECEIVED	EPD RESPONSE
• Since 12/12/2013 (and including the May 2018 report), there have been 4 permit limit violations of the chronic toxicity limitation (1 each in 2013 and 2014 and 2 in 2018) • There is a high degree of variability in the data. Effluent NOEC values range from a low of 5% effluent (collected in December 2018) to a high of 84%. The calculated average of the NOEC values is 40% and the data exhibit a coefficient of variation of 60%. • Between November 2017 and June 2018 (8 tests), the NOEC value was reported as 8% effluent for 7 of the tests. • For the available data (94 tests plus 1 duplicate), there were 20 tests with results reported as NOEC of 8% or less. Note, for the duplicate test, that both tests indicated that the NOEC was below 8% effluent. As noted above, there is extensive variability in the reported NOEC values. To determine if there are any data trends, the quarterly average NOEC value was calculated for the available dataset. Again, the lack of an IC25 value limits data interpretation; however, assuming that the test concentration series has not changed, the data indicate that the effluent has become more toxic over time. During the period from November 2017 to June 2018 in which the NOEC was consistently reported at 8% (with the exception of January 2018), variability equivalent to that observed for the period of record would be expected; thus, it is likely that actual toxicity varied around 8% effluent –both above and below. This variability was not captured by the monthly data. Thus, we believe that chronic aquatic toxicity testing should be increased to weekly to understand the impact of the discharge on the Ogeechee River. Further, the fact that the endangered native Robust Redhorse fish has failed to establish a population downstream of the	

COMMENT RECEIVED	EPD RESPONSE
facilities effluent after restocking indicates that conditions are not ideal. Finally, in addition to reporting the NOEC, the permittee should also be required to report the chronic IC25 so that a better understanding of the effluent variability can be obtained and the potential for instream impact can be assessed. In summary, therefore, we support: weekly testing to ensure compliance given reduced chemical monitoring; NOEC reporting (because this is the state standard); and IC25 reporting because this is a superior metric. We understand that the permittee will resist this increased testing and argue that other facilities in the state are not subject to similar testing requirements. But this facility is very different from other industrial dischargers in the state. The historical data and the history of the largest fish kill in the state justify whatever marginal additional cost this entails because of the importance of this issue.	
Part III.C.3.e of the draft permit, on page 28, contains a condition that requires the facility to complete both a Toxicity Identification Evaluation (TIE) and Toxicity Reduction Evaluation (TRE) after two WET test failures. Although KAF acknowledges the usefulness of the TIE and TRE protocols in some situations, we object to this requirement as it is written, because it may require the permittee to take actions under certain circumstances that are not possible or that serve no useful purpose. For example, toxicity failures at KAF have been infrequent, and when they have occurred, the elevated toxicity was not persistent over time. When toxicity is not persistent, execution of a TIE is impractical, as it is impossible to collect a representative sample on which to perform the identification activities. As the permit condition is written, KAF would be required to complete the TIE protocol regardless of the availability of toxic effluent. A TIE performed under these circumstances would yield	The historical results of the facility's whole effluent toxicity testing have shown intermittent toxicity issues which have yet to be successfully eliminated. To address toxicity, a special condition has been included at Part III.C.3.e for the permittee to perform a TIE/TRE in the event that two WET tests are failed. EPD has revised the TIE/TRE special condition to provide more explicit obligations within the TIE/TRE process and where applicable; to establish a schedule for the completion of such obligations.

COMMENT RECEIVED	EPD RESPONSE
no useful information to the permittee or Georgia EPD. In addition, in some cases, the cause of toxicity in the effluent can be quickly and readily identified without the need for a TIE. Examples would include toxicity that corresponds to a wastewater treatment facility upset or an inadvertent chemical release to the wastewater treatment facility. Under these circumstances, the Toxicity Reduction Evaluation (TRE) activities can be initiated immediately with no need for a TIE. KAF suggests that this condition be modified in the following ways to prevent conditions that require actions that are not possible or that serve no useful purpose: a. Require the TIE/TRE only under conditions that suggest persistent toxicity, such as the failure of consecutive toxicity samples. b. Add language that explicitly allows for the discretion of a Professional Engineer and the Georgia EPD in determining whether TIE activities are necessary. For example, the permit could require submittal to the Georgia EPD of a Corrective Action Plan, prepared by a Professional Engineer, that considers the usefulness and practicality of the TIE methodology in addressing the causes of the persistent toxicity.	
<u>Instream Monitoring</u>	
ORK requests that downstream samples be collected in a manner that ensures samples are collected within the discharge plume, are representative of downstream conditions, and allow the calculation of percent effluent in the sample. Currently, the draft permit requires only measurement of conductivity and collection of a sample at any location within 25 feet of the discharge pipe. The data will be utilized by EPD to determine if the downstream sampling is representative of sampling	The permit at Part I.A.4 includes a downstream sampling point identified as 25 feet downstream of the discharge and 38 feet from the left riverbank. This location was identified through water quality modeling as the assumed center of the effluent plume. Conductivity sampling was also included to confirm that the downstream sampling location is representative of the effluent plume within the Ogeechee River.

COMMENT RECEIVED	EPD RESPONSE
within the effluent plume. While we agree with the objective of the requirement, ORK believes that the requirement is too vague. Specifically, the language only requires Milliken to monitor the conductivity of the sample but does not require Milliken to locate the effluent plume and then sample directly from the plume. Given that there is over an order of magnitude difference in receiving water and Milliken effluent conductivity, location and identification of the plume based on conductivity alone is possible. Part I A.4 of the permit requires the permittee to collect a sample 25 feet downstream of the outfall pipe for aquatic toxicity testing. Depending on stream flow conditions, this results in a highly variable sample. We understand that this sampling location was selected to monitor actual instream conditions associated with the effluent discharge. However, based on a limited review of sampling data, the collection of a sample which contains a representative concentration of the effluent is often a hit or miss proposition. For example, the May 2018 receiving water toxicity test was conducted with a downstream sample which contained essentially no effluent. The Ogeechee River flow for this sample period was less than the harmonic mean flow for which Milliken modeled expected effluent concentrations downstream of the discharge. This data indicates that none of the downstream samples contained effluent from the Milliken discharge. Specifically, the samples collected 25 feet downstream of the outfall were more representative of upstream conditions than downstream. Further, based on modeling conducted by Milliken, samples collected within the discharge plume 25 feet downstream of the discharge should have had conductivity of between 249 and 309 µmhos/cm under harmonic mean flow conditions. In contrast, the downstream samples used for testing contained only one-	Outside of the scope of the permit issuance, the permittee has also been required as part of Consent Order EPD-WP-9076, issued May 05, 2021, to demonstrate that the downstream sampling location is within the effluent plume under variable effluent and river flow conditions and if necessary, recommend adjustments to the sampling methodology where feasible. The demonstration will include, but not be limited to, a modeling analysis that evaluates expected conductivity at the downstream sampling location based on the historical effluent data and stream flows compared to historical actual conductivity readings at the downstream location. Under Part I.A.4 of the permit, EPD may review and approve an alternate downstream sampling location should data indicate that the current location is not representative of the effluent plume within the Ogeechee River.

COMMENT RECEIVED	EPD RESPONSE
third of the conductivity and were representative of upstream conditions, not downstream discharge conditions. To remedy this situation, we recommend the following improvements in sampling methodology: • Prior to collecting the downstream sample, the sampler shall conduct a conductivity survey of the cross-section of the receiving stream at a point 25 feet downstream of the outfall. The objective of the survey is to identify the location of the effluent plume. The survey shall be conducted from top to bottom and from bank to bank at representative intervals across the stream. • Once the location of the plume has been identified, the sampler shall collect a vertically proportional sample; specifically, the sample shall be collected representative of the bottom third, middle third and top third of the receiving stream within the discharge plume. • Based on upstream and effluent conductivity values, the percent effluent in the sample shall be calculated.	
The reasonable potential analysis for various parameters assumes rapid and complete dilution with the entire river flow to determine instream concentrations. This presumes a mixing zone of unspecified and unlimited size, without designating or physically defining a mixing zone. Clearly, based on the downstream monitoring that has been conducted, the mixing is neither rapid nor complete. Had complete mixing been rapidly achieved, conductivity measurements for the May 2018 sampling	GA R. & Regs. at 391-3-6-.03(10) state that the use of a reasonable and limited mixing zone may be permitted on receipt of satisfactory evidence that such a zone is necessary and that it will not create an objectionable or damaging pollution condition. EPD may establish a mixing zone where the use of the dilution factor equations defined at GA R. & Regs. at 391-3-6-.06(2)(f) are inapplicable and it is deemed necessary to define such a zone within which certain water quality criteria may be exceeded.

COMMENT RECEIVED	EPD RESPONSE
event discussed above would have ranged between 158 and 182 µmhos/cm not 99–109 as reported by Milliken. Further, assuming complete mixing and providing the entire river flow for dilution, when this is not the case, allows for areas where water quality criteria are exceeded. Without delineation of the size of the mixing zone, the impact of the discharge on the receiving stream is unknown. Georgia regulations allow for properly identified and circumscribed mixing zones, but only with limitations and restrictions that have not been met or addressed.	EPD's dilution factor equations assume a relatively rapid and complex mix. US EPA guidance generally describes rapid and complete mixing as mixing which occurs when the lateral variation in the concentration of a pollutant in the direct vicinity of the outfall is small. (US EPA's *NPDES Permit Writers' Manual,* EPA-833-K-10-001 (Sept. 2010) at Sec. 6.2.5.1, p. 6-20) The facility's outfall is equipped with a diffuser which facilitates mixing and minimizes lateral variation in the concentration of a pollutant in the direct vicinity of the outfall. CORMIX modeling provided with the permit application indicates that based on available near-field mixing, it is unnecessary to define a mixing zone within which certain water quality criteria would be exceeded.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

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404-656-4713

Mr. Gary Newman, Plant Manager
King America Finishing, Inc.
1351 Scarboro Hwy
Sylvania, Georgia 30467

02/25/2022

RE: Permit Issuance
King America Finishing, Inc.
NPDES Permit No. GA0003280
Screven County, Ogeechee River Basin

Dear Mr. Newman:

Pursuant to the Georgia Water Quality Control Act, as amended, the Federal Clean Water Act, as amended, and the Rules and Regulations promulgated thereunder, we have issued the attached permit for the above-referenced facility.

Your facility has been assigned to the following EPD office for reporting and compliance. Signed copies of all required reports shall be submitted to the following address:

Environmental Protection Division
Coastal District Office
400 Commerce Center Drive
Brunswick, Georgia 31523-8251

Please be advised that on and after the effective date indicated in the permit, the permittee must comply with all terms, conditions, and limitations of the permit. If you have questions concerning this correspondence, please contact Ian McDowell at 470.604.9483 or *ian.mcdowell@dnr.ga.gov*.

Sincerely,

Richard E. Dunn
Director

RED:im
Enclosure(s)
cc: EPD Coastal District (Brunswick) Compliance Office – Michelle Dennis (e-mail)
EPD Watershed Planning and Monitoring Program – Josh Welte (e-mail)
EPD Watershed Planning and Monitoring Program – Tyler Parsons (e-mail)
Milliken & Company, Corporate Env. Dept. – Lee Slusher (*lee.slusher@milliken.com*)
E-mail to EPA Region 4 mailbox: *R4NPDESPermits@epa.gov*

Permit No. GA0003280
Issuance Date: 02/25/2022

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

National Pollutant Discharge Elimination System Permit

In accordance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the State Act; the Federal Water Pollution Control Act, as amended (33 U.S. C. 1251 et seq.), hereinafter called the Federal Act; and the Rules and Regulations promulgated pursuant to each of these Acts,

King America Finishing, Inc.
1351 Scarboro Highway
Sylvania, Georgia 30467

is issued a permit to discharge from a facility located at

1351 Scarboro Highway
Sylvania, Georgia 30467
Screven County

to receiving waters

the Ogeechee River (Outfall 001) in the Ogeechee River Basin.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in the permit.

This permit is issued in reliance upon the permit application signed on April 18, 2018, any other applications upon which this permit is based, supporting data entered therein or attached thereto, and any subsequent submittal of supporting data.

This permit shall become effective on April 01, 2022.

This permit and the authorization to discharge shall expire at midnight March 31, 2027.

Richard E. Dunn, Director
Environmental Protection Division

PART I

A.1. Effluent Limitations and Monitoring Requirements

Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)[1]

During the period specified on the first page of this permit, the permittee is authorized to discharge from outfall number 001[2] (32.594658, -81.747894) – Process Water, Cooling Water, and Stormwater.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Flow (MGD)[4]	3.1	Report	--	--	Daily	Continuous	Final Effluent
Temperature (°F)	--	See Note[5]	--	--	See Note[5]	See Note[5]	Final Effluent
Dissolved Oxygen	--	--	--	See Note[6]	See Note[6]	See Note[6]	Final Effluent
BOD_5	323	646	30	60	5/Week	Composite	Final Effluent
COD	5,328	10,656	Report	Report	5/Week	Composite	Final Effluent
TSS	650	1,160	Report	Report	1/Week	Composite	Final Effluent
Sulfide	9.8	19.6	1.5	3.0	3/Week	Grab	Final Effluent
TDS	--	--	2,500	3,800	5/Week	Composite	Final Effluent
Total Phenols	4.9	9.8	Report	Report	Once Every Two Months	Grab	Final Effluent
Mercury, Total (ng/L)	--	--	See Note[7]	See Note[7]	2/Year	Grab	See Note[7]
Chromium, Total	4.9	9.8	Report	Report	Once Every Two Months	Composite	Final Effluent
Ammonia, as N[8]	181	336	7	13	Daily	Composite	Final Effluent
Total Kjeldahl Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Organic Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Nitrate/Nitrite[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Total Nitrogen[8]	--	--	Report	Report	1/Month	Calculation	Final Effluent
Total Phosphorus, as P[9]	--	--	Report	Report	3/Week	Composite	Final Effluent
Orthophosphate, as P[9]	--	--	Report	Report	1/Month	Composite	Final Effluent
Specific Conductance (µmhos/cm)	--	--	Report	Report	Daily	Continuous	Final Effluent
Color (ADMI color value)	--	--	Report	Report	1/Week	Grab	Final Effluent
Fecal Coliform[10][11] (#/100mL)	--	--	200	400	1/Week	Grab	Final Effluent
Escherichia Coli[10][11] (#/100mL)	--	--	126	410	1/Week	Grab	Final Effluent
Acute Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	LC_{50} ≥100% Effluent	--	--	--	2/Week	Composite	Final Effluent
Acute Whole Effluent Toxicity[12] (*Pimephales promelas)*	LC_{50} ≥ 100% Effluent	--	--	--	1/Year	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	NOEC ≥ 8% Effluent	--	--	--	1/Month	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Pimephales promelas)*	NOEC ≥ 8% Effluent	--	--	--	1/Year	Composite	Final Effluent

The pH of the final effluent shall be continuously monitored and recorded. The continuous monitoring system shall have an alarm system that warns that the pH is approaching effluent limits. In addition to continuous monitoring, the pH of the final effluent shall be monitored by analyzing grab samples once per day, five days per week. The pH of the final effluent shall not be less than 6.0 standard units or greater than 8.0 standard units. The monthly minimum and maximum pH from each method shall be reported.

(1) The effluent limitations and monitoring requirements established in Part I.A.1 of this permit are effective for Plant 1 monthly average production levels up to 97,939 lbs of product per day. The average daily production (lbs of product/day) for the month shall be reported with the monthly discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(2) There shall be no discharge of floating solids or visible foam other than trace amounts.

(3) All the parameters must be monitored, at a minimum, at the measurement frequency stated above if there is any discharge. If there is no discharge, state such in the discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(4) See Special Conditions, Part III.C.1 of this permit.

(5) The temperature of the final effluent shall be continuously monitored. In addition to continuous monitoring, the temperature of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The monthly minimum and maximum temperature from each method shall be reported.

(6) The dissolved oxygen concentration in the final effluent shall be continuously monitored. In addition to continuous monitoring, the dissolved oxygen concentration of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The dissolved oxygen concentration in the final effluent shall be 5.0 mg/L or higher at all times. The monthly minimum dissolved oxygen concentration from each method shall be reported.

(7) The concentration of mercury in the final effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater. The permittee shall concurrently monitor the final effluent and source water using EPA Method 1631E to quantify the amount of mercury present in each. The detection limit for this method shall be no higher than 0.5 ng/L.

(8) Ammonia, as N; total Kjeldahl nitrogen; organic nitrogen; nitrate/nitrite; and total nitrogen shall be analyzed or calculated from the same effluent sample on the same day.

(9) Total phosphorus and orthophosphate shall be analyzed from the same effluent sample on the same day.

(10) Fecal coliform and escherichia coli bacteria shall be reported as the geometric mean of the values for samples collected during the month.

(11) The permittee is subject to the effluent limitations and monitoring requirements for fecal coliform from the effective date of the permit and continuing until EPD provides written authorization to the permittee subjecting the permittee to the effluent limitations and monitoring requirements for escherichia coli.

(12) See Special Conditions, Part III.C.3 of this permit.

A.2. Effluent Limitations and Monitoring Requirements

Tier 2 (97,939 < Average Production of Plant 1 ≤ 111,849 lbs/day)[1]

During the period specified on the first page of this permit, the permittee is authorized to discharge from outfall number 001[2] (32.594658, -81.747894) – Process Water, Cooling Water, and Stormwater.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Flow (MGD)[4]	3.1	Report	--	--	Daily	Continuous	Final Effluent
Temperature (°F)	--	See Note[5]	--	--	See Note[5]	See Note[5]	Final Effluent
Dissolved Oxygen	--	--	--	See Note[6]	See Note[6]	See Note[6]	Final Effluent
BOD_5	369	738	30	60	5/Week	Composite	Final Effluent
COD	5,500	11,000	Report	Report	5/Week	Composite	Final Effluent
TSS	650	1,160	Report	Report	1/Week	Composite	Final Effluent
Sulfide	11.2	22.4	1.5	3.0	3/Week	Grab	Final Effluent
TDS	--	--	2,500	3,800	5/Week	Composite	Final Effluent
Total Phenols	5.6	11.2	Report	Report	Once Every Two Months	Grab	Final Effluent
Mercury, Total (ng/L)	--	--	See Note[7]	See Note[7]	2/Year	Grab	See Note[7]
Chromium, Total	5.6	11.2	Report	Report	Once Every Two Months	Composite	Final Effluent
Ammonia, as N[8]	181	336	7	13	Daily	Composite	Final Effluent
Total Kjeldahl Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Organic Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Nitrate/Nitrite[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Total Nitrogen[8]	--	--	Report	Report	1/Month	Calculation	Final Effluent
Total Phosphorus, as P[9]	--	--	Report	Report	3/Week	Composite	Final Effluent
Orthophosphate, as P[9]	--	--	Report	Report	1/Month	Composite	Final Effluent
Specific Conductance (µmhos/cm)	--	--	Report	Report	Daily	Continuous	Final Effluent
Color (ADMI color value)	--	--	Report	Report	1/Week	Grab	Final Effluent
Fecal Coliform[10][11] (#/100mL)	--	--	200	400	1/Week	Grab	Final Effluent
Escherichia Coli[10][11] (#/100mL)	--	--	126	410	1/Week	Grab	Final Effluent
Acute Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	LC_{50} ≥100% Effluent	--	--	--	2/Week	Composite	Final Effluent
Acute Whole Effluent Toxicity[12] (*Pimephales promelas)*	LC_{50} ≥ 100% Effluent	--	--	--	1/Year	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	NOEC ≥ 8% Effluent	--	--	--	1/Month	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Pimephales promelas)*	NOEC ≥ 8% Effluent	--	--	--	1/Year	Composite	Final Effluent

The pH of the final effluent shall be continuously monitored and recorded. The continuous monitoring system shall have an alarm system that warns that the pH is approaching effluent limits. In addition to continuous monitoring, the pH of the final effluent shall be monitored by analyzing grab samples once per day, five days per week. The pH of the final effluent shall not be less than 6.0 standard units or greater than 8.0 standard units. The monthly minimum and maximum pH from each method shall be reported.

(1) The effluent limitations and monitoring requirements established in Part I.A.1 of this permit are effective for Plant 1 monthly average production levels greater than 97,939 lbs of product per day but less than 111,849 lbs of product per day, provided that the permittee has notified EPD of an increase in production in accordance with Part III.C.5 of this permit. The average daily production (lbs of product/day) for the month shall be reported with the monthly discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(2) There shall be no discharge of floating solids or visible foam other than trace amounts.

(3) All the parameters must be monitored, at a minimum, at the measurement frequency stated above if there is any discharge. If there is no discharge, state such in the discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(4) See Special Conditions, Part III.C.1 of this permit.

(5) The temperature of the final effluent shall be continuously monitored. In addition to continuous monitoring, the temperature of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The monthly minimum and maximum temperature from each method shall be reported.

(6) The dissolved oxygen concentration in the final effluent shall be continuously monitored. In addition to continuous monitoring, the dissolved oxygen concentration of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The dissolved oxygen concentration in the final effluent shall be 5.0 mg/L or higher at all times. The monthly minimum dissolved oxygen concentration from each method shall be reported.

(7) The concentration of mercury in the final effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater. The permittee shall concurrently monitor the final effluent and source water using EPA Method 1631E to quantify the amount of mercury present in each. The detection limit for this method shall be no higher than 0.5 ng/L.

(8) Ammonia, as N; total Kjeldahl nitrogen; organic nitrogen; nitrate/nitrite; and total nitrogen shall be analyzed or calculated from the same effluent sample on the same day.

(9) Total phosphorus and orthophosphate shall be analyzed from the same effluent sample on the same day.

(10) Fecal coliform and escherichia coli bacteria shall be reported as the geometric mean of the values for samples collected during the month.

(11) The permittee is subject to the effluent limitations and monitoring requirements for fecal coliform from the effective date of the permit and continuing until EPD provides written authorization to the permittee subjecting the permittee to the effluent limitations and monitoring requirements for escherichia coli.

(12) See Special Conditions, Part III.C.3 of this permit.

A.3. Effluent Limitations and Monitoring Requirements

Tier 3 (111,849 < Average Production of Plant 1 ≤ 128,116 lbs/day)[1]

During the period specified on the first page of this permit, the permittee is authorized to discharge from outfall number 001[2] (32.594658, -81.747894) – Process Water, Cooling Water, and Stormwater.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Flow (MGD)[4]	3.1	Report	--	--	Daily	Continuous	Final Effluent
Temperature (°F)	--	See Note[5]	--	--	See Note[5]	See Note[5]	Final Effluent
Dissolved Oxygen	--	--	--	See Note[6]	See Note[6]	See Note[6]	Final Effluent
BOD_5	423	846	30	60	5/Week	Composite	Final Effluent
COD	5,500	11,000	Report	Report	5/Week	Composite	Final Effluent
TSS	650	1,160	Report	Report	1/Week	Composite	Final Effluent
Sulfide	12.8	25.6	1.5	3.0	3/Week	Grab	Final Effluent
TDS	--	--	2,500	3,800	5/Week	Composite	Final Effluent
Total Phenols	6.4	12.8	Report	Report	Once Every Two Months	Grab	Final Effluent
Mercury, Total (ng/L)	--	--	See Note[7]	See Note[7]	2/Year	Grab	See Note[7]
Chromium, Total	6.4	12.8	Report	Report	Once Every Two Months	Composite	Final Effluent
Ammonia, as N[8]	181	336	7	13	Daily	Composite	Final Effluent
Total Kjeldahl Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Organic Nitrogen[8]	--	--	Report	Report	1/Month	Composite	Final Effluent

Effluent Characteristics (Units)	Discharge Limitations				Monitoring Requirements[3]		
	Mass Based (lbs/day)		Concentration Based (mg/L)		Measurement Frequency	Sample Type	Sample Location
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.			
Nitrate/Nitrite[8]	--	--	Report	Report	1/Month	Composite	Final Effluent
Total Nitrogen[8]	--	--	Report	Report	1/Month	Calculation	Final Effluent
Total Phosphorus, as P[9]	--	--	Report	Report	3/Week	Composite	Final Effluent
Orthophosphate, as P[9]	--	--	Report	Report	1/Month	Composite	Final Effluent
Specific Conductance (µmhos/cm)	--	--	Report	Report	Daily	Continuous	Final Effluent
Color (ADMI color value)	--	--	Report	Report	1/Week	Grab	Final Effluent
Fecal Coliform[10][11] (#/100mL)	--	--	200	400	1/Week	Grab	Final Effluent
Escherichia Coli[10][11] (#/100mL)	--	--	126	410	1/Week	Grab	Final Effluent
Acute Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	LC_{50} ≥100% Effluent	--	--	--	2/Week	Composite	Final Effluent
Acute Whole Effluent Toxicity[12] (*Pimephales promelas)*	LC_{50} ≥ 100% Effluent	--	--	--	1/Year	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Ceriodaphnia dubia)*	NOEC ≥ 8% Effluent	--	--	--	1/Month	Composite	Final Effluent
Chronic Whole Effluent Toxicity[12] (*Pimephales promelas)*	NOEC ≥ 8% Effluent	--	--	--	1/Year	Composite	Final Effluent

The pH of the final effluent shall be continuously monitored and recorded. The continuous monitoring system shall have an alarm system that warns that the pH is approaching effluent limits. In addition to continuous monitoring, the pH of the final effluent shall be monitored by analyzing grab samples once per day, five days per week. The pH of the final effluent shall not be less than 6.0 standard units or greater than 8.0 standard units. The monthly minimum and maximum pH from each method shall be reported.

(1) The effluent limitations and monitoring requirements established in Part I.A.1 of this permit are effective for Plant 1 monthly average production levels greater than 111,849 lbs of product per day but less than 128,116 lbs of product per day, provided that the permittee has notified EPD of an increase in production in accordance with Part III.C.5 of this permit. The average daily production (lbs of product/day) for the month shall be reported with the monthly discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(2) There shall be no discharge of floating solids or visible foam other than trace amounts.

(3) All the parameters must be monitored, at a minimum, at the measurement frequency stated above if there is any discharge. If there is no discharge, state such in the discharge monitoring report in accordance with the reporting requirements in Part 1.D of this permit.

(4) See Special Conditions, Part III.C.1 of this permit.

(5) The temperature of the final effluent shall be continuously monitored. In addition to continuous monitoring, the temperature of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The monthly minimum and maximum temperature from each method shall be reported.

(6) The dissolved oxygen concentration in the final effluent shall be continuously monitored. In addition to continuous monitoring, the dissolved oxygen concentration of the final effluent shall be separately monitored once per day by a grab sample, five days per week. The dissolved oxygen concentration in the final effluent shall be 5.0 mg/L or higher at all times. The monthly minimum dissolved oxygen concentration from each method shall be reported.

(7) The concentration of mercury in the final effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater. The permittee shall concurrently monitor the final effluent and source water using EPA Method 1631E to quantify the amount of mercury present in each. The detection limit for this method shall be no higher than 0.5 ng/L.

(8) Ammonia, as N; total Kjeldahl nitrogen; organic nitrogen; nitrate/nitrite; and total nitrogen shall be analyzed or calculated from the same effluent sample on the same day.

(9) Total phosphorus and orthophosphate shall be analyzed from the same effluent sample on the same day.

(10) Fecal coliform and escherichia coli bacteria shall be reported as the geometric mean of the values for samples collected during the month.

(11) The permittee is subject to the effluent limitations and monitoring requirements for fecal coliform from the effective date of the permit and continuing until EPD provides written authorization to the permittee subjecting the permittee to the effluent limitations and monitoring requirements for escherichia coli.

(12) See Special Conditions, Part III.C.3 of this permit.

A.4. Surface Water Monitoring Requirements

Surface water(s) adjacent to the wastewater discharge shall be monitored. Unless otherwise stated or approved by EPD, samples shall concurrently be collected 25 feet upstream of the permittee's discharge pipe and 25 feet downstream of the permittee's discharge pipe, as marked by a post on the river bank, and at a distance of 38 feet (+/- 3 feet) from the left riverbank.

Surface water monitoring shall be conducted by the permittee as specified below:

Parameter (Units)	**Measurement Frequency**	**Sample Type**
pH (standard units)	1/Month	Grab
Temperature (°F)	1/Month	Grab
Specific Conductance[(1)] (µmhos/cm)	1/Month	Grab
Ammonia, as N (mg/L)	1/Month	Grab
Dissolved Oxygen (mg/L)	1/Month	Grab
Acute Whole Effluent Toxicity[(1)] (*Ceriodaphnia dubia)*	1/Month	Grab
Acute Whole Effluent Toxicity[(1)(2)] (*Pimephales promelas)*	1/Year	Grab
Chronic Whole Effluent Toxicity[(1)(2)] (*Ceriodaphnia dubia)*	1/Month	Grab

(1) Downstream specific conductance sampling should be conducted concurrently with the whole effluent toxicity testing and obtained from the same sample location, including depth in the water column. EPD will evaluate the data to confirm that the downstream sampling location is representative of the effluent plume within the Ogeechee River.

(2) Instream whole effluent toxicity testing will be conducted downstream only. See Special Conditions, Part III.C.3 of this permit.

B. Monitoring

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. The permittee shall maintain a written sampling plan and schedule onsite.

2. Sampling Period

a. Unless otherwise specified in this permit, quarterly samples shall be taken during the periods January-March, April-June, July-September, and October-December.

b. Unless otherwise specified in this permit, semiannual samples shall be taken during the periods January-June and July-December.

c. Unless otherwise specified in this permit, annual samples shall be taken during the period of January-December.

d. Unless otherwise specified in this permit, “once every two months” samples shall be taken during the periods January-February, March-April, May-June, July-August, September-October, and November-December.

3. Monitoring Procedures

Analytical methods, sample containers, sample preservation techniques, and sample holding times must be consistent with the techniques and methods listed in 40 CFR Part 136. The analytical method used shall be sufficiently sensitive. EPA-approved methods must be applicable to the concentration ranges of the NPDES permit samples.

4. Detection Limits

All parameters will be analyzed using the appropriate detection limits. If the results for a given sample are such that a parameter is not detected at or above the specified detection limit, a value of "NOT DETECTED" will be reported for that sample and the detection limit will also be reported.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;

b. The dates and times the analyses were performed, and the person(s) performing the analyses;

c. The analytical techniques or methods used;

d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased monitoring frequency shall also be indicated. EPD may require, by written notification, more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a minimum of three (3) years from the date of the sample, measurement, report or application, or longer if requested by EPD.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of EPD

C. Definitions

1. The "daily average" mass means the total discharge by mass during a calendar month divided by the number of days in the month that the production or commercial facility was discharging. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.

2. The "daily maximum" mass means the total discharge by mass during any calendar day.

3. The "daily average" concentration means the arithmetic average of all the daily determinations of concentrations made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.

4. The "daily maximum" concentration means the daily determination of concentration for any calendar day.

5. A “calendar day” is defined as any consecutive 24-hour period.

6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

7. "Severe property damage" means substantial physical damage to property, damage to treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

8. “EPD” as used herein means the Environmental Protection Division of the Department of Natural Resources.

9. “State Act” as used herein means the Georgia Water Quality Control Act (Official Code of Georgia Annotated; Title 12, Chapter 5, Article 2).

10. “Rules” as used herein means the Georgia Rules and Regulations for Water Quality Control.

11. The “Plant 1 average production” means the average production (lbs of product per day) of woven cotton and synthetic fibers through the processes of preparation, dyeing, and finishing. Product receiving further conditioning through Plant 2 operations such as flame-retardant treatment and bisulfite washing is not to be considered as additional production for the purposes of this permit.

D. Reporting Requirements

1. The permittee must electronically report the DMR, OMR and additional monitoring data using the web based electronic NetDMR reporting system, unless a waiver is granted by EPD.

a. The permittee must comply with the Federal National Pollutant Discharge Elimination System Electronic Reporting regulations in 40 CFR §127. The permittee must electronically report the DMR, OMR, and additional monitoring data using the web based electronic NetDMR reporting system online at: https://netdmr.epa.gov/netdmr/public/home.htm

b. Monitoring results obtained during the calendar month shall be summarized for each month and reported on the DMR. The results of each sampling event shall be reported on the OMR and submitted as an attachment to the DMR.

c. The permittee shall submit the DMR, OMR and additional monitoring data no later than 11:59 p.m. on the 15th day of the month following the sampling period.

d. All other reports required herein, unless otherwise stated, shall be submitted to the EPD Office listed on the permit issuance letter signed by the Director of EPD.

2. No later than **December 21, 2025**, the permittee must electronically report the following compliance monitoring data and reports using the online web based electronic system approved by EPD, unless a waiver is granted by EPD:

a. Sewer Overflow/Bypass Event Reports;
b. Noncompliance Notification;
c. Other noncompliance; and
d. Bypass

3. Other Reports

All other reports required in this permit not listed above in Part I.D.2 or unless otherwise stated, shall be submitted to the EPD Office listed on the permit issuance letter signed by the Director of EPD.

4. Other Noncompliance

All instances of noncompliance not reported under Part I.D. and Part II.A. shall be reported to EPD at the time the monitoring report is submitted.

5. Signatory Requirements

All reports, certifications, data or information submitted in compliance with this permit or requested by EPD must be signed and certified as follows:

a. Any State or NPDES Permit Application form submitted to the EPD shall be signed as follows in accordance with the Federal Regulations, 40 C.F.R. 122.22:

1. For a corporation, by a responsible corporate officer. A responsible corporate officer means:

i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

ii. the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

3. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

b. All other reports or requests for information required by the permit issuing authority shall be signed by a person designated in (a) above or a duly authorized representative of such person, if:

1. The representative so authorized is responsible for the overall operation of the facility from which the discharge originates, e.g., a plant manager, superintendent or person of equivalent responsibility;

2. The authorization is made in writing by the person designated under (a) above; and

3. The written authorization is submitted to the Director.

c. Any changes in written authorization submitted to the permitting authority under (b) above which occur after the issuance of a permit shall be reported to the permitting authority by submitting a copy of a new written authorization which meets the requirements of (b) and (b.1) and (b.2) above.

d. Any person signing any document under (a) or (b) above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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."

PART II

A. Management Requirements

1. Notification of Changes

a. The permittee shall provide EPD at least 90 days advance notice of any planned physical alterations or additions to the permitted facility that meet the following criteria:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b);

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1); or

3. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. The permittee shall give at least 90 days advance notice to EPD of any planned changes to the permitted facility or activity which may result in noncompliance with permit requirements.

c. Following the notice in paragraph a. or b. of this condition the permit may be modified. The permittee shall not make any changes, or conduct any activities, requiring notification in paragraph a. or b. of this condition without approval from EPD.

d. The permittee shall provide at least 30 days advance notice to EPD of:

1. any planned expansion or increase in production capacity; or

2. any planned installation of new equipment or modification of existing processes that could increase the quantity of pollutants discharged or result in the discharge of pollutants that were not being discharged prior to the planned change

if such change was not identified in the permit application(s) upon which this permit is based and for which notice was not submitted under paragraphs a. or b. of this condition.

e. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify EPD as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 µg/L, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 µg/L for acrolein and acrylonitrile, 500 µg/L for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/L antimony.

f. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify EPD as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 µg/L, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/L antimony.

g. Upon the effective date of this permit, the permittee shall submit to EPD an annual certification in June of each year certifying whether or not there has been any change in processes or wastewater characteristics as described in the submitted NPDES permit application that required notification in paragraph a., b., or d. of this condition. The permittee shall also certify annually in June whether the facility has received offsite wastes or wastewater and detail any such occurrences.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide EPD with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

3. Facility Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to EPD at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and

2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

b. Any diversion or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by EPD, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Sludge shall be disposed of in accordance with the regulations and guidelines established by EPD, the Federal Clean Water Act, and the Resource Conservation and Recovery Act (RCRA). Prior to disposal of sludge by any method other than co-disposal in an appropriate and permitted landfill, the permittee shall submit a sludge management plan to the Watershed Protection Branch of EPD for written approval. For land application of nonhazardous sludge, the permittee shall comply with the applicable criteria outlined in the most current version of EPD's "Guidelines for Land Application of Sewage Sludge (Biosolids) at Agronomic Rates" and with the State Rules, Chapter 391-3-6-.17. EPD may require more stringent control of this activity. Prior to land applying nonhazardous sludge, the permittee shall submit a sludge management plan to EPD for review and approval. Upon approval, the plan for land application will become a part of the NPDES permit upon modification of the permit.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to ensure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported (in the unit of lbs) as specified in Part I.D of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

9. Operator Certification Requirements

The person responsible for the daily operation of the wastewater treatment facility shall be a Class II biological wastewater treatment system operator, certified in accordance with the Georgia State Board of Examiners for Certification of Water and Wastewater Plant Operators and Laboratory Analysts Rule 43-51-6.(b).

10. Laboratory Analyst Certification Requirements

The permittee shall ensure that, when required, the person in responsible charge of the laboratory performing the analyses for determining permit compliance is certified in accordance with the Georgia Certification of Water and Wastewater Treatment Plant operators and Laboratory Analysts Act, as amended, and the Rules promulgated thereunder.

B. Responsibilities

1. Right of Entry

The permittee shall allow the Director of EPD, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

a. To enter upon the permittee's premises where a discharge source is located or in which any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

a. The permittee notifies the Director of EPD in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;

b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and

c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of EPD’s intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of EPD. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

This permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or

d. To comply with any applicable effluent limitation issued pursuant to the order of the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:

1. is different in conditions or more stringent than any effluent limitation in the permit; or

2. controls any pollutant not limited in the permit.

5. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) of the Federal Clean Water Act for toxic pollutants, which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

The permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by EPD at least 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of EPD shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage, in-plant transfer, process and material handling, loading and unloading operations, plant site runoff, and sludge and waste disposal.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

a. The permittee shall furnish to the EPD Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.

b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Duty to Comply

a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Georgia Water Quality Control Act (O.C.G.A. § 12-5-20 et. seq.) and is grounds for enforcement action; for permit termination; revocation and reissuance, or modification; or for denial of a permit renewal application. Any instances of noncompliance must be reported to EPD as specified in Part I. D and Part II.A. of this permit.

b. Penalties for violations of permit conditions. The Federal Clean Water Act and the Georgia Water Quality Control Act (O.C.G.A. § 12-5-20 et. seq.) provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine or by imprisonment, or by both. The Georgia Water Quality Control Act (Act) also provides procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director**.**

17. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

PART III

A. Previous Permits

1. All previous State wastewater permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. Schedule of Compliance

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule: N/A

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

C. Special Conditions

1. Instream Waste Concentration

The permittee shall record stream flows measured at the USGS Rocky Ford gage (#02202040) at 8:00 a.m. daily. The total final effluent flow volume discharged for the following 24-hour period shall neither exceed 8% of the actual stream flow as measured at the Rocky Ford gage nor a daily average of 3.1 MGD. The stream flow recorded each day and the total final effluent flow volume discharged shall be reported in accordance with Part I.D of this permit.

2. Per- and Polyfluoroalkyl Substances (PFAS) Characterization Study

The purpose of the PFAS Characterization Study is to determine if the facility has the potential to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal.

a. Within one (1) month of the effective date of the permit, the permittee shall submit to EPD a written report characterizing all per- and polyfluoroalkyl substances (PFAS) used in processing or manufacturing at the facility or believed present in the process wastewater or sludge due to contact with any raw materials, intermediate products, finished products, byproducts, or waste products.

b. If per- and polyfluoroalkyl substances (PFAS) are used in processing or manufacturing at the facility or believed present in the facility's wastewater or sludge, then within two (2) months of the effective date of the permit, the permittee shall perform the following sampling for all PFAS compounds identified in the written report, and for which a sufficiently sensitive method is available, and submit the results of the sampling to EPD as prescribed below:

i. Complete two (2) representative sampling events of the influent to the wastewater treatment plant and effluent from the wastewater treatment plant prior to discharge from the permitted outfalls identified in this permit. The sampling events shall be at least 48 hours apart and the influent and effluent samples shall be taken on the same day.

ii. Complete two (2) representative industrial sludge sampling events. The sludge samples shall be representative of the sludge leaving the facility.

In the absence of a 40 C.F.R. Part 136 approved sampling method for PFAS, where applicable, the permittee shall conduct sampling using draft analytical method 1633. For compounds not covered in draft analytical method 1633, the permittee shall conduct sampling in accordance with procedures outlined by EPA Region 4's Laboratory Services and Applied Science Division. The reference document for such procedures is the "Determination of Per- and Polyfluoroalkyl Substances by Liquid Chromatography Tandem Mass Spectrometry (2019) ID:LSBPROC-800-R1" or the most recently approved operating procedures document. The permittee may utilize an alternate sampling methodology, provided that the methodology is reviewed and approved by the Georgia Environmental Protection Division. At the time this permit is issued analytical test Method 533 is approved for use.

c. Within three (3) months of the effective date of the permit, the permittee shall submit the PFAS Characterization Study Report (Report) to EPD for review summarizing the results of the samples. The Report shall include the certified laboratory reports as an attachment including the certified laboratory analytical results to EPD. The Report shall be submitted in hard copy and analytical data shall be reported using Microsoft Excel workbooks and submitted in electronic format on a universal serial bus (USB), to the address below:

Georgia Environmental Protection Division - Watershed Protection Branch
Watershed Compliance Program
Attn: Watershed Compliance Program Manager
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, Georgia 30334

3. Whole Effluent Toxicity (WET) Testing

a. Acute Whole Effluent Toxicity testing of the final effluent and the Ogeechee River 25 feet downstream from the outfall pipe shall be conducted concurrently using the water flea (*Ceriodaphnia dubia*). In performing the testing, the most current U.S. EPA acute aquatic testing manual shall be followed. The reference document for this method is "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, U.S. EPA. 821-R-02-012, October 2002" or the most recently approved edition. The LC_{50} shall not be less than 100% effluent for the final effluent testing. Beginning with the effective date of this permit, testing shall be conducted on the final effluent with a frequency of twice per week (2/week) and instream with a frequency of once per month (1/month) and reported in accordance with Part I.D of this permit.

b. Acute Whole Effluent Toxicity testing of the final effluent and the Ogeechee River 25 feet downstream from the outfall pipe shall be conducted concurrently using the fathead minnow (*Pimephales promelas*). In performing the testing, the most current U.S. EPA acute aquatic testing manual shall be followed. The reference document for this method is "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, U.S. EPA 821-R-02-012, October 2002" or the most recently approved edition. The LC_{50} shall not be less than 100% effluent for the final effluent testing. Beginning with the effective date of the permit, testing shall be conducted on both the final effluent and instream with a frequency of annually (1/year) and reported in accordance with Part I.D of this permit.

c. Chronic Whole Effluent Toxicity testing of the final effluent and the Ogeechee River 25 feet downstream from the outfall pipe shall be conducted concurrently using the water flea (*Ceriodaphnia dubia*) using a dilution series of 0%, 2%, 4%, 8%, 16%, 32%, 64%, 100%. In performing the testing, the most current U.S. EPA chronic aquatic testing manual shall be followed. The reference document for this method is "Short-Term Methods of Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, U.S. EPA 821-R-02-013, October 2002" or the most recently approved edition. The No Observed Effect Concentration (NOEC) of the effluent shall be not less than 8% effluent for the final effluent testing. In, addition the permittee shall report the 25% inhibition concentration (IC25) of both the final effluent and instream WET tests. Beginning with the effective date of the permit, testing shall be conducted on both the final effluent and instream with a frequency of monthly (1/month) and reported in accordance with Part I.D of this permit.

d. Chronic Whole Effluent Toxicity testing of the final effluent shall be conducted using the fathead minnow (*Pimephales promelas*) using a dilution series of 0%, 2%, 4%, 8%, 16%, 32%, 64%, 100%. In performing the testing, the most current U.S. EPA chronic aquatic testing manual shall be followed. The reference document for this method is "Short-Term Methods of Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, U.S. EPA 821-R-02-013, October 2002" or the most recently approved edition. The

No Observed Effect Concentration (NOEC) of the effluent shall be not less than 8% effluent for the final effluent testing. In, addition the permittee shall report the 25% inhibition concentration (IC25) of the final effluent. Beginning with the effective date of the permit, testing shall be conducted on the final effluent with a frequency of annually (1/year) and reported in accordance with Part I.D of this permit.

e. Within three (3) months of the effective date of the permit, the permittee shall submit to EPD for review and approval proposed procedures for the completion of a Toxicity Identification Evaluation (TIE) work plan. The TIE work plan proposal, at a minimum, shall include the following elements:

i. Phase I – Toxicity Characterization

1. Establish a duration of four (4) months for Phase I – Toxicity Characterization testing;

2. Establish twice per week acute WET testing and weekly chronic WET testing of the final effluent for *ceriodaphnia dubia* and *pimephales promelas;*

3. For acute WET tests which exhibit toxicity (i.e., LC_{50} < 100%) based on the baseline effluent toxicity test, and all chronic WET tests, Phase 1 toxicity characterization testing is required. The TIE work plan shall detail the characterization tests to be performed and the required procedures for conducting each characterization test;

4. Identify WET testing procedures (e.g., sample type, test concentrations, test media renewals, etc.);

5. Establish quality assurance (QA) and quality control (QC) procedures for testing; and

6. Identify the contract laboratory and/or consultants responsible for sample analysis.

ii. Phase II & Phase III – Toxicity Identification and Toxicity Confirmation

1. Establish a duration of two (2) months for Phase II & III – Toxicity Identification and Toxicity Confirmation procedures beginning two (2) months after the commencement of Phase I – Toxicity Characterization testing;

2. Identify WET testing procedures (e.g., sample type, test concentrations, test media renewals, etc.); and

3. Identify quality assurance (QA) and quality control (QC) procedures for testing.

f. If two WET tests are failed during the permit term, the permittee will be required to complete a Toxicity Identification Evaluation (TIE), Toxicity Reduction Evaluation (TRE), and additional data gathering activities in accordance with the following schedule:

i. Following the submission of a written noncompliance notification, in accordance with Part II.A.2 of the permit, for a second WET test failure, the permittee shall immediately commence the Toxicity Identification Evaluation (TIE) approved by EPD.

ii. Within one (1) month following a written noncompliance notification of a second WET test failure, the permittee shall prepare and submit to EPD a report which provides an in-depth review of the facility operations; including the products produced, chemicals used, facility engineering design, and wastewater treatment operations.

iii. Two (2) months following the initiation of the TIE, the permittee shall prepare and submit to EPD a report which identifies the Phase II & III – Toxicity Identification and Toxicity Confirmation procedures which will be enacted based on the results of the toxicity characterization tests.

iv. Within three (3) months following a written noncompliance notification of a second WET test failure, the permittee shall prepare and submit to EPD a report which provides an evaluation of housekeeping practices, treatment plant operations, and opportunities for chemical optimization.

v. Within six (6) months following a written noncompliance notification of a second WET test failure, the permittee shall submit to EPD a TRE report based on the results of the TIE and other data collection activities. The report, at a minimum, shall include the following elements:

1. Identification of the proposed method for toxicity reduction (i.e., toxicity treatability approach and/or causative agent approach);

2. If the causative agent approach was pursued, the TRE shall include a copy of the source identification evaluation;

3. Evaluation and summation of reduction methodologies considered for the TRE;

4. Selection of reduction methodology; and

5. Implementation schedule for the proposed solution.

vi. Upon receipt of a TRE report, EPD may modify the permit to incorporate recommendations from the TRE and, if applicable; a compliance schedule.

4. Approved Sludge Management Plan

a. The permittee's approved Sludge Management Plan allows for sludge generated at the facility to be sent to a third party for further treatment and ultimate disposal.

b. The permittee will report on an annual basis the amount of sludge sent to the third-party during the most recent calendar year. The annual report shall be submitted to EPD no later than February 19 of the following year.

c. The permittee will maintain sludge handling records in accordance with Part I.B.7 of the Permit.

d. The permittee will notify EPD in writing of any planned changes to the permittee's sludge use or disposal practices.

5. Notification of Increased Production

The permittee shall notify the EPD compliance office in writing at least two business days prior to the month they expect to be operating at a higher level of production (higher than Tier 1). The notice shall specify the anticipated level and the period during which the permittee expects to operate at the increased level of production. New notice is required to cover a period or production level not covered by prior notice or, if during two consecutive months otherwise covered by a notice, the production level at the permitted facility does not in fact meet the higher level designated in the notice.

D. Biomonitoring and Toxicity Reduction Requirements

1. The permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with chapter 391-3-6-.03(5)(e) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life.

If toxicity is suspected in the effluent, EPD may require the permittee to perform any of the following actions:

a. Acute biomonitoring tests;

b. Chronic biomonitoring tests;

c. Stream studies;

d. Priority pollutant analyses;

e. Toxicity reduction evaluations (TRE); or

f. Any other appropriate study.

2. EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by EPD, the critical concentration used to determine toxicity in biomonitoring tests will be the effluent instream wastewater concentration (IWC) based on the representative plant flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 50% of the test organisms (LC50) if the test is for acute toxicity, and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity.

   The permittee must eliminate effluent toxicity and supply EPD with data and evidence to confirm toxicity elimination.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

The Georgia Environmental Protection Division proposes to issue an NPDES permit to the applicant identified below. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the State.

Technical Contact: Ian McDowell (*ian.mcdowell@dnr.ga.gov)*
470-604-9483

Draft permit:

- ☐ First issuance
- ☐ Reissuance with no or minor modifications from previous permit
- ☒ Reissuance with substantial modifications from previous permit
- ☐ Modification of existing permit
- ☒ Requires EPA review
- ☒ Designated as a Major facility

1.0 FACILITY INFORMATION

1.1 NPDES Permit No.: GA0003280

1.2 Name and Address of Owner/Applicant

King America Finishing, Inc.
1351 Scarboro Highway
Sylvania, Georgia, 30467

1.3 Name and Address of Facility

King America Finishing, Inc.
1351 Scarboro Highway
Sylvania, Georgia, 30467
(Screven County)

1.4 Location and Description of the discharge (as reported by applicant)

Outfall ID	Latitude	Longitude	Receiving Waterbody
001	32° 35' 40.7688" N (32.594658)	81° 44' 52.4184" W (-81.747894)	Ogeechee River

1.5 Production Capacity

The facility has two manufacturing units, referred to as Plant 1 and Plant 2. Plant 1 is a complex manufacturing operation, as defined in 40 CFR 410.41, which performs dyeing and finishing of woven cotton and synthetic fibers. The average daily production rate over the previous permit term was 97,939 lbs/day with the highest annual average daily production of 111,849 lbs/day occurring in 2015. Daily production rates were calculated based on the number of production days, not calendar days. Approximately 28% of this production employs a natural fiber and the remaining 72% employs a natural and synthetic fiber blend. Plant 2 applies flame retardant treatment and performs other special conditioning on a portion of the product produced from Plant 1. The daily average production rate over the past five years from Plant 2 was 74,101 lbs/day.

The permittee has requested consideration of future production levels when calculating production-based technology-based limits, in anticipation that production may increase to the production rates experienced in 2011. This future production is equivalent to 128,116 lbs/day from Plant 1 and 88,162 lbs/day from Plant 2. EPD has included tiered permit limits based on production levels to ensure that technology based effluent limits accurately reflect production levels without restricting facility operations. Tiered limits have been based on the permittee's average production rate over the previous five years (Tier 1), the highest annual average production rate over the previous five years (Tier 2), and the predicted return to the 2011 production rate (Tier 3). The pollutant loading for all production tiers is within the scope of the loading previously considered and permitted and would not trigger an anti-degradation analysis.

1.6 SIC Code & Description

2282 – Yarn Texturizing, Throwing, Twisting, and Winding Mills
2299 – Textile goods, Not Elsewhere Classified

1.7 Description of Industrial Processes

The facility includes two internal manufacturing units, referred to as Plant 1 and Plant 2.

Plant 1

Plant 1 is a complex manufacturing operation which performs dyeing and finishing of woven cotton and synthetic fibers. The fibers first undergo preparation which includes singeing, desizing, heat-setting, mercerizing, bleaching, and washing. The fibers then undergo dyeing which includes dye application, dye fixation with chemicals or heat, washing, and drying. Finally, fibers undergo finishing. Finishing includes passing fabric through a finish pad, a pre-dryer and/or set of dry cans, and then a tenter house.

Plant 2

Plant 2 provides further finishing through flame retardant treatment of cotton and synthetic fabrics and special conditioning of those products. Flame-retardant treatment impregnates the fabric with a reactant chemistry and then exposes the fabric, in subsequent process steps, to reactant gases and liquids to chemically form the flame-retardant component on the fabric. After the reaction, the fabric contains unreacted chemicals and chemical

byproducts that must be removed through thorough rinsing. Fabric is then washed with bisulfite to remove excess formaldehyde and undergoes final softening.

1.8 Description of the Wastewater Treatment Facility

Wastewater at the facility receives initial screening and neutralization via sulfuric acid before entering a 4.5 million-gallon equalization basin. Wastewater is then pumped from the equalization basin to an activated sludge aeration basin for secondary treatment. Further secondary treatment is then provided via polymer addition and the use of clarifiers. Clarifiers #2 & #3 operate in parallel as the facility's main clarifiers, whilst Clarifier #1 is operated as a backup system. Wastewater from the clarifiers is subsequently passed through cloth media filters. Finally, tertiary treatment is provided through a granulated activated carbon filtration system with CO_2 neutralization before discharge to the Ogeechee River via an effluent diffuser.

Waste sludge, filter backwash, and emergency bypass are diverted to two sludge holding ponds. The facility has an ability to pump pond supernatant back into the equalization basin to prevent pond overflow in heavy rainfall events. Primary wasting operations occur at the first sludge holding pond, then water overflows to the second pond. This first pond has been dredged every year or two with the most recent dredging occurring in the Fall of 2021. The second pond has not been dredged since Milliken's involvement with the site. The sludge storage capacity of the smallest sludge pond is approximately 14.3 million pounds, which provides approximately 14.2 years of storage at the average solids wasting rate of 2,754 pounds of TSS per day. Sludge should be disposed of in an appropriate and permitted landfill, or in accordance with an EPD approved sludge management plan.

Outfall	Operation Description	Treatment Description
001	Process Water, Cooling Water, and Stormwater	Screening, Neutralization, Activated Sludge, Sedimentation, Sludge Lagoons, Cloth Media Filtration, Carbon Adsorption, Discharge to Surface Water, and Landfill

1.9 Type of Wastewater Discharge

☒ process wastewater ☒ stormwater

☐ domestic wastewater ☒ combined

☒ other (cooling water)

Process wastewater, cooling water, and stormwater combine before treatment at the wastewater treatment plant.

Domestic wastewater was separated from the above wastestreams in 2015 and was diverted to a septic tank system which is covered under general permit no. GAG278093.

1.10 Characterization of Effluent Discharge as Reported by Applicant
(Please refer to the application for additional analysis)

1.10.a Outfall No. 001 – Process Water, Cooling Water, and Stormwater

Effluent Characteristics (as Reported by Applicant)	Maximum Daily Value	Average Daily Value
Flow (MGD)	2.770	1.580
Biochemical Oxygen Demand,$_{5\text{-day}}$ (mg/L)	34	7
Total Suspended Solids (mg/L)	59	<7[1]
Temperature, Winter (°F)	86.4	68.4
Temperature, Summer (°F)	94.5	79.5
Ammonia (mg/L)	11.8	<1.3[(1)]
Total Phosphorus (mg/L)	54.8	27.0

[(1)] Less than signs indicate that non-detectable samples were reported, and that the method detection limit was assigned to these samples for the purposes of reporting long term averages.

2.0 APPLICABLE REGULATIONS

2.1 State Regulations

Chapter 391-3-6 of the Georgia Rules and Regulations for Water Quality Control

2.2 Federal Regulations

Source	Activity	Applicable Regulation
Industrial (Non POTW)	Non-Process Water Discharges	40 CFR 122 40 CFR 125 40 CFR 127 40 CFR 136
	Process Water Discharges	40 CFR 122 40 CFR 125 40 CFR 127 40 CFR 136 40 CFR 410

2.3 Industrial Effluent Limit Guideline(s)

Code of Federal Regulations, 40 CFR Part 410 Subpart D (Textile Mills Point Source Category: Woven Fabric Finishing Subcategory)

See Appendix A of the Fact Sheet for Applicable Federal Regulations

In 2006 King America Finishing installed two flame-retardant processing lines at the facility which performed additional fabric finishing for the facility. For ease of discussion and calculations the flame-retardant operations are considered to constitute "Plant 2"; whereas all other operations are considered to constitute "Plant 1". It is important to note that despite the nomenclature used, the installation of the flame-retardant processing lines occurred within the existing facility and did not create a new building, structure, or facility. Additionally, the installation did not reflect a substantially independent process than the complex manufacturing operations already performed at the facility. As such, the additional processing lines do not trigger a new source determination, as outlined in 40 CFR §122.29, and thus effluent limitations for existing sources, not new sources, are applicable.

3.0 WATER QUALITY STANDARDS & RECEIVING WATERBODY INFORMATION

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. Federal Regulations 40 CFR 122.4(d) require that conditions in NPDES permits ensure compliance with the water quality standards which are composed of use classifications, numeric and or narrative water quality criteria and an anti-degradation policy. The use classification system designates the beneficial uses that each waterbody is expected to achieve, such as drinking water, fishing, or recreation. The numeric and narrative water quality criteria are deemed necessary to support the beneficial use classification for each water body. The antidegradation policy represents an approach to maintain and to protect various levels of water quality and uses.

3.1 Receiving Waterbody Classification and Information

Rules and Regulations of the State of Georgia 391-3-6-.03(6) – Fishing

Propagation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or any other use requiring water of a lower quality.

(i) Dissolved Oxygen: A daily average of 6.0 mg/L and no less than 5.0 mg/L at all times for water designated as trout streams by the Wildlife Resources Division. A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times for waters supporting warm water species of fish.

(ii) pH: Within the range of 6.0 - 8.5.

(iii) Bacteria:

1. For the months of May through October, when water contact recreation activities are expected to occur, fecal coliform not to exceed a geometric mean of 200 per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. Should water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200/100 mL (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 per 100 mL in lakes and reservoirs and 500 per 100 mL in free flowing freshwater streams. For the months of November through April, fecal coliform not to exceed a geometric mean of 1,000 per 100 mL based on at

least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours and not to exceed a maximum of 4,000 per 100 mL for any sample. The State does not encourage swimming in these surface waters since a number of factors which are beyond the control of any State regulatory agency contribute to elevated levels of bacteria.

2. For waters designated as shellfish growing areas by the Georgia DNR Coastal Resources Division, the requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program. The requirements are found in National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish, 2007 Revision (or most recent version), Interstate Shellfish Sanitation Conference, U.S. Food and Drug Administration.

(iv) Temperature: Not to exceed 90°F. At no time is the temperature of the receiving waters to be increased more than 5°F above intake temperature except that in estuarine waters the increase will not be more than 1.5°F. In streams designated as primary trout or smallmouth bass waters by the Wildlife Resources Division, there shall be no elevation of natural stream temperatures. In streams designated as secondary trout waters, there shall be no elevation exceeding 2°F natural stream temperatures.

3.2 Ambient Information

Outfall ID	7Q10 (cfs)	1Q10 (cfs)	Hardness (mg/L as $CaCO_3$)	Annual Average Flow (cfs)	Upstream Total Suspended Solids (mg/L)
001	94	89	35	1767	Data unavailable[(1)]

[(1)] For the Reasonable Potential Analysis calculations, EPD used 10 mg/l as a conservative value.

3.3 Georgia 305(b)/303(d) List Documents

The Ogeechee River (R030602020304) from Nevill's Creek to Hwy 301 is listed as not supporting the designated use.

2020 Integrated 305(b)/303(d) List - Streams

Reach Name/ID	Reach Location/County	River Basin/ Use	Assessment/ Data Provider	Cause/ Source	Size/Unit	Category/ Priority	Notes
Ogeechee River	Nevills Creek to Hwy 301	Ogeechee	Not Supporting	Fish Tissue (Mercury)	7	4a	TMDL completed Fish Tissue (Mercury) 2005.
GAR030602020306	Bulloch, Screven	Fishing	1,9,10	NP	Miles		

3.4 Total Maximum Daily Load (TMDL)

The Ogeechee River is not supporting its designated use due to the trophic-weighted residue value of mercury in fish tissue. There was a TMDL developed for total mercury fish tissue in 2005 which is applicable to this segment of the Ogeechee River. King America Finishing is listed in this TMDL and was given a wasteload allocation of 6.0 ng/L for Total Hg and 0.05 ng/L for MeHg equivalent to their effluent discharge during TMDL development. The facility was also subject to mercury characterization and/or minimization conditions.

The previous permit included special conditions requiring a six month mercury characterization study, with an additional requirement to develop a mercury minimization plan if the characterization showed the average concentration of total mercury was greater than 6.0 ng/L. Results of the mercury characterization study showed an average concentration for total mercury of 0.73 ng/L; therefore, a minimization plan was not required and mercury monitoring was reduced to twice per year for the remainder of the permit term. To assure that average total mercury concentrations remain below the 6.0 ng/L wasteload allocation or the concentration of mercury in the source water; whichever is greater, twice per year effluent and source water monitoring has been established in this permit.

3.5 Wasteload Allocation Date (07/10/2018)

See Appendix B of the Fact Sheet

4.0 PERMIT CONDITIONS AND EFFLUENT LIMITATIONS

4.1 Water Quality Based Effluent Limitations (WQBELs) & Technology Based Effluent Limitations (TBELs)

When drafting a National Pollutant Discharge Elimination System (NPDES) permit, a permit writer must consider the impact of the proposed pollutants in a discharge on the quality of the receiving water. Water quality goals for a waterbody are defined by state water quality criteria or standards. By analyzing the effect of a pollutant in the discharge on the receiving water, a permit writer could find that technology-based effluent limitations (TBELs) alone will not achieve the applicable water quality standards or protect downstream users. In such cases, the Clean Water Act (CWA) and its implementing regulations require development of water quality-based effluent limitations (WQBELs). WQBELs help meet the CWA objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters and the goal of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (fishable/swimmable).

WQBELs are designed to protect water quality by ensuring water quality standards are met in the receiving water and the designated use and downstream uses are protected. On the basis of the requirements of 40 C.F.R §125.3(a), additional or more stringent effluent limitations and conditions, such as WQBELs, are imposed when TBELs are not sufficient to protect water quality.

TBELs aim to prevent pollution by requiring a minimum level of effluent quality that is attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the State. TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and WQBELs. The NPDES regulations at 40 C.F.R. §125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA section 301(b), that represent the minimum level of control that must be imposed in a permit. The regulation also requires permit writers to include in permits additional or more stringent effluent limitations and conditions, including those necessary to protect water quality.

For pollutants not specifically regulated by Federal Effluent Limit Guidelines (ELGS), the permit writer must identify any needed TBELS and utilize best professional judgment to establish TBELS or determine other appropriate means to control its discharge if there is a reasonable potential to cause or contribute to a violation of the water quality standards.

4.2 Reasonable Potential Analysis (RPA)

EPA regulations at 40 C.F.R. §122.44(d)(1)(i) state, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any [s]tate water quality standard, including [s]tate narrative criteria for water quality." [emphasis added]

EPA regulations at 40 C.F.R. §122.44(d)(1)(ii) require States to develop procedures for determining whether a discharge causes, has the reasonable potential to cause, or contributes to an instream excursion above a narrative or numeric criterion within a state water. If such reasonable potential is determined to exist, the NPDES permit must contain pollutant effluent limits and/or effluent limits for whole effluent toxicity. Georgia has reasonable potential procedures, based upon the specific category of pollutants and/or specific pollutant of concern. Chemical specific and biomonitoring data and other pertinent information in EPD's files will be considered in accordance with the review procedures specified in the GA Rules and Regulations for Water Quality Control, Chapter 391-3-6 in the evaluation of a permit application and in the evaluation of the reasonable potential for a discharge to cause an exceedance in the numeric or narrative criteria.

The term "pollutant" is defined in CWA section 502(6) and 40 C.F.R. §122.2. Pollutants are grouped into three categories under the NPDES program: conventional, toxic, and nonconventional. Conventional pollutants are those defined in CWA section 304(a)(4) and 40 C.F.R.§401.16 (five day-biochemical oxygen demand (BOD5), total suspended solids (TSS), fecal coliform, pH, and oil and grease). Toxic (priority) pollutants are those defined in CWA section 307(a)(1) and include 126 metals and manmade organic compounds. Nonconventional pollutants are those that do not fall under either of the above categories (conventional or toxic pollutants) and include parameters such as, but not limited to, chlorine, ammonia, nitrogen, phosphorus, chemical oxygen demand (COD), and whole effluent toxicity (WET).

EPD evaluates the data provided in the application and supporting documents. If a pollutant is listed in the following sections of this fact sheet below, the permit writer determined the pollutant is a pollutant of concern and there may be a reasonable potential to cause or contribute to an instream violation of the Georgia water quality standards. If a pollutant is not listed below, EPD determined the pollutant is not a pollutant of concern or has determined, based on the data provided in the application, there is no reasonable potential to cause or contribute to an instream violation of the Georgia water quality standards. An example may be if the applicant reported "not detect" or "below detection limit".

Upon identification of a pollutant of concern by the permit writer, in accordance with 40 C.F.R. §122.44(d)(1)(ii), the permit writer must then perform a reasonable potential analysis using a procedure which has accounted for any combination of the following criteria: existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water to determine if the pollutant and its discharge has the reasonable potential to cause, or contribute to an in-stream excursion above the allowable ambient concentration of a state narrative or numeric criteria within the state's water quality standard for an individual pollutant.

In accordance with 40 C.F.R. §122.44(d)(1)(iii), if the permit writer has determined, using a reasonable potential procedure the pollutant of concern in the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a state numeric or narrative criteria within a state water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant. If the permit writer has determined there is insufficient data, the permit writer might also consider monitoring requirements to collect the additional data related to the presence or absence of a specific pollutant to provide information for further analyses for the development of appropriate numeric or narrative standard .

The conventional, nonconventional, and toxic pollutants listed in the following sections have been identified by the permit writer as pollutants of concern and the permit writer has determined through current practices and procedures one of the following: no additional monitoring or numeric and/or narrative effluent limits are needed; additional monitoring is required; or numeric and/or narrative effluent limits are necessary to protect the receiving water body and its downstream users and those limits have been included in the permit.

The monitoring and sampling locations are prescribed in the permit and determined by the permit writer after considering, at a minimum, the following: type of discharge, specific pollutant, discharge frequency, location of the discharge, receiving waterbody, downstream users, etc.

The sample type, grab vs. composite, is prescribed in the permit and determined by the permit writer after considering, at a minimum, the analytical method required in 40 C.F.R. §136, the type of pollutant, retention time, etc. Grab samples are required for the analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform (including E. coli), or volatile organics.

4.3 Whole Effluent Toxicity

Chronic WET testing measures the effect of wastewater on indicator organisms' growth, reproduction and survival. Effluent toxicity is predicted when the No Observable Effect Concentrations (NOEC) for a test organism is less than the facility's Instream Wastewater Concentration.

Chronic WET testing for *Ceriodaphnia dubia* was required in the previous permit for both the final effluent and the Ogeechee River 25 feet downstream of the outfall, with a monitoring frequency of once per month. Additionally, Chronic WET testing for *Pimephales promelas* was required in the previous permit for the final effluent, with a monitoring frequency of quarterly for the first year and annually thereafter. Effluent toxicity was determined when the NOEC exceeded the facility's maximum allowable IWC of 8%

Acute WET testing measures the effect of wastewater on indicator organisms' survival. Effluent toxicity is predicted when the Lethal Concentration 50% (LC50) is greater than or equal to 100% effluent.

Acute WET testing for *Ceriodaphnia dubia* was required in the previous permit for both the final effluent and the Ogeechee River 25 feet downstream of the outfall, with monitoring frequencies of twice per week and once per month; respectively. Additionally, Acute WET testing for *Pimephales promelas* was required in the previous permit for both the final effluent and the Ogeechee River 25 feet downstream of the outfall, with a monitoring frequency of quarterly for the first year and annually thereafter.

The WET testing results over the previous permit term have been included in Appendix E of this fact sheet. Results of the WET testing showed periodic toxicity for both the Acute WET testing and Chronic WET testing.

4.4 Conventional Pollutants: Outfall 001 & Instream Discussions

Pollutants of Concern	Basis
pH	WQBEL The instream waste concentration is 4.86% based on the facility's permitted flow. The permit further limits the IWC to no greater than 8%. When the instream waste concentration is below 50%, there is no reasonable potential to cause or contribute to a violation of the instream Georgia Water Quality Standard; therefore, a limit of 6.0 s.u. to 9.0 s.u. is required. On July 17, 2011, King America Finishing submitted a technical memorandum demonstrating operational changes and requesting resumption of discharge. On July 19, 2011, EPD approved the resumption of discharge contingent on compliance with several stipulations. One such stipulation was that the pH of the discharge shall not fall below 6.0 s.u. or rise above 8.0 s.u. By limiting the upper pH, the stipulation limits the amount of un-ionized ammonia

	present in the discharge. Un-ionized ammonia can be toxic to aquatic organisms and ammonia was identified to be one of the primary contributors to the toxicity of the discharge. These more stringent effluent limitations have been included in the permit. In addition, upstream and downstream pH monitoring has been retained in the permit to monitor instream water quality within the vicinity of the discharge.
	TBEL The pH shall remain within the range of 6.0 s.u. to 9.0 s.u. at all times in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT).
5-Day Biochemical Oxygen Demand	WQBEL The wasteload allocation completed on July 20, 2018, recommended mass-based effluent limitations of 776 lbs/day daily average and 1,552 lbs/day daily maximum, as well as concentration-based effluent limitations of 30 mg/L daily average and 60 mg/L daily maximum based on dissolved oxygen sag (DOSAG) modeling. The concentration-based effluent limitations have been included in the permit, while more stringent mass-based effluent limitations have been applied based on the applicable TBELs.
	TBEL The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production may increase to long-term production rates experienced in 2011. The following effluent limitations have been included in the permit based on three tiers of production. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 323 Daily Maximum (lbs/day): 646 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 369 Daily Maximum (lbs/day): 738

	Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day) Daily Average (lbs/day): 423 Daily Maximum (lbs/day): 846
Total Suspended Solids	WQBEL GA has a narrative Water Quality Standard for total suspended solids. A narrative permit condition stating, "there shall be no floating solids or visible foam other than in trace amounts" has been added. Additionally, the previous permit included mass-based effluent limitations of 650 lbs/day daily average and 1,160 lbs/day daily maximum. These limits were developed in consultation with the Wildlife Resource Division and are protective of aquatic life cycles (e.g., reproduction). TSS mass-based effluent limitations have been retained from the previous permit. TBEL The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production may increase to long-term production rates experienced in 2011. The following effluent limitations were calculated based on three tiers of production. The more stringent WQBELs have been included in the permit. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 872 Daily Maximum (lbs/day): 1,743 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 995 Daily Maximum (lbs/day): 1,991 **Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day)** Daily Average (lbs/day): 1,140 Daily Maximum (lbs/day): 2,280

	Additionally, the concentration-based effluent limitations of 30 mg/L daily average and 45 mg/L daily maximum included in the previous permit have been removed and replaced with a monitoring only requirement. See Section 5.3 for discussion regarding anti-backsliding regulations.
Fecal Coliform	<u>WQBEL</u> A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the effluent's fecal coliform concentration to 200 #/100mL daily average and 400 #/100mL daily maximum. This condition was incorporated into the facility's previous NPDES permit. The previous permit's fecal coliform limits are equivalent to Georgia's instream water quality standards for fecal coliform. On September 25, 2015, the facility began the operation of a septic tank system under general permit no. GAG278093. All sanitary wastewater from the facility was re-directed to the septic system, thereby eliminating sanitary wastewater from the direct discharge to the Ogeechee River. On October 9, 2015, a series of dye tests were performed confirming that the sanitary wastewater was isolated from the discharge covered under this permit. Following the removal of sanitary wastewater from the facility's discharge, sampling of the effluent continued to indicate the presence of fecal coliform suspected to have originated from non-human sources. On July 18, 2017, the facility collected samples for fecal coliform, e. coli, and a fecal-associated human gene biomarker which was analyzed using real-time quantitative Polymerase Chain Reaction (qPCR) DNA analytical technology. The results of the sampling showed no trace of human fecal sources despite a fecal coliform reading of 420 MPN/100mL. The removal of sanitary wastewater has not eliminated fecal coliform exceedances and there is a reasonable potential for the discharge to cause or contribute to an instream violation of Georgia's Water Quality Standards for fecal coliform. Review of the renewal application and all data submitted by the permittee during the last permit term indicates a persistent and highly variable presence of fecal coliform in the discharge which frequently exceeds Georgia's instream water quality standards. Dilution is not considered in EPD's reasonable potential analysis as bacteria have the inherent ability to reproduce in the receiving stream. Effluent limitations of 200 #/100 mL daily average and 400 #/100 mL daily maximum have been included in the permit.

	TBEL There is no applicable federal technology based effluent limit.
Escherichia coli	WQBEL EPD is finalizing recommendations to replace fecal coliform and adopt *e. coli* and *enterococci* as pathogen indicators for waters designated as fishing, coastal fishing, and drinking water as part of the 2019 Triennial Review process. The proposed criteria must be approved by the DNR Board and the US EPA before they can take effect. Review of data submitted by the permittee indicates a persistent and highly variable presence of *e. coli* in the discharge which occasionally exceeds Georgia's proposed instream water quality standards for *e. coli*. *E. coli* bacterium are highly variable in the receiving stream after treatment and dilution is not considered in EPD's reasonable potential analysis as bacteria have the inherent ability to reproduce in the receiving stream. EPD has determined that the discharge has a reasonable potential to cause or contribute to a violation of Georgia's proposed water quality criteria for *e. coli*. In anticipation of approval of the proposed criteria during the upcoming permit term, the permit includes language which allows for the transition from fecal coliform effluent limitations discussed previously to year-round *e. coli* effluent limitations of 126 #/100mL daily average (expressed as a geometric mean) and 410 #/100 mL daily maximum. The *e. coli* limitations were calculated to yield the same gastrointestinal illness rate as the fecal coliform limitations and therefore are equivalently protective of human health and do not constitute backsliding.
	TBEL There is no applicable federal technology based effluent limit.
Temperature	WQBEL GA has a numeric Water Quality Standard of 90 °F for maximum temperature and a +Δ5 °F temperature differential (391-3-6-.03(6)(a)(v)). Continuous temperature monitoring along with additional grab sampling was required in the previous permit. Monitoring indicated that effluent temperature occasionally exceeded 90°F, with the highest result over the permit term of 94.5 °F. Temperature measurements, however, are recorded immediately after the wastewater treatment plant and do not account for the approximately ¾ths of a mile that the effluent travels in underground piping prior to discharge to the Ogeechee River. Cooling of the effluent occurs due to the ambient ground temperature prior to discharge. This is supported by the instream temperature data that indicates a negligible increase in instream temperature downstream of the discharge. The instream data

	showed that on average the downstream temperature was 0.15 °F warmer than the upstream temperature. Based on this information, EPD has determined the discharge does not have the reasonable potential to cause or contribute to instream water quality standards for temperature. Effluent and instream temperature monitoring has been retained from the previous permit to ensure consistent operation and treatment and to ensure water quality standards continue to be met.
	TBEL There is no applicable federal technology based effluent limit.

4.5 Nonconventional Pollutants: Outfall 001 & Instream Discussions

Pollutants of Concern	Basis
Flow	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the instream waste concentration to 8%. This condition was incorporated into the facility's previous NPDES permit and has been retained in this reissuance. In addition, a 3.1 MGD daily average flow limit has been included in the permit, to ensure that the facility's discharge volume remains within the scope of what was considered in the permit development process.
	TBEL There is no applicable federal technology based effluent limit.
Chemical Oxygen Demand	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the effluent's chemical oxygen demand loading to 5,500 lbs/day daily average and 11,000 lbs/day daily maximum. This condition was incorporated into the facility's previous NPDES permit and has been retained in this reissuance for the Tier 2 and 3 effluent limitations. The more stringent TBELs will be applied for the Tier 1 effluent limitations.

	TBEL The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production may increase to long-term production rates experienced in 2011. The following effluent limitations have been calculated based on three tiers of production. The TBELs will be included in the permit for Tier 1, while the Tier 2 and 3 effluent limitations will include the more stringent WQBELs. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 5,328 Daily Maximum (lbs/day): 10,656 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 6,085 Daily Maximum (lbs/day): 12,169 **Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day)** Daily Average (lbs/day): 6,970 Daily Maximum (lbs/day): 13,939
Dissolved Oxygen	WQBEL A daily minimum dissolved oxygen limit of 5.0 mg/L has been added to the permit in accordance with the wasteload allocation to ensure that the water quality standards for dissolved oxygen are met.
	TBEL There is no applicable federal technology based effluent limit.
Total Dissolved Solids (TDS)	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the effluent's total dissolved solids concentration to 2,500 mg/L daily average and 3,800 mg/L daily maximum. This condition was incorporated into the facility's previous NPDES permit and has been retained in this reissuance to ensure consistent operation and treatment.
	TBEL There is no applicable federal technology based effluent limit.

Total Hardness (as $CaCO^3$)	WQBEL The previous permit included downstream hardness monitoring in order to characterize the receiving stream and in order to use site-specific data when conducting a reasonable potential analysis for hardness-dependent metals such as chromium, total. The hardness data acquired from the previous permit term has sufficiently characterized the receiving stream hardness, thus further hardness sampling has not been required in the facility's NPDES permit.
	TBEL There is no applicable federal technology based effluent limit.
Specific Conductance	WQBEL GA does not have Water Quality Standards for specific conductance. Conductivity is however a useful indicator of a wastewater treatment system's performance as it indicates the presence of inorganic dissolved solids such as nitrate, sulfate, phosphate, sodium, magnesium, iron, aluminum, etc. which are present in the discharge. Furthermore, conductivity is a useful indicator of changes in a water system as streams tend to have a relatively constant range of conductivity and significant changes of conductivity may be indicative of a potential change in facility operations or a change in the wastewater treatment system. Effluent and instream monitoring have been retained from the previous permit for continued characterization of the effluent and receiving waters.
	TBEL There is no applicable federal technology based effluent limit.
Sodium	WQBEL GA does not have Water Quality Standards for sodium. Effluent and instream sampling were included in the previous permit as an indicator of salinity and toxicity. Salinity is the total concentration of all dissolved salts in the water including, but not limited to dissolved sodium. As salinity is dependent on the concentration of all dissolved salts, not just sodium, the accuracy for predicting salinity based on sodium is low. A more acceptable and widely used method for estimating salinity is based on conductivity, as conductivity is indicative of a wider range of inorganic dissolved solids. The use of conductivity for the estimation of salinity in the effluent/receiving stream is recommended. In addition, because GA does not have numeric Water Quality Standards specific to sodium nor has EPA specified a national recommended aquatic life criterion for sodium; the usefulness of sodium monitoring to predict toxicity is limited. As such, toxicity is

	better measured by the whole effluent toxicity testing required in the permit. If toxicity is detected in the effluent, the permittee may then be required to perform a toxicity identification and reduction evaluation that may target specific constituents such as sodium. For the reasons indicated above, EPD has removed both effluent and instream monitoring for sodium.
	<u>TBEL</u> There is no applicable federal technology based effluent limit.
Peroxides	<u>WQBEL</u> GA does not have Water Quality Standards for peroxides. Peroxides are strong oxidizers and are often used as bleaching agents. Peroxides have moderate toxicity but break down rapidly in water. Effluent and instream monitoring of hydrogen peroxide was included in the previous permit and hydrogen peroxide was consistently non-detectable. Based on the results of the effluent and instream analyses, monitoring has been removed from the permit.
	<u>TBEL</u> There is no applicable federal technology based effluent limit.
Sulfide	<u>WQBEL</u> A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the effluent's sulfide concentration to 1.5 mg/L daily average and 3.0 mg/L daily maximum. This condition was incorporated into the facility's previous NPDES permit and will be retained in this permit reissuance. GA does not have Water Quality Standards for sulfides. Sulfides are constituents found in many types of industrial wastes. When soluble sulfides are added to water, they react with hydrogen ions to form HS or H_2S, with H_2S as the primary concern for toxicity. Instream monitoring of sulfide was included in the previous permit and with a result of non-detect for 48 of the 49 sampling events. Based on these results, instream monitoring for sulfide has been removed from the permit. Sulfides will continue to be controlled through effluent limitations and WET testing.
	<u>TBEL</u> The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production

	may increase to long-term production rates experienced in 2011. The following effluent limitations have been included in the permit based on three tiers of production. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 9.8 Daily Maximum (lbs/day): 19.6 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 11.2 Daily Maximum (lbs/day): 22.4 **Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day)** Daily Average (lbs/day): 12.8 Daily Maximum (lbs/day): 25.6
Total Phenols	WQBEL There is no Georgia Water Quality Standard for total phenols.
	TBEL The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production may increase to long-term production rates experienced in 2011. The following effluent limitations have been included in the permit based on three tiers of production. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 4.9 Daily Maximum (lbs/day): 9.8 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 5.6 Daily Maximum (lbs/day): 11.2

	Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day) Daily Average (lbs/day): 6.4 Daily Maximum (lbs/day): 12.8
Formaldehyde	<u>WQBEL</u> A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition requiring the facility to report the effluent's daily average and daily maximum concentration. Although there is no numeric Georgia Water Quality Standard for formaldehyde, EPD had additionally included a daily maximum effluent limitation of 1.6 mg/L based on best professional judgement. The daily maximum effluent limit was based on the chronic aquatic life water quality criterion established in the technical document *Derivation of Ambient Water Quality Criteria for Formaldehyde (2001)* written by Hohreiter and Riggs. The aquatic life criterion was developed in accordance with the US EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses (1985)*. This daily maximum effluent limitation of 1.6 mg/L and the instream monitoring included in the previous permit have been removed from this permit reissuance due to concerns of the validity of effluent sample results due to matrix interference. Furthermore, the maximum downstream concentration measured during the previous term was 0.14 mg/L, indicating that the chronic aquatic life water quality criterion is not being exceeded. Whole effluent toxicity testing will serve to ensure that toxicity is not present in the discharge. See Section 5.3 for discussion surrounding anti-backsliding regulations. <u>TBEL</u> There is no applicable federal technology based effluent limit.
Tetrakis(hydroxylmethyl) phosphonium chloride (THPC)	<u>WQBEL</u> A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition requiring the facility to report the effluent's THPC concentration twice monthly. There is no Georgia Water Quality Standard for THPC; however, Georgia elected to incorporate the conditions of the third-party consent decree in the previous permit due to its use in the flame-

	retardant processing. The THPC concentration of the effluent has not been tied to any toxicity concerns and the effluent monitoring data cannot be compared against any water quality standard or acute/chronic aquatic life criterion. EPD has therefore removed THPC sampling from this permit reissuance. Whole effluent toxicity testing will serve to ensure that toxicity is not present in the discharge.
	TBEL There is no applicable federal technology based effluent limit.
Per- and Polyfluoroalkyl Substances (PFAS)	WQBEL The previous permit included a special condition requiring the permittee to sample their effluent twice within 60 days of the effective date of the permit for perfluorooctanesulfonic acid (PFOS). In addition, if the sampling detected PFOS in the effluent, a plan of study was required for annual fish testing. The results of both sampling events for PFOS were non-detect and no fish tissue testing was required. The facility has phased out the use of C_8 fluorochemistries related to PFOS, replacing them with C_6 fluorochemistries and thus PFOS is not expected to be present in the effluent. While C_8 fluorochemistries such as PFOS and perfluorooctanoic acid (PFOA) are among the more notable per- and polyfluoroalkyl substances (PFAS), they are only a subset of PFAS. PFAS also includes several C_6 fluorochemistries in addition to the C_8 fluorochemistries noted above. On February 14, 2019, EPA announced a comprehensive PFAS Action Plan to address PFAS contamination and protect the nation's drinking water. There are no surface water drinking water intakes in the downstream vicinity of King America Finishing, Inc.'s discharge; however, in light of the ongoing research and concerns surrounding PFAS, a special condition has been included in the permit requiring a PFAS Characterization Study. The purpose of the PFAS Characterization Study is to determine if the facility has the potential to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal. See Section 5.4 for further discussion.
	TBEL There is no applicable federal technology based effluent limit.
Color	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the maximum color

	difference between the Ogeechee River (upstream) and the effluent to ADMI until EPD took action on the color study required in the previous permit. King America Finishing, Inc. submitted the results of their color study in October of 2015. The results showed that the difference in color between the Ogeechee River (upstream) and the final effluent was -13 ADMI on average and a +36 ADMI maximum. Additionally, the difference in color between the Ogeechee River (upstream) and the Ogeechee River (downstream) was -1 ADMI on average and a +6 ADMI maximum. This study complements the instream sampling required in the previous permit which indicated an average delta ADMI of 3.2 and a maximum delta ADMI of +15. EPD has evaluated the results of the color study and has determined there is no reasonable potential for the effluent to cause or contribute to an in-stream violation of the GA narrative water quality standard for color. As a result, the color limits included in the previous permit have been removed. See Section 5.3 for discussion surrounding anti-backsliding regulations. The effluent color monitoring requirements have been retained to ensure that the effluent characterization remains within the scope of which was observed during the color study.
	<u>TBEL</u> There is no applicable federal technology based effluent limit.
Total Phosphorus	<u>WQBEL</u> Per the *Strategy for Addressing Phosphorus in NPDES Permitting* (2011) all routine permit reissuances must include phosphorus monitoring.
	<u>TBEL</u> There is no applicable federal technology based effluent limit.
Orthophosphate, as P	<u>WQBEL</u> Per the *Strategy for Addressing Phosphorus in NPDES Permitting* (2011) and the corresponding *Georgia's Plan for the Adoption of Water Quality Standards for Nutrients* (2013) as amended, all routine permit reissuances that have discharges upstream from reservoirs, lakes, impoundments, and/or estuaries must include orthophosphate monitoring. Effluent monitoring from 2013-2018 indicated that approximately 10% of the facility's total phosphorus loading is in the form of orthophosphate. Orthophosphate monitoring will be retained in this permit to ensure continued characterization of the discharge as the State works to develop numeric nutrient criteria.

	TBEL There is no applicable federal technology based effluent limit.
Ammonia, as N	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the effluent's total ammonia concentration to 7 mg/L daily average and 13 mg/L daily maximum. This condition was incorporated into the facility's previous NPDES permit and has been retained in this permit to prevent degradation of instream water quality. In addition, mass-based effluent limitations of 181 lbs/day daily average and 336 lbs/day daily maximum have been incorporated in the permit based on the facility's permitted daily average flow and the concentration-based effluent limitations noted above. In addition, instream monitoring has been retained from the previous permit to ensure instream ammonia concentrations do not exceed the calculated chronic toxicity concentration of 1.08 mg/L for Rainbow Mussels as a result of the discharge.
	TBEL There is no applicable federal technology based effluent limit.
Total Kjeldahl Nitrogen, Organic Nitrogen, Nitrate/Nitrite	WQBEL Per "*Georgia's Plan for the Adoption of Water Quality Standards for Nutrients*" (2013) as amended, EPD is working to develop water quality models throughout the State of Georgia. EPD is requiring all point source discharges with the presence of ammonia to monitor for total Kjeldahl nitrogen, organic nitrogen, and nitrate/nitrite and to develop these models.
	TBEL There is no applicable federal technology based effluent limit.
Total Nitrogen	WQBEL A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition requiring the facility to report the effluent's total nitrogen concentration. This condition was incorporated into the facility's previous NPDES permit and has been retained in this permit to characterize nutrient loading.
	TBEL There is no applicable federal technology based effluent limit.

4.6 Toxics & Manmade Organic Compounds (126 priority pollutants and metals): Outfall 001 and Instream Discussions

Pollutants of Concern	Basis
Copper, Total	WQBEL Based on the data submitted in the application, the reasonable potential analysis showed there is no reasonable potential for the discharge to cause or contribute to an instream violation of the Georgia Water Quality Standard for copper.
	TBEL There is no applicable federal technology based effluent limit.
Zinc, Total	WQBEL Based on the data submitted in the application, the reasonable potential analysis showed there is no reasonable potential for the discharge to cause or contribute to an instream violation of the Georgia Water Quality Standard for zinc.
	TBEL There is no applicable federal technology based effluent limit.
Arsenic, Total	WQBEL Based on the data submitted in the application, the reasonable potential analysis showed there is no reasonable potential for the discharge to cause or contribute to an instream violation of the Georgia Water Quality Standard for arsenic.
	TBEL There is no applicable federal technology based effluent limit.
Mercury, Total	WQBEL There was a TMDL developed for total mercury fish tissue in 2005 which is applicable to this segment of the Ogeechee River. King America Finishing is listed in this TMDL and was given a wasteload allocation of 6.0 ng/L for Total Hg and 0.05 ng/L for MeHg equivalent to their effluent discharge during TMDL development. The facility was also subject to mercury characterization and/or minimization conditions. The previous permit included special conditions requiring a six month mercury characterization study, with an additional requirement to develop a mercury minimization plan if the characterization showed the average concentration of total mercury was greater than 6.0 ng/L. Results of the mercury characterization study showed an average concentration for total mercury of 0.73 ng/L; therefore, a minimization plan was not required and mercury

	monitoring was reduced to twice per year for the remainder of the permit term. In addition, the mercury sample submitted with the application showed a concentration of 1.3 ng/L. To assure that average total mercury concentrations remain below the 6.0 ng/L wasteload allocation or the concentration of mercury in the source water; whichever is greater, twice per year effluent and source water monitoring has been established in this permit.
	TBEL There is no applicable federal technology based effluent limit.
Chromium, Total	WQBEL Based on the data submitted in the application, the reasonable potential analysis showed there is no reasonable potential for the discharge to cause or contribute to an instream violation of the Georgia Water Quality Standard for chromium. As a result, the chromium concentration limits of 1.2 mg/L daily average and 2.0 mg/L daily maximum included in the previous permit have been removed and replaced with monitoring. See Section 5.3 for discussion surrounding anti-backsliding regulations.
	TBEL The facility is subject to production-based effluent limitations in accordance with 40 CFR 410.42(a) Best Practicable Control Technology Currently Available (BPT). The permittee has requested consideration of future production levels when calculating production based TBELs, in anticipation that production may increase to long-term production rates experienced in 2011. The following effluent limitations have been included in the permit based on three tiers of production. **Tier 1 (Average Production of Plant 1 ≤ 97,939 lbs/day)** Daily Average (lbs/day): 4.9 Daily Maximum (lbs/day): 9.8 **Tier 2 (97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day)** Daily Average (lbs/day): 5.6 Daily Maximum (lbs/day): 11.2 **Tier 3 (111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day)** Daily Average (lbs/day): 6.4 Daily Maximum (lbs/day): 12.8

4.7 Calculations for Water Quality Based Effluent Limits

4.7.a Instream Waste Concentration (IWC)[1]

$$IWC = \frac{\text{Effluent Flow (gal/day)}}{\text{Effluent Flow (gal/day)} + 7Q10 \text{ (gal/day)}}$$

$$IWC = \frac{3{,}100{,}000 \text{ (gal/day)}}{(3{,}100{,}000 \text{ (gal/day)} + 60{,}749{,}568 \text{ (gal/day)})}$$

IWC = 0.0486 or 4.86%

[1] The instream waste concentration (IWC) is calculated to be 4.86% based on the permitted flow and anticipated 7Q10 flow values. During periods of river flow that are below the 7Q10 value, the permit limits the IWC to no more than 8%.

4.7.b Biochemical Oxygen Demand (5-day)

The concentration-based effluent limits are based on the dissolved oxygen sag (DOSAG) modeling results in the Wasteload Allocation dated July 20, 2018.

Daily Average = 30 mg/L

Daily Maximum = 2.0 x Daily Average (mg/L)[1]
Daily Maximum = 2.0 x 30 (mg/L)
Daily Maximum = 60 mg/L

[1] The daily maximum is determined by using a 2.0x multiplier on the daily average. This multiplier is consistent with that used in 40 CFR 410 Subpart D Regulations for BOD_5.

4.8 Technology Based Effluent Limitation Calculations

There are several ways to calculate TBELs when developing case-by-case limitations. EPD can use an approach consistent with the statistical approach EPA has used to develop effluent guidelines or they can utilize several other mathematically and statistically accepted approaches depending on characteristics of the data. In general, EPD utilizes EPA's "NPDES Permit Writer Manual," September 2010, Section 5.2.3, "Case-by-Case TBELs for Industrial Dischargers" and EPA's "Technical Support Document for Water Quality Based Toxic Control," March 1991, Section 5.2, "Basis Principles of Effluent Variability," as guidance to develop limits.

If applicable, when there is no federal technology based effluent limit EPD evaluates the effluent data, operating records and discharge monitoring reports to calculate the long-term average for the parameter. The long-term average is then used to derive the effluent limits.

EPD recognizes there are several ways to calculate technology-based limits and, when applicable, may deviate from the general practice.

4.8.a Chemical Oxygen Demand (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

$COD_{Plant\ 1}$ = Average Production x Daily Average Production Factor
$COD_{Plant\ 1}$ = 97,939 (lbs/day) x 0.030
$COD_{Plant\ 1}$ = 2,938.2 lbs/day

$COD_{Finishing\ (Natural\ Fiber)}$ = Average Production of Finished Natural Fiber x Daily Average Production Factor
$COD_{Finishing\ (Natural\ Fiber)}$ = 27,423 (lbs/day) x 0.010
$COD_{Finishing\ (Natural\ Fiber)}$ = 274.2 (lbs/day)

$COD_{Finishing\ (Complex\ Blend)}$ = Average Production of Finished Complex Blend x Daily Average Production Factor
$COD_{Finishing\ (Complex\ Blend)}$ = 70,516 (lbs/day) x 0.030
$COD_{Finishing\ (Complex\ Blend)}$ = 2,115.5 (lbs/day)

$COD_{Total} = COD_{Plant\ 1} + COD_{Finishing\ (Natural\ Fiber)} + COD_{Finishing\ (Complex\ Blend)}$
COD_{Total} = 2,938.2 (lbs/day) + 274.2 (lbs/day) + 2,115.5 (lbs/day)
COD_{Total} = 5,327.9 (lbs/day)

Daily Maximum

$COD_{Plant\ 1}$ = Average Production x Daily Maximum Production Factor
$COD_{Plant\ 1}$ = 97,939 (lbs/day) x 0.060
$COD_{Plant\ 1}$ = 5,876.3 lbs/day

$COD_{Finishing\ (Natural\ Fiber)}$ = Average Production of Finished Natural Fiber x Daily Maximum Production Factor
$COD_{Finishing\ (Natural\ Fiber)}$ = 27,423 (lbs/day) x 0.020
$COD_{Finishing\ (Natural\ Fiber)}$ = 548.5 (lbs/day)

$COD_{Finishing\ (Complex\ Blend)}$ = Average Production of Finished Complex Blend x Daily Maximum Production Factor
$COD_{Finishing\ (Complex\ Blend)}$ = 70,516 (lbs/day) x 0.060
$COD_{Finishing\ (Complex\ Blend)}$ = 4231.0 (lbs/day)

$COD_{Total} = COD_{Plant\ 1} + COD_{Finishing\ (Natural\ Fiber)} + COD_{Finishing\ (Complex\ Blend)}$
COD_{Total} = 5,876.3 (lbs/day) + 548.5 (lbs/day) + 4231.0 (lbs/day)
COD_{Total} = 10,655.8 (lbs/day)

See Appendix F for the complete set of calculations.

4.8.b Biochemical Oxygen Demand$_{5\text{-day}}$ (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

BOD_5 = Average Production x Daily Average Production Factor
BOD_5 = 97,939 (lbs/day) x 0.0033
BOD_5 = 323 (lbs/day)

Daily Maximum

BOD_5 = Average Production x Daily Maximum Production Factor
BOD_5 = 97,939 (lbs/day) x 0.0066
BOD_5 = 646 (lbs/day)

See Appendix F for the complete set of calculations.

4.8.c Total Suspended Solids (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

TSS = Average Production x Daily Average Production Factor
TSS = 97,939 (lbs/day) x 0.0089
TSS = 872 (lbs/day)

Daily Maximum

TSS = Average Production x Daily Maximum Production Factor
TSS = 97,939 (lbs/day) x 0.0178
TSS = 1,743 (lbs/day)

See Appendix F for the complete set of calculations.

4.8.d Sulfide (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

Sulfide = Average Production x Daily Average Production Factor
Sulfide = 97,939 (lbs/day) x 0.0001
Sulfide = 9.8 (lbs/day)

Daily Maximum

Sulfide = Average Production x Daily Maximum Production Factor
Sulfide = 97,939 (lbs/day) x 0.0002
Sulfide = 19.6 (lbs/day)

See Appendix F for the complete set of calculations.

4.8.e Total Phenols (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

Total Phenols = Average Production x Daily Average Production Factor
Total Phenols = 97,939 (lbs/day) x 0.00005
Total Phenols = 4.9 (lbs/day)

Daily Maximum

Total Phenols = Average Production x Daily Maximum Production Factor
Total Phenols = 97,939 (lbs/day) x 0.0001
Total Phenols = 9.8 (lbs/day)

See Appendix F for the complete set of calculations.

4.8.f Total Chromium (Production-Based Effluent Limitations)

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Daily Average

Total Chromium = Average Production x Daily Average Production Factor
Total Chromium = 97,939 (lbs/day) x 0.00005
Total Chromium = 4.9 (lbs/day)

Daily Maximum

Total Chromium = Average Production x Daily Maximum Production Factor
Total Chromium = 97,939 (lbs/day) x 0.0001
Total Chromium = 9.8 (lbs/day)

See Appendix F for the complete set of calculations.

4.9 Comparison & Summary of Water Quality vs. Technology Based Effluent Limits

After preparing and evaluating applicable technology-based effluent limitations and water quality-based effluent limitations, the most stringent limits are applied in the permit. Pollutants of concern with an effluent limit of monitor and report are not included in the below table.

Outfall 001[(1)] **–** Process Water, Cooling Water, and Stormwater

Tier 1 – Average Production of Plant 1 ≤ 97,939 lbs/day

Parameter	WQBELs	TBELs	Explanation
Flow (MGD)	3.1	None	WQBEL – WQS
IWC (%)	8	None	WQBEL – WQS
Dissolved Oxygen (mg/L)	5.0 (Daily Minimum)	None	WQBEL –WQS
BOD_5 (lbs/day)	N/A	323/646	TBEL – ELG
BOD_5 (mg/L)	30/60	N/A	WQBEL – WQS
COD (lbs/day)	5,500/11,000	5,328/10,656	TBEL – ELG
TSS (lbs/day)	650/1,160	872/1,743	WQBEL – WQS
Sulfide (lbs/day)	None	9.8/19.6	TBEL – ELG
Sulfide (mg/L)	1.5/3.0	N/A	WQBEL – Other[(2)]
TDS (mg/L)	2,500/3,800	None	WQBEL – Other[(2)]
Total Phenols (lbs/day)	None	4.9/9.8	TBEL – ELG
Mercury, Total (ng/L)	6.0/6.0[(3)]	None	WQBEL – TMDL
Chromium, Total (lbs/day)	N/A	4.9/9.8	TBEL – ELG
Ammonia, as N (lbs/day)	181/336	None	WQBEL – Other[(2)]
Ammonia, as N (mg/L)	7/13	None	WQBEL – Other[(2)]
Fecal Coliform (#/100mL)	200/400	None	WQBEL – WQS
E. Coli (#/100mL)[4]	126/410	None	WQBEL – WQS
pH (s.u.)	6.0 – 8.0	6.0 – 9.0	WQBEL – WQS

[(1)] Whole effluent toxicity limitations are outlined separately in the special conditions section.
[(2)] Effluent limitations based on a consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, which negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper.
[(3)] The concentration of mercury in the effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater.
[(4)] The *e. coli* effluent limitations are effective upon EPD's written authorization.

Tier 2 – 97,939 lbs/day < Average Production of Plant 1 ≤ 111,849 lbs/day

Parameter	WQBELs	TBELs	Explanation
Flow (MGD)	3.1	None	WQBEL – WQS
IWC (%)	8	None	WQBEL – WQS
Dissolved Oxygen (mg/L)	5.0 (Daily Minimum)	None	WQBEL –WQS
BOD_5 (lbs/day)	N/A	369/738	TBEL – ELG
BOD_5 (mg/L)	30/60	N/A	WQBEL – WQS
COD (lbs/day)	5,500/11,000	6,085/12,169	WQBEL – Other(2)
TSS (lbs/day)	650/1,160	995/1,991	WQBEL – WQS
Sulfide (lbs/day)	None	11.2/22.4	TBEL – ELG
Sulfide (mg/L)	1.5/3.0	N/A	WQBEL – Other(2)
TDS (mg/L)	2,500/3,800	None	WQBEL – Other(2)
Total Phenols (lbs/day)	None	5.6/11.2	TBEL – ELG
Mercury, Total (ng/L)	6.0/6.0(3)	None	WQBEL – TMDL
Chromium, Total (lbs/day)	N/A	5.6/11.2	TBEL – ELG
Ammonia, as N (lbs/day)	181/336	None	WQBEL – Other(2)
Ammonia, as N (mg/L)	7/13	None	WQBEL – Other(2)
Fecal Coliform (#/100mL)	200/400	None	WQBEL – WQS
E. Coli (#/100mL)4	126/410	None	WQBEL – WQS
pH (s.u.)	6.0 – 8.0	6.0 – 9.0	WQBEL – WQS

(1) Whole effluent toxicity limitations are outlined separately in the special conditions section.
(2) Effluent limitations based on a consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, which negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper.
(3) The concentration of mercury in the effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater.
(4) The *e. coli* effluent limitations are effective upon EPD's written authorization.

Tier 3 – 111,849 lbs/day < Average Production of Plant 1 ≤ 128,116 lbs/day

Parameter	WQBELs	TBELs	Explanation
Flow (MGD)	3.1	None	WQBEL – WQS
IWC (%)	8	None	WQBEL – WQS
Dissolved Oxygen (mg/L)	5.0 (Daily Minimum)	None	WQBEL –WQS
BOD_5 (lbs/day)	N/A	423/846	TBEL – ELG
BOD_5 (mg/L)	30/60	N/A	WQBEL – WQS
COD (lbs/day)	5,500/11,000	6,970/13,939	WQBEL – Other(2)
TSS (lbs/day)	650/1,160	1,140/2,280	WQBEL – WQS
Sulfide (lbs/day)	None	12.8/25.6	TBEL – ELG
Sulfide (mg/L)	1.5/3.0	N/A	WQBEL – Other(2)
TDS (mg/L)	2,500/3,800	None	WQBEL – Other(2)
Total Phenols (lbs/day)	None	6.4/12.8	TBEL – ELG
Mercury, Total (ng/L)	6.0/6.0(3)	None	WQBEL – TMDL
Chromium, Total (lbs/day)	N/A	6.4/12.8	TBEL – ELG
Ammonia, as N (lbs/day)	181/336	None	WQBEL – Other(2)
Ammonia, as N (mg/L)	7/13	None	WQBEL – Other(2)
Fecal Coliform (#/100mL)	200/400	None	WQBEL – WQS
E. Coli (#/100mL)4	126/410	None	WQBEL – WQS
pH (s.u.)	6.0 – 8.0	6.0 – 9.0	WQBEL – WQS

(1) Whole effluent toxicity limitations are outlined separately in the special conditions section.
(2) Effluent limitations based on a consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, which negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper.
(3) The concentration of mercury in the effluent shall not exceed 6.0 ng/L or a concentration equal to the concentration of mercury in the source water; whichever is greater.
(4) The *e. coli* effluent limitations are effective upon EPD's written authorization.

5.0 OTHER PERMIT REQUIREMENTS AND CONSIDERATIONS

5.1 Special Conditions

a. Instream Waste Concentration

A consent decree (Civil Action No. 6:12-CV-00058) signed on January 15, 2014, negotiated a settlement between King America Finishing, Inc. and the Ogeechee-Canoochee Riverkeeper. The consent decree included a condition limiting the instream waste concentration (IWC) to 8%. This condition was incorporated into the facility's previous NPDES permit and has been retained in this reissuance as a special condition. Monitoring at USGS Rocky Ford gage (#02202040) has been included to ensure discharges do not exceed the IWC of 8%.

b. Per- and Polyfluoroalkyl Substances (PFAS) Characterization Study

EPD has included a PFAS characterization study in the permit based on the industry category of the facility. The purpose of the PFAS Characterization Study is to determine if the facility has the potential to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal.

c. Whole Effluent Toxicity (WET) Testing

Due to issues with historical toxicity from the discharge, acute and chronic whole effluent toxicity (WET) testing and limitations have been required for both the effluent and the receiving waterbody. Failure of two WET tests will trigger a requirement to conduct a Toxicity Identification Evaluation (TIE) and Toxicity Reduction Evaluation (TRE). The permit includes the minimum requirements for conducting a TIE/TRE. Additionally, to ensure a TIE/TRE can be completed within six months of a second WET test failure, the permit requires that the permittee submit a TIE work plan proposal to EPD for review and approval within three months of the effective date of the permit.

As part of the TIE work plan, the permittee is required to conduct four months of phase I – toxicity characterization testing. The phase I testing will consist of biweekly acute WET testing and weekly chronic testing of the final effluent for *ceriodaphnia dubia* and *pimephales promelas*. For acute WET tests which exhibit toxicity (i.e., $LC_{50} < 100\%$) based on the initial baseline effluent toxicity test, and for all chronic WET tests, toxicity characterization testing is required.

The following toxicity characterization tests are recommended by EPA for TIE's: baseline effluent toxicity testing, EDTA chelation testing, sodium thiosulfate addition testing, filtration testing, aeration testing, post C_{18} solid phase extraction column testing, methanol eluate testing, and graduated pH testing. Additionally, where toxicity information from the characterization tests is insufficient for determining classes/groups of compounds contributing to effluent toxicity, a pH adjustment test at 3 s.u. and 10 s.u. should be run independently and in concert with the filtration, aeration, solid phase extraction, and methanol eluate tests. As part of the TIE work plan approval, EPD will ensure that proposed plan includes the procedures for conducting the recommended characterization tests discussed above.

Additional elements of the TIE work plan should include identifying WET testing procedures, establishing quality assurance (QA) and quality control (QC) procedures for testing, and identifying the contract laboratory and/or consultants responsible for sample analysis. Phase I testing often includes modified testing procedures from the standard WET testing manuals. The TIE work plan will need to identify the WET testing procedures and identify any proposed modifications to test volumes, test durations, number of replicates, number of test concentrations, reduced test solution renewals, etc.

Phases II and III of a TIE include further toxicity identification and toxicity confirmation procedures based on the results of the phase I testing. The permit requires that phase II and phase III testing commence two months after the start of phase I toxicity characterization testing and continue for two months coincident with the second half of the phase I testing. The TIE work plan requires that the permittee identify basic WET testing procedures and QA/QC procedures for phases II and III. Ultimately, the full scope of the phase II and phase III testing will be determined by the initial results of phase I testing and, outside of the initial work plan, the permittee will be required to submit a report describing the procedures which will be enacted for phase II and III testing based on the results of the first two months of phase I testing.

In the event that a second WET test failure is experienced during the permit term, the approved TIE work plan will be triggered, in addition to the TRE and additional data gathering activities required to support the TIE/TRE.

The permit requires that the permittee submit a report which provides an in-depth review of facility operations including the products produced, chemicals used, facility engineering design, and wastewater treatment operations. Additionally, the permittee is required to submit a report which provides an evaluation of housekeeping practices, treatment plant operations, opportunities for chemical optimization.

Following the completion of the TIE and additional data gathering activities, the permittee is required to submit a TRE report. The report should identify the proposed method for toxicity reduction, an evaluation and summation of reduction methodologies considered, a selection of a reduction methodology, and an implementation schedule for the proposed solution. Additionally, if the causative agent approach was selected as the proposed method for toxicity reduction the report should include a copy of the source identification evaluation.

The results of any TIE/TRE triggered by toxicity violations, as prescribed in Part III.C.3 of the permit do not preclude compliance or enforcement action related to toxicity violations of the permit. The minimum permit requirements and additional guidance provided in the fact sheet regarding TIE/TREs and additional data gathering activities are based on the following EPA guidance documents:

U.S. Environmental Protection Agency. 1989. Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs). EPA/600/2-88/070. U.S. Environmental Protection Agency, Chemicals and Chemical Product Branch Risk Reduction Engineering Laboratory, Cincinnati, OH.

U.S. Environmental Protection Agency. 1991a. Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, 2nd ed., EPA/600/6-91/003. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Research Laboratory, Duluth, MN.

U.S. Environmental Protection Agency. 1992. Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Research Laboratory, Duluth, MN.

U.S. Environmental Protection Agency. 1993a. Methods for Aquatic Toxicity Identification Evaluation: Phase II Toxicity Identification Procedures for Acutely and Chronically Toxic Samples. EPA/600/R-92/080. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN.

U.S. Environmental Protection Agency. 1993b. Methods for Aquatic Toxicity Identification Evaluation: Phase III Toxicity Identification Procedures for Acutely and Chronically Toxic Samples. EPA/600/R-92/081. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN.

The permit also includes a modified chronic WET test dilution series to increase confidence in results near the IWC. The modified dilution series includes two additional test concentrations to provide a more precise concentration-response relationship near the IWC using a modified 0.5 dilution factor. The modified dilution series is 0%, 2%, 4%, 8%, 16%, 32%, 64%, 100%.

Finally, the permit requires reporting of the IC_{25} for chronic WET tests. The IC_{25} will provide a point estimate as opposed to the hypothesis testing techniques used for the determination of the NOEC. The NOEC will continue to be the statistical endpoint utilized by Georgia EPD for the purposes of compliance, but the IC_{25} will supplement the results of the WET testing.

d. Sludge Management Plan

On October 07, 2021, EPD approved a sludge management plan allowing for the disposal of wastewater sludge by incineration or beneficial reuse as supplemental kiln fuel. The sludge management plan has been incorporated into this permit reissuance and approves disposal of wastewater sludge to the facilities listed below; contingent upon their willingness and ability to accept the sludge in accordance with their solid waste and hazardous waste permits.

Holcim (US) Inc.
200 Safety St., Hwy 453
Holy Hill, SC 29059
Hazardous Waste Permit No.: SCD 003 368 891

VLS Piedmont, LLC
305 South Main Street
Mauldin, SC 29662
Solid Waste Processing Permit No.: SCD 233730-2001

Covanta Environmental Solutions
3920 Goshen Industrial Blvd
Augusta, GA 30906
Solid Waste Handling Permit No.: 121-019P

e. Notification of Increased Production

The permittee requested consideration of future production levels when calculating production-based technology-based limits, in anticipation that production may increase to the production rates experienced in 2011. EPD has included tiered permit limits based on production levels to ensure that technology based effluent limits accurately reflect production levels without restricting facility operations. Tiered limits have been based on the permittee's average production rate over the previous five years (Tier 1), the highest annual average production rate over the previous five years (Tier 2), and the predicted return to the 2011 production rate (Tier 3). The pollutant loading for all production tiers is within the scope of the loading previously considered and permitted and would not trigger an anti-degradation analysis.

The permit requires a notification of increased production when the permittee expects to operate at higher level of production than Tier 1. The permittee is required to notify the EPD compliance office in writing at least two business days prior to the month they expect to operate at a higher level of production (higher than Tier 1). The notice must specify the anticipated level and period during which the permittee expects to operate at the increased level of production. Furthermore, new notice is required to cover a period or production level not covered by prior notice or, if during two consecutive months otherwise covered by a notice, the production level at the permitted facility does not in fact meet the higher level of production designated in the notice.

The notice of increased production has been required to provide clarity regarding the status of compliance with the tier-based effluent limitations and is required for coverage under Tiers 2 and 3. A notice of increased production does not alone grant coverage for effluent limitations under a higher level of production (Tier 2 or Tier 3), but must be accompanied by reporting in the monthly discharge monitoring report which indicates that the monthly average production levels qualify for coverage based on the production levels established in Tiers 2 and 3.

5.2 Compliance Schedules

The permittee shall attain compliance with all limits, except *e. coli*, on the effective date of the permit. The permit includes provisions to replace the fecal coliform effluent limitations with *e. coli* effluent limitations during the permit term following EPA approval of the proposed changes to the Georgia Rules for Water Quality Control, Chapter 391-3-6-.03 (Water Use Classifications and Water Quality Standards) for bacterial indicators. EPD will provide written authorization to the permittee replacing the fecal coliform effluent limitations with *e. coli* limitations once the proposed criteria have been approved.

5.3 Anti-Backsliding

Total Suspended Solids

The limits in this permit are in compliance with 40 C.F.R. 122.44(l). 40 C.F.R. 122.44(l)(2)(i)(B)(2) states, permit limits may be less stringent if "The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b)." King America Finishing, Inc. is subject to production-based effluent limitations in accordance with 40 C.F.R. 410.42(a) which establish mass-based effluent limitations for TSS. Additionally, King America Finishing, Inc. is subject to Georgia's narrative Water Quality Standard for TSS. The 2013 permit includes concentration based TSS effluent limitations using EPD's best professional judgement (BPJ) based on limits applied to municipal wastewater treatment facilities through 40 C.F.R. 133, Secondary Treatment Regulations. This approach is improper as it effectively creates a technology-based effluent limit (TBEL) when a TBEL already exists for the facility under 40 C.F.R. 410.42(a). Additionally, the concentration-based effluent limitations do not qualify as water quality-based effluent limits (WQBELs), as they do not represent a translation of Georgia's narrative Water Quality Standard for TSS but rather a reasonable level of treatment expected from secondary treatment technology for POTWs. Thus, the concentration-based effluent limitations for TSS have been removed from this permit.

Formaldehyde

The limits in this permit are in compliance with 40 C.F.R. 122.44(l). 40 C.F.R. 122.44(l)(2)(i)(C) states, permit limits may be less stringent if "a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy." Additionally, 40 C.F.R. 122.44(l)(2)(i)(B)(1) states, permit limits may be less stringent if "Information is available which was not available at the time of permit issuance (other than revised, regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. While Georgia does not have a numeric water quality standard for formaldehyde, in the 2013 permit EPD derived aquatic life criteria for formaldehyde in accordance with EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* and available data on aquatic toxicity. In accordance with the 2013 permit requirements, King America Finishing, Inc. conducted daily formaldehyde sampling on the effluent using EPA Method 8315A. EPA Method 8315A is a hazardous waste test method published by the EPA in the SW-846 Compendium which was utilized by the facility to substitute EPA 40 C.F.R. 136 Method 1667A due to the limited commercial availability of Method 1667A certified labs. Both methods analyze formaldehyde through the derivatization of aldehydes using 2,4-dinitrophenylhydrazine (DNPH) in a sample buffered to a pH of 5. Following derivatization, high performance liquid chromatography is performed to analyze the formaldehyde concentration. Due to the similarity in both Methods and the lack of an alternative analytical method, the ability to accurately determine formaldehyde concentrations may be hindered by matrix interferences.

The analytical data for formaldehyde submitted by King America Finishing, Inc. has shown considerable variability and has resulted in several exceedances resulting in a consent order issued by EPD (EPD-WP-8321). As part of the consent order, King America, Inc.

completed a Corrective Action Plan which included investigations of formaldehyde exceedances. Investigations included an assessment of production operations that use formaldehyde or formaldehyde-bearing compounds, an assessment of wastewater treatment plant operations, an evaluation of formaldehyde analytical methods and procedures, and consideration of alternative treatment technologies. The investigations yielded minor operational changes but the presence of matrix interference due to co-extraction of other matrix contaminants was identified as a significant concern. King America Finishing, Inc. has since shortened the hold time of samples to reduce the likelihood of interferences. The Method hold time allowed for 3 days between sampling and preparation and an additional 3 days between preparation and analysis. This hold time was shortened to allow for 2 days between sampling and preparation and no more than 1 day between preparation and analysis. Although this approach has served to reduce matrix contamination, attempts to modify the Method to eliminate matrix contamination all together have been unsuccessful in meeting the quality assurance and quality control procedures outlined in the Method.

The permittee may continue to evaluate alternative methodologies as part of their Corrective Action Plan (CAP); however, in light of the information presented above, there may be no reasonably available remedy for correcting the matrix interference experienced in the analytical sampling for formaldehyde. Furthermore, the presence of such matrix interferences calls into question the suitability of formaldehyde sampling for the determination of aquatic toxicity. Thus, EPD has removed the formaldehyde effluent limitations. Any potential toxicity of the effluent will continue to be captured by the whole effluent toxicity testing required in the permit which would capture any toxicity exhibited by formaldehyde in the effluent as well as identify any potential additive and synergistic effects of the effluent as a whole. This approach is consistent with Georgia EPD's *NPDES Reasonable Potential Procedures (2003)* document which outlines procedures for permitting chemical constituents for which numeric water quality criteria have not been established.

Color

The limits in this permit are in compliance with 40 C.F.R. 122.44(l). 40 C.F.R. 122.44(l)(2)(i)(B)(1) states, permit limits may be less stringent if "Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance." In the 2013 permit reissuance, EPD included color limitations from a third-party settlement (Civil Action No. 6:12-CV-00058) as interim limitations until a color study was completed. A color study was completed by King America Finishing, Inc. in October of 2015. The results showed that the difference in color between the Ogeechee River (upstream) and the final effluent was -13 ADMI on average and a +36 ADMI maximum. Additionally, the difference in color between the Ogeechee River (upstream) and the Ogeechee River (downstream) was -1 ADMI on average and a +6 ADMI maximum. This study complements the instream sampling required in the previous permit which indicated an average delta ADMI of 3.2 and a maximum delta ADMI of +15. The results of the color study indicate that there is no reasonable potential for the effluent to cause or contribute to an in-stream violation of the Georgia narrative water quality standard for color. Thus, EPD has removed the color limitations in light of the additional information.

Total Phenols

The limits in this permit are in compliance with 40 C.F.R. 122.44(l). 40 C.F.R. 122.44(l)(2)(i)(B)(2) states, permit limits may be less stringent if "The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b)." King America Finishing, Inc. is subject to production-based effluent limitations in accordance with 40 C.F.R. 410.42(a) which establish mass-based effluent limitations for total phenols. The 2013 permit includes total phenols effluent limitations using EPD's best professional judgement based on the demonstrated performance of the facility. This approach is improper as it effectively creates a technology-based effluent limit (TBEL) when a TBEL already exists for the facility under 40 C.F.R. 410.42(a) which establishes a nationwide standard for performance. The previous permit limitations have been replaced with the effluent limitations established in 40 C.F.R. 410.42(a). The less stringent effluent limitations will not result in a violation of a water quality standard based on the reasonable potential analysis.

Chromium, Total

The limits in this permit are in compliance with 40 C.F.R. 122.44(l). 40 C.F.R. 122.44(l)(2)(i)(B)(1) states, permit limits may be less stringent if "Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance." In the 2013 permit reissuance, EPD included water quality-based effluent limitations for chromium using the conservative assumption that all chromium discharged was in the form of Chromium VI. The inclusion of a water quality-based effluent limitation was not based on data that indicated a reasonable potential for the facility to violate the Georgia Water Quality Standard for chromium but was rather included in an abundance of caution due to the 2011 fish kill. Sampling over the previous permit term and data provided in the permit application provided 156 data points for Chromium to be used in EPD's reasonable potential analysis. The results of the reasonable potential analysis indicate that there is no reasonable potential for the discharge to cause or contribute to an instream violation of the Georgia Water Quality Standard for chromium. Thus, in accordance with the reasonable potential analysis procedures outlined in Ga. Comp. R. & Regs. 391-3-6-.06(4)(d)(5)(ii) the concentration-based water quality-based effluent limitations have been removed from the permit.

5.4 Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances; hereafter named PFAS are a group of man-made chemicals that have been identified by EPA as emerging chemicals of concern. These synthetic chemicals are identified by their elemental bonds of fluorine and carbon. Such elemental bonds are difficult to break and as a result PFAS has been identified to be very persistent in the environment and bioaccumulate in living organisms. This is of concern, as initial studies have indicated that exposure to such substances can lead to adverse health effects in humans and animals such as: reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. In response to such concerns, on February 14, 2019, EPA announced a comprehensive PFAS Action and published further updates in February 2020. The action plan is a multi-media, multi-program, national research, management, and risk communication plan to address PFAS in drinking water,

identify and clean up PFAS contamination, expand monitoring of PFAS in manufacturing, increase PFAS scientific research, and exercise effective enforcement tools. Of specific interest during this permitting process are EPA's efforts to develop water quality criteria for PFAS, identify industrial sources that may warrant further study and regulations, and continued efforts to develop analytical methods.

Several industries, including textile mills, have been identified as potential contributors to PFAS as part of their manufacturing process. In conjunction with the national response for PFAS, EPD is working on furthering the objectives of the action plan on a state level. This includes the development of a PFAS Characterization Study special condition to be included in permits where discharges of PFAS are suspected. The purpose of the PFAS Characterization Study is to determine if the facility has the potential to discharge PFAS into the environment through the discharge of treated wastewater effluent or through industrial sludge disposal. This special condition requires PFAS monitoring so that EPD may ensure that state waters are free from toxic substances, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life. This permit condition is necessary and appropriate for the protection of Georgia water quality criteria in accordance with GA. Comp. R. & Regs. 391-3-6-.03(5)(e).

6.0 REPORTING

The facility has been assigned to the following EPD office for reporting, compliance and enforcement.

Georgia Environmental Protection Division
Coastal District Office
400 Commerce Center Drive
Brunswick, Georgia 31523-8251

6.1 E-Reporting

The permittee is required to electronically submit documents in accordance with 40 CFR Part 127.

7.0 REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

Not applicable

8.0 PERMIT EXPIRATION

The permit will expire five years from the effective date.

9.0 PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

9.1 Comment Period

The Georgia Environmental Protection Division (EPD) proposes to issue a permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

Georgia Environmental Protection Division
Wastewater Regulatory Program
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, Georgia 30334

The permit application, draft permit, and other information are available for review at 2 Martin Luther King Jr. Drive, Suite 1152 East, Atlanta, Georgia 30334, between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday and on EPD's website accessible through the publicly available Georgia EPD Online System (GEOS) at: https://geos.epd.georgia.gov/GA/GEOS/Public/GovEnt/Shared/Pages/Main/Login.aspx. For additional information, you can contact 404-463-1511.

9.2 Public Comments

Persons wishing to comment upon or object to the proposed determinations are invited to submit same in writing to the EPD address above, or via e-mail at *EPDcomments@dnr.ga.gov* within 30 days of the initiation of the public comment period. All comments received prior to that date will be considered in the formulation of final determinations regarding the application. The permit number should be placed on the top of the first page of comments to ensure that your comments will be forwarded to the appropriate staff.

9.3 Public Hearing

Any applicant, affected state or interstate agency, the Regional Administrator of the U.S. Environmental Protection Agency (EPA) or any other interested agency, person or group of persons may request a public hearing with respect to an NPDES permit application if such request is filed within thirty (30) days following the date of the public notice for such application. Such request must indicate the interest of the party filing the request, the reasons why a hearing is requested, and those specific portions of the application or other NPDES form or information to be considered at the public hearing.

The Director shall hold a hearing if he determines that there is sufficient public interest in holding such a hearing. If a public hearing is held, notice of same shall be provided at least thirty (30) days in advance of the hearing date.

In the event that a public hearing is held, both oral and written comments will be accepted; however, for the accuracy of the record, written comments are encouraged. The Director or a designee reserves the right to fix reasonable limits on the time allowed for oral statements and such other procedural requirements, as deemed appropriate.

Following a public hearing, the Director, unless it is decided to deny the permit, may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue the permit.

If no public hearing is held, and, after review of the written comments received, the Director determines that a permit should be issued and that the determinations as set forth in the proposed permit are substantially unchanged, the permit will be issued and will become final in the absence of a request for a contested hearing. Notice of issuance or denial will be made available to all interested persons and those persons that submitted written comments to the Director on the proposed permit.

If no public hearing is held, but the Director determines, after a review of the written comments received, that a permit should be issued but that substantial changes in the proposed permit are warranted, public notice of the revised determinations will be given and written comments accepted in the same manner as the initial notice of application was given and written comments accepted pursuant to EPD Rules, Water Quality Control, subparagraph 391-3-6-.06(7)(b). The Director shall provide an opportunity for public hearing on the revised determinations. Such opportunity for public hearing and the issuance or denial of a permit thereafter shall be in accordance with the procedures as are set forth above.

9.4 Final Determination

At the time that any final permit decision is made, the Director shall issue a response to comments. The issued permit and responses to comments can be found at the following address:

http://epd.georgia.gov/watershed-protection-branch-permit-and-public-comments-clearinghouse-0

9.5 Contested Hearings

Any person who is aggrieved or adversely affected by the issuance or denial of a permit by the Director of EPD may petition the Director for a hearing if such petition is filed in the office of the Director within thirty (30) days from the date of notice of such permit issuance or denial. Such hearing shall be held in accordance with the EPD Rules, Water Quality Control, subparagraph 391-3-6-.01.

Petitions for a contested hearing must include the following:

1. The name and address of the petitioner;
2. The grounds under which petitioner alleges to be aggrieved or adversely affected by the issuance or denial of a permit;
3. The reason or reasons why petitioner takes issue with the action of the Director;
4. All other matters asserted by petitioner which are relevant to the action in question.

Appendix A – Applicable Federal Regulations

ENHANCED CONTENT - TABLE OF CONTENTS

Title 40

PART 410 - TEXTILE MILLS POINT SOURCE CATEGORY

Authority: Secs. 301, 304 (b), (c), (e), and (g), 306 (b) and (c), 307 (b) and (c), and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended by the Clean Water Act of 1977) (the "Act"); 33 U.S.C. 1311, 1314 (b), (c), (e), and (g), 1316 (b) and (c), 1317 (b) and (c), and 1361; 86 Stat. 186 *et seq.,* Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217.

Source: 47 FR 38819, Sept. 2, 1982, unless otherwise noted.

General Provisions

§ 410.00 Applicability.

This part applies to any textile mill or textile processing facility which discharges or may discharge process wastewater pollutants to the waters of the United States, or which introduces or may introduce process wastewater pollutants into a publicly owned treatment works.

§ 410.01 General definitions.

In addition to the definitions set forth in 40 CFR part 401, the following definitions apply to this part:

(a) ***Sulfide*** shall mean total sulfide (dissolved and acid soluble) as measured by the procedures listed in 40 CFR part 136.

(b) ***Phenols*** shall mean total phenols as measured by the procedure listed in 40 CFR part 136.

(c) Total Chromium shall mean hexavalent and trivalent chromium as measured by the procedures listed in 40 CFR part 136.

(d) The term *commission finishing* shall mean the finishing of textile materials, 50 percent or more of which are owned by others, in mills that are 51 percent or more independent (*i.e.*, only a minority ownership by company(ies) with greige or integrated operations); the mills must process 20 percent or more of their commissioned production through batch, noncontinuous processing operations with 50 percent or more of their commissioned orders processed in 5000 yard or smaller lots.

(e) The term *product,* except where a specialized definition is included in the subpart, shall mean the final material produced or processed at the mill.

§ 410.02 Monitoring requirements. [Reserved]

Subpart A - Wool Scouring Subcategory

§ 410.10 Applicability; description of the wool scouring subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: wool scouring, topmaking, and general cleaning of raw wool.

§ 410.11 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part, the following definitions apply to this subpart:

(a) The term *wool* shall mean the dry raw wool as it is received by the wool scouring mill.

(b) The term *oil and grease* shall mean total recoverable oil and grease as measured by the procedure listed in 40 CFR part 136.

(c) The term *commission scouring* shall mean the scouring of wool, 50 percent or more of which is owned by others, in mills that are 51 percent or more independent (*i.e.*, only a minority ownership by company(ies) with greige or integrated operations); the mills must process 20 percent or more of their commissioned production through batch, noncontinuous processing operations.

§ 410.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of wool	
BOD*5*	10.6	5.3
COD	138.0	69.0
TSS	32.2	16.1
Oil and grease	7.2	3.6
Sulfide	0.20	0.10
Phenol	0.10	0.05
Total chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) Additional allocations equal to the effluent limitations established in paragraph (a) of this section are allowed any existing point source subject to such effluent limitations that scours wool through “commission scouring” as defined in § 410.11.

§ 410.13 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of wool	
COD	138.0	69.0
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total chromium	0.10	0.05

(b) Additional allocations equal to the effluent limitations established in paragraph (a) of this section are allowed any existing point source subject to such effluent limitations that scours wool through "commission scouring" as defined in § 410.11.

§ 410.14 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.15 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of wool	
BOD*5*	3.6	1.9
COD	52.4	33.7
TSS	30.3	13.5
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for "commission scouring" are not available to new sources.

§ 410.16 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.17 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart B - Wool Finishing Subcategory

§ 410.20 Applicability; description of the wool finishing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: wool finishers, including carbonizing, fulling, dyeing, bleaching, rinsing, fireproofing, and other such similar processes.

§ 410.21 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part, the following definition applies to this subpart:

(a) The term *fiber* shall mean the dry wool and other fibers as received at the wool finsihing mill for processing into wool and blended products.

(b) [Reserved]

§ 410.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pound per 1,000 lb) of fiber	
BOD*5*	22.4	11.2
COD	163.0	81.5
TSS	35.2	17.6
Sulfide	0.28	0.14
Phenol	0.14	0.07
Total chromium	0.14	0.07
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) Additional allocations equal to the effluent limitations established in paragraph (a) of this section are allowed any existing point source subject to such effluent limitations that finishes wool or blended wool fabrics through “commission finishing” as defined in § 410.01.

§ 410.23 Effluent limitation representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitation	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of fiber	

Pollutant or pollutant property	BAT limitation	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
COD	163.0	81.5
Sulfide	0.28	0.14
Phenols	0.14	0.07
Total Chromium	0.14	0.07

(b) Additional allocations equal to the effluent limitations established in paragraph (a) of this section are allowed any existing point source subject to such effluent limitations that finishes wool or blended wool fabrics through "commission finishing" as defined in § 410.01.

§ 410.24 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.25 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of fiber	
BOD*5*	10.7	5.5
COD	113.8	73.3
TSS	32.3	14.4
Sulfide	0.28	0.14
Phenols	0.14	0.07
Total Chromium	0.14	0.07
pH	([1])	([1])

Note: Additional allocations for "commission finishers" are not available to new sources.

[1] Within the range 6.0 to 9.0 at all times.

§ 410.26 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.27 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart C - Low Water Use Processing Subcategory

§ 410.30 Applicability; description of the low water use processing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: yarn manufacture, yarn texturizing, unfinished fabric manufacture, fabric coating, fabric laminating, tire cord and fabric dipping, and carpet tufting and carpet backing. Rubberized or rubber coated fabrics regulated by 40 CFR part 428 are specifically excluded.

§ 410.31 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part, the following definitions apply to this subpart:

(a) The term *general processing* shall mean the internal subdivision of the low water use processing subcategory for facilities described in § 410.30 that do not qualify under the water jet weaving subdivision.

(b) The term *water jet weaving* shall mean the internal subdivision of the low water use processing subcategory for facilities primarily engaged in manufacturing woven greige goods through the water jet weaving process.

§ 410.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BPT):

General Processing

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of product	
BOD*5*	1.4	0.7
COD	2.8	1.4
TSS	1.4	0.7
ph	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Water Jet Weaving

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 1lb) of product	
BOD*5*	8.9	4.6
COD	21.3	13.7
TSS	5.5	2.5
ph	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

§ 410.33 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

General Processing

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of product	
COD	2.8	1.4

Water Jet Weaving

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of product	
COD	21.3	13.7

§ 410.34 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.35 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

General Processing

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of product	
BOD*5*	1.4	0.7
COD	2.8	1.4
TSS	1.4	0.7
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Water Jet Weaving

Pollutant or pollutant property	NSPS

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (pounds per 1,000 lb) of product	
BOD*5*	8.9	4.6
COD	21.3	13.7
TSS	5.5	2.5
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

§ 410.36 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.37 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart D - Woven Fabric Finishing Subcategory

§ 410.40 Applicability; description of the woven fabric finishing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: woven fabric finishers, which may include any or all of the following unit operations: Desizing, bleaching, mercerizing, dyeing, printing, resin treatment, water proofing, flame proofing, soil repellency application and a special finish application.

§ 410.41 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part the following definitions apply to this subpart:

(a) The term *simple manufacturing operation* shall mean all the following unit processes: Desizing, fiber preparation and dyeing.

(b) The term *complex manufacturing operation* shall mean "simple" unit processes (desizing, fiber preparation and dyeing) plus any additional manufacturing operations such as printing, water proofing, or applying stain resistance or other functional fabric finishes.

(c) For NSPS (§ 410.45) the term *desizing facilities* shall mean those facilities that desize more than 50 percent of their total production. These facilities may also perform other processing such as fiber preparation, scouring, mercerizing, functional finishing, bleaching, dyeing and printing.

§ 410.42 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
BOD*5*	6.6	3.3
COD	60.0	30.0
TSS	17.8	8.9
Sulfide	0.20	0.10
Phenol	0.10	0.05
Total Chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through simple manufacturing operations employing a synthetic fiber or through complex manufacturing operations employing a natural fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

(c) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through simple manufacturing operations employing a natural and synthetic fiber blend or through complex manufacturing operations employing a synthetic fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	40.0	20.0

(d) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through complex manufacturing operations employing a natural and synthetic fiber blend, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this subpart.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pound per 1,000 lb) of product	
COD	60.0	30.0

(e) Additional allocations equal to the effluent limitations established in paragraphs (a), (b), (c), and (d) of this section are allowed any existing point source subject to such effluent limitations that finishes woven fabrics through "commission finishing" as defined in § 410.01.

[47 FR 38819, Sept. 2, 1982, as amended at 48 FR 39624, Sept. 1, 1983]

§ 410.43 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pound per 1,000 lb) of product	
COD	60.0	30.0
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05

(b) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through simple manufacturing operations employing a synthetic fiber or through complex manufacturing operations employing a natural fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

(c) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through simple manufacturing operations employing a natural and synthetic fiber blend or through complex manufacturing operations employing a synthetic fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BAT limitations

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	40.0	20.0

(d) Except as provided in paragraph (e) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of woven fabrics through complex manufacturing operations employing a natural and synthetic fiber blend, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this subpart.

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	60.0	30.0

(e) Additional allocations equal to the effluent limitations established in paragraphs (a), (b), (c), and (d) of this section are allowed any existing point source subject to such effluent limitations that finishes woven fabrics through “commission finishing” as defined in § 410.01.

[47 FR 38819, Sept. 2, 1982, as amended at 48 FR 39624, Sept. 1, 1983]

§ 410.44 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.45 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Simple Manufacturing Operations

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	3.3	1.7
COD	41.7	26.9
TSS	8.8	3.9
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
pH[1]	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

Complex Manufacturing Operations

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	3.7	1.9
COD	68.7	44.2
TSS	14.4	6.4
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05
pH[1]	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

Desizing

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	5.5	2.8
COD	59.5	38.3
TSS	15.6	6.9
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

NOTE: Additional allocations for "commission finishers" are not available to new sources.

§ 410.46 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.47 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart E - Knit Fabric Finishing Subcategory

§ 410.50 Applicability; description of the knit fabric finishing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: knit fabric finishers, which may include any or all of the following unit operations: Bleaching, mercerizing, dyeing, printing, resin treatment, water proofing, flame proofing, soil repellency application and a special finish application.

§ 410.51 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part, the following definitions apply to this subpart:

(a) The term *simple manufacturing operation* shall mean all the following unit processes: desizing, fiber preparation and dyeing.

(b) The term *complex manufacturing operation* shall mean "simple" unit processes (desizing, fiber preparation and dyeing) plus any additional manufacturing operations such as printing, water proofing, or applying stain resistance or other functional fabric finishes.

(c) For NSPS (§ 410.55) the term *hosiery products* shall mean the internal subdivision of the knit fabric finishing subcategory for facilities that are engaged primarily in dyeing or finishing hosiery of any type.

§ 410.52 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	5.0	2.5
COD	60.0	30.0
TSS	21.8	10.9
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) Except as provided in paragraph (d) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of knit fabrics through simple manufacturing operations employing a natural and synthetic fiber or through complex manufacturing operations employing a synthetic

fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

(c) Except as provided in paragraph (d) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of knit fabrics through complex manufacturing operations employing a natural and synthetic fiber blend, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	40.0	20.0

(d) Additional allocations equal to the effluent limitations established in paragraphs (a), (b), and (c) of this section are allowed any existing point source subject to such effluent limitations that finishes knit fabrics through “commission finishing” as defined in § 410.01.

[47 FR 38819, Sept. 2, 1982, as amended at 48 FR 39624, Sept. 1, 1983]

§ 410.53 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	60.0	30.0
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05

(b) Except as provided in paragraph (d) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of knit fabrics through simple manufacturing operations employing a natural and synthetic fiber or through complex manufacturing operations employing a synthetic fiber, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BAT limitations

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Maximum for any 1 day	**Average of daily values for 30 consecutive days**
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

(c) Except as provided in paragraph (d) of this section for commission finishing operations, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the finishing of knit fabrics through complex manufacturing operations employing a natural and synthetic fiber blend, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	**Average of daily values for 30 consecutive days**
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	40.0	20.0

(d) Additional allocations equal to the effluent limitations established in paragraphs (a), (b), and (c) of this section are allowed any existing point source subject to such effluent limitations that finishes knit fabrics through “commission finishing” as defined in § 410.01.

[47 FR 38819, Sept. 2, 1982, as amended at 48 FR 39624, Sept. 1, 1983]

§ 410.54 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.55 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Simple Manufacturing Operations

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	**Average of daily values for 30 consecutive days**
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	3.6	1.9
COD	48.1	31.0
TSS	13.2	5.9
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total chromium	0.10	0.05
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

Complex Manufacturing Operations

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	4.8	2.5
COD	51.0	32.9
TSS	12.2	5.4
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05
pH	([1]–)	([1]–)

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

Hosiery Products

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	2.3	1.2
COD	30.7	19.8
TSS	8.4	3.7
Sulfide	0.20	0.10
Phenols	0.10	0.05
Total Chromium	0.10	0.05
pH	([1]–)	([1]–)

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

§ 410.56 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.57 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart F - Carpet Finishing Subcategory

§ 410.60 Applicability; description of the carpet finishing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: carpet mills, which may include any or all of the following unit operations: Bleaching, scouring, carbonizing, fulling, dyeing, printing, resin treatment, waterproofing, flameproofing, soil repellency, looping, and backing with foamed and unfoamed latex and jute. Carpet backing without other carpet manufacturing operations is included in subpart C.

§ 410.61 Specialized definitions.

In addition to the definitions set forth in 40 CFR part 401 and § 410.01 of this part, the following definitions apply to this subpart:

(a) The term *product* shall mean the final carpet produced or processed including the primary backing but excluding the secondary backing.

(b) The term *simple manufacturing operation* shall mean the following unit processes: fiber preparation and dyeing with or without carpet backing.

(c) The term *complex manufacturing operation* shall mean "simple" unit processes (fiber preparation, dyeing and carpet backing) plus any additional manufacturing operations such as printing or dyeing and printing.

§ 410.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	7.8	3.9
COD	70.2	35.1
TSS	11.0	5.5
Sulfide	0.08	0.04
Phenol	0.04	0.02
Total Chromium	0.04	0.02
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the manufacture of carpets through complex manufacturing operations, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

§ 410.63 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effllluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	70.2	35.1
Sulfide	0.08	0.04
Phenols	0.04	0.02
Total chromium	0.04	0.02

(b) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section and attributable to the manufacture of carpets through complex manufacturing operations, which may be discharged by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (a) of this section.

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	20.0	10.0

§ 410.64 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.65 New source performance standards (NSPS).

Any new source subject to this subject must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	kg/kkg (or pounds per 1,000 lb) of product	

Pollutant or pollutant property	NSPS limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
BOD*5*	4.6	2.4
COD	26.6	17.1
TSS	8.6	3.8
Sulfide	0.08	0.04
Phenols	0.04	0.02
Total chromium	0.04	0.02
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

§ 410.66 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.67 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart G - Stock and Yarn Finishing Subcategory

§ 410.70 Applicability; description of the stock and yarn finishing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from the following types of textile mills: Stock or yarn dyeing or finishing, which may include any or all of the following unit operations and processes: Cleaning, scouring, bleaching, mercerizing, dyeing and special finishing.

§ 410.71 Specialized definitions. [Reserved]

§ 410.72 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	6.8	3.4
COD	84.6	42.3
TSS	17.4	8.7

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
Sulfide	0.24	0.12
Phenol	0.12	0.06
Total chromium	0.12	0.06
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

(b) [Reserved]

§ 410.73 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	84.6	42.3
Sulfide	0.24	0.12
Phenols	0.12	0.06
Total chromium	0.12	0.06

§ 410.74 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.75 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	3.6	1.9
COD	33.9	21.9
TSS	9.8	4.4
Sulfide	0.24	0.12

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
Phenols	0.12	0.06
Total chromium	0.12	0.06
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

NOTE: Additional allocations for "commission finishers" are not available to new sources.

§ 410.76 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.77 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart H - Nonwoven Manufacturing Subcategory

§ 410.80 Applicability; description of the nonwoven manufacturing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from facilities that primarily manufacture nonwoven textile products of wool, cotton, or synthetics, singly or as blends, by mechanical, thermal, and/or adhesive bonding procedures. Nonwoven products produced by fulling and felting processes are covered in subpart I - Felted Fabric Processing.

§ 410.81 Specialized definitions. [Reserved]

§ 410.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	4.4	2.2
COD	40.0	20.0
TSS	6.2	3.1
Sulfide	0.046	0.023
Phenol	0.023	0.011
Total chromium	0.023	0.011
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

§ 410.83 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	40.0	20.0
Sulfide	0.046	0.023
Phenols	0.023	0.011
Total chromium	0.023	0.011

§ 410.84 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.85 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	2.6	1.4
COD	15.2	9.8
TSS	4.9	2.2
Sulfide	0.046	0.023
Phenols	0.023	0.011
Total Chromium	0.023	0.011
pH	([1])	([1])

[1] Within the range 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

§ 410.86 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.87 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart I - Felted Fabric Processing Subcategory

§ 410.90 Applicability; description of the felted fabric processing subcategory.

The provisions of this subpart are applicable to process wastewater discharges resulting from facilities that primarily manufacture nonwoven products by employing fulling and felting operations as a means of achieving fiber bonding.

§ 410.91 Specialized definitions. [Reserved]

§ 410.92 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	35.2	17.6
COD	256.8	128.4
TSS	55.4	27.7
Sulfide	0.44	0.22
Phenol	0.22	0.11
Total chromium	0.22	0.11
pH	([1])	([1])

[1] Within the range 6.0 to 9.0.

§ 410.93 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
COD	256.8	128.4
Sulfide	0.44	0.22
Phenols	0.22	0.11

Pollutant or pollutant property	BAT limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
Total Chromium	0.22	0.11

§ 410.94 Pretreatment standards for existing sources (PSES).

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.95 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Kg/kkg (or pounds per 1,000 lb) of product	
BOD*5*	16.9	8.7
COD	179.3	115.5
TSS	50.9	22.7
Sulfide	0.44	0.22
Phenols	0.22	0.11
Total Chromium	0.22	0.11
pH	([1])	([1])

[1] Within the range of 6.0 to 9.0 at all times.

Note: Additional allocations for “commission finishers” are not available to new sources.

§ 410.96 Pretreatment standards for new sources (PSNS).

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

§ 410.97 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Appendix B – Wasteload Allocation

National Pollutant Discharge Elimination System
Wasteload Allocation Form

Part I: Background Information

WLA Request Type:	Reissuance ☒	Expansion ☐	Relocation ☐	New Discharge ☐	Modification ☐		
Facility Name:	King America Finishing WPCP		County:	Screven	WQMU:	0291	
NPDES Permit No.:	GA0003280		Expiration Date:	11/30/2018	Outfall Number:	001	
Receiving Water:	Ogeechee River		River Basin:	Ogeechee River	10-Digit HUC:	0306020203	
Discharge Type:	Domestic ☐	Industrial ☒	Both ☐	Proportion (D:I):	Flow(s) Requested (MGD):	3.1	

Industrial Contributions Type(s): Preparation, dyeing, and finishing of woven cotton synthetic/cotton blended fabrics

Treatment Process Description: Manual bar screening, neutralization, activated sludge, sedimentation, cloth media filter, granulated activated carbon; sludge lagoons, landfill

Additional Information: (history, special conditions, other facilities): In 2015, the facility redirected all sanitary sewage from the wastewater treatment plant to a newly installed septic tank system.

Requested by: Ian McDowell Title: EE Program: WRP

Telephone: 404 - 252 - 1567 Date: 5/2/2018

Part II: Receiving Water Information

Receiving Water: Ogeechee River Designated Use Classification: Fishing

Integrated 305(b)/303(d) List: Yes ☒ No ☐ Partial Support: ☐ Not Support: ☒ Criteria: TWR

Total Maximum Daily Load: Yes ☒ No ☐ Parameter(s) Mercury (Hg) WLA Complies with TMDL Yes ☒ No ☐

EPA 2005 TMDL for Total Mercury Fish Tissue in Ogeechee River assigned a Total Hg concentration of 6.0 ng/L to the facility. 2013 WLA recommended the facility to conduct a mercury characterization or minimization study. King America performed a six month influent and effluent Hg monitoring and submitted a report in 2014. The data indicated average Hg concentration was 0.73 ng/L in source water and <0.50 ng/L in final effluent. Since these levels were well below the 6.0 ng/L threshold, no Hg minimization plan was required.

Part III: Water Quality Model Review Information

Model Type: Uncalibrated ☐ Calibrated ☒ Verified ☐ Cannot be Modeled ☐ Model Length (mi): 96

Field Data: None ☐ Fair ☒ Good ☐ Excellent ☐

Model and Field Data Description: Steady-state dissolved oxygen Georgia DOSAG model

Critical Water Temperature:(°C):	28		Drainage Area (mi²):	2129			Mean annual streamflow at discharge (cfs):	1767
7Q10 Yield (cfs/mi²):	0.044		Velocity (range fps):	0.5 – 0.6			30Q3 streamflow at discharge (cfs):	213
Effluent Flow Rate (cfs):	4.8		IWC (%):	4.9			7Q10 streamflow at discharge (cfs):	94
Slope (range - fpm):	0.3 – 2.4	K1: 0.02	K3: 0.06		K2 : 0.2 - 1.0		1Q10 streamflow at discharge (cfs):	89
SOD: 0.6	Escape Coef. (ft^{-1}):	0.054	f-Ratio BOD_u/BOD_5):	2			Background Hardness (as $CaCO_3$)(mg/L):	36

The predicted minimum dissolved oxygen is 5.5 mg/L, occurring 5 to 7 miles downstream from the discharge location. The streamflow information has been updated referencing USGS flow station 02202500 (1937-2018), Ogeechee River at U.S. Hwy 80 near Eden, approx. 58 miles downstream from the discharge outfall. Hardness value is calculated from the facility's instream monitoring data (2013-2018).

Part IV: Recommended Permit Limitations and Conditions (lbs/day as a daily average except as noted)

Rationale: Same as current ☐ Revised ☒ New ☐

Location: Ogeechee River

Effluent Flow Rate (MGD)	*BOD_5	Ammonia (mg/L)	DO (minimum) (mg/L)	pH (std. units)	**Fecal Coliform (No./100ml)	Total Phosphorus (mg/L)	TKN (mg/L)	Nitrite-Nitrate (mg/L)	Organic Nitrogen (mg/L)
Monitor	776	7.0	5.0	6.0 – 9.0	200	Monitor	Monitor	Monitor	Monitor

Additional Comments:

- Priority pollutant permit limits, aquatic toxicity testing requirements, and other parameters required by categorical effluent guidelines or identified during review of permit application are to be determined by WRP.
- *The BOD_5 load of 776 lbs/d equivalents to 30 mg/L.
- **Fecal Coliform limit is recommended based on presence of fecal in the facility's DMR data.
- Current ammonia limit meets the U.S. EPA's Aquatic Life Ambient Water Quality Criteria for Ammonia-Freshwater 2013 under the 7Q10 stream flow condition.
- Effluent monitoring of TKN, nitrate-nitrite, and organic nitrogen is recommended. Those nitrogen constituents should be analyzed from the same effluent sample. Organic nitrogen should be calculated as TKN minus NH_3.
- Effluent monitoring for Ortho-P has been removed after reviewing of effluent phosphorus data (2013- 2018). The results have shown an approximately 10% of Total-P in the facility's effluent is Ortho-P.

Prepared by: Lucy Sun Date: 6/21/2018 | Reviewed by: Josh Welte Date: 10-JUL-18

Part V: Program Manager Comments

Elizabeth A Booth

Elizabeth Booth Date: 7/20/18

Appendix C – Reasonable Potential Analysis

Reasonable Potential Analysis for Freshwater

Permit Name: King America Finishing, Inc.

NPDES Permit No.: GA0003280

Stream Data:

Receiving stream Hardness:	35	mg/L
Upstream TSS:	10	mg/L
7Q10:	94	ft^3/s
	60,749,568	gal/day
1Q10:	89	ft^3/s
	57,518,208	gal/day

Effluent Data:

Flow	3,100,000	gal/day
TSS	59	mg/L
Instream TSS:	12.38	mg/L
Acute Dilution factor:	19.55	
Chronic Dilution factor:	20.60	

Water Quality Criteria:

Mean annual streamflow at discharge:	1,767	ft^3/s
	1,141,962,624	gal/day
Dilution factor:	369.375	
IWC	4.855162058	

$$IWC = \frac{Flow\ (^{gal}/_{day})}{Flow\ (^{gal}/_{day}) + 7Q10(^{gal}/_{day})}$$

Acute Water Quality Criteria (WQC_{Acute})

Metal	K_{PO}	α	f_D	**Maximum** effluent C_T (µg/L)	Instream C_D (µg/L)	WQC_{Acute} (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.51	78	2.05	340.00	no
Cadmium	4.00.E+06	-1.131	0.000	0	0.00	0.67	no
Chromium III	3.36.E+06	-0.930	0.00	0	0.00	241.15	no
Chromium VI	3.36.E+06	-0.930	0.00	0	0.00	16.00	no
Copper	1.04.E+06	-0.744	0.34	10	0.17	5.00	no
Lead	2.80.E+06	-0.800	0.00	0	0.00	20.25	no
Mercury	NA	NA	NA	0.0013	0.0001	1.40	no
Nickel	4.90.E+05	-0.572	0.00	0	0.00	192.64	no
Zinc	1.25.E+06	-0.704	0.28	241	3.39	48.14	no

$$\text{Acute Dilution Factor} = \frac{1Q10\ \left(^{gal}/_{day}\right) + \text{Flow}\ \left(^{gal}/_{day}\right)}{\text{Flow}\ \left(^{gal}/_{day}\right)}$$

Chronic Water Quality Criteria ($WQC_{Chronic}$)

Metal	K_{PO}	α	f_D	**Average** effluent C_T (µg/L)	Instream C_D (µg/L)	$WQC_{Chronic}$ (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.51	78	1.94	150.00	no
Cadmium	4.00.E+06	-1.131	0.000	0	0.00	0.33	no
Chromium III	3.36.E+06	-0.930	0.00	0	0.00	31.37	no
Chromium VI	3.36.E+06	-0.930	0.00	0	0.00	11.00	no
Copper	1.04.E+06	-0.744	0.34	10	0.16	3.65	no
Lead	2.80.E+06	-0.800	0.00	0	0.00	0.79	no
Mercury	NA	NA	NA	0.0013	0.0001	0.012	no
Nickel	4.90.E+05	-0.572	0.00	0	0.00	21.40	no
Zinc	1.25.E+06	-0.704	0.28	241	3.22	48.54	no
Selenium	NA	NA	NA	0	0.00	5.00	no

$$f_D = \frac{1}{1 + K_{PO} \times TSS_{Instream}(mg/L)^{(1+a)} \times 10^{-6}}$$

$$\text{Instream } C_D = \frac{\text{Effluent } C_T(mg/L) \times f_D}{DF} \quad mg/L$$

$$\text{Chronic Dilution Factor} = \frac{7Q10\ \left(^{gal}/_{day}\right) + \text{Flow}\ \left(^{gal}/_{day}\right)}{\text{Flow}\ \left(^{gal}/_{day}\right)}$$

Human Health Water Quality Criteria ($WQC_{Human\ Health}$)

Metal	K_{PO}	α	f_D	**Maximum** effluent C_T (µg/L)	Instream C_D (µg/L)	$WQC_{Chronic}$ (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.51	78	0.11	50.00	no

Total Recoverable Effluent Limit

Metal	C_S (µg/L)	Chronic C_T (µg/L) 30-Day Avg	Chronic C_T (lbs/day) 30-Day Avg	Acute C_T (µg/L) Daily Max	Acute C_T (lbs/day) Daily Max
Arsenic	0.0	N/A	N/A	N/A	N/A
Cadmium	0.0	N/A	N/A	N/A	N/A
Chromium III	0.0	N/A	N/A	N/A	N/A
Chromium VI	0.0	N/A	N/A	N/A	N/A
Copper	0.0	N/A	N/A	N/A	N/A
Lead	0.0	N/A	N/A	N/A	N/A
Mercury	0.0	N/A	N/A	N/A	N/A
Nickel	0.0	N/A	N/A	N/A	N/A
Zinc	0.0	N/A	N/A	N/A	N/A
Selenium	0.0	N/A	N/A	--	--

(1)

$$\text{Acute } C_T = \frac{\frac{WQC_{Acute}}{f_D} \times (Q_E + 1Q10) - (1Q10 \times C_S)}{Q_E}$$

$$\text{Chronic } C_T = \frac{\frac{WQC_{Chronic}}{f_D} \times (Q_E + 7Q10) - (7Q10 \times C_S)}{Q_E}$$

(2)

$$\text{Acute } C_T = \frac{\frac{WQC_{Acute}}{f_D} \times (Q_E + 1Q10)}{Q_E}$$

$$\text{Chronic } C_T = \frac{\frac{WQC_{Chronic}}{f_D} \times (Q_E + 7Q10)}{Q_E}$$

NOTES:

(1) Chronic and acute total recoverable metal effluent concentration (C_T) from **EPA 823-B-96-007, June 1996, page 33**:

(2) Assuming background dissolved metal concentration (C_S) in the stream is 0 µg/L, equations above become:

NOTES:

*Water Quality Criteria (WQC) from State of Georgia Rules and Regulations 391-3-6-.03.

End of report

Reasonable Potential Analysis for Freshwater

Permit Name: King America Finishing, Inc.

NPDES Permit No.: GA0003280

Stream Data:

Receiving stream Hardness:	**35**	mg/L
Upstream TSS:	**10**	mg/L
7Q10:	**94**	ft^3/s
	60,749,568	gal/day
1Q10:	**89**	ft^3/s
	57,518,208	gal/day

Effluent Data:

Flow	**3,100,000**	gal/day
TSS	**59**	mg/L
Instream TSS:	12.38	mg/L
Acute Dilution factor:	19.55	
Chronic Dilution factor:	20.60	

Water Quality Criteria:

Mean annual streamflow at discharge:	**1,767**	ft^3/s
	1,141,962,624	gal/day
Dilution factor:	369.375	

Water Quality Criteria (WQC)

Nonmetal	Effluent Concentration (µg/L)	Instream Concentration (µg/L)	WQC (µg/L)	WQC/2 (µg/L)	Action needed?
Cyanide (Chronic)	18.0	0.87	5	2.6	**no**
Phenols (Chronic)	46.00	2.23	300	150	**no**
Phenols (Human Health)	150.0	0.41	857000	428500	**no**

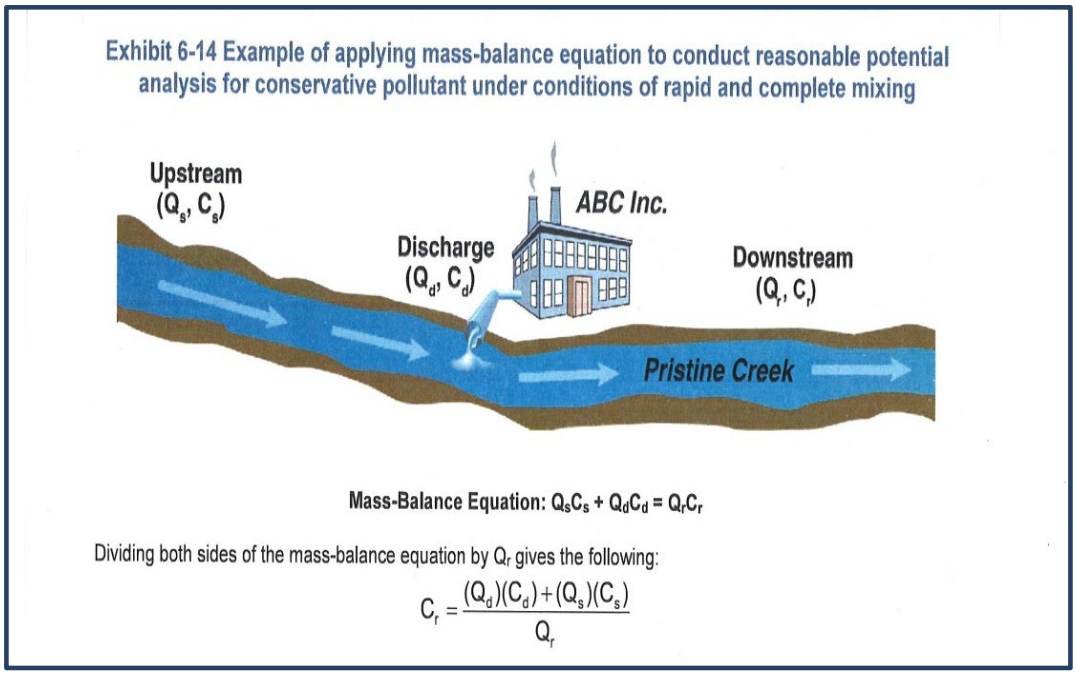
NOTES:

*Water Quality Criteria (WQC) from State of Georgia Rules and Regulations 391-3-6-.03.

End of report

Ammonia Reasonable Potential Analysis

General Information			
Facility	King America Finishing, Inc.		
Permit #	GA0003280		
Staff	McDowell		
Date	23.May.19		
Upstream Conditions			**Basis**
Flow, Q_s	213.00	cfs	Qstream (30Q3) as determined by WPMP
Concentration, C_s	0.03	mg/L	background concentration generally ~0.13 mg/L or as specified by WPMP
Discharge Characteristics			**Basis**
Flow, Q_d	2.770	MGD	effluent flow rate
Flow, Q_d	4.29	cfs	effluent flow rate
Concentration, C_d	7.00	mg/L	permitted daily average concentration
IWC	2.0	%	instream waste concentration
Predicted Downstream			**Basis**
Flow, Q_r	217.29	cfs	calculated combined flow
Concentration, C_r	0.17	mg/L	calculated instream concentration
Applicable Criteria	1.08	mg/L	instream toxicity criteria as determined by WPMP
Ratio	16	%	predicted instream concentration as % of criteria
RP	**No**		is there reasonable potential to exceed criteria?
Action	**None**		what is appropriate permitting action?



Appendix D – Performance-Based Reductions

Performance-Based Reductions of NPDES Permit Monitoring Frequencies

King America Finishing, Inc.
GA0003280

	Permit Requirements			Monitoring Data			Compliance History		Performance History			
Parameter	Baseline Monitoring	Monthly Average Limit[1] (lbs/day)	Monthly Average Limit[1] (mg/L)	Time Period	Long Term Average (lbs/day)	Long Term Average (mg/L)	# of SNCs in the Past 2 Years	# of Violations in the Past Year	Ratio (Mass)	Ratio (Conc.)	Most Stringent Ratio	Proposed Monitoring
BOD_5	5/Week	323	30	4/1/2017 - 04/01/2019	93	6	0	0	29%	20%	29%	**5/Week[2]**
COD	5/Week	5,328	--	4/1/2017 - 04/01/2019	3410	--	0	0	64%	--	64%	**5/Week[3]**
TSS	5/Week	650	--	4/1/2017 - 04/01/2019	91	6	0	0	14%	--	14%	**1/Week**
Sulfide	7/Week	9.8	1.5	4/1/2017 - 04/01/2019	3.20	0.20	0	0	33%	14%	33%	**3/Week**
Total Ammonia	7/Week	181	7	4/1/2017 - 04/01/2019	23.91	1.55	0	5	13%	22%	22%	**7/Week**
Total Phenols	1/Week	4.9	--	4/1/2017 - 04/01/2019	0.3	--	0	0	5%	--	5%	**1/2Mos**
Total Chromium	1/Week	4.9	--	4/1/2017 - 04/01/2019	0.16	0.01	0	0	3%	--	3%	**1/2Mos**

[1] The monthly average limits are from the proposed draft permit

[2] The monitoring frequency of BOD_5 has not been reduced as historical data occassionally exceeded the proposed daily maximum effluent limitations

[3] COD is a useful indicator of wastewater treatment efficiency and process controls, thus the COD monitoring frequency has not been reduced due to other effluent limitation exceedance experienced at the facility

https://www3.epa.gov/npdes/pubs/perf-red.pdf

Appendix E – WET Testing Results

Historical Data (2015-2019) - WET Testing Results

King America Finishing, Inc.
GA0003280

Date	Effluent Data				In-Stream Data (25 feet downstream)		
	Acute Whole Effluent Toxicity		Chronic Whole Effluent Toxicity		Acute Whole Effluent Toxicity		Chronic Whole Effluent Toxicity
	Ceriodaphnia dubia	*Pimephales Promelas*	*Ceriodaphnia dubia*	*Pimephales Promelas*	*Ceriodaphnia dubia*	*Pimephales Promelas*	*Ceriodaphnia dubia*
12/1/2013	100	--	--	--	--	--	--
12/3/2013	100	--	--	--	--	--	--
12/5/2013	100	--	--	--	100	--	--
12/10/2013	100	--	--	--	--	--	--
12/12/2013	100	100	6	--	--	100	--
12/13/2013	--	--	--	100	--	--	100
12/16/2013	100	--	--	--	--	--	--
12/18/2013	100	--	--	--	--	--	--
12/23/2013	100	--	--	--	--	--	--
12/27/2013	100	--	--	--	--	--	--
1/1/2014	100	--	--	--	--	--	--
1/3/2014	100	--	65	--	--	--	--
1/6/2014	100	--	--	--	100	--	--
1/8/2014	100	--	--	--	--	--	--
1/10/2014	--	--	25	--	--	--	100
1/13/2014	100	--	--	--	--	--	--
1/15/2014	100	--	--	--	--	--	--
1/20/2014	100	--	--	--	--	--	--
1/22/2014	100	--	--	--	--	--	--
1/27/2014	100	--	--	--	--	--	--
1/30/2014	100	--	--	--	--	--	--
2/3/2014	50	--	--	--	100	--	--
2/6/2014	100	--	--	--	--	--	--
2/10/2014	60	--	--	--	100	--	--
2/13/2014	100	--	--	--	--	--	--
2/17/2014	52	--	--	--	--	--	--
2/19/2014	40	--	--	--	--	--	--
2/21/2014	--	--	6	--	100	--	100
2/24/2014	100	--	--	--	100	--	--
2/25/2014	100	--	--	--	100	--	--
2/26/2014	100	--	--	--	100	--	--
2/27/2014	100	--	--	--	100	--	--
2/28/2014	100	--	50	--	100	--	--
3/1/2014	100	--	--	--	100	--	--
3/2/2014	100	--	--	--	100	--	--
3/3/2014	100	--	80	--	100	100	100
3/4/2014	100	--	--	--	100	--	--
3/5/2014	100	--	--	--	100	--	--
3/10/2014	100	100	--	50	--	--	--
3/13/2014	100	--	--	--	--	--	--
3/17/2014	100	--	--	--	--	--	--
3/19/2014	100	--	--	--	--	--	--
3/24/2014	100	--	--	--	--	--	--
3/26/2014	100	--	--	--	--	--	--
3/31/2014	100	--	--	--	--	--	--
4/1/2014	--	--	25	--	--	--	100
4/2/2014	100	--	--	--	100	--	--
4/7/2014	100	--	--	--	--	--	--
4/9/2014	100	--	--	--	--	--	--
4/14/2014	100	--	--	--	--	--	--
4/16/2014	100	--	--	--	--	--	--
4/21/2014	100	--	--	--	--	--	--
4/23/2014	100	--	--	--	--	--	--
4/28/2014	100	--	--	--	--	--	--
4/30/2014	100	--	--	--	--	--	--
5/5/2014	100	--	80	--	100	--	100
5/7/2014	100	--	--	--	--	--	--
5/12/2014	100	--	--	--	--	--	--
5/14/2014	100	--	--	--	--	--	--
5/19/2014	100	--	--	--	--	--	--
5/21/2014	100	--	--	--	--	--	--
5/27/2014	100	--	--	--	--	--	--
5/28/2014	100	--	--	--	--	--	--
6/2/2014	100	--	74	--	--	--	100
6/3/2014	100	--	--	--	--	--	--
6/4/2014	100	--	--	--	100	100	--
6/5/2014	100	--	--	--	--	--	--
6/6/2014	100	--	--	--	--	--	--
6/7/2014	100	--	--	--	--	--	--
6/8/2014	100	--	--	--	--	--	--
6/9/2014	100	--	84	100	--	--	100
6/10/2014	100	--	--	--	--	--	--
6/11/2014	100	--	--	--	100	--	--
6/12/2014	100	--	--	--	--	--	--
6/13/2014	100	--	--	--	--	--	--
6/14/2014	100	--	--	--	--	--	--
6/15/2014	100	--	--	--	--	--	--
6/16/2014	100	--	46	--	--	--	100
6/17/2014	100	--	--	--	--	--	--
6/18/2014	100	--	--	--	--	--	--
6/19/2014	100	--	--	--	--	--	--
6/20/2014	100	100	--	--	100	--	--
6/21/2014	100	--	--	--	--	--	--
6/22/2014	100	--	--	--	--	--	--
6/23/2014	100	--	52	--	--	--	100
6/24/2014	100	--	--	--	--	--	--
6/25/2014	100	--	--	--	100	--	--
6/26/2014	100	--	--	--	--	--	--
6/27/2014	100	--	--	--	--	--	--
6/28/2014	100	--	--	--	--	--	--
6/29/2014	100	--	--	--	--	--	--
6/30/2014	100	--	--	--	--	--	--
7/1/2014	100	--	--	--	--	--	--
7/2/2014	100	--	--	--	100	--	--
7/3/2014	100	--	--	--	--	--	--
7/4/2014	100	--	--	--	--	--	--
7/5/2014	100	--	--	--	--	--	--
7/6/2014	100	--	--	--	--	--	--
7/7/2014	51	--	6	--	--	--	100
7/8/2014	54	--	--	--	--	--	--
7/9/2014	100	--	65	--	100	--	--
7/10/2014	100	--	--	--	--	--	--
7/11/2014	100	--	--	--	--	--	--
7/12/2014	100	--	--	--	--	--	--
7/13/2014	100	--	--	--	--	--	--
7/14/2014	100	--	25	--	100	--	100

7/15/2014	100	--	--	--	--	--	--
7/16/2014	100	--	--	--	--	--	--
7/17/2014	100	--	--	--	--	--	--
7/18/2014	100	--	--	--	--	--	--
7/19/2014	100	--	--	--	--	--	--
7/20/2014	100	--	--	--	--	--	--
7/21/2014	100	--	50	--	100	--	100
7/22/2014	100	--	--	--	--	--	--
7/23/2014	100	--	--	--	100	--	--
7/24/2014	100	--	--	--	--	--	--
7/25/2014	100	--	--	--	--	--	--
7/26/2014	100	--	--	--	--	--	--
7/27/2014	85	--	--	--	--	--	--
7/28/2014	100	--	65	--	--	--	100
7/29/2014	100	--	--	--	--	--	--
7/30/2014	100	--	--	--	100	--	--
7/31/2014	100	--	--	--	100	--	--
8/1/2014	100	--	--	--	100	--	--
8/2/2014	100	--	--	--	--	--	--
8/3/2014	100	--	--	--	--	--	--
8/4/2014	100	--	50	--	--	--	100
8/5/2014	100	--	--	--	--	--	--
8/6/2014	100	--	--	--	100	--	--
8/7/2014	19	--	--	--	--	--	--
8/8/2014	100	--	--	--	--	--	--
8/9/2014	100	--	--	--	--	--	--
8/10/2014	100	--	--	--	--	--	--
8/11/2014	100	--	65	--	--	--	100
8/12/2014	100	--	--	--	--	--	--
8/13/2014	100	--	--	--	100	--	--
8/14/2014	100	--	--	--	--	--	--
8/15/2014	100	--	--	--	--	--	--
8/16/2014	100	--	--	--	--	--	--
8/17/2014	100	--	--	--	--	--	--
8/18/2014	100	--	65	--	--	--	100
8/19/2014	100	--	--	--	--	--	--
8/20/2014	100	--	--	--	100	--	--
8/21/2014	100	--	--	--	--	--	--
8/22/2014	100	--	--	--	--	--	--
8/23/2014	100	--	--	--	--	--	--
8/24/2014	100	--	--	--	--	--	--
8/25/2014	100	--	25	--	--	--	100
8/26/2014	100	--	--	--	--	--	--
8/27/2014	100	--	--	--	100	--	--
8/28/2014	100	--	--	--	--	--	--
8/29/2014	100	--	--	--	--	--	--
8/30/2014	100	--	--	--	--	--	--
8/31/2014	100	--	--	--	--	--	--
9/1/2014	100	--	65	--	--	--	100
9/2/2014	100	--	--	--	--	--	--
9/3/2014	100	--	--	--	100	100	--
9/4/2014	100	--	--	--	--	--	--
9/5/2014	100	--	--	--	--	--	--
9/6/2014	100	--	--	--	--	--	--
9/7/2014	100	--	--	--	--	--	--
9/8/2014	100	--	65	100	--	--	100
9/9/2014	100	--	--	--	--	--	--
9/10/2014	100	100	--	--	100	--	--
9/11/2014	100	--	--	--	--	--	--
9/12/2014	100	--	--	--	--	--	--
9/13/2014	100	--	--	--	--	--	--
9/14/2014	100	--	--	--	--	--	--
9/15/2014	100	--	50	--	--	--	100
9/16/2014	100	--	--	--	--	--	--
9/17/2014	100	--	--	--	100	--	--
9/18/2014	100	--	--	--	--	--	--
9/19/2014	100	--	--	--	--	--	--
9/20/2014	100	--	--	--	--	--	--
9/21/2014	100	--	--	--	--	--	--
9/22/2014	100	--	50	--	--	--	100
9/23/2014	100	--	--	--	--	--	--
9/24/2014	100	--	--	--	100	--	--
9/25/2014	100	--	--	--	--	--	--
9/26/2014	100	--	--	--	--	--	--
9/27/2014	100	--	--	--	--	--	--
9/28/2014	100	--	--	--	--	--	--
9/29/2014	100	--	65	--	--	--	100
9/30/2014	100	--	--	--	--	--	--
10/1/2014	100	--	--	--	100	--	--
10/2/2014	100	--	--	--	--	--	--
10/3/2014	100	--	--	--	--	--	--
10/4/2014	100	--	--	--	--	--	--
10/5/2014	100	--	--	--	--	--	--
10/6/2014	100	--	25	--	--	--	100
10/7/2014	100	--	--	--	--	--	--
10/8/2014	100	--	--	--	100	--	--
10/9/2014	100	--	--	--	--	--	--
10/10/2014	100	--	--	--	--	--	--
10/11/2014	100	--	--	--	--	--	--
10/12/2014	100	--	--	--	--	--	--
10/13/2014	100	--	65	--	--	--	100
10/14/2014	100	--	--	--	--	--	--
10/15/2014	100	--	--	--	100	--	--
10/16/2014	100	--	--	--	--	--	--
10/17/2014	100	--	--	--	--	--	--
10/18/2014	100	--	--	--	--	--	--
10/19/2014	100	--	--	--	--	--	--
10/20/2014	100	--	65	--	--	--	100
10/21/2014	100	--	--	--	--	--	--
10/22/2014	100	--	--	--	100	--	--
10/23/2014	100	--	--	--	--	--	--
10/24/2014	100	--	--	--	--	--	--
10/25/2014	100	--	--	--	--	--	--
10/26/2014	100	--	--	--	--	--	--
10/27/2014	100	--	--	--	--	--	100
10/28/2014	100	--	65	--	--	--	--
10/29/2014	100	--	--	--	100	--	--
10/30/2014	100	--	--	--	--	--	--
10/31/2014	100	--	--	--	--	--	--

11/1/2014	100	--	--	--	--	--	--
11/2/2014	100	--	--	--	--	--	--
11/3/2014	100	--	65	--	--	--	100
11/4/2014	100	--	--	--	--	--	--
11/5/2014	100	--	--	--	100	--	--
11/6/2014	100	--	--	--	--	--	--
11/7/2014	100	--	--	--	--	--	--
11/8/2014	100	--	--	--	--	--	--
11/9/2014	100	--	--	--	--	--	--
11/10/2014	100	--	65	--	--	--	100
11/11/2014	100	--	--	--	--	--	--
11/12/2014	100	--	--	--	100	--	--
11/13/2014	100	--	--	--	--	--	--
11/14/2014	100	--	--	--	--	--	--
11/15/2014	100	--	--	--	--	--	--
11/16/2014	100	--	--	--	--	--	--
11/17/2014	100	--	65	--	--	--	100
11/18/2014	100	--	--	--	--	--	--
11/19/2014	100	--	--	--	100	--	--
11/20/2014	100	--	--	--	--	--	--
11/21/2014	100	--	--	--	--	--	--
11/22/2014	100	--	--	--	--	--	--
11/23/2014	100	--	--	--	--	--	--
11/24/2014	100	--	50	--	--	--	100
11/25/2014	100	--	--	--	--	--	--
11/26/2014	100	--	--	--	100	--	--
11/27/2014	100	--	--	--	--	--	--
11/28/2014	100	--	--	--	--	--	--
11/29/2014	100	--	--	--	--	--	--
11/30/2014	90	--	--	--	--	--	--
12/1/2014	100	--	50	--	--	--	100
12/2/2014	100	--	--	--	--	--	--
12/3/2014	100	--	--	--	100	--	--
12/4/2014	100	--	--	--	100	--	--
12/5/2014	100	--	--	--	100	--	--
12/8/2014	100	--	8	50	--	--	100
12/9/2014	100	--	--	--	--	--	--
12/10/2014	100	100	--	--	100	--	--
12/11/2014	100	--	--	--	--	--	--
12/12/2014	100	--	--	--	--	--	--
12/13/2014	100	--	--	--	--	--	--
12/14/2014	100	--	--	--	--	--	--
12/15/2014	100	--	8	--	--	--	100
12/16/2014	100	--	--	--	--	--	--
12/17/2014	100	--	--	--	100	--	--
12/18/2014	100	--	--	--	--	--	--
12/19/2014	100	--	--	--	--	--	--
12/20/2014	100	--	--	--	--	--	--
12/21/2014	100	--	--	--	--	--	--
12/22/2014	100	--	65	--	--	--	100
12/24/2014	100	--	--	--	100	--	--
12/25/2014	100	--	--	--	--	--	--
12/26/2014	100	--	--	--	--	--	--
12/27/2014	100	--	--	--	--	--	--
12/28/2014	100	--	--	--	--	--	--
12/29/2014	100	--	25	--	--	--	100
12/30/2014	100	--	--	--	--	--	--
12/31/2014	100	--	--	--	100	--	--
1/1/2015	100	--	--	--	--	--	--
1/2/2015	100	--	--	--	--	--	--
1/3/2015	100	--	--	--	--	--	--
1/4/2015	100	--	--	--	--	--	--
1/5/2015	100	--	80	--	--	--	100
1/6/2015	100	--	--	--	--	--	--
1/7/2015	100	--	--	--	100	--	--
1/8/2015	100	--	--	--	--	--	--
1/9/2015	100	--	--	--	--	--	--
1/10/2015	100	--	--	--	--	--	--
1/11/2015	100	--	--	--	--	--	--
1/12/2015	100	--	50	--	--	--	100
1/13/2015	100	--	--	--	--	--	--
1/14/2015	100	--	--	--	100	--	--
1/15/2015	100	--	--	--	--	--	--
1/16/2015	100	--	--	--	--	--	--
1/17/2015	100	--	--	--	--	--	--
1/18/2015	100	--	--	--	--	--	--
1/19/2015	100	--	25	--	--	--	100
1/20/2015	100	--	--	--	--	--	--
1/21/2015	100	--	--	--	100	--	--
1/22/2015	100	--	--	--	--	--	--
1/23/2015	100	--	--	--	--	--	--
1/24/2015	100	--	--	--	--	--	--
1/25/2015	100	--	--	--	--	--	--
1/26/2015	100	--	50	--	--	--	100
1/27/2015	100	--	--	--	--	--	--
1/28/2015	100	--	--	--	100	--	--
1/29/2015	100	--	--	--	--	--	--
1/30/2015	100	--	--	--	--	--	--
1/31/2015	100	--	--	--	--	--	--
2/1/2015	100	--	--	--	--	--	--
2/2/2015	100	--	25	--	--	--	100
2/3/2015	100	--	--	--	--	--	--
2/4/2015	100	--	--	--	100	--	--
2/5/2015	100	--	--	--	--	--	--
2/6/2015	100	--	--	--	--	--	--
2/7/2015	100	--	--	--	--	--	--
2/8/2015	100	--	--	--	--	--	--
2/9/2015	100	--	--	--	--	--	--
2/10/2015	100	--	--	--	--	--	--
2/13/2015	100	--	--	--	--	--	--
2/16/2015	100	--	--	--	--	--	--
2/18/2015	100	--	--	--	--	--	--
2/23/2015	100	--	--	--	--	--	--
2/25/2015	100	--	--	--	--	--	--
3/4/2015	100	--	--	--	--	--	--
3/6/2015	100	--	--	--	--	--	--
3/9/2015	100	--	8	--	100	--	100
3/11/2015	100	--	--	--	--	--	--
3/16/2015	100	--	--	--	--	--	--

3/18/2015	100	--	--	--	--	--	--
3/25/2015	100	--	--	--	--	--	--
3/27/2015	100	--	--	--	--	--	--
3/30/2015	100	--	--	--	--	--	--
4/3/2015	100	--	--	--	--	--	--
4/8/2015	100	--	--	--	--	--	--
4/10/2015	100	--	--	--	--	--	--
4/13/2015	100	--	25	--	100	--	100
4/15/2015	100	--	--	--	--	--	--
4/20/2015	100	--	--	--	--	--	--
4/22/2015	100	--	--	--	--	--	--
4/27/2015	100	--	--	--	--	--	--
4/29/2015	100	--	--	--	--	--	--
5/4/2015	100	--	--	--	100	--	--
5/6/2015	100	--	--	--	--	--	--
5/11/2015	100	--	--	--	--	--	--
5/13/2015	100	--	--	--	--	--	--
5/18/2015	100	--	65	--	--	--	100
5/20/2015	100	--	--	--	--	--	--
5/29/2015	100	--	--	--	--	--	--
5/30/2015	100	--	--	--	--	--	--
6/1/2015	100	100	8	75	100	100	100
6/3/2015	100	--	--	--	--	--	--
6/8/2015	100	--	--	--	--	--	--
6/10/2015	100	--	--	--	--	--	--
6/16/2015	100	--	--	--	--	--	--
6/17/2015	100	--	--	--	--	--	--
6/22/2015	100	--	--	--	--	--	--
6/24/2015	100	--	--	--	--	--	--
7/10/2015	100	--	--	--	--	--	--
7/11/2015	100	--	--	--	--	--	--
7/13/2015	100	--	65	--	100	--	100
7/15/2015	100	--	--	--	--	--	--
7/20/2015	100	--	--	--	--	--	--
7/22/2015	100	--	--	--	--	--	--
7/30/2015	100	--	--	--	--	--	--
7/31/2015	100	--	--	--	--	--	--
8/3/2015	100	--	--	--	--	--	--
8/5/2013	100	--	--	--	--	--	--
8/10/2015	100	--	65	--	100	--	100
8/12/2015	100	--	--	--	--	--	--
8/17/2015	100	--	--	--	--	--	--
8/19/2015	100	--	--	--	--	--	--
8/24/2015	100	--	--	--	--	--	--
8/26/2015	100	--	--	--	--	--	--
9/1/2015	100	--	65	--	100	--	100
9/3/2015	100	--	--	--	--	--	--
9/7/2015	100	--	--	--	--	--	--
9/18/2015	100	--	--	--	--	--	--
9/19/2015	100	--	--	--	--	--	--
9/21/2015	100	--	--	--	--	--	--
9/23/2015	100	--	--	--	--	--	--
9/28/2015	100	--	--	--	--	--	--
9/30/2015	100	--	--	--	--	--	--
10/5/2015	100	--	50	--	100	--	100
10/7/2015	100	--	--	--	--	--	--
10/12/2015	100	--	--	--	--	--	--
10/14/2015	100	--	--	--	--	--	--
10/22/2015	100	--	--	--	--	--	--
10/23/2015	100	--	--	--	--	--	--
10/26/2015	100	--	--	--	--	--	--
10/28/2015	100	--	--	--	--	--	--
11/2/2015	100	--	65	--	100	--	100
11/4/2015	100	--	--	--	--	--	--
11/9/2015	100	--	--	--	--	--	--
11/11/2015	100	--	--	--	--	--	--
11/16/2015	100	--	--	--	--	--	--
11/18/2015	100	--	--	--	--	--	--
11/23/2015	100	--	--	--	--	--	--
11/24/2015	100	--	--	--	--	--	--
11/30/2015	100	--	--	--	--	--	--
12/5/2015	100	--	--	--	--	--	--
12/6/2015	100	--	--	--	--	--	--
12/7/2015	100	--	8	--	100	--	100
12/9/2015	100	--	--	--	--	--	--
12/11/2015	100	--	--	--	--	--	--
12/14/2015	100	--	--	--	--	--	--
12/16/2015	100	--	--	--	--	--	--
12/21/2015	100	--	--	--	--	--	--
12/22/2015	100	--	--	--	--	--	--
1/1/2016	100	--	--	--	--	--	--
1/7/2016	100	--	--	--	--	--	--
1/8/2016	100	--	--	--	--	--	--
1/11/2016	100	--	25	--	100	--	100
1/13/2016	100	--	--	--	--	--	--
1/19/2016	100	--	--	--	--	--	--
1/20/2016	100	--	--	--	--	--	--
1/25/2016	100	--	--	--	--	--	--
1/27/2016	100	--	--	--	--	--	--
2/1/2016	100	--	--	--	--	--	--
2/5/2016	100	--	--	--	--	--	--
2/8/2016	100	--	8	--	100	--	100
2/10/2016	100	--	--	--	--	--	--
2/15/2016	100	--	--	--	--	--	--
2/17/2016	100	--	--	--	--	--	--
2/22/2016	100	--	--	--	--	--	--
2/24/2016	100	--	--	--	--	--	--
2/29/2016	100	--	--	--	--	--	--
3/8/2016	100	--	--	--	--	--	--
3/9/2016	100	--	--	--	--	--	--
3/14/2016	100	--	65	--	100	--	100
3/16/2016	100	--	--	--	--	--	--
3/21/2016	100	--	--	--	--	--	--
3/23/2016	100	--	--	--	--	--	--
3/30/2016	100	--	--	--	--	--	--
3/31/2016	100	--	--	--	--	--	--
4/4/2016	100	--	25	--	100	--	100
4/6/2016	100	--	--	--	--	--	--

4/11/2016	100	--	--	--	--	--	--
4/14/2016	100	--	--	--	--	--	--
4/18/2016	100	--	--	--	--	--	--
4/20/2016	100	--	--	--	--	--	--
4/25/2016	100	--	--	--	--	--	--
4/27/2016	100	--	--	--	--	--	--
5/2/2016	100	--	25	--	100	--	100
5/4/2016	100	--	--	--	--	--	--
5/11/2016	100	--	--	--	--	--	--
5/12/2016	100	--	--	--	--	--	--
5/19/2016	100	--	--	--	--	--	--
5/20/2016	100	--	--	--	--	--	--
5/23/2016	100	--	--	--	--	--	--
5/25/2016	100	--	--	--	--	--	--
6/3/2016	100	--	--	--	--	--	--
6/4/2016	100	--	--	--	--	--	--
6/9/2016	100	--	--	--	--	--	--
6/10/2016	100	100	25	75	100	100	100
6/13/2016	100	--	--	--	--	--	--
6/15/2016	100	--	--	--	--	--	--
6/20/2016	100	--	--	--	--	--	--
6/23/2016	100	--	--	--	--	--	--
6/27/2016	100	--	--	--	--	--	--
6/29/2016	100	--	--	--	--	--	--
7/4/2016	100	--	--	--	--	--	--
7/15/2016	100	--	--	--	--	--	--
7/16/2016	100	--	--	--	--	--	--
7/18/2016	100	--	8	--	100	--	100
7/20/2016	100	--	--	--	--	--	--
7/25/2016	100	--	--	--	--	--	--
7/27/2016	100	--	--	--	--	--	--
8/2/2016	--	--	50	--	--	--	100
8/5/2016	100	--	--	--	--	--	--
8/6/2016	100	--	--	--	100	--	--
8/12/2016	100	--	--	--	--	--	--
8/13/2016	100	--	--	--	--	--	--
8/15/2016	100	--	--	--	--	--	--
8/17/2016	100	--	--	--	--	--	--
8/22/2016	100	--	--	--	--	--	--
8/24/2016	100	--	--	--	--	--	--
9/2/2016	100	--	25	--	--	--	100
9/3/2016	100	--	--	--	--	--	--
9/5/2016	100	--	--	--	100	--	--
9/7/2016	100	--	--	--	--	--	--
9/12/2016	100	--	--	--	--	--	--
9/14/2016	100	--	--	--	--	--	--
9/19/2016	100	--	--	--	--	--	--
9/21/2016	100	--	--	--	--	--	--
9/29/2016	100	--	--	--	--	--	--
9/30/2016	100	--	--	--	--	--	--
10/4/2016	100	--	--	--	--	--	--
10/6/2016	100	--	--	--	--	--	--
10/10/2016	100	--	25	--	100	--	100
10/14/2016	100	--	--	--	--	--	--
10/17/2016	100	--	--	--	--	--	--
10/19/2016	100	--	--	--	--	--	--
10/24/2016	100	--	--	--	--	--	--
10/27/2016	100	--	--	--	--	--	--
10/31/2016	100	--	--	--	--	--	--
11/4/2016	100	--	--	--	--	--	--
11/7/2016	--	--	65	--	--	--	100
11/10/2016	100	--	--	--	--	--	--
11/11/2016	100	--	--	--	100	--	--
11/17/2016	100	--	--	--	--	--	--
11/18/2016	100	--	--	--	--	--	--
11/21/2016	100	--	--	--	--	--	--
11/23/2016	100	--	--	--	--	--	--
12/1/2016	100	--	--	--	--	--	--
12/2/2016	100	--	--	--	--	--	--
12/5/2016	100	--	8	--	100	--	100
12/7/2016	100	--	--	--	--	--	--
12/12/2016	100	--	--	--	--	--	--
12/14/2016	100	--	--	--	--	--	--
12/19/2016	100	--	--	--	--	--	--
12/21/2016	100	--	--	--	--	--	--
12/27/2016	100	--	--	--	--	--	--
12/28/2016	100	--	--	--	--	--	--
1/5/2017	100	--	--	--	--	--	--
1/6/2017	100	--	--	--	--	--	--
1/10/2017	100	--	--	--	--	--	--
1/11/2017	100	--	--	--	--	--	--
1/16/2017	87	--	25	--	100	--	100
1/18/2017	100	--	--	--	--	--	--
1/23/2017	100	--	--	--	--	--	--
1/25/2017	100	--	--	--	--	--	--
1/30/2017	100	--	--	--	--	--	--
2/1/2017	100	--	--	--	--	--	--
2/6/2017	100	--	25	--	100	--	100
2/8/2017	100	--	--	--	--	--	--
2/13/2017	100	--	--	--	--	--	--
2/15/2017	100	--	--	--	--	--	--
2/20/2017	100	--	--	--	--	--	--
2/22/2017	100	--	--	--	--	--	--
3/2/2017	100	--	--	--	--	--	--
3/3/2017	100	--	--	--	--	--	--
3/6/2017	100	--	25	--	100	--	100
3/8/2017	100	--	--	--	--	--	--
3/15/2017	100	--	--	--	--	--	--
3/16/2017	100	--	--	--	--	--	--
3/23/2017	100	--	--	--	--	--	--
3/24/2017	100	--	--	--	--	--	--
3/27/2017	100	--	--	--	--	--	--
3/28/2017	100	--	--	--	--	--	--
4/4/2017	100	--	--	--	--	--	--
4/8/2017	100	--	--	--	--	--	--
4/10/2017	100	--	--	--	100	--	--
4/13/2017	100	--	--	--	--	--	--
4/17/2017	100	--	--	--	--	--	--

4/19/2017	100	--	--	--	--	--	--
4/24/2017	100	--	25	--	--	--	100
4/26/2017	100	--	--	--	--	--	--
5/1/2017	100	--	--	--	--	--	--
5/5/2017	100	--	--	--	--	--	--
5/8/2017	100	--	8	--	100	--	--
5/10/2017	100	--	--	--	--	--	100
5/12/2017	37	--	--	--	--	--	--
5/18/2017	100	--	--	--	--	--	--
5/19/2017	100	--	--	--	--	--	--
5/23/2017	100	--	--	--	--	--	--
5/24/2017	100	--	--	--	--	--	--
5/30/2017	100	--	--	--	--	--	--
5/31/2017	100	--	--	--	--	--	--
6/5/2017	100	100	80	100	100	100	100
6/7/2017	100	--	--	--	--	--	--
6/15/2017	100	--	--	--	--	--	--
6/16/2017	100	--	--	--	--	--	--
6/19/2017	100	--	--	--	--	--	--
6/21/2017	100	--	--	--	--	--	--
6/27/2017	100	--	--	--	--	--	--
6/28/2017	100	--	--	--	--	--	--
7/5/2017	100	--	--	--	--	--	--
7/6/2017	100	--	--	--	--	--	--
7/10/2017	100	--	65	--	--	--	100
7/14/2017	100	--	--	--	--	--	--
7/15/2017	100	--	--	--	100	--	--
7/21/2017	100	--	--	--	--	--	--
7/22/2017	100	--	--	--	--	--	--
7/26/2017	100	--	--	--	--	--	--
7/28/2017	100	--	--	--	--	--	--
7/31/2017	100	--	--	--	--	--	--
8/2/2017	100	--	--	--	--	--	--
8/4/2017	100	--	50	--	100	--	100
8/10/2017	100	--	--	--	--	--	--
8/11/2017	100	--	--	--	--	--	--
8/15/2017	100	--	--	--	--	--	--
8/16/2017	100	--	--	--	--	--	--
8/21/2017	100	--	--	--	--	--	--
8/23/2017	100	--	--	--	--	--	--
8/28/2017	100	--	--	--	--	--	--
8/30/2017	100	--	--	--	--	--	--
9/6/2017	100	--	--	--	--	--	--
9/7/2017	100	--	--	--	--	--	--
9/15/2017	100	--	--	--	--	--	--
9/16/2017	100	--	--	--	--	--	--
9/18/2017	100	--	50	--	100	--	100
9/20/2017	100	--	--	--	--	--	--
9/27/2017	100	--	--	--	--	--	--
9/28/2017	100	--	--	--	--	--	--
10/2/2017	100	--	25	--	100	--	100
10/6/2017	100	--	--	--	--	--	--
10/9/2017	100	--	--	--	--	--	--
10/12/2017	100	--	--	--	--	--	--
10/18/2017	100	--	--	--	--	--	--
10/19/2017	100	--	--	--	--	--	--
10/26/2017	100	--	--	--	--	--	--
10/27/2017	100	--	--	--	--	--	--
10/30/2017	100	--	--	--	--	--	--
11/1/2017	100	--	--	--	--	--	--
11/6/2017	--	--	8	--	--	--	100
11/7/2017	100	--	--	--	100	--	--
11/8/2017	100	--	--	--	--	--	--
11/17/2017	100	--	--	--	--	--	--
11/18/2017	100	--	--	--	--	--	--
11/20/2017	100	--	--	--	--	--	--
11/21/2017	100	--	--	--	--	--	--
12/2/2017	100	--	--	--	--	--	--
12/3/2017	100	--	--	--	--	--	--
12/4/2017	100	--	8	--	100	--	100
12/6/2017	100	--	--	--	--	--	--
12/16/2017	100	--	--	--	--	--	--
12/17/2017	100	--	--	--	--	--	--
12/20/2017	100	--	--	--	--	--	--
12/21/2017	100	--	--	--	--	--	--
1/19/2018	100	--	--	--	--	--	--
1/21/2018	100	--	--	--	--	--	--
1/22/2018	--	--	50	--	--	--	100
1/24/2018	100	--	--	--	--	--	--
1/26/2018	100	--	--	--	100	--	--
2/1/2018	100	--	--	--	--	--	--
2/2/2018	100	--	--	--	--	--	--
2/5/2018	100	--	8	--	100	--	100
2/7/2018	100	--	--	--	--	--	--
2/12/2018	100	--	--	--	--	--	--
2/13/2018	100	--	--	--	--	--	--
2/24/2018	100	--	--	--	--	--	--
2/25/2018	100	--	--	--	--	--	--
3/2/2018	100	--	--	--	--	--	--
3/3/2018	100	--	--	--	--	--	--
3/5/2018	100	--	8	--	100	--	100
3/7/2018	100	--	--	--	--	--	--
3/12/2018	100	--	--	--	--	--	--
3/14/2018	100	--	--	--	--	--	--
3/21/2018	100	--	--	--	--	--	--
3/23/2018	100	--	--	--	--	--	--
3/26/2018	100	--	--	--	--	--	--
3/28/2018	100	--	--	--	--	--	--
4/2/2018	100	--	8	--	100	--	100
4/4/2018	100	--	--	--	--	--	--
4/9/2018	100	--	--	--	--	--	--
4/11/2018	100	--	--	--	--	--	--
4/19/2018	100	--	--	--	--	--	--
4/20/2018	100	--	--	--	--	--	--
4/28/2018	100	--	--	--	--	--	--
4/29/2018	100	--	--	--	--	--	--
5/2/2018	100	--	--	--	--	--	--
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5/14/2018	81	--	8	--	100	--	100
5/16/2018	100	--	--	--	--	--	--
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5/25/2018	100	--	--	--	--	--	--
5/31/2018	100	--	--	--	--	--	--
6/1/2018	100	--	--	--	--	--	--
6/4/2018	35	16	8	8	100	--	100
6/8/2018	100	--	--	--	--	--	--
6/14/2018	100	--	--	--	--	--	--
6/15/2018	100	--	--	--	--	--	--
6/22/2018	100	--	--	--	--	--	--
6/23/2018	100	--	--	--	--	--	--
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6/27/2018	100	--	--	--	--	--	--
7/11/2018	100	--	--	--	--	--	--
7/12/2018	100	--	--	--	--	--	--
7/16/2018	--	--	25	--	--	--	6
7/19/2018	100	--	--	--	--	--	--
7/20/2018	100	--	--	--	100	--	--
7/26/2018	100	--	--	--	--	--	--
7/27/2018	100	--	--	--	--	--	--
8/1/2018	100	--	--	--	--	--	--
8/2/2018	100	--	--	--	--	--	--
8/8/2018	100	--	--	--	--	--	--
8/9/2018	100	--	--	--	--	--	--
8/13/2018	--	--	25	--	--	--	100
8/16/2018	100	--	--	--	--	--	--
8/17/2018	100	--	--	--	100	--	--
8/24/2018	100	--	--	--	--	--	--
8/25/2018	100	--	--	--	--	--	--
9/1/2018	100	--	--	--	--	--	--
9/3/2018	100	--	--	--	--	--	--
9/4/2018	100	--	--	--	--	--	--
9/15/2018	100	--	--	--	--	--	--
9/16/2018	100	--	--	--	--	--	--
9/17/2018	--	--	65	--	--	--	100
9/19/2018	100	--	--	--	100	--	--
9/21/2018	100	--	--	--	--	--	--
9/26/2018	100	--	--	--	--	--	--
9/27/2018	100	--	--	--	--	--	--
10/1/2018	--	--	25	--	--	--	100
10/3/2018	100	--	--	--	100	--	--
10/5/2018	100	--	--	--	--	--	--
10/10/2018	100	--	--	--	--	--	--
10/13/2018	100	--	--	--	--	--	--
10/19/2018	100	--	--	--	--	--	--
10/20/2018	100	--	--	--	--	--	--
10/27/2018	100	--	--	--	--	--	--
10/28/2018	100	--	--	--	--	--	--
11/2/2018	100	--	--	--	--	--	--
11/3/2018	100	--	--	--	--	--	--
11/5/2018	--	--	8	--	--	--	100
11/8/2018	100	--	--	--	--	--	--
11/9/2018	100	--	--	--	100	--	--
11/27/2018	100	--	--	--	--	--	--
11/28/2018	100	--	--	--	--	--	--
12/7/2018	100	--	--	--	--	--	--
12/8/2018	100	--	--	--	--	--	--
12/10/2018	--	--	50	--	--	--	100
12/15/2018	100	--	--	--	--	--	--
12/16/2018	100	--	--	--	--	--	--
12/17/2018	100	--	6	--	100	--	50
12/19/2018	100	--	--	--	--	--	--
12/25/2018	100	--	--	--	--	--	--
12/26/2018	100	--	--	--	--	--	--
1/2/2019	100	--	--	--	--	--	--
1/3/2019	100	--	--	--	--	--	--
1/10/2019	100	--	--	--	--	--	--
1/11/2019	100	--	--	--	--	--	--
1/17/2019	100	--	--	--	--	--	--
1/18/2019	100	--	--	--	--	--	--
1/21/2019	--	--	65	--	--	--	100
1/24/2019	100	--	--	--	--	--	--
1/26/2019	100	--	--	--	100	--	--
1/31/2019	100	--	--	--	--	--	--
2/1/2019	100	--	--	--	--	--	--
2/4/2019	--	--	25	--	--	--	100
2/7/2019	100	--	--	--	--	--	--
2/8/2019	100	--	--	--	100	--	--
2/13/2019	100	--	--	--	--	--	--
2/14/2019	100	--	--	--	--	--	--
2/20/2019	100	--	--	--	--	--	--
2/21/2019	100	--	--	--	--	--	--
2/27/2019	100	--	--	--	--	--	--
2/28/2019	100	--	--	--	--	--	--
3/4/2019	100	--	8	--	100	--	100
3/6/2019	100	--	--	--	--	--	--
3/14/2019	100	--	--	--	--	--	--
3/15/2019	100	--	--	--	--	--	--
3/20/2019	100	--	--	--	--	--	--
3/21/2019	100	--	--	--	--	--	--
3/25/2019	100	--	--	--	--	--	--
3/27/2019	100	--	--	--	--	--	--
4/5/2019	100	--	--	--	--	--	--
4/6/2019	100	--	--	--	--	--	--
4/8/2019	100	--	65	--	100	--	100
4/10/2019	100	--	--	--	--	--	--
4/15/2019	100	--	--	--	--	--	--
4/17/2019	100	--	--	--	--	--	--
4/22/2019	100	--	--	--	--	--	--
4/24/2019	100	--	--	--	--	--	--

	Results Analysis						
Number of Tests	734	9	95	9	108	7	92
Number of Tests (04/2017 - 04/2019)	205	2	26	2	25	1	26
Number of Violations[1]	13	1	4	0	0	0	2

Historical Data (2015-2019) - WET Testing Results

King America Finishing, Inc.
GA0003280

Number of Violations[1] (04/2017 - 04/2019)	3	1	1	0	0	0	2
Frequency of Violations	1.77%	11.11%	4.21%	0.00%	0.00%	0.00%	2.17%
Frequency of Violations (04/2017 - 04/2019)	1.46%	50.00%	3.85%	0.00%	0.00%	0.00%	7.69%

[1] In-stream WET tests do not have limits; thus the data entered under the number of violations rows for in-stream data represents instances where some amount of toxicity was indicated in the receiving water, not permit violations.

Violation

Appendix F – Production-Based Effluent Limitations

Effluent Calculations from 40 CFR 410; Subpart D

King America Finishing, Inc.
GA0003280

Permit Limits = Average Production (lbs/day) x Mass Factor (lbs/1000 lbs)

Tier 1 - Average Production (Plant 1) ≤ 97,939 lbs/day

			BPT Mass Factors (lbs/ 1000 lbs)		NPDES Permit Limits (lbs/day)	
Parameter	**Source**	**Average Production (lbs/day)**	**Daily Average**	**Daily Maximum**	**Daily Average**	**Daily Maximum**
BOD_5	***Plant 1***	97,939	3.3	6.6	323	646
COD	Plant 1 - (a)[1]	97,939	30.0	60.0	2,938	5,876
	Plant 1 - (b)[1] - Natural Fiber	27,423	10.0	20.0	274	548
	Plant 1 - (d)[1] - Complex Blend	70,516	30.0	60.0	2,115	4,231
	Total				5,328	10,656
TSS	***Plant 1***	97,939	8.9	17.8	872	1,743
Sulfide	***Plant 1***	97,939	0.10	0.20	9.8	19.6
Total Phenols	***Plant 1***	97,939	0.05	0.10	4.9	9.8
Total Chromium	***Plant 1***	97,939	0.05	0.10	4.9	9.8

Tier 2 - 97,939 lbs/day < Average Production (Plant 1) ≤ 111,849 lbs/day

			BPT Mass Factors (lbs/ 1000 lbs)		NPDES Permit Limits (lbs/day)	
Parameter	**Source**	**Average Production (lbs/day)**	**Daily Average**	**Daily Maximum**	**Daily Average**	**Daily Maximum**
BOD_5	***Plant 1***	111,849	3.3	6.6	369	738
COD	Plant 1 - (a)[1]	111,849	30.0	60.0	3,355	6,711
	Plant 1 - (b)[1] - Natural Fiber	31,318	10.0	20.0	313	626
	Plant 1 - (d)[1] - Complex Blend	80,531	30.0	60.0	2,416	4,832
	Total				6,085	12,169
TSS	***Plant 1***	111,849	8.9	17.8	995	1,991
Sulfide	***Plant 1***	111,849	0.10	0.20	11.2	22.4
Total Phenols	***Plant 1***	111,849	0.05	0.10	5.6	11.2
Total Chromium	***Plant 1***	111,849	0.05	0.10	5.6	11.2

Tier 3 - 111,849 lbs/day < Average Production (Plant 1) ≤ 128,116 lbs/day

			BPT Mass Factors (lbs/ 1000 lbs)		NPDES Permit Limits (lbs/day)	
Parameter	**Source**	**Average Production (lbs/day)**	**Daily Average**	**Daily Maximum**	**Daily Average**	**Daily Maximum**
BOD_5	***Plant 1***	128,116	3.3	6.6	423	846
COD	Plant 1 - (a)[1]	128,116	30.0	60.0	3,843	7,687
	Plant 1 - (b)[1] - Natural Fiber	35,872	10.0	20.0	359	717
	Plant 1 - (d)[1] - Complex Blend	92,244	30.0	60.0	2,767	5,535
	Total				6,970	13,939
TSS	***Plant 1***	128,116	8.9	17.8	1,140	2,280
Sulfide	***Plant 1***	128,116	0.10	0.20	12.8	25.6
Total Phenols	***Plant 1***	128,116	0.05	0.10	6.4	12.8
Total Chromium	***Plant 1***	128,116	0.05	0.10	6.4	12.8

[1] (a),(b),(c), & (d) refer to the BPT limitations established in the subsections of 40 CFR 410.42

Appendix G – Historical DMR Data

Historical Data (2015-2019) - Daily Average DMR Values

King America Finishing, Inc.
GA0003280

Date	Parameters											
	BOD_5 (lbs/day)	BOD_5 (mg/L)	COD (lbs/day)	TSS (lbs/day)	TSS (mg/L)	Sulfide (lbs/day)	Sulfide (mg/L)	Total Ammonia (lbs/day)	Total Ammonia (mg/L)	Total Phenols (lbs/day)	Total Chromium (lbs/day)	Total Chromium (mg/L)
	Monthly Average											
1/1/2015	181	14	3052	162	12	13.43	1.00	23.41	1.76	0.6	0.12	0.01
2/1/2015	182	14	2893	208	15	12.81	1.00	33.08	2.39	0.9	0.15	0.01
3/1/2015	170	13	2502	203	16	14.20	1.18	26.00	1.98	0.6	0.11	0.01
4/1/2015	263	18	3551	329	22	14.29	1.13	17.73	1.17	0.7	0.15	0.01
5/1/2015	209	13	3414	213	13	19.55	1.43	20.59	1.30	0.8	0.15	0.01
6/1/2015	112	9	2623	121	9	2.39	0.20	15.91	1.26	0.6	0.12	0.01
7/1/2015	109	9	2530	80	7	2.06	0.20	7.70	0.66	0.6	0.14	0.01
8/1/2015	89	6	2679	74	5	2.89	0.20	11.86	0.82	0.6	0.13	0.01
9/1/2015	60	4	2468	46	3	2.80	0.20	10.39	0.75	0.8	0.16	0.01
10/1/2015	151	10	2860	230	16	2.81	0.20	11.53	0.82	0.7	0.15	0.01
11/1/2015	138	9	2399	68	5	2.77	0.20	16.36	1.19	1.0	0.15	0.01
12/1/2015	127	10	2564	76	6	2.64	0.20	15.00	1.14	0.7	0.12	0.01
1/1/2016	155	12	2398	142	11	2.56	0.20	17.07	1.29	0.6	0.12	0.01
2/1/2016	177	15	2415	193	16	2.44	0.20	12.81	1.05	0.6	0.11	0.01
3/1/2016	141	10	2401	137	9	2.77	0.20	16.99	1.23	1.1	0.15	0.01
4/1/2016	94	8	2143	64	6	2.31	0.20	11.31	1.02	0.9	0.11	0.01
5/1/2016	41	3	1832	31	3	2.41	0.20	8.15	0.66	0.8	0.13	0.01
6/1/2016	38	3	1663	40	3	2.64	0.20	8.89	0.69	0.7	0.13	0.01
7/1/2016	51	4	2060	59	4	2.50	0.20	10.58	0.82	0.7	0.13	0.01
8/1/2016	62	4	2354	73	5	2.83	0.20	15.16	1.08	0.8	0.16	0.01
9/1/2016	47	3	2764	49	4	2.69	0.20	13.45	0.99	0.6	0.13	0.01
10/1/2016	47	4	2474	40	3	2.55	0.20	16.33	1.27	0.6	0.13	0.01
11/1/2016	80	6	2760	94	7	2.42	0.20	21.95	1.79	0.6	0.13	0.01
12/1/2016	39	3	2649	36	3	2.55	0.20	18.04	1.33	0.8	0.12	0.01
1/1/2017	56	4	2071	46	4	2.44	0.20	13.61	1.11	0.7	0.13	0.01
2/1/2017	78	6	2271	38	3	2.60	0.20	13.38	1.05	0.7	0.14	0.01
3/1/2017	98	7	2969	59	4	2.88	0.20	14.91	1.03	0.5	0.14	0.01
4/1/2017	84	5	2941	65	4	3.13	0.20	17.66	1.12	0.8	0.16	0.01
5/1/2017	122	8	2813	83	5	3.10	0.20	12.15	0.79	0.9	0.17	0.01
6/1/2017	72	4	3054	62	4	3.50	0.20	12.09	0.69	0.9	0.18	0.01
7/1/2017	55	3	3192	53	3	3.10	0.20	15.33	1.04	0.1	0.15	0.01
8/1/2017	55	3	3629	57	3	3.42	0.20	17.32	1.02	0.2	0.19	0.01
9/1/2017	55	4	3447	42	3	2.66	0.20	27.60	2.06	0.2	0.13	0.01
10/1/2017	88	6	3535	105	7	2.84	0.20	43.61	3.05	0.1	0.15	0.01
11/1/2017	85	7	3398	55	5	2.57	0.20	29.76	2.16	0.1	0.12	0.01
12/1/2017	95	6	4405	97	6	3.03	0.20	23.56	1.54	0.2	0.17	0.01
1/1/2018	140	10	4094	140	10	4.10	0.28	45.96	3.38	0.1	0.12	0.01
2/1/2018	172	11	4171	196	12	3.25	0.20	10.94	0.67	0.3	0.17	0.01
3/1/2018	166	11	4220	152	10	2.98	0.20	11.64	0.81	0.1	0.15	0.01
4/1/2018	202	13	4062	135	9	3.18	0.20	23.73	1.41	0.2	0.16	0.01
5/1/2018	67	4	3529	96	6	3.04	0.20	93.40	5.73	0.2	0.16	0.01
6/1/2018	86	5	3976	140	8	3.21	0.20	13.99	0.90	0.3	0.16	0.01
7/1/2018	66	4	3384	66	4	3.56	0.20	24.08	1.44	0.4	0.18	0.01
8/1/2018	56	3	3456	82	5	3.59	0.20	13.41	0.72	0.2	0.18	0.01
9/1/2018	37	2	2795	47	3	3.06	0.20	14.77	0.97	0.1	0.14	0.01
10/1/2018	95	6	3261	113	7	3.31	0.20	10.84	0.67	0.2	0.15	0.01
11/1/2018	229	13	4839	201	12	3.21	0.20	64.06	3.77	0.2	0.17	0.01
12/1/2018	88	5	2639	92	5	3.93	0.24	17.70	1.25	0.2	0.166	0.01
1/1/2019	76	5	2408	77	5	2.99	0.20	21.59	1.45	0.1	0.138	0.01
2/1/2019	50	3	2968	42	3	3.26	0.20	9.85	0.64	0.2	0.161	0.01
3/1/2019	53	3	2749	43	3	3.15	0.20	11.92	0.75	0.2	0.154	0.01
4/1/2019	39	3	2297	35	3	2.80	0.20	10.69	0.76	0.2	0.146	0.01

Long Term Average	**102**	**7**	**2962**	**100**	**7**	**4.06**	**0.29**	**19.61**	**1.35**	**0.5**	**0.14**	**0.01**
# of Violations (Current)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
# of Violations (Proposed)	**0**	**0**	**0**	**0**	--	**5**	**0**	**0**	**0**	**0**	**0**	--

Historical Data (2015-2019) - Daily Maximum DMR Values

King America Finishing, Inc.
GA0003280

Date	Parameters												
	BOD_5 (lbs/day)	BOD_5 (mg/L)	COD (lbs/day)	TSS (lbs/day)	TSS (mg/L)	Sulfide (lbs/day)	Sulfide (mg/L)	Total Ammonia (lbs/day)	Total Ammonia (mg/L)	Total Phenols (lbs/day)	Total Chromium (lbs/day)	Total Chromium (mg/L)	Temperature (°F)
	Daily Maximum												
1/1/2015	379	25	4611	292	20	21.93	1.00	66.41	4.74	0.7	0.14	0.01	69
2/1/2015	394	23	4830	468	32	17.85	1.00	93.99	6.83	1.4	0.18	0.01	72
3/1/2015	424	27	3689	422	31	36.23	2.40	91.54	7.73	0.6	0.12	0.01	78
4/1/2015	507	34	4498	891	59	24.29	2.00	43.90	2.83	0.9	0.17	0.01	81
5/1/2015	422	22	5755	665	35	74.86	4.80	31.69	1.66	0.9	0.17	0.01	87
6/1/2015	279	17	4184	296	19	3.42	0.20	82.24	6.05	0.7	0.14	0.01	90
7/1/2015	215	16	3377	199	15	3.17	0.20	15.24	1.07	0.8	0.16	0.01	90
8/1/2015	228	14	4091	266	16	3.60	0.20	27.48	1.69	0.7	0.14	0.01	90
9/1/2015	119	8	3448	100	7	3.39	0.20	26.38	1.71	0.8	0.17	0.01	90
10/1/2015	453	30	4029	684	45	3.70	0.20	19.61	1.51	0.9	0.17	0.01	84
11/1/2015	297	17	3101	147	11	3.77	0.20	34.41	2.18	1.1	0.17	0.01	84
12/1/2015	255	18	3541	185	14	3.19	0.20	23.67	1.65	0.7	0.14	0.01	81
1/1/2016	317	22	3441	352	11	3.55	0.20	39.33	2.37	0.7	0.14	0.01	78
2/1/2016	296	24	3485	390	16	3.50	0.20	29.35	2.41	0.7	0.12	0.01	75.74
3/1/2016	580	33		753	9	3.49	0.20	30.68	1.91	2.1	0.17	0.01	82.76
4/1/2016	250	22	3286	196	6	3.30	0.20	24.04	2.03	1.7	0.12	0.01	81
5/1/2016	78	6	2158	37	3	2.97	0.20	18.26	1.50	1.0	0.14	0.01	84
6/1/2016	73	5	2757	87	3	3.40	0.20	16.39	1.13	0.8	0.16	0.01	93
7/1/2016	128	10	2638	174	4	3.65	0.20	23.20	1.55	0.7	0.13	0.01	93
8/1/2016	258	22	3536	350	5	3.74	0.20	29.82	2.40	0.9	0.19	0.01	90
9/1/2016	108	8	4845	135	4	4.25	0.20	31.05	1.65	0.7	0.14	0.01	87.08
10/1/2016	91	7	3518	70	3	3.25	0.20	33.75	2.26	0.7	0.14	0.01	82.04
11/1/2016	225	15	3972	370	7	3.47	0.20	48.87	3.64	0.8	0.16	0.01	81
12/1/2016	78	5	4120	80	3	3.39	0.20	69.56	4.17	1.2	0.17	0.01	78
1/1/2017	143	10	2984	111	8	3.24	0.20	35.78	3.17	0.7	0.15	0.01	78
2/1/2017	165	11	2945	79	5	3.37	0.20	54.90	4.54	0.8	0.17	0.01	78
3/1/2017	224	14	4340	139	8	3.49	0.20	39.67	2.39	0.8	0.17	0.01	81
4/1/2017	202	12	4375	172	12	4.35	0.20	84.34	5.24	0.9	0.18	0.01	83.6
5/1/2017	439	23	5484	238	16	3.90	0.20	26.53	1.42	1.0	0.2	0.01	84.74
6/1/2017	186	11	4278	173	10	4.42	0.20	17.95	1.21	0.9	0.19	0.01	87.3
7/1/2017	191	11	4533	238	14	4.60	0.20	25.55	2.19	0.2	0.17	0.01	94.46
8/1/2017	86	5	6096	228	12	4.05	0.20	34.80	1.83	0.3	0.2	0.01	90.9
9/1/2017	155	10	4624	98	7	3.50	0.20	40.91	2.91	0.3	0.15	0.01	85.9
10/1/2017	321	21	5127	470	30	3.67	0.20	203.71	11.80	0.2	0.17	0.01	86.4
11/1/2017	194	13	4493	146	17	3.32	0.20	98.12	6.84	0.2	0.17	0.01	78.9
12/1/2017	220	14	5465	299	20	4.09	0.20	62.34	4.13	0.2	0.2	0.01	75.2
1/1/2018	223	14	5076	288	10	16.15	0.28	111.81	10.90	0.1	0.14	0.01	77.8
2/1/2018	405	27	5130	501	12	3.72	0.20	26.56	1.75	0.3	0.19	0.01	79.8
3/1/2018	269	16	5689	273	10	3.52	0.20	18.77	1.36	0.1	0.17	0.01	79.1
4/1/2018	352	21	5015	274	9	3.85	0.20	221.32	11.90	0.2	0.18	0.01	78.08
5/1/2018	141	8	5524	331	6	3.97	0.20	1312.05	76.00	0.2	0.19	0.01	85.6
6/1/2018	184	11	5474	430	8	3.85	0.20	25.14	1.91	0.3	0.19	0.01	88.60
7/1/2018	166	8	4415	152	4	4.44	0.20	98.91	5.93	0.4	0.19	0.01	89.90
8/1/2018	181	8	4475	238	5	4.64	0.20	38.26	1.65	0.2	0.20	0.01	88.60
9/1/2018	83	5	3833	163	3	3.84	0.20	73.85	4.71	0.1	0.17	0.01	88.10
10/1/2018	343	20	4307	366	7	3.97	0.20	25.92	1.85	0.2	0.18	0.01	88.6
11/1/2018	685	39	9626	539	31	3.79	0.20	301.91	18.10	0.2	0.173	0.01	79.9
12/1/2018	165	9	6446	345	18	13.50	0.71	171.30	15.80	0.2	0.19	0.01	76.8
1/1/2019	350	22	3452	205	13	4.21	0.26	222.25	14.10	0.2	0.162	0.01	72.9
2/1/2019	77	5	3582	65	4	3.94	0.20	53.21	4.17	0.2	0.176	0.01	78.6
3/1/2019	93	6	3336	67	5	3.75	0.20	33.26	2.11	0.3	0.175	0.01	77.1
4/1/2019	56	5	3146	50	3	3.32	0.20	28.31	2.07	0.3	0.156	0.01	82.1

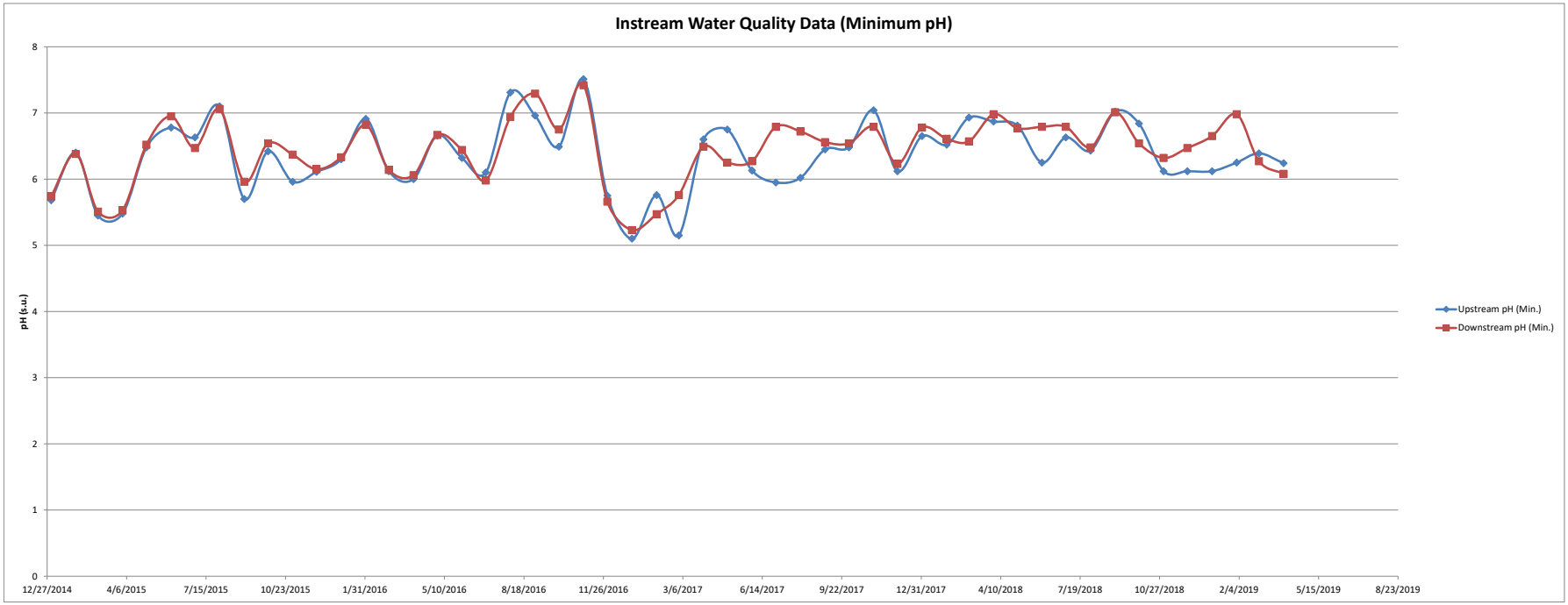
# of Violations (Current)	0	0	0	0	1	1	1	1	4	0	0	0
# of Violations (Proposed)	1	0	0	0	--	4	1	1	4	0	0	--

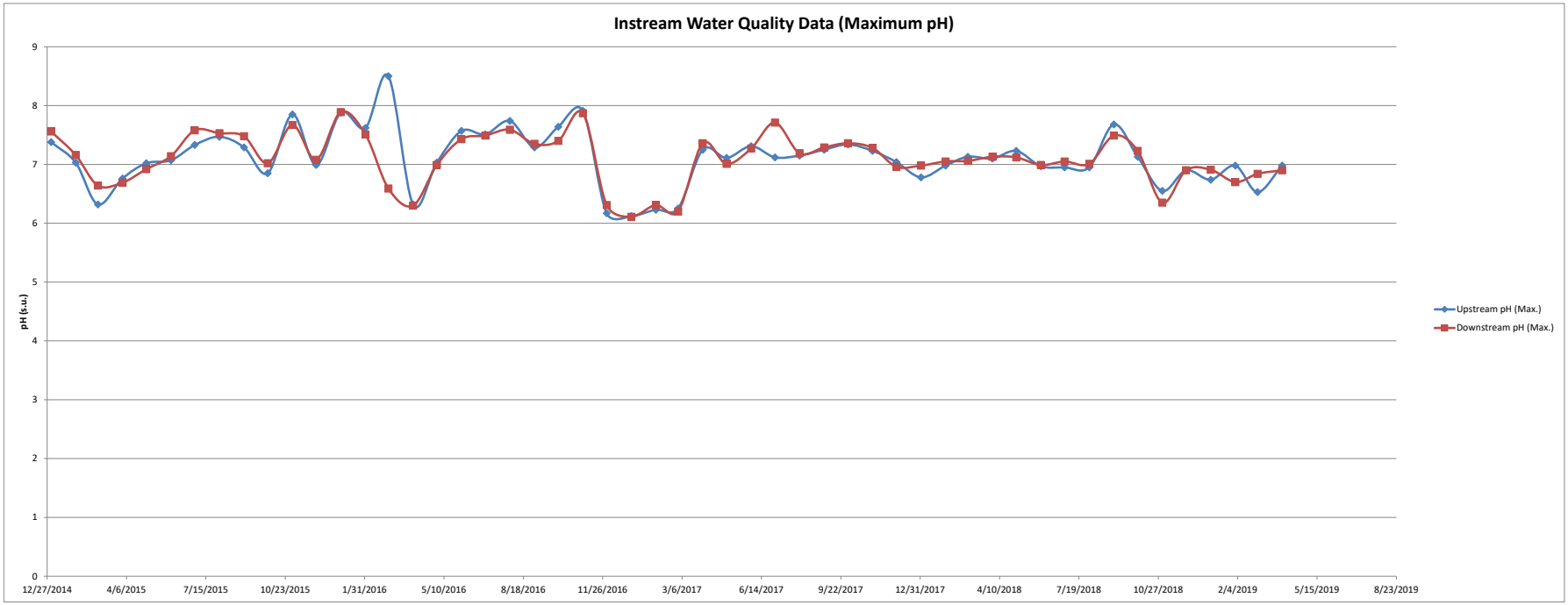
Appendix H – Historical Instream Data

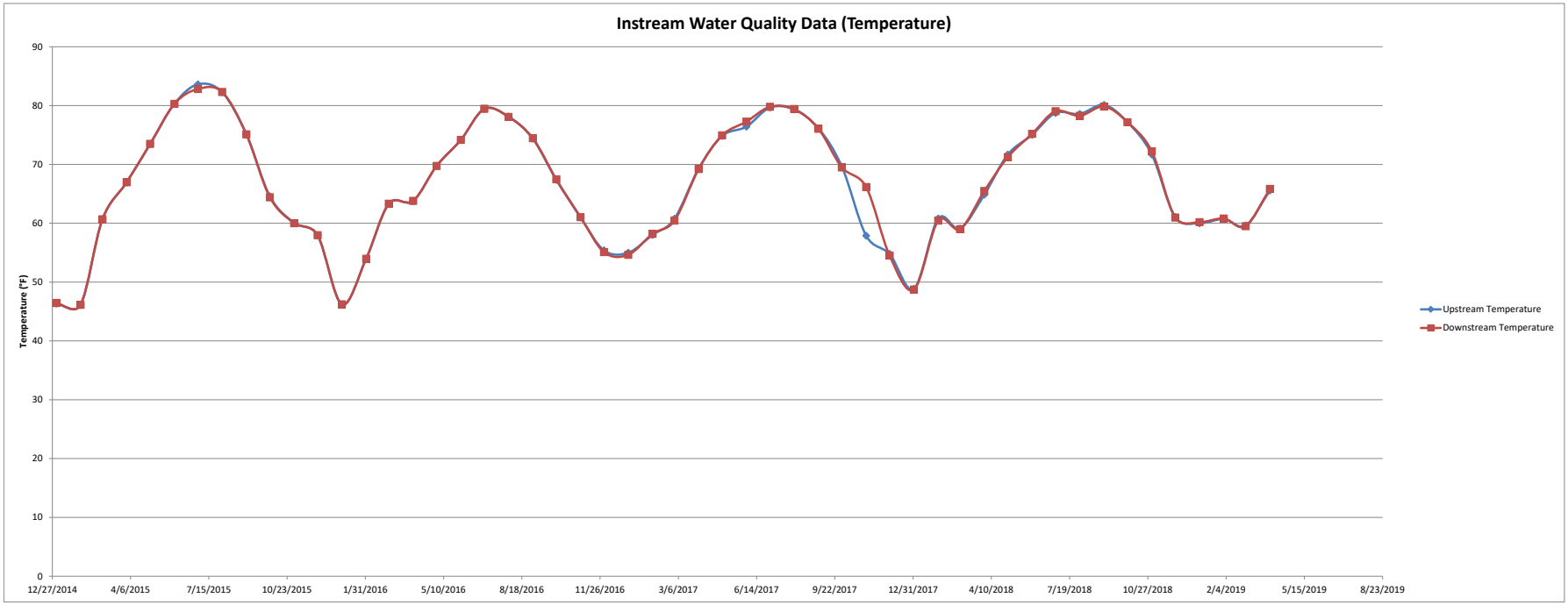
Historical Data (2015-2019) - Instream Sampling Results

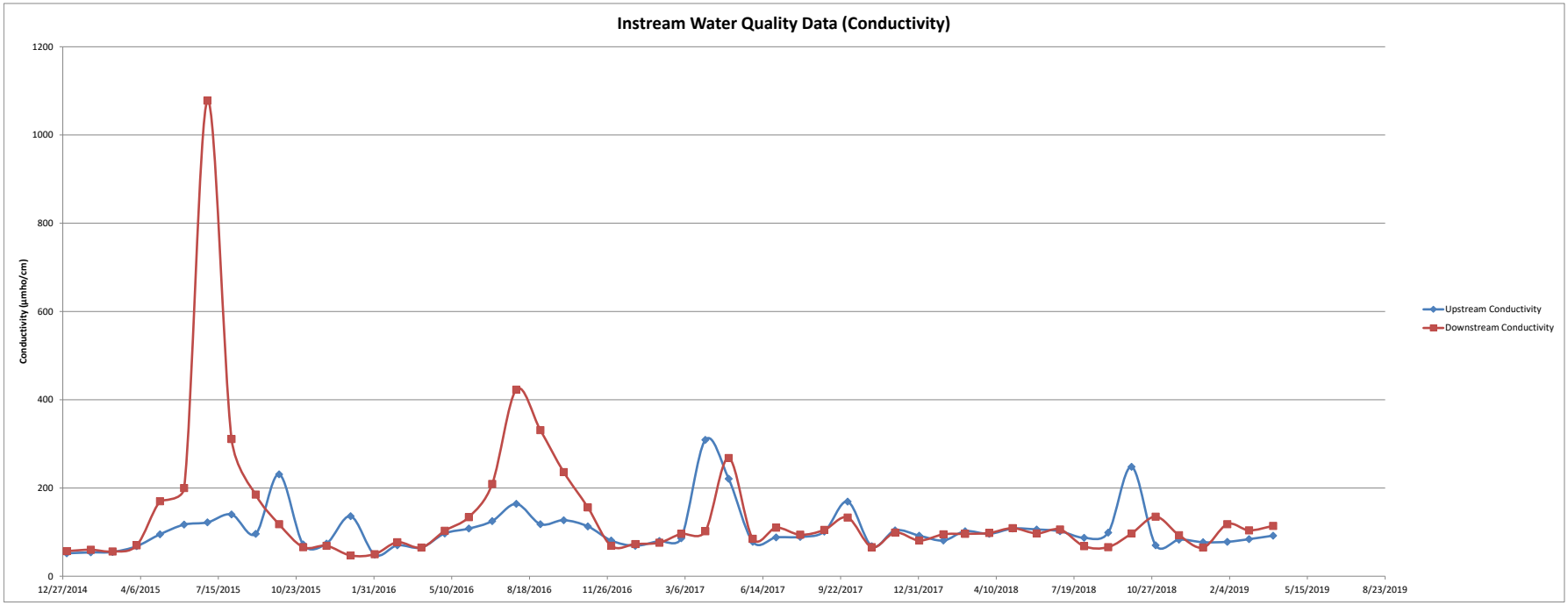
King America Finishing, Inc.
GA0003280

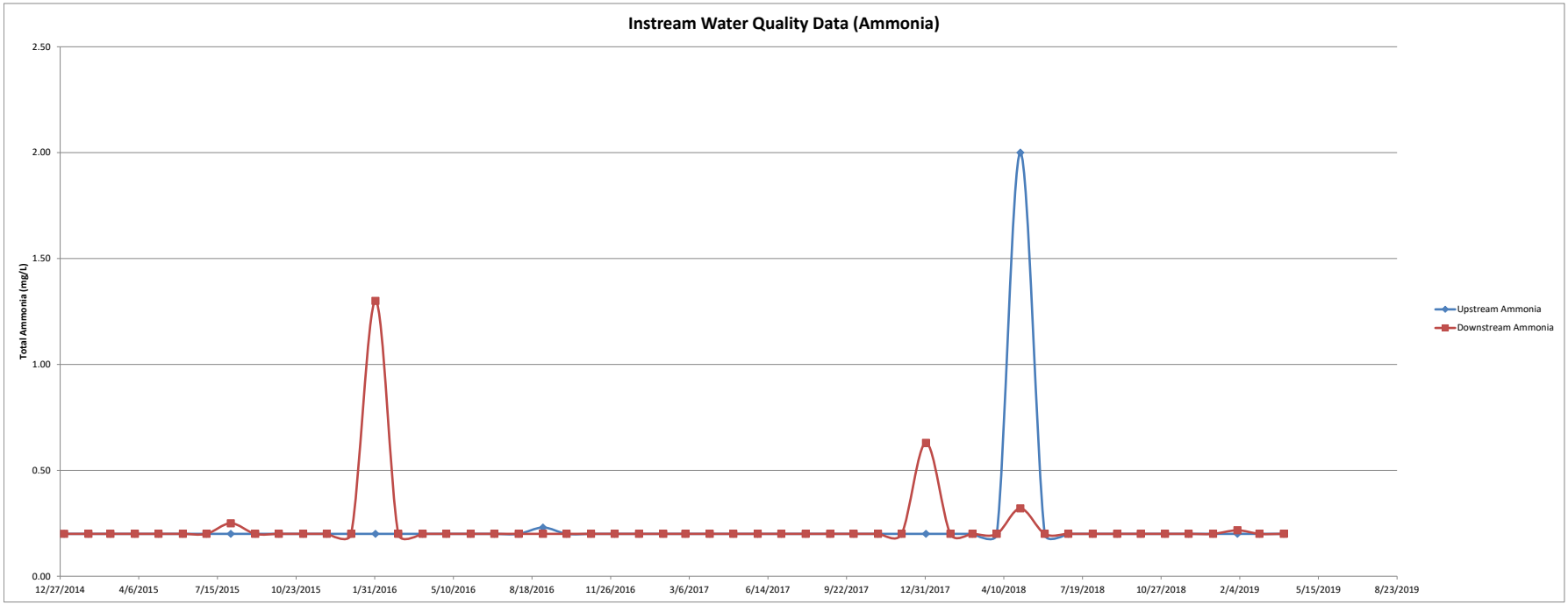
Date	Parameters																					
	pH (s.u.) Min.		pH (s.u.) Max.		Temperature (°F)		Conductivity (µmho/cm)		Total Ammonia (mg/L)		Formaldehyde (mg/L)		Sodium (mg/L)		Sulfide (mg/L)		Peroxide (mg/L)		Dissolved Oxygen (mg/L)		Color (ADMI)	
	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
1/1/2015	5.68	5.74	7.38	7.56	46.35	46.44	52	57	0.20	0.20	0.05	0.05	5	5	1	1	0.1	0.1	9.64	10.02	86	87
2/1/2015	6.4	6.38	7.03	7.16	46.12	46.14	54	60	0.20	0.20	0.05	0.05	5	5	1	1	--	--	9.44	10.03	65	68
3/1/2015	5.45	5.51	6.32	6.64	60.68	60.67	55	56	0.20	0.20	0.05	0.05	5	5	1	1	--	--	6.07	6.41	114	112
4/1/2015	5.48	5.53	6.76	6.69	66.96	66.97	68	70	0.20	0.20	0.05	0.05	5	5	1	1	--	--	6.03	6.23	152	150
5/1/2015	6.48	6.52	7.02	6.92	73.46	73.5	95	170	0.20	0.20	0.05	0.05	5	5	1	1	--	--	6.14	6.26	100	99
6/1/2015	6.78	6.95	7.07	7.14	80.31	80.29	117	200	0.20	0.20	0.05	0.05	3.37	29.3	0.2	0.2	--	--	6.65	6.69	66	70
7/1/2015	6.63	6.47	7.33	7.58	83.61	82.82	122	1078	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	6.01	6.16	58	55
8/1/2015	7.1	7.06	7.47	7.53	82.27	82.31	140	311	0.20	0.25	0.05	0.07	5	24.3	0.2	0.2	--	--	5.92	5.66	37	42
9/1/2015	5.7	5.96	7.29	7.48	75.11	75.11	96	185	0.20	0.20	0.05	0.08	5	29.3	0.2	0.2	--	--	5.45	5.62	65	69
10/1/2015	6.42	6.54	6.85	7.02	64.58	64.41	231	118	0.20	0.20	0.05	0.05	5	11	0.2	0.2	--	--	5.98	6.16	91	94
11/1/2015	5.96	6.37	7.85	7.67	60.06	60.01	72	66	0.20	0.20	0.05	0.05	5	6.17	0.2	0.2	--	--	4.96	4.99	138	153
12/1/2015	6.11	6.15	6.99	7.08	57.97	57.96	74	69	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	4.84	4.78	117	127
1/1/2016	6.3	6.33	7.88	7.89	46.17	46.22	136	47	0.20	0.20	0.05	0.05	90.6	5	0.2	0.2	--	--	8.09	7.98	145	143
2/1/2016	6.91	6.82	7.62	7.51	53.96	53.96	49	50	0.20	1.30	0.05	0.05	5	5	0.2	0.2	--	--	7.05	7.21	112	114
3/1/2016	6.12	6.14	8.5	6.59	63.3	63.33	70	77	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	6.14	6.15	125	120
4/1/2016	6	6.06	6.32	6.3	63.78	63.8	65	65	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	6.05	6.07	113	125
5/1/2016	6.66	6.667	7.03	6.99	69.73	69.74	97	103	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	6.33	6.3	72	73
6/1/2016	6.32	6.44	7.57	7.43	74.16	74.16	108	134	0.20	0.20	0.05	0.05	5	5	0.2	0.2	--	--	3.95	4.85	105	103
7/1/2016	6.1	5.98	7.51	7.49	79.43	79.45	125	209	0.20	0.20	0.05	0.05	5	37.2	0.2	0.2	--	--	4.74	5.19	59	60
8/1/2016	7.31	6.94	7.74	7.59	78.13	78.08	164	423	0.20	0.20	0.05	0.06	5	7.61	0.2	0.2	0	0	4.41	5.49	34	35
9/1/2016	6.96	7.29	7.29	7.35	74.37	74.46	118	331	0.23	0.20	0.05	0.05	5	9.28	0.2	0.2	0	0	5.96	5.85	78	80
10/1/2016	6.49	6.75	7.64	7.4	67.37	67.47	127	236	0.20	0.20	0.05	0.12	6.3	58.3	0.2	0.2	0	0	6.19	6.03	72	72
11/1/2016	7.51	7.42	7.91	7.87	61	61.04	113	156	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	2.83	3.06	40	44
12/1/2016	5.75	5.66	6.17	6.31	55.39	55.09	81	69	0.20	0.20	0.05	0.05	5	7.12	0.2	0.2	0	0	6.25	6.14	73	76
1/1/2017	5.1	5.23	6.12	6.11	55	54.64	69	73	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6.13	6.45	108	104
2/1/2017	5.76	5.47	6.23	6.31	58.02	58.21	80	76	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6.5	6.45	109	106
3/1/2017	5.15	5.76	6.25	6.2	60.76	60.44	86	96	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6.73	6.78	117	115
4/1/2017	6.6	6.49	7.25	7.36	69.31	69.22	309	102	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.12	5.92	91	91
5/1/2017	6.75	6.25	7.11	7.01	74.84	74.95	221	268	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.11	6.01	68	75
6/1/2017	6.13	6.27	7.31	7.27	76.42	77.27	78	85	0.20	0.20	0.10	0.14	5	5	0.2	0.2	0	0	5.23	6.8	66	67
7/1/2017	5.95	6.79	7.12	7.71	79.66	79.79	88	110	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.75	5.64	57	60
8/1/2017	6.02	6.72	7.15	7.19	79.34	79.41	89	94	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	4.14	4.12	94	92
9/1/2017	6.45	6.56	7.25	7.29	76.15	76.06	101	105	0.20	0.20	0.05	0.05	5	11.3	0.2	0.2	0	0	4.67	4.43	85	79
10/1/2017	6.48	6.54	7.34	7.36	69.62	69.49	169	133	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6	6.16	65	62
11/1/2017	7.04	6.79	7.23	7.28	57.88	66.16	68	66	0.20	0.20	0.05	0.05	5	10.1	0.2	0.2	0	0	7.43	7.23	54	57
12/1/2017	6.12	6.23	7.04	6.96	54.77	54.5	104	99	0.20	0.20	0.05	0.05	10.1	10.1	0.2	0.2	0	0	8.82	8.59	62	63
1/1/2018	6.65	6.78	6.78	6.98	48.84	48.73	92	81	0.20	0.63	0.05	0.05	5	5	0.2	0.9	0	0	7.08	7.39	60	60
2/1/2018	6.52	6.61	6.98	7.05	60.8	60.44	81	95	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.51	5.45	84	84
3/1/2018	6.93	6.57	7.13	7.06	59.09	59	102	96	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.88	5.99	85	85
4/1/2018	6.87	6.98	7.1	7.13	64.85	65.48	96	98	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.38	5.49	99	98
5/1/2018	6.81	6.77	7.23	7.12	71.67	71.24	108	109	2.00	0.32	0.08	0.06	5	5	0.2	0.2	0	0	4.25	4.38	101	103
6/1/2018	6.25	6.79	6.97	6.99	75.02	75.2	106	97	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	3.75	4.86	113	117
7/1/2018	6.63	6.79	6.95	7.05	78.74	79.04	102	106	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.21	5.16	80	81
8/1/2018	6.43	6.48	6.95	7.01	78.58	78.26	87	68	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.1	5.05	104	96
9/1/2018	7.02	7.01	7.68	7.49	80.11	79.84	99	66	0.20	0.20	0.05	0.09	3.87	34.8	0.2	0.2	0	0	5.14	5.36	34	33
10/1/2018	6.84	6.54	7.13	7.23	77.18	77.18	248	97	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6.21	6.26	49	48
11/1/2018	6.12	6.32	6.55	6.35	71.69	72.23	70	135	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.16	5.88	84	84
12/1/2018	6.12	6.47	6.9	6.9	61.04	60.98	83	93	0.20	0.20	0.05	0.05	5	5.39	0.2	0.2	0	0	5.11	5.23	84	73
1/1/2019	6.12	6.65	6.74	6.91	60.01	60.19	77	65	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	7	7.1	90	87
2/1/2019	6.25	6.98	6.98	6.7	60.71	60.8	78	118	0.20	0.22	0.05	0.05	5	5.29	0.2	0.2	0	0	7.64	7.25	79	80
3/1/2019	6.39	6.27	6.53	6.84	59.63	59.5	84	104	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	6.96	6.84	84	81
4/1/2019	6.24	6.08	6.98	6.9	65.57	65.84	92	114	0.20	0.20	0.05	0.05	5	5	0.2	0.2	0	0	5.15	5.98	76	76

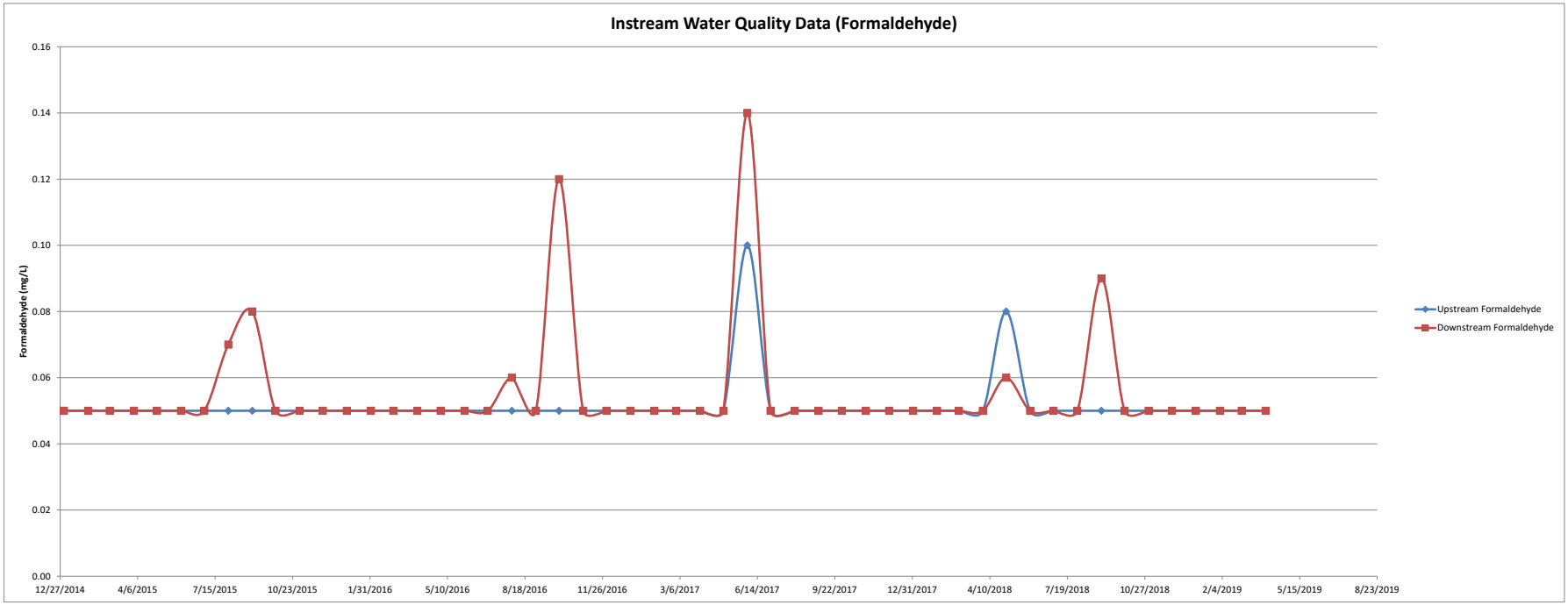

Instream Water Quality Data (Minimum pH)
pH (s.u.)
8
7
6
5
4
3
2
1
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream pH (Min.)
Downstream pH (Min.)

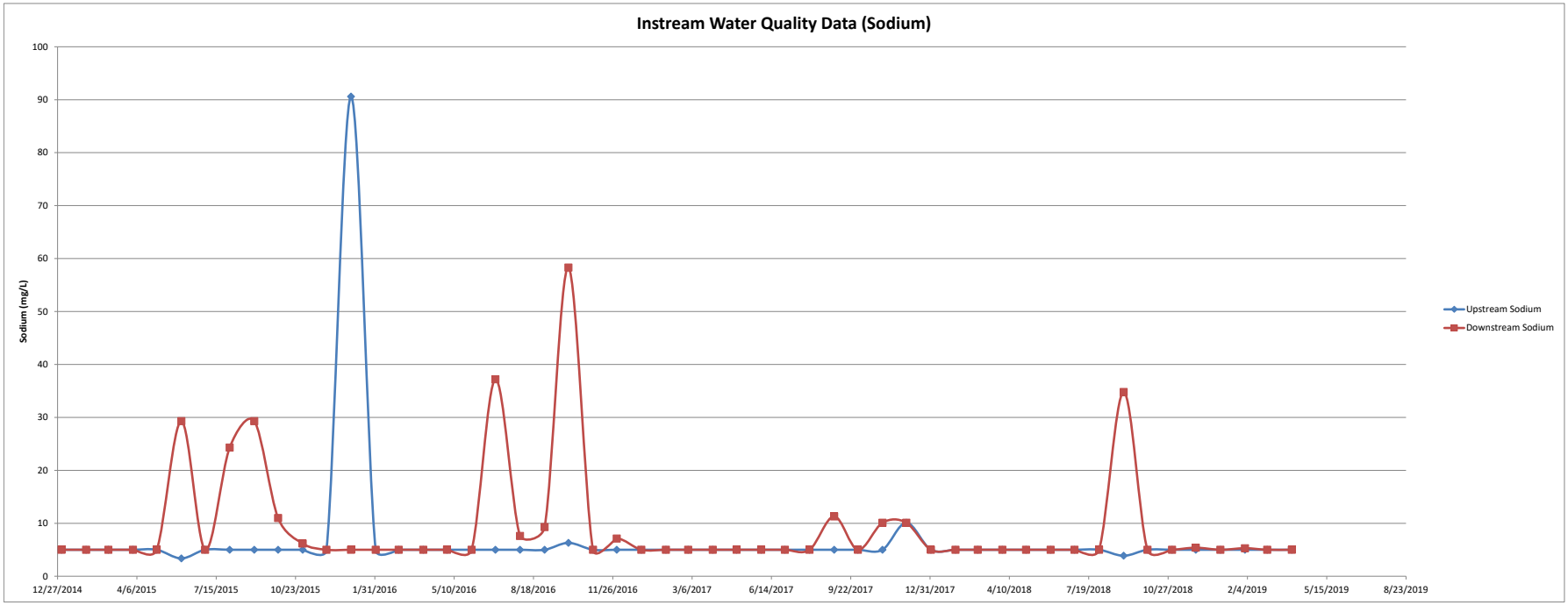

Instream Water Quality Data (Maximum pH)
pH (s.u.)
9
8
7
6
5
4
3
2
1
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream pH (Max.)
Downstream pH (Max.)

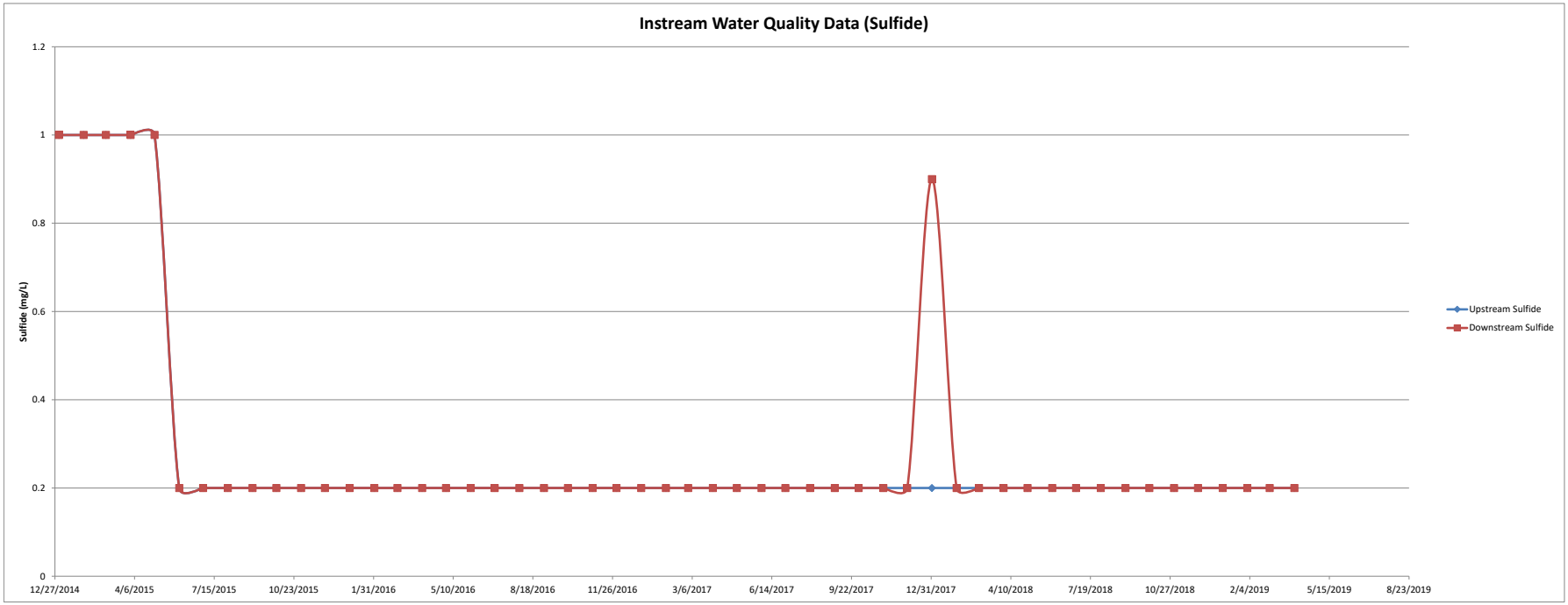

Instream Water Quality Data (Temperature)
Temperature (°F)
90
80
70
60
50
40
30
20
10
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Temperature
Downstream Temperature

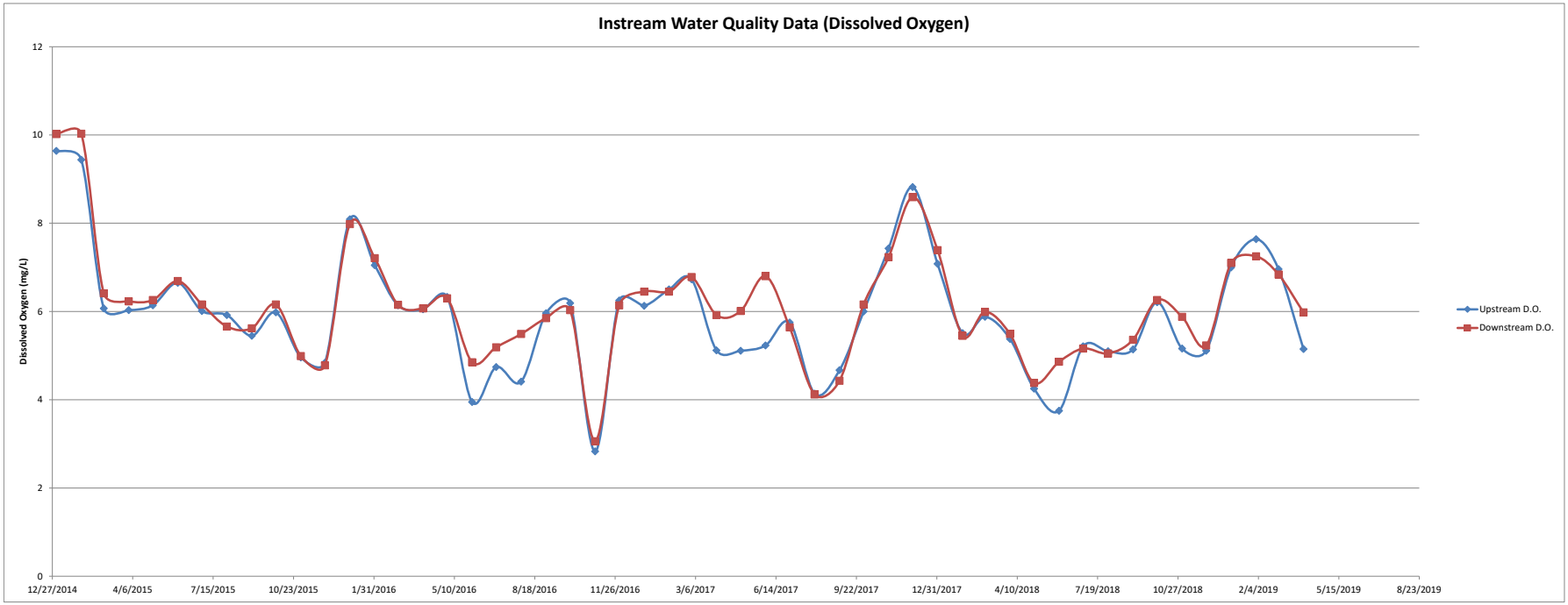

Instream Water Quality Data (Conductivity)
Conductivity (µmho/cm)
1200
1000
800
600
400
200
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Conductivity
Downstream Conductivity

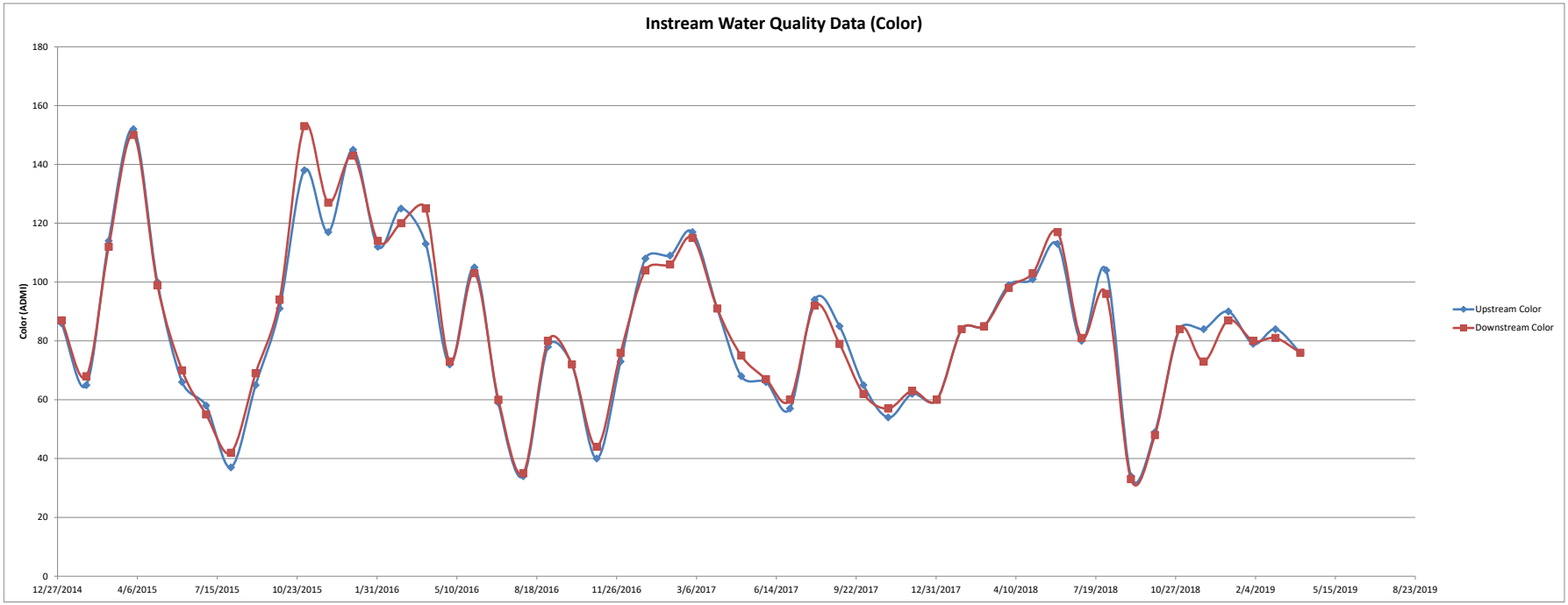

Instream Water Quality Data (Ammonia)
Total Ammonia (mg/L)
2.50
2.00
1.50
1.00
0.50
0.00
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Ammonia
Downstream Ammonia


Instream Water Quality Data (Formaldehyde)
Formaldehyde (mg/L)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Formaldehyde
Downstream Formaldehyde


Instream Water Quality Data (Sodium)
Sodium (mg/L)
100
90
80
70
60
50
40
30
20
10
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Sodium
Downstream Sodium


Instream Water Quality Data (Sulfide)
Sulfide (mg/L)
1.2
1
0.8
0.6
0.4
0.2
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Sulfide
Downstream Sulfide


Instream Water Quality Data (Dissolved Oxygen)
Dissolved Oxygen (mg/L)
12
10
8
6
4
2
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream D.O.
Downstream D.O.


Instream Water Quality Data (Color)
Color (ADMI)
180
160
140
120
100
80
60
40
20
0
12/27/2014
4/6/2015
7/15/2015
10/23/2015
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
4/10/2018
7/19/2018
10/27/2018
2/4/2019
5/15/2019
8/23/2019
Upstream Color
Downstream Color

Appendix I – Color Study

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

October 23, 2015

Ms. Audra Dickson
Industrial Permitting Unit
Watershed Protection Branch
Georgia Environmental Protection Division
2 MLK, Jr. Dr. S.W., Suite 1152
Atlanta, GA 30334

RE: Color Study Results
King America Finishing, Inc.
NPDES Permit No. GA0003280
Screven County

Dear Ms. Dickson,

This report is being submitted to the Environmental Protection Division ("Division") to communicate the results of the color study required by Condition III.B.10 of the King America Finishing, Inc. ("King America") NPDES permit that was issued and effective on December 1, 2013.

Per the color study plan, King America collected the following samples weekly beginning February 17, 2014 and ending August 15, 2014:

- Water collected upstream of the King America discharge,
- Water collected 25 feet downstream of the King America discharge,
- Wastewater treatment plant discharge prior to the addition of the polymer for color removal, and
- Final wastewater treatment effluent after polymer dosage.

In addition, the following mixtures were prepared to replicate low stream flow color impacts:

- 92% upstream river water + 8% effluent prior to polymer treatment,
- 92% upstream river water + 8% polymer treated effluent,
- 92% upstream river water + 8% deionized water,
- 92% upstream river water + 8% 500 ADMI color standard solution.

Each of the samples and mixtures described above were analyzed for ADMI color using Method 2120E of the "Standard Methods for Examination of Water and Wastewater, 20th edition." Per the method, the color value was recorded at the original pH and after the pH was adjusted to 7.6.

The results of the analyses are summarized in Table 1 of Appendix A.

For validation of the data, a theoretical ADMI value was calculated for each mixture, assuming a basic mixing model. For example, for the mixture of 92% river water and 8% 500 ADMI color standard, the theoretical ADMI value was calculated as follows:

$$[River/Standard\ Mixture\ Result] = (92\% \times [Upstream\ River\ Result]) + 8\% \times 500]$$

The theoretical ADMI color values for the mixtures are tabulated in Table 2 of Appendix A. The theoretical color values were plotted against the actual color values to observe the degree of correlation. These plots are shown in Figure 1 of Appendix B.

Please note that the ADMI Color method requires filtration of samples prior to color analysis, and at the beginning of the study, all of the mixtures were prepared prior to filtration. However, after ten (10) weeks of the study, it became apparent from the validation process described above that the 500 ADMI color standard was being filtered out of the sample to a significant degree, resulting in ADMI color values well below the expected values. This was not observed in other mixtures. To correct this, on April 23, the facility begin filtering the river sample prior to mixing it with the ADMI color standard and analyzing for color. The subsequent results for the color standard mixture were in line with theoretical values, so the procedure was continued through the end of the study. For the purpose of the subsequent analysis of the color standard mixture results, only the results from April 23 to the end of the study were considered.

The range of the coefficients of determination (R^2) for the correlation plots is 0.92 to 0.98, indicating the basic mixing model is capable of predicting the ADMI color values of mixtures to a high degree.

The color difference (result – upstream river result) was also calculated for each sample and mixture. The color differences are summarized in Table 3 of the Appendix A. The current King America Permit includes a limit of a difference of 80 ADMI color units. Graphs of the results compared to the 80 unit color difference are in Figures 2 and 3 of Appendix B.

The average and maximum color difference are summarized in Table 4 of Appendix A. The following observations can be made regarding the information in this table:

- The average color difference in all cases is below the generally accepted Method Detection Limit (MDL) of this method of 25 ADMI Color Units. Therefore, the average color difference is within the error of the ADMI method and can be considered negligible.

- The maximum color differences for all scenarios that replicate fully mixed conditions, with the exception of the 500 ADMI standard, are also below the generally accepted MDL, and are therefore within the error of the method. These increases can also be considered negligible. The

scenario that uses the 500 ADMI cannot be considered representative of the discharge since King America's effluent color values have been consistently below 160 ADMI Color Units.

- The maximum color differences for all scenarios that do not replicate fully mixed conditions are very low (less than two times the MDL). Since the King America discharge mixes rapidly in the stream, these maximum color differences would not be observed in-stream. They are useful, however, in demonstrating that even under worse case conditions, the color difference would be insignificant.

Based on these observations, it is apparent that the King America discharge has a negligible impact on the color of the receiving stream, even under low stream flow conditions. As a result, King America respectfully requests that no color limitations, whether based on the effluent value or in-stream color difference, be applied in the facility permit.

If you have any questions or need any additional information, please contact Lee Slusher of Milliken & Company's Corporate Environmental Department for more information at lee.slusher@milliken.com or (864) 503-1756.

Thank you,

Robert Lanier
Plant Manager
King America Finishing, Inc – Longleaf Plant

Cc: Mr. Bruce Foisy, EPD

Appendix A

Table 1 - Analytical Results

Sample Date	Sample 1 (S1) River, Upstream of Discharge		Sample 2 (S2) River, 25-ft downstream of discharge		Sample 3 (S3) Aeration Basin, Prior to Polymer Addition		Sample 4 (S4) Effluent, Prior to Discharge		Mixture 1 (M1) 92% Upstream + 8% Aeration Basin		Mixture 2 (M2) 92% Upstream + 8% Effluent		Mixture 3 (M3) 92% Upstream + 8% Deionized		Mixture 4 (M4) 92% Upstream + 8% 500 ADMI Std.	
	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.
February 17, 2014	62	67	60	63	53	61	50	58	63	63	70	68	60	54	71	68
February 19, 2014	53	58	56	69	67	65	63	63	53	58	53	58	51	54	47	53
February 27, 2014	71	69	67	68	53	53	49	51	62	70	68	67	60	63	67	69
March 7, 2014	64	61	64	62	44	45	48	47	57	64	63	62	60	59	51	51
March 13, 2014	66	68	68	66	73	76	67	69	63	78	68	68	62	65	57	57
March 19, 2014	90	89	86	89	63	66	60	60	90	97	89	90	80	89	67	64
March 26, 2014	76	82	75	78	65	65	62	62	77	78	76	74	69	71	61	56
April 4, 2014	73	85	75	80	60	63	58	58	76	79	75	73	68	70	60	55
April 12, 2014	105	107	105	108	45	47	42	43	102	98	98	95	99	96	65	59
April 16, 2014	101	104	105	99	48	51	49	52	103	97	101	98	97	95	68	60
April 23, 2014	108	110	107	106	65	66	57	57	106	113	104	104	100	102	126	127
April 28, 2014	100	102	92	94	130	127	136	129	104	109	104	106	93	95	132	132
May 7, 2014	100	97	93	101	77	79	79	76	105	105	100	101	91	94	120	123
May 14, 2014	101	99	95	98	78	77	75	77	104	103	102	101	92	95	122	125
May 21, 2014	99	122	98	107	79	75	73	68	96	104	96	103	93	100	121	119
May 29, 2014	83	87	82	85	69	67	64	62	83	84	82	81	79	84	107	106
June 4, 2014	88	83	87	84	56	59	56	56	84	83	84	86	80	83	102	110
June 11, 2014	76	75	77	78	76	77	75	77	77	79	77	79	73	72	97	94
June 21, 2014	89	90	83	86	69	67	66	67	70	72	74	73	75	74	102	110
June 25, 2014	70	71	70	71	79	67	65	65	72	71	72	72	68	69	97	99
July 2, 2014	47	50	48	47	62	61	59	61	59	55	56	58	50	52	89	90
July 9, 2014	40	41	39	40	39	41	36	37	39	40	39	39	35	38	69	70
July 16, 2014	32	34	38	36	59	58	56	55	33	34	38	39	36	35	65	66
July 21, 2014	35	33	30	31	50	48	52	50	32	33	32	31	27	33	61	61
July 30, 2014	73	77	74	74	49	49	48	49	68	70	70	72	66	67	96	97
August 6, 2014	56	56	55	56	28	28	46	47	49	50	54	53	48	49	80	77
August 15, 2014	59	61	60	63	80	72	75	79	69	62	62	62	56	56	88	86
Minimum	32.0	33.0	30.0	31.0	28.0	28.0	36.0	37.0	32.0	33.0	32.0	31.0	27.0	33.0	47.0	51.0
Average	74.7	77.0	73.7	75.5	63.6	63.3	61.7	62.0	73.9	75.9	74.3	74.6	69.2	70.9	84.7	84.6
Maximum	108.0	122.0	107.0	108.0	130.0	127.0	136.0	129.0	106.0	113.0	104.0	106.0	100.0	102.0	132.0	132.0

Table 2: Mixtures – Analytical Results and Theoretical Calculations

Sample Date	Mixture 1 (M1) 92% Upstream + 8% Aeration Basin		Mixture 2 (M2) 92% Upstream + 8% Effluent		Mixture 3 (M3) 92% Upstream + 8% Deionized		Mixture 4 (M4) 92% Upstream + 8% 500 ADMI Std.		Theoretical 1 (T1) 92% Upstream + 8% Aeration Basin		Theoretical 2 (T2) 92% Upstream + 8% Effluent		Theoretical 3 (T3) 92% Upstream + 8% Deionized		Theoretical 4 (T4) 92% Upstream + 8% 500 ADMI Std.	
	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.
February 17, 2014	63	63	70	68	60	54	71	68	61	67	61	66	62	67	63	67
February 19, 2014	53	58	53	58	51	54	47	53	54	59	54	58	53	58	53	58
February 27, 2014	62	70	68	67	60	63	67	69	70	68	69	68	70	69	71	69
March 7, 2014	57	64	63	62	60	59	51	51	62	60	63	60	63	61	64	61
March 13, 2014	63	78	68	68	62	65	57	57	67	69	66	68	66	69	66	68
March 19, 2014	90	97	89	90	80	89	67	64	88	87	88	87	90	90	90	89
March 26, 2014	77	78	76	74	69	71	61	56	75	81	75	80	76	82	76	81
April 4, 2014	76	79	75	73	68	70	60	55	72	83	72	83	73	85	73	84
April 12, 2014	102	98	98	95	99	96	65	59	100	102	100	102	105	106	104	106
April 16, 2014	103	97	101	98	97	95	68	60	97	100	97	100	101	103	101	104
April 23, 2014	106	113	104	104	100	102	126	127	105	106	104	106	108	110	108	110
April 28, 2014	104	109	104	106	93	95	132	132	102	104	103	104	100	103	100	102
May 7, 2014	105	105	100	101	91	94	120	123	98	96	98	95	100	98	100	97
May 14, 2014	104	103	102	101	92	95	122	125	99	97	99	97	101	99	101	99
May 21, 2014	96	104	96	103	93	100	121	119	97	118	97	118	99	121	99	120
May 29, 2014	83	84	82	81	79	84	107	106	82	85	81	85	83	87	83	87
June 4, 2014	84	83	84	86	80	83	102	110	85	81	85	81	88	83	88	83
June 11, 2014	77	79	77	79	73	72	97	94	76	75	76	75	76	75	76	75
June 21, 2014	70	72	74	73	75	74	102	110	87	88	87	88	87	89	88	89
June 25, 2014	72	71	72	72	68	69	97	99	71	71	70	71	70	71	70	71
July 2, 2014	59	55	56	58	50	52	89	90	48	51	48	51	48	50	48	51
July 9, 2014	39	40	39	39	35	38	69	70	40	41	40	41	40	41	40	41
July 16, 2014	33	34	38	39	36	35	65	66	34	36	34	36	32	34	32	34
July 21, 2014	32	33	32	31	27	33	61	61	36	34	36	34	35	33	35	33
July 30, 2014	68	70	70	72	66	67	96	97	71	75	71	75	73	76	73	77
August 6, 2014	49	50	54	53	48	49	80	77	54	54	55	55	55	56	56	56
August 15, 2014	69	62	62	62	56	56	88	86	61	62	60	62	60	61	59	61
Minimum	32	33	32	31	27	33	47	51	34	34	34	34	32	33	32	33
Average	74	76	74	75	69	71	85	85	74	76	74	76	75	77	75	77
Maximum	106	113	104	106	100	102	132	132	105	118	104	118	108	121	108	120

Table 3: Color Differences (Result-Upstream)

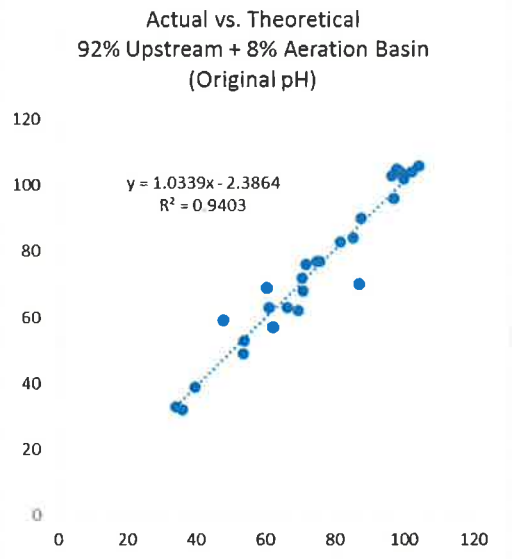
Sample Date	S2-S1 River, 25-ft downstream of discharge		S3-S1 Aeration Basin, Prior to Polymer Addition		S4-S1 Effluent, Prior to Discharge		M1-S1 92% Upstream + 8% Aeration Basin		M2-S1 92% Upstream + 8% Effluent		M3-S1 92% Upstream + 8% Deionized		M4-S1 92% Upstream + 8% 500 ADMI Std.	
	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.	Original	pH Adj.
February 17, 2014	-2	-4	-9	-6	-12	-9	1	-4	8	1	-2	-13	9	1
February 19, 2014	3	11	14	7	10	5	0	0	0	0	-2	-4	-6	-5
February 27, 2014	-4	-1	-18	-16	-22	-18	-9	1	-3	-2	-11	-6	-4	0
March 7, 2014	0	1	-20	-16	-16	-14	-7	3	-1	1	-4	-2	-13	-10
March 13, 2014	2	-2	7	8	1	1	-3	10	2	0	-4	-3	-9	-11
March 19, 2014	-4	0	-27	-23	-30	-29	0	8	-1	1	-10	0	-23	-25
March 26, 2014	-1	-4	-11	-17	-14	-20	1	-4	0	-8	-7	-11	-15	-26
April 4, 2014	2	-5	-13	-22	-15	-27	3	-6	2	-12	-5	-15	-13	-30
April 12, 2014	0	1	-60	-60	-63	-64	-3	-9	-7	-12	-6	-11	-40	-48
April 16, 2014	4	-5	-53	-53	-52	-52	2	-7	0	-6	-4	-9	-33	-44
April 23, 2014	-1	-4	-43	-44	-51	-53	-2	3	-4	-6	-8	-8	18	17
April 28, 2014	-8	-8	30	25	36	27	4	7	4	4	-7	-7	32	30
May 7, 2014	-7	4	-23	-18	-21	-21	5	8	0	4	-9	-3	20	26
May 14, 2014	-6	-1	-23	-22	-26	-22	3	4	1	2	-9	-4	21	26
May 21, 2014	-1	-15	-20	-47	-26	-54	-3	-18	-3	-19	-6	-22	22	-3
May 29, 2014	-1	-2	-14	-20	-19	-25	0	-3	-1	-6	-4	-3	24	19
June 4, 2014	-1	1	-32	-24	-32	-27	-4	0	-4	3	-8	0	14	27
June 11, 2014	1	3	0	2	-1	2	1	4	1	4	-3	-3	21	19
June 21, 2014	-6	-4	-20	-23	-23	-23	-19	-18	-15	-17	-14	-16	13	20
June 25, 2014	0	0	9	-4	-5	-6	2	0	2	1	-2	-2	27	28
July 2, 2014	1	-3	15	11	12	11	12	5	9	8	3	2	42	40
July 9, 2014	-1	-1	-1	0	-4	-4	-1	-1	-1	-2	-5	-3	29	29
July 16, 2014	6	2	27	24	24	21	1	0	6	5	4	1	33	32
July 21, 2014	-5	-2	15	15	17	17	-3	0	-3	-2	-8	0	26	28
July 30, 2014	1	-3	-24	-28	-25	-28	-5	-7	-3	-5	-7	-10	23	20
August 6, 2014	-1	0	-28	-28	-10	-9	-7	-6	-2	-3	-8	-7	24	21
August 15, 2014	1	2	21	11	16	18	10	1	3	1	-3	-5	29	25
Minimum	-8.0	-15.0	-60.0	-60.0	-63.0	-64.0	-19.0	-18.0	-15.0	-19.0	-14.0	-22.0	-40.0	-48.0
Average	-1.0	-1.4	-11.1	-13.6	-13.0	-14.9	-0.8	-1.1	-0.4	-2.4	-5.5	-6.1	10.0	7.6
Maximum	6.0	11.0	30.0	25.0	36.0	27.0	12.0	10.0	9.0	8.0	4.0	2.0	42.0	40.0

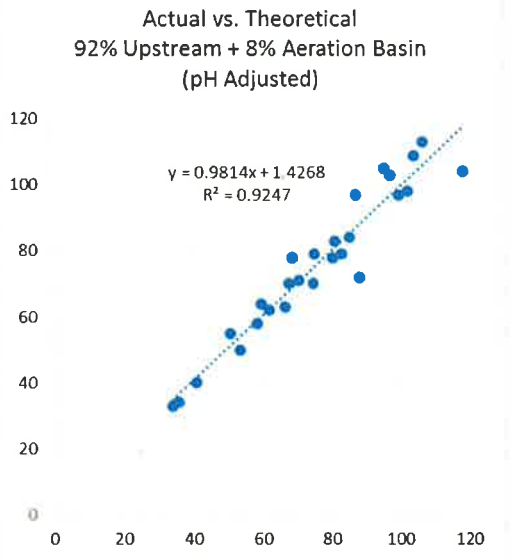
Table 4: Summary of Average and Maximum Color Differences

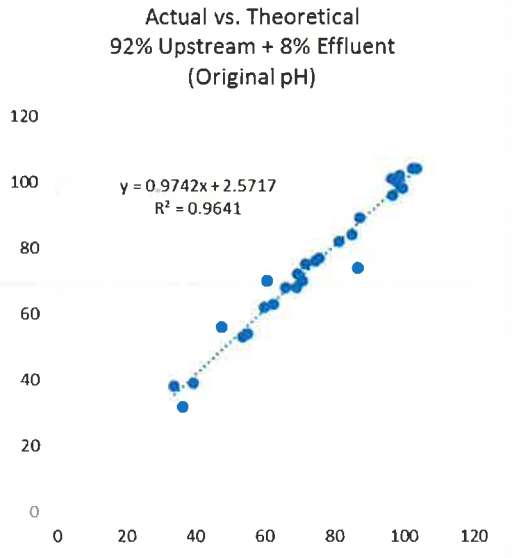
Scenario #	Sample Results	pH	Average Increase versus Upstream Color	Average Increase Below MDL	Maximum Increase versus Upstream Color	Maximum Increase Below MDL	Replicates Fully Mixed Effluent?
1	River, 25-ft downstream of discharge	Original	-1	Yes	6	Yes	Yes
		Adjusted	-1	Yes	11	Yes	
2	Aeration Basin, Prior to Polymer Addition	Original	-11	Yes	30	No	No
		Adjusted	-14	Yes	25	No	
3	Effluent, Prior to Discharge	Original	-13	Yes	36	No	No
		Adjusted	-15	Yes	27	No	
4	92% Upstream+8% Aeration Basin	Original	-1	Yes	12	Yes	Yes
		Adjusted	-1	Yes	10	Yes	
5	92% Upstream+8% Effluent	Original	0	Yes	9	Yes	Yes
		Adjusted	-2	Yes	8	Yes	
6	92% Upstream+8% Deionized Water	Original	-6	Yes	4	Yes	Yes
		Adjusted	-6	Yes	2	Yes	
7	92% Upstream+8% 500 ADMI Std.	Original	10	Yes	42	No	Yes
		Adjusted	8	Yes	40	No	

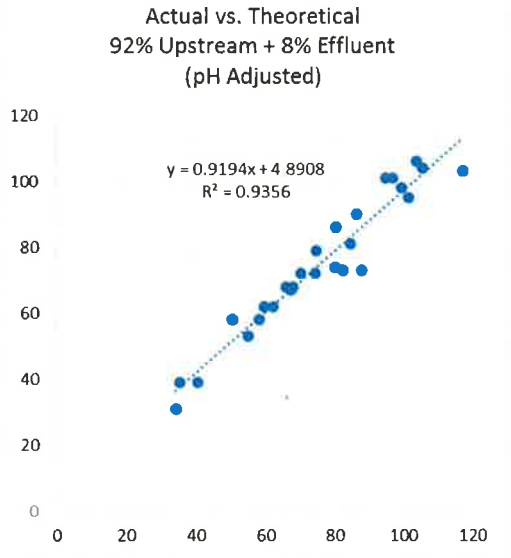
Appendix B

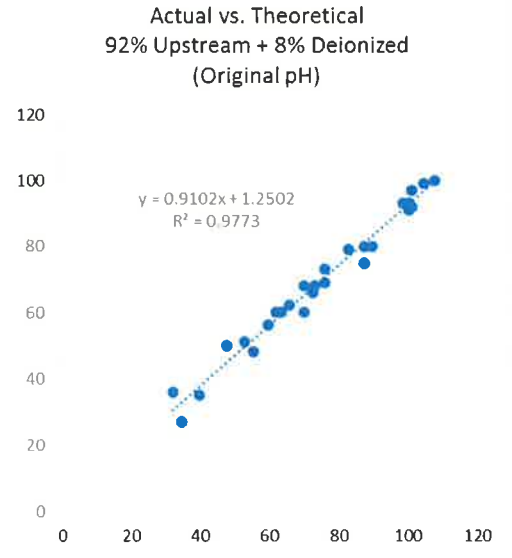
Figure 1: Mixture Results versus Calculated Theoretical Values











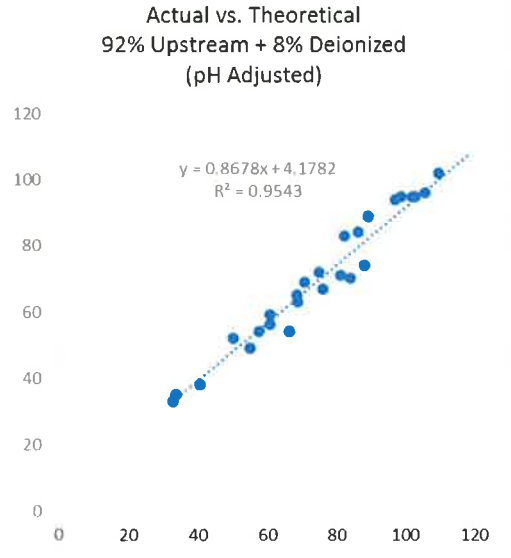


Figure 2: Color Differences (Samples – Upstream)

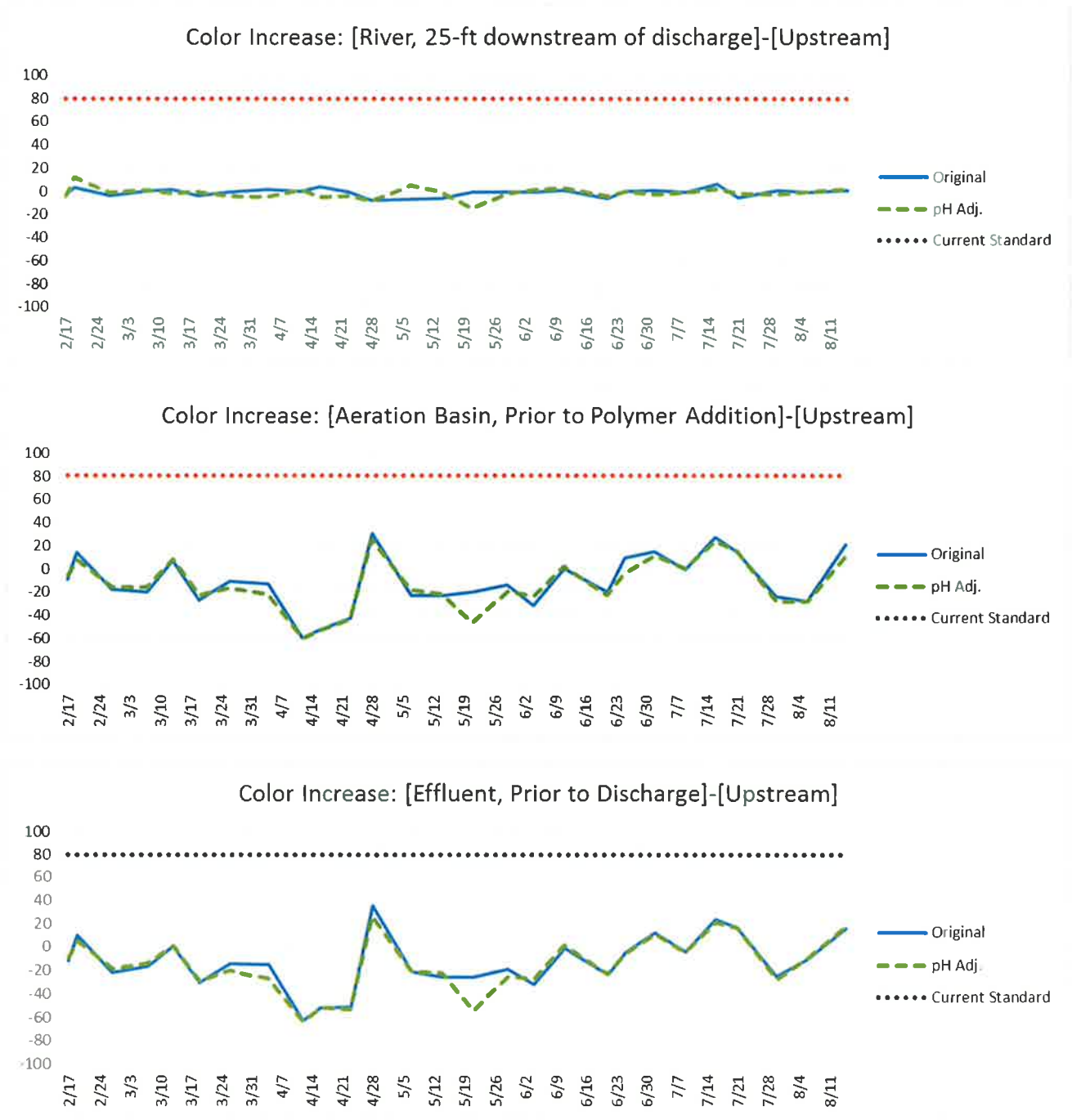
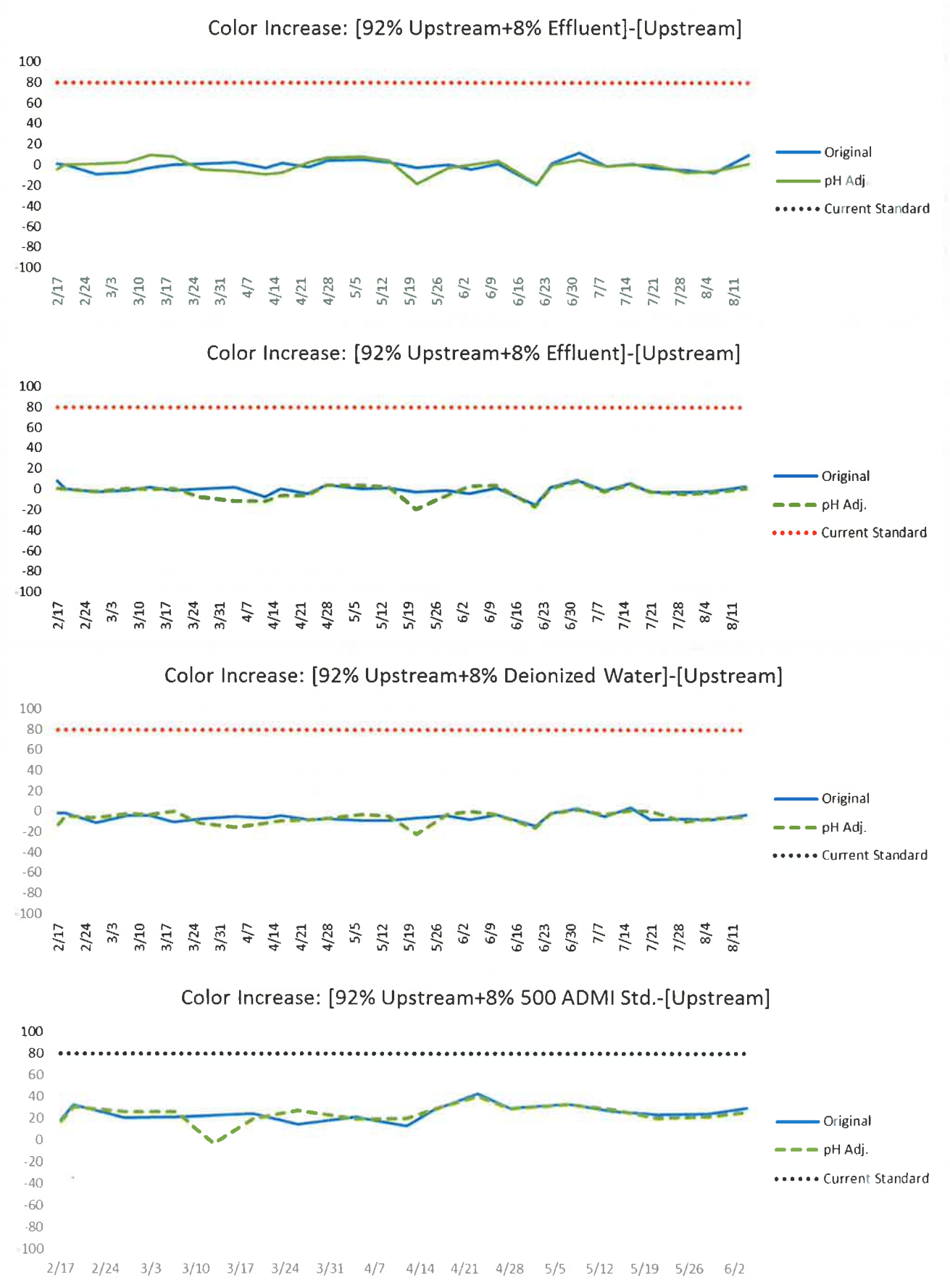


Figure 3: Color Differences (Mixtures – Upstream)



GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

SUMMARY PAGE

Name of Facility: City of Adel - Adel WPCP

NPDES Permit No.: GA0024911

This is a reissuance of the NPDES permit for the Adel WPCP. Up to 4.3 MGD (daily maximum) of treated domestic wastewater is discharged to Bear Creek in the Suwannee River Basin or up to 2.5 MGD is land applied onto a dedicated site in Cook County.

The permit expired on May 31, 2018 and became administratively extended.

The permit was placed on public notice from December 19, 2019 to March 16, 2020. No public comments were received.

Please Note The Following Changes to the Proposed NPDES Permit From The Existing Permit:

Part I.B.1. – Effluent Limitations and Monitoring Requirements:

- Removed monthly and weekly average flow limitations, since the facility is equipped with an HCR controller and is limited based on an effluent to stream flow ratio
- Added a daily maximum effluent flow of 4.3 MGD based on facility design
- Clarified the instream wastewater concentration limitations based on the effluent to stream flow ratio and included a calculation as reference for reporting purposes
- Removed effluent loading limitations for biochemical oxygen demand, total suspended solids, and ammonia, since the facility discharges a variable flow based on stream conditions and a calculated loading is not representative
- Decreased monthly average ammonia limit from 16.8 to 10.0 mg/L in accordance with EPD's *NPDES Permitting Strategy for Addressing Ammonia Toxicity*, 2017.
- Revised five-day biochemical oxygen demand removal requirements from 85% to 65% in accordance with requirements for equivalent to secondary treatment standards for pond systems
- Decreased monitoring frequency for total phosphorus and nitrate-nitrate from 1 day/week to 1 day/month
- Added orthophosphate, organic nitrogen, and total Kjeldahl nitrogen monitoring requirements to determine nutrient speciation and to quantify nutrient loadings in the Suwannee River Basin.
- Removed total recoverable mercury monitoring, since analysis indicated that the pollutant is not present at levels of concern
- Removed long term biochemical oxygen demand testing requirements since they have been completed
- Revised chronic whole effluent toxicity testing requirements to require one test for two consecutive quarters following permit issuance and annually thereafter to verify testing results

Part I.B.2. – Land Treatment System:

- Clarified that the flow limitation of 2.5 MGD is a weekly average limit, in accordance with sprayfield capacity, rather than average monthly and/or average daily
- Clarified that samples collected under B.1. for influent biochemical oxygen demand and total suspended solids monitoring may be used to satisfy the requirements under B.2. for days when both discharge locations are utilized
- Added monitoring requirements for total Kjeldahl nitrogen from the stabilization pond to the sprayfield
- Replaced fecal coliform monitoring in groundwater wells with monitoring for *Escherichia Coli* and clarified that downgradient wells are required to meet the maximum contaminant level in accordance with the Safe Drinking Water Rules and Regulations

Standard Conditions and Boilerplate Modifications:

The permit boilerplate includes modified language or added language consistent with current NPDES permits.

Final Permit Determinations and Public Comments:

☒ Final issued permit did not change from the draft permit placed on public notice.
☐ Public comments were received during public notice period.
☐ Public hearing was held on
☐ Final permit includes changes from the draft permit placed on public notice. See attached permit revisions and/or permit fact sheet revisions.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

EPD Director's Office
2 Martin Luther King, Jr. Drive
Suite 1456, East Tower
Atlanta, Georgia 30334
404-656-4713

Honorable Luther Duke, Mayor
City of Adel
Post Office Box 1530
Adel, Georgia 31620

MAR 19 2020

RE: Permit Issuance
Adel Water Pollution Control Plant
NPDES Permit No. GA0024911
Cook County, Suwannee River Basin

Dear Mayor Duke:

Pursuant to the Georgia Water Quality Control Act, as amended; the Federal Water Pollution Control Act, as amended; and the Rules and Regulations promulgated thereunder, we have today issued the attached National Pollutant Discharge Elimination System (NPDES) permit for the referenced wastewater treatment facility.

Your facility has been assigned to the following EPD office for reporting and compliance:

Georgia Environmental Protection Division
Watershed Compliance Program
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, GA 30334

Please be advised that on and after the effective date indicated in the attached NPDES permit, the permittee must comply with all the terms, conditions and limitations of this permit.

If you have any questions, please contact Kelli-Ann Sottile at 404-463-4945 or via email at *kelli-ann.sottile@dnr.ga.gov*.

Sincerely,

Richard E. Dunn
Director

RED\kas
Attachment: NPDES Permit No. GA0024911, Fact Sheet
cc: Tommy Rice, City of Adel (trice@southlink.us)
Marzieh Shahbazaz, EPD Watershed Compliance Program (Marzieh.shahbazaz@dnr.ga.gov)

Permit No. GA0024911
Issuance Date:

MAR 1 9 2020

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

In accordance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the State Act; the Federal Water Pollution Control Act, as amended (33 U.S. C. 1251 et seq.), hereinafter called the Federal Act; and the Rules and Regulations promulgated pursuant to each of these Acts,

City of Adel
P.O. Box 1530
Adel, Georgia 31620

is authorized to discharge from a facility located at

Adel Water Pollution Control Plant (WPCP)
1325 Honeymoon Lane
Adel, Georgia 31620
(Cook County)

to receiving waters

Bear Creek
(Suwannee River Basin)

in accordance with effluent limitations, monitoring requirements and other conditions set forth in the permit.

This permit is issued in reliance upon the permit application signed on January 17, 2018, any other applications upon which this permit is based, supporting data entered therein or attached thereto, and any subsequent submittal of supporting data.

This permit shall become effective on April 1, 2020.

This permit and the authorization to discharge shall expire at midnight, March 31, 2025.

STATE OF GEORGIA CONSTITUTION 1776

Director,
Environmental Protection Division

PART I

EPD is the Environmental Protection Division of the Department of Natural Resources.

The Federal Act referred to is The Clean Water Act.

The State Act referred to is The Water Quality Control Act (Act No. 870).

The State Rules referred to are The Rules and Regulations for Water Quality Control (Chapter 391-3-6).

A. SPECIAL CONDITIONS

1. MONITORING

a. The monthly average, other than for fecal coliform bacteria and Escherichia Coli, is the arithmetic mean of values obtained for samples collected during a calendar month.

b. The weekly average, other than for fecal coliform bacteria and Escherichia Coli, is the arithmetic mean of values obtained for samples collected during a 7-day period. The week begins 12:00 midnight Saturday and ends at 12:00 midnight the following Saturday. To define a different starting time for the sampling period, the permittee must notify the EPD in writing. For reporting required by Part I.D.1. of this permit, a week that starts in one month and ends in another month shall be considered part of the second month. The permittee may calculate and report the weekly average as a 7-day moving average.

c. Fecal coliform bacteria and Escherichia Coli will be reported as the geometric mean of the values for the samples collected during the time periods in I.A.1.a. and I.A.1.b.

d. Untreated wastewater influent samples required by I.B. shall be collected before any return or recycle flows. These flows include returned activated sludge, supernatants, centrates, filtrates, and backwash.

e. Effluent samples required by I.B. of this permit shall be collected after the final treatment process and before discharge to receiving waters. Composite samples may be collected before disinfection with written EPD approval.

f. A composite sample shall consist of a minimum of 5 subsamples collected at least once every 2 hours for at least 8 hours and shall be composited proportionately to flow.

g. Flow measurements shall be conducted using the flow measuring device(s) in accordance with the approved design of the facility. If instantaneous measurements are required, then the permittee shall have a primary flow measuring device that is correctly installed and maintained. If continuous recording measurements are required, then flow measurements must be made using continuous recording equipment. Calibration shall be maintained of the continuous recording instrumentation to ± 10% of the actual flow.

Flow shall be measured manually to check the flow meter calibration at a frequency of once a month. If secondary flow instruments are in use and malfunction or fail to maintain calibration as required, the flow shall be computed from manual measurements or by other method(s) approved by EPD until such time as the secondary flow instrument is repaired. For facilities which utilize alternate technologies for measuring flow, the flow measurement device must be calibrated semi-annually by qualified personnel.

Records of the calibration checks shall be maintained.

h. If secondary flow instruments malfunction or fail to maintain calibration as required in I.A.1.g., the flow shall be computed from manual measurements taken at the times specified for the collection of composite samples.

i. Some parameters will be reported as "not detected" when they are below the detection limit and will then be considered in compliance with the effluent limit. The detection limit will also be reported.

2. SLUDGE DISPOSAL REQUIREMENTS

Sludge shall be disposed of according to the regulations and guidelines established by the EPD and the Federal Act section 405(d) and (e), and the Resource Conservation and Recovery Act (RCRA). In land applying nonhazardous municipal sewage sludge, the permittee shall comply with the general criteria outlined in the most current version of the EPD "Guidelines for Land Application of Sewage Sludge (Biosolids) at Agronomic Rates" and with the State Rules, Chapter 391-3-6-.17. Before disposing of municipal sewage sludge by land application or any method other than co-disposal in a permitted sanitary landfill, the permittee shall submit a sludge management plan to EPD for written approval. This plan will become a part of the NPDES Permit after approval and modification of the permit. The permittee shall notify the EPD of any changes planned in an approved sludge management plan.

If an applicable management practice or numerical limitation for pollutants in sewage sludge is promulgated under Section 405(d) of the Federal Act after approval of the plan, then the plan shall be modified to conform with the new regulations.

3. SLUDGE MONITORING REQUIREMENTS

The permittee shall develop and implement procedures to ensure adequate year-round sludge disposal. The permittee shall monitor and maintain records documenting the quantity of sludge removed from the facility. Records shall be maintained documenting that the quantity of solids removed from the facility equals the solids generated on an average day. The total quantity of sludge removed from the facility during the reporting period shall be reported each month with the Discharge Monitoring Reports as required under Part I.D.1. of this permit. The quantity shall be reported on a dry weight basis (dry tons).

4. INTRODUCTION OF POLLUTANTS INTO THE PUBLICLY OWNED TREATMENT WORKS (POTW)

The permittee must notify EPD of:

a. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the Federal Act if the pollutants were directly discharged to a receiving stream; and

b. Any substantial change in the volume or character of pollutants from a source that existed when the permit was issued.

This notice shall include information on the quality and quantity of the indirect discharge introduced and any anticipated impact on the quantity or quality of effluent to be discharged from the POTW.

5. EFFLUENT TOXICITY AND BIOMONITORING REQUIREMENTS

The permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with Chapter 391-3-6-.03(5)(e) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life.

If toxicity is suspected in the effluent, the EPD may require the permittee to perform any of the following actions:

a. Acute biomonitoring tests;

b. Chronic biomonitoring tests;

c. Stream studies;

d. Priority pollutant analyses;

e. Toxicity reduction evaluations (TRE); or

f. Any other appropriate study.

The EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by the EPD, the critical concentration used to determine toxicity in biomonitoring tests will be the effluent instream wastewater concentration (IWC) based on the permitted monthly average flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 50% of the test organisms (LC50) if the test is for acute toxicity and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity.

The permittee must eliminate effluent toxicity and supply the EPD with data and evidence to confirm toxicity elimination.

6. LAND APPLICATION SYSTEM

a. Definitions

i. "Hydraulic Loading Rate" means the rate at which wastes or wastewaters are discharged to a land disposal or land treatment system, expressed in volume per unit area per unit time or depth of water per unit of time.

ii. "Land Disposal System" means any method of disposing of pollutants in which the pollutants are applied to the surface or beneath the surface of a parcel of land and which results in the pollutants percolating, infiltrating, or being absorbed into the soil and then into the waters of the State. Land disposal systems exclude landfills and sanitary landfills but include ponds, basins, or lagoons used for disposal of wastes or wastewaters, where evaporation and/or percolation of the wastes or wastewaters are used or intended to be used to prevent point discharge of pollutants into waters of the State. Septic tanks or sewage treatment systems, as defined in Chapter 511-3-1-.02 (formally in Chapter 270-5-25-.01) and as approved by appropriate County Boards of Public Health, are not considered land disposal systems for purposes of Chapter 391-3-6-.11.

iii. "Land Treatment System" means any land disposal system in which vegetation on the site is used for additional treatment of wastewater to remove some of the pollutants applied.

iv. "Point Source" means any discernible, confined, or discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

v. "Spray Field" means the wetted area of the land treatment system or land disposal system where treated wastes, treated effluent from industrial processes, agricultural or domestic wastewater, domestic sewage sludge, industrial sludge or other sources is applied to the land via spray, excluding the buffer zone.

vi. "Treatment System" means the wastewater treatment facility which reduces high strength organic waste to low levels prior to the application to the spray field.

vii. "Water" or "Waters of the State" means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and all other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.

b. Monitoring Well Requirements

The permittee, upon written notification by the EPD, may be required to install groundwater monitoring wells at the existing land treatment system. This requirement may apply if monitoring wells were not included in the original design of the facility and also, if the EPD determines the existing groundwater monitoring wells are not adequate.

c. Groundwater Requirements

i. If any groundwater samples taken from the groundwater monitoring wells at the land treatment system are above the primary maximum contaminant levels for drinking water, the permittee shall immediately develop a plan which will ensure that the primary maximum contaminant levels for drinking water are not exceeded.

ii. If any pollutants which are being discharged to the land treatment system are detected in the groundwater samples taken from the compliance monitoring wells at the land treatment system in amounts or concentrations which could be toxic or otherwise harmful to humans or biota if those pollutants mingle with waters of the State, then the permittee shall immediately develop a plan which will reduce the amounts or concentrations of the pollutants to ensure they are not toxic or otherwise harmful to humans or biota if those pollutants mingle with waters of the State.

d. No Point Source Discharge(s) of a Pollutant to Surface Waters of the State

The land treatment system must be operated and maintained to ensure there is no point source discharge(s) of pollutants to surface waters of the State.

B.1. STREAM DISCHARGE: EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Discharge to Bear Creek - Outfall #001 (31.119397°, -83.387618°)

The discharge from the water pollution control plant shall be limited and monitored by the permittee as specified below:

Parameters	Discharge limitations	Monitoring Requirements		
		Measurement Frequency	Sample Type	Sample Location
Stream Flow (MGD)	Report	Seven Days/Week	Continuous Recording	Upstream
Flow, Daily Maximum (MGD)	4.3	Seven Days/Week	Continuous Recording	Effluent
Discharge Flow as Percent of Stream Flow, Daily Maximum (%) [1]		Seven Days/Week	Continuous Recording	Effluent
January to May	25			
June to November	14			
December	25			

(1) The daily maximum discharge flows as a percent of the stream flow, 14% and 25%, are equivalent to a discharge ratio of 6:1 and 3:1, respectively. The following calculation should be used for reporting purposes:

$$\%\ of\ Stream\ Flow = \frac{Flow_{Discharge}}{Flow_{Dischar\!g} + Flow_{stream}} \times 100\%$$

Parameters	Discharge limitations in mg/L unless otherwise specified		Monitoring Requirements		
	Monthly Average	Weekly Average	Measurement Frequency	Sample Type	Sample Location
Five-Day Biochemical Oxygen Demand [1]	30.0	45.0	Three Days/Week	Composite	Influent & Effluent
Total Suspended Solids [1]	90	120	Three Days/Week	Composite	Influent & Effluent
Ammonia, as N [2]	10.0	15.0	Three Days/Week	Composite	Effluent
Fecal Coliform Bacteria (#/100 mL)	200	400	Two Days/Week	Grab	Effluent

(1) Numeric limits only apply to the effluent.

(2) Ammonia, organic nitrogen, nitrate-nitrite, and total Kjeldahl nitrogen (TKN) must be analyzed or calculated from the same sample. Organic nitrogen, as N = TKN – ammonia, as N.

(Effluent limitations continued on the next page)

B.1. STREAM DISCHARGE: EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CONTINUED)

Discharge to Bear Creek - Outfall #001 (31.119397°, -83.387618°):

Parameters	Discharge limitations in mg/L unless otherwise specified	Monitoring Requirements		
		Measurement Frequency	Sample Type	Sample Location
Five-Day Biochemical Oxygen Demand Removal, Minimum (%) [1]	65	See Below	See Below	See Below
pH, Daily Minimum – Daily Maximum (S.U.)	6.0 – 9.0	Seven Days/Week	Grab	Effluent
Total Residual Chlorine, Daily Maximum	0.04	Seven Days/Week	Grab	Effluent
Dissolved Oxygen, Daily Minimum	2.0	Seven Days/Week	Grab	Effluent
Total Phosphorus, as P [2]	Report	One Day/Month	Composite	Effluent
Orthophosphate, as P [2]	Report	One Day/Month	Composite	Effluent
Organic Nitrogen, as N [3]	Report	One Day/Month	Composite	Effluent
Nitrate-Nitrite, as N [3]	Report	One Day/Month	Composite	Effluent
Total Kjeldahl Nitrogen, as N [3]	Report	One Day/Month	Composite	Effluent
Chronic Whole Effluent Toxicity (%) [4]	Report NOEC	See Below	Composite	Effluent

(1) Percent removal shall be calculated from monthly average influent and effluent concentrations. Influent and effluent samples shall be collected at approximately the same time.

(2) Total phosphorus and orthophosphate must be analyzed from the same sample.

(3) Ammonia, organic nitrogen, nitrate-nitrite, and total Kjeldahl nitrogen (TKN) must be analyzed or calculated from the same sample. Organic nitrogen, as N = TKN – ammonia, as N

(4) Refer to Part I.C.9. CHRONIC WHOLE EFFLUENT TOXICITY.

B.2. LAND TREATMENT SYSTEM

1. TREATMENT REQUIREMENTS, LIMITATIONS AND MONITORING

Discharge from treatment pond to spray fields:

a. Influent shall refer to the influent to the treatment facility and effluent shall refer to the discharge from the stabilization pond to the spray fields. The discharge shall be limited and monitored as follows:

Parameter (units)	Discharge Limitations Monthly average, unless otherwise stated	Monitoring Requirements		
		Measurement Frequency	Sample Type	Sample Location
Flow, Weekly Average (MGD)	2.5	Seven Days/Week	Continuous	Effluent
Five-Day Biochemical Oxygen Demand (mg/L) (1)	50	One Day/Week	Grab	Influent & Effluent (2)
Total Suspended Solids (mg/L) (1)	90	One Day/Week	Grab	Influent & Effluent (2)
Nitrate-Nitrogen, as N	Report	One Day/Month	Grab	Effluent
Total Kjeldahl Nitrogen, as N	Report	One Day/Month	Grab	Effluent
pH (standard units), Daily Minimum & Daily Maximum	6.0 – 10.0	One Day/Week	Grab	Effluent

(1) Numeric limits only apply to the effluent.

(2) For influent monitoring, the results of samples collected under B.1. may be used to satisfy the requirements under this part for weeks when both the discharge to the stream and the land treatment system are utilized.

b. The spray field of the land treatment system shall consist of 280 acres. The hydraulic wastewater loading to the spray field must not exceed 2.3 in/week. The instantaneous application rate for the site is 0.25 inches/hour. The hydraulic loading rates for each spray field shall be monitored daily and submitted to EPD in accordance with Part I.A.3 of this permit.

c. A daily log will be kept by the land treatment system operator of the volume (gal) of wastewater sprayed on each spray field for each day and shall be submitted to EPD in accordance with Part I.A.3 of this permit.

d. A daily log will be kept by the land treatment system operator of the amount of rainfall received each day within 0.5 miles of the permitted land treatment system and shall be submitted to EPD in accordance with Part I.A.3 of this permit.

e. A written summary of pertinent maintenance for the land treatment system such as planting, cutting vegetation, harvesting, resurfacing areas, etc. shall also be included in the report and submitted in accordance with Part I.A.3 of this permit.

2. SYSTEM OPERATIONS

The land treatment system will be operated and maintained in accordance with the design criteria as presented in the approved engineering reports, operation and maintenance manuals, the permit application and/or other written agreements between EPD and the permittee. This includes, but is not limited to, the following:

a. A vegetative cover must be maintained at all times on the land treatment site and must be managed according to design criteria;

b. All treatment units are to be maintained and operated for maximum efficiency;

c. Hydraulic and nitrogen loading is to be maintained within design criteria;

d. Unless otherwise approved, no wastewater shall be applied via spray or aboveground drip irrigation during rain or when the conditions are such that applied wastewater will not be absorbed into the soil; and

e. If the hydraulic application rate(s) cannot satisfactorily be handled by the approved land treatment system, corrective actions shall immediately be taken by the permittee.

f. The land treatment system may not result in a point source discharge to surface waters, as mandated in the Rules.

3. GROUNDWATER MONITORING REQUIREMENTS

a. Groundwater leaving the land treatment system boundaries (as defined in this permit as the spray field) must not exceed the primary maximum contaminant levels for drinking water. Samples of the groundwater shall be monitored from each groundwater monitoring well(s) by the permittee for the parameters and at the frequency listed below:

Parameter (units)	Measurement Frequency	Sample Type
Depth to Groundwater (feet)	One Day/Month	Grab
Nitrate, as N (mg/L) (1)	One Day/Month	Grab
pH (standard unit)	One Day/Month	Grab
Specific Conductivity (µmho/cm)	One Day/Month	Grab
Escherichia Coli (CFU/100mL) (2)	One Day/Quarter	Grab

(1) The maximum contaminant level for nitrate nitrogen is 10.0 mg/L, as amended in the Safe Drinking Water Rules and Regulations.

(2) The maximum contaminant level for *E. coli* is zero positive samples, as amended in the Safe Drinking Water Rules and Regulations.

b. Monitoring wells shall be identified in all reports submitted to EPD as up-gradient, midfield, and down-gradient, as referenced below. The down-gradient groundwater monitoring wells shall be considered the compliance wells. The monitoring wells are identified as follows:

Well	Location
U-7	Up-gradient
U-8	Up-gradient
M-11	Midfield

Well	Location
D-10	Down-gradient
D-13	Down-gradient
D-19	Down-gradient
D-20	Down-gradient

c. As per Part I.B.2 and Part II.A.9-10 of this permit, upon written notification to EPD, additional up-gradient, mid-field and down-gradient monitoring wells may be added in accordance with EPD's Manual for Groundwater Monitoring, September 1991, as amended, the Environmental Protection Agency Guidance Design and Installation of Monitoring Wells, or other approved guidance without EPD approval and without

modification to this permit. The additional wells are subject to the sampling parameters and sampling frequency(s) in Part I.B.3 of this permit, Groundwater Monitoring Requirements. The sampling analysis of additional wells shall be reported in accordance with Part I.A.3 of this permit.

4. SOIL MONITORING REQUIREMENTS

a. A Soil Fertility Test(s) shall be performed annually in the fourth (4^{th}) calendar quarter in accordance with the latest edition of Methods of Soil Analysis (published by the American Society of Agronomy, Madison, Wisconsin) or other methods approved by EPD. Representative soil samples shall be collected from the land treatment system using the Mehlich-1 extraction procedure. Results of the Soil Fertility Test(s) shall be utilized by the permittee in the continuing operation and maintenance of the land treatment system. The sampling analysis shall be reported in accordance with Part I.A.3 of this permit.

b. If the Soil Fertility Test(s) indicates a change in the pH value of one standard unit from the previous year's pH value, the permittee shall immediately perform a Cation Exchange Capacity and Percent Base Saturation analysis for the land treatment system. The monitoring results of the Cation Exchange Capacity and Percent Base Saturation analysis shall be submitted to EPD in accordance with Part I.A.3 of this permit.

c. Where there are categorical and/or significant industrial discharges to the sewer system, the permittee may be required, upon written notification by the Division, to sample for additional parameters. These parameters may include heavy metals and organic compounds.

5. SURFACE WATER MONITORING

Surface water(s)[1] adjacent to or traversing the land treatment system shall be monitored. Unless otherwise stated and or approved by EPD, surface water samples will be collected at a maximum of 100 feet upstream and a maximum 100 feet downstream of the land treatment system. The surface water shall be monitored for the parameters and at the frequency listed below:

Parameter (units)	Measurement Frequency	Sample Type
Nitrate, as N (mg/L)	One Day/Quarter	Grab
Five-Day Biochemical Oxygen Demand (mg/L)	One Day/Quarter	Grab
Specific Conductivity (µmho/cm)	One Day/Quarter	Grab
pH (standard units)	One Day/Quarter	Grab
Total Kjeldahl Nitrogen (mg/L)	One Day/Quarter	Grab
Temperature (°C)	One Day/Quarter	Grab
Dissolved Oxygen (mg/L)	One Day/Quarter	Grab

(1) Surface waters as identified in the Design Development Report and permit application are: **Not Applicable**

C. MONITORING AND REPORTING

1. REPRESENTATIVE SAMPLING

Samples and measurements of the monitored waste shall represent the volume and nature of the waste stream. The permittee shall maintain a written sampling and monitoring schedule.

2. SAMPLING PERIOD

a. Unless otherwise specified in this permit, quarterly samples shall be taken during the periods January-March, April-June, July-September, and October-December.

b. Unless otherwise specified in this permit, semiannual samples shall be taken during the periods January-June and July-December.

c. Unless otherwise specified in this permit, annual samples shall be taken during the period of January-December.

3. MONITORING PROCEDURES

All analytical methods, sample containers, sample preservation techniques, and sample holding times must be consistent with the techniques and methods listed in 40 CFR Part 136. The analytical method used shall be sufficiently sensitive. EPA-approved methods must be applicable to the concentration ranges of the NPDES permit samples.

4. RECORDING OF RESULTS

For each required parameter analyzed, the permittee shall record:

a. The exact place, date, and time of sampling, and the person(s) collecting the sample. For flow proportioned composite samples, this shall include the instantaneous flow and the corresponding volume of each sample aliquot, and other information relevant to document flow proportioning of composite samples;

b. The dates and times the analyses were performed;

c. The person(s) who performed the analyses;

d. The analytical procedures or methods used; and

e. The results of all required analyses.

5. ADDITIONAL MONITORING BY PERMITTEE

If the permittee monitors required parameters at the locations designated in I.B. more frequently than required, the permittee shall analyze all samples using approved analytical methods specified in I.C.3. The results of this additional monitoring shall be included in calculating and reporting the values on the Discharge Monitoring Report forms. The permittee shall indicate the monitoring frequency on the report. The EPD may require in writing more frequent monitoring, or monitoring of other pollutants not specified in this permit.

6. RECORDS RETENTION

The permittee shall retain records of:

a. All laboratory analyses performed including sample data, quality control data, and standard curves;

b. Calibration and maintenance records of laboratory instruments;

c. Calibration and maintenance records and recordings from continuous recording instruments;

d. Process control monitoring records;

e. Facility operation and maintenance records;

f. Copies of all reports required by this permit;

g. All data and information used to complete the permit application; and

h. All monitoring data related to sludge use and disposal.

These records shall be kept for at least three years. Sludge handling records must be kept for at least five years. Either period may be extended by EPD written notification.

7. PENALTIES

Both the Federal and State Acts provide that any person who falsifies or tampers with any monitoring device or method required under this permit, or who makes any false statement, representation, or certification in any record submitted or required by this permit shall, if convicted, be punished by a fine or by imprisonment or by both. The Acts include procedures for imposing civil penalties for violations or for negligent or intentional failure or refusal to comply with any final or emergency order of the Director of the EPD.

8. WATERSHED PROTECTION PLAN

The permittee has a Watershed Protection Plan that has been approved by EPD. The permittee's approved Watershed Protection Plan shall be enforceable through this permit.

Each June 30th the permittee is to submit the following to EPD:

a. An annual certification statement documenting that the plan is being implemented as approved. The certification statement shall read as follows: "I certify, under penalty of law, that the Watershed Protection Plan is being implemented. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

b. All Watershed Plan data collected during the previous year in an electronic format. This data shall be archived using a digital format such as a spreadsheet developed in coordination with EPD. All archived records, data, and information pertaining to the Watershed Protection Plan shall be maintained permanently.

c. A progress report that provides a summary of the BMPs that have been implemented and documented water quality improvements. The progress report shall also include any necessary changes to the Watershed Protection Plan.

The report and other information shall be submitted to EPD at the address below:

Environmental Protection Division
Watershed Planning and Monitoring Program
2 Martin Luther King Jr. Drive SE
Suite 1152 East
Atlanta, Georgia 30334

9. CHRONIC WHOLE EFFLUENT TOXICITY (WET)

The permittee shall conduct one chronic whole effluent toxicity (WET) test for two consecutive quarters upon the effective date of the permit. The testing must be conducted in accordance with the most current U.S. Environmental Protection Agency (EPA) chronic aquatic toxicity testing manuals. The referenced document is entitled Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, U.S. EPA, 821-R-02-013, October 2002. Definitive tests must be run on the same samples concurrently using both an invertebrate species (i.e., *Ceriodaphnia dubia*) and a vertebrate species (i.e., *Pimephales promelas*). . The testing must include a dilution equal to the facility's instream wastewater concentrations (IWCs) of 14% and 25%.

EPD will evaluate the WET tests submitted to determine whether toxicity has been demonstrated. An effluent discharge will not be considered toxic if the No Observed Effect Concentration (NOEC) is greater than or equal to the Instream Wastewater Concentrations (IWCs) of 14% and 25%. The results of the tests shall be submitted to EPD with the permittee's monthly Discharge Monitoring Reports.

Within ten months of the effective date of the permit, the permittee shall submit a report to EPD that includes a summary of the effluent data collected as well as copies of all the analytical laboratory reports. The report shall be submitted to EPD at the address below:

Environmental Protection Division
Wastewater Regulatory Program
2 Martin Luther King Jr. Drive SE
Suite 1152 East
Atlanta, Georgia 30334

Upon receipt of the report, EPD will evaluate the results. If the test results indicate effluent toxicity, the permittee may be required to perform additional tests or studies in accordance with Part I.C.5 of the permit and/or the permit may be modified to include a chronic WET limit.

If the results of the quarterly tests do not indicate toxicity, then the permittee will only be required to conduct annual chronic Whole Effluent Toxicity (WET) tests as specified above for the remainder of the permit term. EPD will continue to evaluate the annual WET tests submitted to determine whether toxicity has been demonstrated. If the test results indicate effluent toxicity, the permittee may be required to perform additional tests or studies in accordance with Part I.C.5 of the permit and/or the permit may be modified to include a chronic WET limit.

D. REPORTING REQUIREMENTS

1. The permittee must electronically report the DMR, OMR and additional monitoring data using the web based electronic NetDMR reporting system, unless a waiver is granted by EPD.

   a. The permittee must comply with the Federal National Pollutant Discharge Elimination System Electronic Reporting regulations in 40 CFR §127. The permittee must electronically report the DMR, OMR, and additional monitoring data using the web based electronic NetDMR reporting system online at: https://netdmr.epa.gov/netdmr/public/home.htm

   b. Monitoring results obtained during the calendar month shall be summarized for each month and reported on the DMR. The results of each sampling event shall be reported on the OMR and submitted as an attachment to the DMR.

   c. The permittee shall submit the DMR, OMR and additional monitoring data no later than 11:59 p.m. on the 15th day of the month following the sampling period.

   d. All other reports required herein, unless otherwise stated, shall be submitted to the EPD Office listed on the permit issuance letter signed by the Director of EPD.

2. **No later than December 21, 2020**, the permittee must electronically report the following compliance monitoring data and reports using the online web based electronic system approved by EPD, unless a waiver is granted by EPD:

   a. Sewage Sludge/Biosolids Annual Program Reports provided that the permittee has an approved Sewage Sludge (Biosolids) Plan;

   b. Pretreatment Program Reports provided that the permittee has an approved Industrial Pretreatment Program in this permit;

   c. Sewer Overflow/Bypass Event Reports;

   d. Noncompliance Notification;

   e. Other noncompliance; and

   f. Bypass

3. OTHER REPORTS

   All other reports required in this permit not listed above in Part I.D.2 or unless otherwise stated, shall be submitted to the EPD Office listed on the permit issuance letter signed by the Director of EPD.

4. OTHER NONCOMPLIANCE

   All instances of noncompliance not reported under Part I.B. and Part II. A. shall be reported to EPD at the time the monitoring report is submitted.

5. SIGNATORY REQUIREMENTS

   All reports, certifications, data or information submitted in compliance with this permit or requested by EPD must be signed and certified as follows:

   a. Any State or NPDES Permit Application form submitted to the EPD shall be signed as follows in accordance with the Federal Regulations, 40 C.F.R. 122.22:

      1. For a corporation, by a responsible corporate officer. A responsible corporate officer means:

         i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision making functions for the corporation, or

ii. the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

3. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

b. All other reports or requests for information required by the permit issuing authority shall be signed by a person designated in (a) above or a duly authorized representative of such person, if:

1. The representative so authorized is responsible for the overall operation of the facility from which the discharge originates, e.g., a plant manager, superintendent or person of equivalent responsibility;

2. The authorization is made in writing by the person designated under (a) above; and

3. The written authorization is submitted to the Director.

c. Any changes in written authorization submitted to the permitting authority under (b) above which occur after the issuance of a permit shall be reported to the permitting authority by submitting a copy of a new written authorization which meets the requirements of (b) and (b.1) and (b.2) above.

d. Any person signing any document under (a) or (b) above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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."

PART II

A. MANAGEMENT REQUIREMENTS

1. PROPER OPERATION AND MAINTENANCE

The permittee shall properly maintain and operate efficiently all treatment or control facilities and related equipment installed or used by the permittee to achieve compliance with this permit. Efficient operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. Back-up or auxiliary facilities or similar systems shall be operated only when necessary to achieve permit compliance.

2. PLANNED CHANGE

Any anticipated facility expansions, or process modifications which will result in new, different, or increased discharges of pollutants requires the submission of a new NPDES permit application. If the changes will not violate the permit effluent limitations, the permittee may notify EPD without submitting an application. The permit may then be modified to specify and limit any pollutants not previously limited.

3. TWENTY-FOUR HOUR REPORTING

If, for any reason the permittee does not comply with, or will be unable to comply with any effluent limitations specified in the permittee's NPDES permit, the permittee shall provide EPD with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

a. A description of the noncompliance and its cause; and

b. The period of noncompliance, including the exact date and times; or, if not corrected, the anticipated time the noncompliance is expected to continue; and

c. The steps taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

4. ANTICIPATED NONCOMPLIANCE NOTIFICATION

The permittee shall give written notice to the EPD at least 10 days before:

a. Any planned changes in the permitted facility; or

b. Any activity which may result in noncompliance with the permit.

5. OTHER NONCOMPLIANCE

The permittee must report all instances of noncompliance not reported under other specific reporting requirements, at the time monitoring reports are submitted. The reports shall contain the information required under conditions of twenty-four hour reporting.

6. OPERATOR CERTIFICATION REQUIREMENTS

The person responsible for the daily operation of the facility must be a Class II Certified Operator in compliance with the Georgia State Board of Examiners for Certification of Water and Wastewater Plant Operators and Laboratory Analysts Act, as amended, and as specified by Subparagraph 391-3-6-.12 of the Rules and Regulations for Water Quality Control. All other operators must have the minimum certification required by this Act.

7. LABORATORY ANALYST CERTIFICATION REQUIREMENTS

Laboratory Analysts must be certified in compliance with the Georgia State Board of Examiners for Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended.

8. BYPASSING

Any diversion of wastewater from or bypassing of wastewater around the permitted treatment works is prohibited, except if:

a. Bypassing is unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There are no feasible alternatives to bypassing; and

c. The permittee notifies the EPD at least 10 days before the date of the bypass.

Feasible alternatives to bypassing include use of auxiliary treatment facilities and retention of untreated waste. The permittee must take all possible measures to prevent bypassing during routine preventative maintenance by installing adequate back-up equipment.

The permittee shall operate the facility and the sewer system to minimize discharge of pollutants from combined sewer overflows or bypasses and may be required by the EPD to submit a plan and schedule to reduce bypasses, overflows, and infiltration.

Any unplanned bypass must be reported following the requirements for noncompliance notification specified in II.A.3. The permittee may be liable for any water quality violations that occur as a result of bypassing the facility.

9. POWER FAILURES

If the primary source of power to this water pollution control facility is reduced or lost, the permittee shall use an alternative source of power to reduce or control all discharges to maintain permit compliance.

10. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge disposal which might adversely affect human health or the environment.

11. NOTICE CONCERNING ENDANGERING WATERS OF THE STATE

Whenever, because of an accident or otherwise, any toxic or taste and color producing substance, or any other substance which would endanger downstream users of the waters of the State or would damage property, is discharged into such waters, or is so placed that it might flow, be washed, or fall into them, it shall be the duty of the person in charge of such substances at the time to forthwith notify EPD in person or by telephone of the location and nature of the danger, and it shall be such person's further duty to immediately take all reasonable and necessary steps to prevent injury to property and downstream users of said water.

Spills and Major Spills:

A "spill" is any discharge of raw sewage by a Publicly Owned Treatment Works (POTW) to the waters of the State.

A "major spill" means:

1. The discharge of pollutants into waters of the State by a POTW that exceeds the weekly average permitted effluent limit for biochemical oxygen demand (5-day) or total suspended solids by 50 percent or greater in one day, provided that the effluent discharge concentration is equal to or greater than 25 mg/L for biochemical oxygen demand or total suspended solids.

2. Any discharge of raw sewage that 1) exceeds 10,000 gallons or 2) results in water quality violations in the waters of the State.

"Consistently exceeding effluent limitation" means a POTW exceeding the 30 day average limit for biochemical oxygen demand or total suspended solids for at least five days out of each seven day period during a total period of 180 consecutive days.

The following specific requirements shall apply to POTW's. If a spill or major spill occurs, the owner of a POTW shall immediately:

a. Notify EPD, in person or by telephone, when a spill or major spill occurs in the system.

b. Report the incident to the local health department(s) for the area affected by the incident.

The report at a minimum shall include the following:

1. Date of the spill or major spill;
2. Location and cause of the spill or major spill;
3. Estimated volume discharged and name of receiving waters; and
4. Corrective action taken to mitigate or reduce the adverse effects of the spill or major spill.

c. Post a notice as close as possible to where the spill or major spill occurred and where the spill entered State waters and also post additional notices along portions of the waterway affected by the incident (i.e. bridge crossings, boat ramps, recreational areas, and other points of public access to the affected waterway). The notice at a minimum shall include the same information required in 11(b)(1-4) above. These notices shall remain in place for a minimum of seven days after the spill or major spill has ceased.

d. Within 24 hours of becoming aware of a spill or major spill, the owner of a POTW shall report the incident to the local media (television, radio, and print media). The report shall include the same information required in 11(b)(1-4) above.

e. Within 5 days (of the date of the spill or major spill), the owner of a POTW shall submit to EPD a written report which includes the same information required in 11(b)(1-4) above.

f. Within 7 days (after the date of a major spill), the owner of a POTW responsible for the major spill, shall publish a notice in the largest legal organ of the County where the incident occurred. The notice shall include the same information required in 11(b)(1-4) above.

g. The owner of a POTW shall immediately establish a monitoring program of the receiving waters affected by a major spill or by consistently exceeding an effluent limit, with such monitoring being at the expense of the POTW for at least one year. The monitoring program shall include an upstream sampling point as well as sufficient downstream locations to accurately characterize the impact of the major spill or the consistent exceedence of effluent limitations described in the definition of " Consistently exceeding effluent limitation" above. As a minimum, the following parameters shall be monitored in the receiving stream:

1. Dissolved Oxygen;
2. Fecal Coliform Bacteria;
3. pH;
4. Temperature; and
5. Other parameters required by the EPD.

The monitoring and reporting frequency as well as the need to monitor additional parameters, will be determined by EPD. The results of the monitoring will be provided by the POTW owner to EPD and all downstream public agencies using the affected waters as a source of a public water supply.

h. Within 24 hours of becoming aware of a major spill, the owner of a POTW shall provide notice of a major spill to every county, municipality, or other public agency whose public water supply is within a distance of 20 miles downstream and to any others which could be potentially affected by the major spill.

12. UPSET PROVISION

Provision under 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

B. RESPONSIBILITIES

1. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance is a violation of the Federal Clean Water Act, State Act, and the State Rules, and is grounds for:

a. Enforcement action;

b. Permit termination, revocation and reissuance, or modification; or

c. Denial of a permit renewal application.

2. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense of the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit.

3. INSPECTION AND ENTRY

The permittee shall allow the Director of the EPD, the Regional Administrator of EPA, and their authorized representatives, agents, or employees after they present credentials to:

a. Enter the permittee's premises where a regulated activity or facility is located, or where any records required by this permit are kept;

b. Review and copy any records required by this permit;

c. Inspect any facilities, equipment, practices, or operations regulated or required by this permit; and

d. Sample any substance or parameter at any location.

4. DUTY TO PROVIDE INFORMATION

The permittee shall furnish any information required by the EPD to determine whether cause exists to modify, revoke and reissue, or terminate this permit or to determine compliance with this permit. The permittee shall also furnish the EPD with requested copies of records required by this permit.

5. TRANSFER OF OWNERSHIP

A permit may be transferred to another person by a permittee if:

a. The permittee notifies the Director in writing at least 30 days in advance of the proposed transfer

b. An agreement is written containing a specific date for transfer of permit responsibility including acknowledgment that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on. This agreement must be submitted to the Director at least 30 days in advance of the proposed transfer; and

c. The Director does not notify the current permittee and the new permittee within 30 days of EPD intent to modify, revoke and reissue, or terminate the permit. The Director may require that a new application be filed instead of agreeing to the transfer of the permit.

6. AVAILABILITY OF REPORTS

Except for data determined to be confidential by the Director of EPD under O.C.G.A. 12-5-26 or by the Regional Administrator of EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared to comply with this permit shall be available for public inspection at an EPD office. Effluent data, permit applications, permittees' names and addresses, and permits shall not be considered confidential.

7. PERMIT ACTIONS

This permit may be modified, terminated, or revoked and reissued in whole or in part during its term for causes including, but not limited to:

a. Permit violations;

b. Obtaining this permit by misrepresentation or by failure to disclose all relevant facts;

c. Changing any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

d. Changes in effluent characteristics; and

e. Violations of water quality standards.

The filing of a request by the permittee for permit modification, termination, revocation and reissuance, or notification of planned changes or anticipated noncompliance does not negate any permit condition.

8. CIVIL AND CRIMINAL LIABILITY

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

9. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights of either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, or any infringement of Federal, State or local laws or regulations.

10. DUTY TO REAPPLY

The permittee shall submit an application for permit reissuance at least 180 days before the expiration date of this permit. The permittee shall not discharge after the permit expiration date. To receive authorization to discharge beyond the expiration date, the permittee shall submit the information, forms, and fees required by the EPD no later than 180 days before the expiration date.

11. CONTESTED HEARINGS

Any person aggrieved or adversely affected by any action of the Director of the EPD shall petition the Director for a hearing within 30 days of notice of the action.

12. SEVERABILITY

The provisions of this permit are severable. If any permit provision or the application of any permit provision to any circumstance is held invalid, the provision does not affect other circumstances or the remainder of this permit.

13. OTHER INFORMATION

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report form to the Director, it shall promptly submit such facts or information.

14. PREVIOUS PERMITS

All previous State wastewater permits issued to this facility, whether for construction or operation, are hereby revoked on the effective date of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

PART III

INDUSTRIAL PRETREATMENT PROGRAM FOR PUBLICLY OWNED TREATMENT WORKS (POTW)

1. The permittee may establish and operate an approved industrial pretreatment program.

2. If the EPD determines that the permittee is required to develop a local industrial pretreatment program, the permittee will be notified in writing. The permittee shall immediately begin development of an industrial pretreatment program and shall submit it to the EPD for approval no later than one year after the notification.

3. During the interim period between determination that a program is needed and approval of the program, all industrial pretreatment permits shall be issued by the EPD.

4. The permittee shall notify the EPD of all industrial users connected to the system or proposing to connect to the system from the date of issuance of this permit.

5. Implementation of the Pretreatment Program developed by the State can be delegated to the permittee following the fulfillment of requirements detailed in 391-3-6-.09 of the Rules and Regulations for Water Quality Control.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

The Georgia Environmental Protection Division proposes to issue an NPDES permit to the applicant identified below. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the State.

Technical Contact:

Kelli-Ann Sottile, Environmental Engineer
Kelli-ann.sottile@dnr.ga.gov
404-463-4945

Draft permit:

- ☐ First issuance
- ☐ Reissuance with no or minor modifications from previous permit
- ☒ Reissuance with substantial modifications from previous permit
- ☐ Modification of existing permit
- ☒ Requires EPA review

1. FACILITY INFORMATION

1.1 NPDES Permit No.: GA0024911

1.2 Name and Address of Owner/Applicant

City of Adel
Post Office Box 1530
Adel, Georgia 31620

1.3 Name and Address of Facility

Adel Water Pollution Control Plant
1325 Honeymoon Lane
Adel, Georgia 31620

1.4 Location and Description of the Discharge (as reported by applicant)

Outfall #	Latitude (°)	Longitude (°)	Receiving Waterbody
001	31.119397	-83.387618	Bear Creek

1.5 Permitted Design Capacity

Discharge to Bear Creek:

The discharge to Bear Creek is limited by a stream to effluent flow ratio of 6:1 from June through November and 3:1 from December through May. This is equivalent to an instream wastewater concentration limitation of 14% and 25% respectively.

The permit also includes a daily maximum flow limitation of 4.3 MGD.

Land Application:

Since effluent can be stored or discharged, the allowable flow from the pretreatment facility (aerated/polishing pond) to the land application site is governed by the capacity of the sprayfields (2.5 MGD). Refer to section 5.2 for sprayfield calculations.

1.6 SIC Code and Description

SIC Code 4952 – Sewerage systems: Establishments primarily engaged in the collection and disposal of wastes conducted through a sewer system, including such treatment processes as may be provided.

1.7 Description of the Water Pollution Control Plant

Wastewater treatment:

The treatment process consists of coarse screening, an aerated lagoon, and holding/stabilization pond. Treated effluent can be either discharged to Bear Creek following chlorine disinfection or land applied onto a dedicated site.

Solids processing:

Solids settle and stabilize at the bottom of the ponds. Ponds are dredged and dewatered sludge sent to a permitted landfill as needed.

1.8 Type of Wastewater Discharge

☐	Process wastewater	☐	Stormwater
☒	Domestic wastewater	☐	Combined (Describe)
☐	Other (Describe)		

1.9 Characterization of Effluent Discharge (as reported by applicant) to Surface Water

Outfall No. 001:

Effluent Characteristics (as Reported by Applicant)	Maximum Daily Value	Average Daily Value
Flow (MGD)	5.0	2.5
Five-Day Biochemical Oxygen Demand (mg/L)	55	29
Total Suspended Solids (mg/L)	110	42
Fecal Coliform Bacteria (#/100mL)	153	20
Ammonia, as N (mg/L)	6.1	2.2
Total Phosphorus, as P (mg/L)	1.3	0.6

2. APPLICABLE REGULATIONS

2.1 State Regulations

Chapter 391-3-6 of the Georgia Rules and Regulations for Water Quality Control

2.2 Federal Regulations

Source	Activity	Applicable Regulation
Municipal	Municipal Effluent Discharge	40 CFR 122 40 CFR 125 40 CFR 133
	Non-Process Water Discharges	40 CFR 122 40 CFR 125
	Municipal Sludge Use and Disposal	40 CFR 122 40 CFR 257 40 CFR 501 & 503

3. WATER QUALITY STANDARDS & RECEIVING WATERBODY INFORMATION

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. Federal Regulations 40 CFR 122.4(d) require that conditions in NPDES permits ensure compliance with the water quality standards which are composed of use classifications, numeric and or narrative water quality criteria and an anti-degradation policy. The use classification system designates the beneficial uses that each waterbody is expected to achieve, such as drinking water, fishing, or recreation. The numeric and narrative water quality criteria are deemed necessary to support the beneficial use classification for each water body. The antidegradation policy represents an approach to maintain and to protect various levels of water quality and uses.

3.1 Receiving Waterbody Classification and Information – Bear Creek:

Specific Water Quality Criteria for Classified Water Usage [391-3-6-.03(6)]:

Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or for any other use requiring water of a lower quality.

(i) Dissolved Oxygen: A daily average of 6.0 mg/L and no less than 5.0 mg/L at all times for water designated as trout streams by the Wildlife Resources Division. A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times for waters supporting warm water species of fish.

(ii) pH: Within the range of 6.0 - 8.5.

(iii) Bacteria:

1. For the months of May through October, when water contact recreation activities are expected to occur, fecal coliform not to exceed a geometric mean of 200 per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. Should water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200/100 mL (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 per 100 mL in lakes and reservoirs and 500 per 100 mL in free flowing freshwater streams. For the months of November through April, fecal coliform not to exceed a geometric mean of 1,000 per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours and not to exceed a maximum of 4,000 per 100 mL for any sample. The State does not encourage swimming in these surface waters since a number of factors which are beyond the control of any State regulatory agency contribute to elevated levels of bacteria.

2. For waters designated as shellfish growing areas by the Georgia DNR Coastal Resources Division, the requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program. The requirements are found in National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish, 2007 Revision (or most recent version), Interstate Shellfish Sanitation Conference, U.S. Food and Drug Administration.

(iv) Temperature: Not to exceed 90°F. At no time is the temperature of the receiving waters to be increased more than 5°F above intake temperature except that in estuarine waters the increase will not be more than 1.5°F. In streams designated as primary trout or smallmouth bass waters by the Wildlife Resources Division, there shall be no elevation of natural stream temperatures. In streams designated as secondary trout waters, there shall be no elevation exceeding 2°F natural stream temperatures.

3.2 Ambient Information

Outfall ID	7Q10 (cfs)	1Q10 (cfs)	Annual Average Flow (cfs)	Hardness (mg $CaCO_3$/L)	Upstream Total Suspended Solids (mg/L)
001	0.15	0.13	18	25 (1)	10 (2)

(1) A conservative value of 25 mg/L will be used for the reasonable potential analysis calculations.

(2) A conservative value of 10 mg/L will be used for the reasonable potential analysis calculations.

3.3 Georgia 305(b)/303(d) List Documents

Bear Creek	City of Adel Lake to Withlacoochee River	Suwannee	Not Supporting	FC	4	4a	TMDLs completed FC (2006) & 2006), DO (2001).
GAH03102090404	Cook	Fishing	20	M	Miles		

Bear Creek is listed on the 2018 305(b)/303(d) list as not supporting its designated use (fishing) but TMDLs have been completed for the impacted parameters (fecal coliform bacteria and dissolved oxygen).

3.4 Total Maximum Daily Loads (TMDLs)

A TMDL evaluation for 15 stream segments in the Suwannee River Basin for fecal coliform was completed in 2006. The TMDL recommended that all municipal treatment facilities with the potential for the occurrence of fecal coliform in their discharge will be given end of pipe limits equivalent to the water quality standard of 200 counts/100 ml or less. The fecal coliform bacteria limits in the draft permit are in accordance with the TMDL requirements.

A TMDL evaluation for the Suwannee River Basin for dissolved oxygen was completed in 2001. The TMDL does not have a recommendation in load reductions for oxygen demanding substances for point sources discharging to Bear Creek.

3.5 Wasteload Allocation (WLA)

WLAs for reissuance was issued on November 9, 2017. Refer to *Appendix A* of the Fact Sheet for a copy of the WLAs.

4. LIMITATIONS AND PERMIT CONDITIONS FOR SURFACE WATER DISCHARGE

4.1 Reasonable Potential Analysis (RP)

Title 40 of the Federal Code of Regulations, 40 CFR 122.44(d) requires delegated States to develop procedures for determining whether a discharge causes, has the reasonable potential to cause, or contributes to an instream excursion above a narrative or numeric criteria within a State water. If such reasonable potential is determined to exist, the

NPDES permit must contain pollutant effluent limits and/or effluent limits for whole effluent toxicity. Georgia's Reasonable Potential Procedures are based on Georgia's Rules and Regulations for Water Quality Control (Rules), Chapter 391-3-6-.06(4)(d)5. The chemical specific and biomonitoring data and other pertinent information in EPD's files will be considered in accordance with the review procedures specified in the Rules in the evaluation of a permit application and in the evaluation of the reasonable potential for an effluent to cause an exceedance in the numeric or narrative criteria.

Refer to Section 4.2 for reasonable potential analysis on effluent toxicity.

Refer to Section 4.6 for reasonable potential analysis on toxic and manmade pollutants.

4.2 Whole Effluent Toxicity (WET)

Chronic WET test measures the effect of wastewater on indicator organisms' growth, reproduction and survival. Effluent toxicity is predicted when the No Observable Effect Concentrations (NOEC) for a test organism is less than the facility's Instream Wastewater Concentration (IWC). WET testing also requires a measure of test sensitivity known as the Percent Minimum Significant Difference (PMSD). See Table below from Section 10.2.8.3 (page 52) of EPA 821-R-02-013 *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, 4th Edition, 2002 for PMSD variability criteria.

TABLE 6. VARIABILITY CRITERIA (UPPER AND LOWER PMSD BOUNDS) FOR SUBLETHAL HYPOTHESIS TESTING ENDPOINTS SUBMITTED UNDER NPDES PERMITS.[1]

Test Method	Endpoint	Lower PMSD Bound	Upper PMSD Bound
Method 1000.0, Fathead Minnow Larval Survival and Growth Test	growth	12	30
Method 1002.0, *Ceriodaphnia dubia* Survival and Reproduction Test	reproduction	13	47
Method 1003.0, *Selenastrum capricornutum* Growth Test	growth	9.1	29

[1] Lower and upper PMSD bounds were determined from the 10th and 90th percentile, respectively, of PMSD data from EPA's WET Interlaboratory Variability Study (USEPA, 2001a; USEPA, 2001b).

PMSD must be calculated for each species tested as follows:

$$MSD = \frac{\text{MinimumSignificant Data (MSD)}}{\text{ControlMean}} \times 100 \quad \%$$

The effluent from the Adel WPCP will not be considered toxic if the No Observed Effect Concentration (NOEC) is greater than or equal to the Instream Wastewater Concentrations (IWCs) of 14% and 25%. If results of the WET tests predict toxicity or are invalid, then the permittee may be required to perform additional WET tests or the permit may be modified to include chronic WET effluent limitations.

The permittee submitted the results of 6 WET tests with the application. For 2014-2016 and 2018-2019 tests, the NOEC for *Ceriodaphnia dubia* survival and reproduction and *Pimephales promelas* survival and growth was greater than the IWCs of 14% and 25%. However, the 2017 test results indicate toxicity to the *Pimephales promelas* for growth. Refer to WET Test results summary in the table below.

PMSD values were calculated for each set of results and compared to EPA's Variability Criteria to ensure their validity. PMSD for *Ceriodaphnia dubia* reproduction and *Pimephales promelas* survival from the five WET tests were lower or within EPA's Variability Criteria; therefore, the tests are considered valid. Refer to Appendix C for PSMD values.

Test	Sample Date	No Observed Effect Concentration (NOEC)			
		Ceriodaphnia dubia		*Pimephales promelas*	
		Survival (%)	Reproduction (%)	Survival (%)	Growth (%)
1	2014	100	100	100	100
2	2015	100	25	100	100
3	2016	100	100	100	100
4	2017	100	100	100	<6.25
5	2018	100	100	100	100
6	2019[1]	50	50	50	50

[1] The highest instream wastewater concentration evaluated in this test was 50%.

Since effluent toxicity in the 2017 test results was only exhibited for growth in the *Pimephales promelas* and not for survival of the species or in the results for *Ceriodaphnia dubia*, evidence suggests that there may have been interference in the test, which resulted in an unexpected reduction in growth. Additionally, the facility has passed two subsequent WET tests (2018-2019) for both species. A WET limitation, therefore, has not been included in the permit.

EPD is including requirements for two quarterly chronic WET tests to be conducted following permit issuance to confirm a WET limit is not required. The permit also requires annual chronic WET tests thereafter, if toxicity has not been demonstrated.

EPD will evaluate the WET tests submitted to determine whether toxicity has been demonstrated. If the test results indicate effluent toxicity, the permittee may be required to perform additional WET tests or studies in accordance with Part I.C.5 of the permit and/or the permit may be modified to include a chronic WET limit.

4.3 Applicable Water Quality Based Effluent Limitations (WQBELs)

When drafting a National Pollutant Discharge Elimination System (NPDES) permit, a permit writer must consider the impact of the proposed discharge on the quality of the receiving water. Water quality goals for a waterbody are defined by state water quality standards. By analyzing the effect of a discharge on the receiving water, a permit writer could find that technology-based effluent limitations (TBELs) alone will not achieve the applicable water quality standards. In such cases, the Clean Water Act (CWA) and its implementing regulations require development of water quality-based effluent limitations (WQBELs). WQBELs help meet the CWA objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters and the goal of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (*fishable/swimmable*).

WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water and downstream uses are protected. On the basis of the requirements of Title 40 of the *Code of Federal Regulations* (CFR) 125.3(a), additional or more stringent effluent limitations and conditions, such as WQBELs, are imposed when TBELs are not sufficient to protect water quality.

The term *pollutant* is defined in CWA section 502(6) and § 122.2. Pollutants are grouped into three categories under the NPDES program: conventional, toxic, and nonconventional. Conventional pollutants are those defined in CWA section 304(a)(4) and § 401.16 (BOD_5, TSS, fecal coliform, pH, and oil and grease). Toxic (priority) pollutants are those defined in CWA section 307(a)(1) and include 126 metals and manmade organic compounds. Nonconventional pollutants are those that do not fall under either of the above categories (conventional or toxic pollutants) and include parameters such as chlorine, ammonia, nitrogen, phosphorus, chemical oxygen demand (COD), and whole effluent toxicity (WET).

4.4 Conventional Pollutants

Pollutants of Concern	Basis
pH	The instream wastewater concentration (IWC) is 14% from June to November and 25% from December to May. When the IWC is less than 50%, there is no reasonable potential to cause or contribute to violation of the instream Georgia Water Quality Standard; therefore, pH limits of 6.0-9.0 SU (daily minimum-daily maximum) were included in the draft permit.
Five-Day Biochemical Oxygen Demand (BOD_5)	According to the steady-state dissolved oxygen Georgia DOSAG model, a monthly average BOD_5 limit of 30 mg/L, when combined with the ammonia limit (refer to Section 4.5 below), is protective of the instream Water Quality Standard for dissolved oxygen described in Section 3.1 above. Refer to the WLA in *Appendix A* for model inputs. Since the facility discharges a variable flow based on a fixed maximum ratio to the flow of the receiving stream, it is infeasible to express a mass-based limitation that is representative of the operation of the facility. Therefore, in accordance with 40 CFR 122.45(f)(1)(iii), effluent loading limitations for BOD_5 have been removed from the permit. Refer to Section 6.8.
Total Suspended Solids (TSS)	The monthly average TSS limit of 90 mg/L is in accordance with technology-based effluent limitations for ponds (i.e., adjusted secondary standards). Since the facility discharges a variable flow based on a fixed maximum ratio to the flow of the receiving stream, it is infeasible to express a mass-based limitation that is representative of the operation of the facility. Therefore, in accordance with 40 CFR 122.45(f)(1)(iii), effluent loading limitations for TSS have been removed from the permit. Refer to Section 6.8.
Fecal Coliform Bacteria (FCB)	The monthly average FCB limit of 200 #/100mL is in accordance with the instream Water Quality Standards in Section 3.1 above / TMDL requirements in Section 3.4 above.

4.5 Nonconventional Pollutants

Pollutants of Concern	Basis
Total Residual Chlorine (TRC)	Chlorine is used for disinfection. A daily maximum TRC limit of 0.04 mg/L has been determined using the US EPA's chronic TRC criterion of 11 µg/L in the receiving stream after dilution. Refer to Section 4.7 below for calculations.
Dissolved Oxygen (DO)	According to the steady-state dissolved oxygen Georgia DOSAG model, a minimum effluent DO of 2.0 mg/L is protective of the instream Water Quality Standard for dissolved oxygen described in Section 3.1 above.
Total Phosphorus (TP)	Total phosphorus monitoring has been included in the draft permit in accordance with EPD's *Strategy for Addressing Phosphorus in NPDES Permitting*, 2011.
Orthophosphate, Total Kjeldahl Nitrogen (TKN), Organic Nitrogen, Nitrate-Nitrite	Orthophosphate, TKN, organic nitrogen, and nitrate-nitrite monitoring has been included in the draft permit. The data will be used to determine nutrient speciation and to quantify nutrient loadings in the Suwannee River Basin.
Ammonia (NH_3)	The monthly average ammonia limit was decreased from 16.8 mg/L to 10.0 mg/L in accordance with EPD's *NPDES Permitting Strategy for Addressing Ammonia Toxicity*, 2017. A review of Discharge Monitoring Report data indicates that the facility can meet the proposed limit without process modification; therefore, a compliance schedule was not included in the draft permit. According to the steady-state dissolved oxygen Georgia DOSAG model, the proposed monthly average ammonia limit of 10.0 mg/L, when combined with the BOD_5 and dissolved oxygen limit (Refer to Section 4.4 above), is also protective of the instream Water Quality Standard for dissolved oxygen described in Section 3.1 above. Since the facility discharges a variable flow based on a fixed maximum ratio to the flow of the receiving stream, it is infeasible to express a mass-based limitation that is representative of the operation of the facility. Therefore, in accordance with 40 CFR 122.45(f)(1)(iii), effluent loading limitations for ammonia have been removed from the permit. Refer to Section 6.8.

4.6 Toxics & Manmade Organic Compounds

The permittee submitted the results of three Priority Pollutant Scans (PPS) with the permit application. The permittee also conducted three scans for total recoverable mercury in accordance with the permit. All pollutants were "non-detect" except for the following:

Pollutants of Concern	Basis
Total Recoverable Copper	This parameter was evaluated and its instream concentration was found to be less than 50% of the acute and chronic instream water quality standards. Refer to *Appendix B* of the Fact Sheet for reasonable potential evaluations. In accordance with EPD reasonable potential procedures, copper is not considered a pollutant of concern and additional monitoring is not required.
Total Recoverable Mercury	This parameter was evaluated and its instream concentration was found to be less than 50% of the acute and chronic instream water quality standards. Refer to *Appendix B* of the Fact Sheet for reasonable potential evaluations. In accordance with EPD reasonable potential procedures, mercury is not considered a pollutant of concern and effluent monitoring has been removed from the draft permit.
Total Recoverable Nickel	This parameter was evaluated and its instream concentration was found to be less than 50% of the acute and chronic instream water quality standards. Refer to *Appendix B* of the Fact Sheet for reasonable potential evaluations. In accordance with EPD reasonable potential procedures, nickel is not considered a pollutant of concern and additional monitoring is not required.
Total Recoverable Zinc	This parameter was evaluated and its instream concentration was found to be less than 50% of the acute and chronic instream water quality standards. Refer to *Appendix B* of the Fact Sheet for reasonable potential evaluations. In accordance with EPD reasonable potential procedures, zinc is not considered a pollutant of concern and additional monitoring is not required.

4.7 Calculations for Effluent Limits

4.7.1 Instream Waste Concentration (IWC):

Q = Flow
C = Concentration
M = Mass

$$IWC = \frac{Q_{Effluent}\ (ft^3/sec)}{Q_{Effluent}\ (ft^3/sec) + 7Q10\ (ft^3/sec)}\ \%$$

For June through November, the stream to effluent flow ratio is 6 to 1:

$$= \frac{1}{1+6} = 14\ \%$$

For December through May, the stream to effluent flow ratio is 3 to 1:

$$= \frac{1}{1+3} = 25\ \%$$

4.7.3 Five-Day Biochemical Oxygen Demand:

- *Weekly Average Concentration:*

$[C]_{Weekly} = [C]_{Monthly}\ (mg/L) \times 1.5$

$= 30 \times 1.5$

$= 45\ mg/L$

4.7.4 Total Suspended Solids:

- *Weekly Average Concentration:*

$[C]_{Weekly} = [C]_{Monthly}\ (mg/L) \times 1.33$

$= 90 \times 1.33$

$= 120\ mg/L$

4.7.5 Fecal Coliform Bacteria:

- *Weekly Average Concentration:*

$C_{Weekly} = C_{Monthly}\ (\#/100\ mL) \times 2$

$= 200 \times 2$

$= 400\ \#/100\ mL$

4.7.6. Total Residual Chlorine (TRC):

- *Daily Maximum Concentration:*

$$[TRC]_{Effluent} = \frac{[Q_{Effluent}\ (ft^3/sec) + 7Q10\ (ft^3/sec)] \times [TRC]_{Stream}\ (mg/L)}{Q_{Effluent}\ (ft^3/sec)}$$

$$= \frac{0.011}{0.25}$$

$$= 0.04\ mg/L$$

4.7.7 Ammonia:

- *Toxicity Analysis:*

The chronic criterion based on *Villosa iris* (rainbow mussel) is determined as follows:

$$CCC = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) \times 2.126 \times 10^{0.028 \times (20-MAX(T,7))}\ mg/L$$

Where: pH : pH of receiving stream and discharge
T : Temperature of receiving stream
CCC : Chronic Continuous Concentration

The ammonia effluent limit (monthly average) is then calculated as follows:

$$[NH_3]_{Effluent} = \frac{\left(Q_{Effluent}\ (ft^3/sec) + 30Q3\ (ft^3/sec)\right) \times CCC\ (mg/L) - 30Q3\ (ft^3/sec) \times [NH_3]_{Stream\ Background}\ (mg/L)}{Q_{Effluent}\ (ft^3/sec)}$$

Refer to *Appendix C* for detailed calculations.

- *Weekly Average Concentration:*

$$[C]_{Weekly} = [C]_{Monthly}\ (mg/L) \times 1.5$$

$$= 10.0 \times 1.5$$

$$= 15.0\ mg/L$$

4.7.8 Metals

Not applicable.

4.8 Applicable Technology Based Effluent Limits (TBELS)

Technology-based effluent limitations aim to prevent pollution by requiring a minimum level of effluent quality that is attainable using demonstrated technologies for reducing discharges of pollutants or pollution into the waters of the United States. TBELs are developed independently of the potential impact of a discharge on the receiving water, which is addressed through water quality standards and water quality-based effluent limitations. The NPDES regulations at Title 40 of the Code of Federal Regulations 125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA section 301(b), that represent the minimum level of control that must be imposed in a permit. The regulation also indicates that permit writers must include in permits additional or more stringent effluent limitations and conditions, including those necessary to protect water quality.

For pollutants not specifically regulated by Federal Effluent Limit Guidelines, the permit writer must identify any needed Technology-based effluent limitations and utilizes best professional judgment to establish technology-based limits or determine other appropriate means to control its discharge.

40 CFR Part §122.44(a)(1) requires that NPDES permits include applicable technology-based limitations and standards, while regulations at § 125.3(a)(1) state that TBELs for publicly owned treatment works must be based on secondary treatment standards and the "equivalent to secondary treatment standards" (40 CFR Part 133). The regulation applies to all POTWs and identifies the technology-based performance standards achievable based on secondary treatment for five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

The table below shows the secondary treatment standards for ponds:

Parameter	**Secondary Treatment Standards**	
	30-day Average	*7-day Average*
BOD_5	30 mg/L	45 mg/L
TSS [(1)]	90 mg/L	--
BOD_5 removal (concentration)	≥ 65%	--
pH (Daily Minimum – Daily Maximum)	6.0-9.0 S.U.	

[(1)] Adjusted secondary standard for ponds in accordance with Federal Register, Volume 49, Number 184, page 37005, September 20, 1984

4.9 Comparison & Summary of Water Quality vs. Technology Based Effluent Limits

After determining applicable technology-based effluent limitations and water quality-based effluent limitations, the most stringent limits are applied in the permit:

Parameter	WQBELS [1]	TBELS [1]
	Monthly Average	*Monthly Average*
Five-Day Biochemical Oxygen Demand (mg/L)	**30.0**	30.0
Total Suspended Solids (mg/L)	None	**90**
Ammonia (mg/L)	**10.0**	None
Fecal Coliform Bacteria (#/100 mL)	**200**	None
Dissolved Oxygen (mg/L), Daily Minimum	**2.0**	None
Total Residual Chlorine (mg/L), Daily Maximum	**0.04**	None
pH (S.U.), Daily Minimum – Daily Maximum	**6.0-9.0**	6.0-9.0

[1] Effluent limits in bold were included in the permit. Refer to Sections 4.5, 4.6, 4.7, and 4.8 above for more information.

5. LIMITATIONS AND PERMIT CONDITIONS FOR LAND TREATMENT SYSTEM

5.1 Pretreatment Limitations and Monitoring

5.1.1 BOD, TSS, and pH Limitations:

BOD: 50 mg/L; TSS: 90 mg/L; pH: 6.0 – 10.0

The proposed BOD and TSS limits in the draft permit are in accordance with EPD guidelines for land application of wastewater.

The proposed pH limits in the draft permit have been maintained from the current permit.

5.1.2 Nitrogen Loading:

Monthly monitoring for nitrate and total Kjeldahl nitrogen for the pond effluent has been included in the draft permit to quantify nitrogen loading to the sprayfield and verify design assumptions.

5.2 Application Rate and Wetted Area

Treated effluent is disposed of via spray irrigation:

Wetted area: 280 acres

Application rate: 2.3 in/week

The wetted area and the application rate in the draft permit are in accordance with the current permit.

The maximum allowable flow to the spray field is as follows:

$$\text{Site capacity} = \frac{A_{Site}\ (\text{acres}) \times \text{WLR (in/week)} \times 43{,}560\ \text{ft}^2/\text{acre} \times 7.48\ \text{gal/ft}^3}{12\ \text{in/ft}}\ \text{gal/week}$$

$$= \frac{280 \times 2.3 \times 43{,}560 \times 7.48}{12}$$

= 17,500,000 gal/week maximum or 2.5 MGD (7-day average)

5.3 Groundwater Monitoring Requirements

The intent of monitoring is to determine the influence of the land treatment system on the quality of the groundwater. Groundwater leaving the spray field boundaries must meet drinking water maximum contaminant levels (MCLs).

In accordance with EPD requirements for all municipal LAS facilities, groundwater will be monitored for the following parameters:

Parameter (units)
Depth to Groundwater (feet)
Nitrate, as N (mg/L)
pH (standard units)
Specific Conductivity (µmhos/cm)
Fecal Coliform Bacteria (# col/100mL)

Based on the application submitted, it has been determined that monitoring for additional parameters is not required at this time.

5.4 Soil Monitoring Requirements

The intent of monitoring is to determine the influence of the treated wastewater on the soil chemistry/composition. It will also aid the permittee with operation and maintenance of the land treatment system.

In accordance with EPD requirements for all municipal LAS facilities, requirements to conduct soil fertility tests, as well as Cation Exchange Capacity and Percent Base Saturation analysis (depending on pH results), have been included in the draft permit.

Based on the application submitted, it has been determined that monitoring for additional parameters is not required at this time.

5.5 Surface Water Monitoring Requirements

The intent of monitoring is to determine if the facility has an impact on perennial surface water adjacent to or traversing the sprayfields by comparing results from upstream and downstream samples.

Surface water, if present, will be monitored for the following parameters:

Parameter (units)
Nitrate, as N (mg/L)
Five-Day Biochemical Oxygen Demand (mg/L)
Specific Conductivity (µmho/cm)
pH (standard unit)
Total Kjeldahl Nitrogen (mg/L)
Temperature (°C)
Dissolved Oxygen (mg/L)

There are no surface waters within 300 feet of the sprayfield identified in the Design Development Report and permit application.

6. OTHER PERMIT REQUIREMENTS AND CONSIDERATIONS

6.1 Long-Term BOD (LTBOD) Test

For facilities with a capacity of 1.0 MGD or greater, EPD may include requirements for LTBOD tests in permits for when data is needed for water quality modeling. The permittee conducted a LTBOD test during the current permit cycle; therefore, requirements for LTBOD testing have not been included in the draft permit.

6.2 Hydrograph Controlled Release (HCR) Discharges

The City of Adel is equipped with an HCR Controller, which allows the facility to discharge a variable flow continuously proportional to the stream flow. Therefore, flow limitations are based on a maximum effluent to stream ratio (or instream wastewater concentration), in addition to a daily maximum limitation of 4.3 MGD based on the design flow of the facility. All other limitations are expressed as monthly average and weekly average in accordance with 40 CFR 122.45 requirements for POTWs.

40 CFR 122.45(f)(1)(iii) also states that facilities may be exempt from mass-based limitations if the loading cannot be related to the measure of operation of the facility. Since the facility discharges at variable flows based on daily stream condition fluctuations, the calculation for mass-based loadings is not representative of the monthly/weekly loads to the stream. According to water quality modeling, the concentration-based limits are protective of water quality standards provided the maximum instream wastewater concentration is continuously maintained. Therefore, mass-based limitations have not been included in the permit (refer to Section 6.8 below).

6.3 Industrial Pre-treatment Program (IPP)

The City does not have an approved IPP; therefore, language for establishing an IPP, if necessary, has been included in the draft permit.

6.4 Sludge Management Plan (SMP)

Sludge is disposed of in a landfill; therefore, a SMP is not required.

6.5 Watershed Protection Plan (WPP)

The City has an approved Watershed Protection Plan; therefor, language reflecting the approved plan has been included in the permit.

6.6 Service Delivery Strategy

The City of Adel is in compliance with the Department of Community Affairs approved Service Delivery Strategy for Cook County.

6.7 Compliance Schedules

Effluent limitations are applicable immediately upon the effective date of the permit.

6.8 Anti-Backsliding

In accordance with 40 CFR 122.44(l)(2)(i)(B)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if it is determined that technical mistakes or mistaken interpretations were made and which would have justified the application of a less stringent effluent limitation at the time of permit issuance. If the permittee has installed treatment required to meet the effluent limitations and has properly operated and maintained the facility, but is still unable to meet the permit conditions, then the permit may also be issued with a less stringent limit in accordance with 40 CFR 122.44(l)(2)(i)(E).

Design Flow:

The current permit includes a monthly average flow limitation of 2.5 MGD, which was not included in previous iterations of the permit. This value was inadvertently added to the limitations on the discharge based on the capacity of the land treatment system. The discharge flow, however, is limited based the following factors: Maintaining a maximum instream wastewater concentration under variable instream flow conditions, which is included in the current permit; and, the design capacity of the chlorination structure of 4.3 MGD. Therefore, the instream wastewater concentration limitations have been clarified in the draft permit and the average monthly and weekly limitations have been replaced with a daily maximum limitation of 4.3 MGD.

Since the monthly and weekly average flow was inadvertently included in the permit, the removal of the limitations complies with the anti-backsliding requirements of the Clean Water Act.

Mass-Based Limitations:

The current permit includes mass-based limits based on the inaccurate design flow of 2.5 MGD, which were also not included in previous iterations of the permit. The discharge flow, rather, is controlled by an HCR (refer to Section 6.2) in order to maintain a maximum instream wastewater concentration under variable flow conditions. Since the discharge flows are based on fluctuating stream conditions, the calculation for loading limitations is not representative of the weekly/monthly load to the stream.

40 CFR 122.45(f)(1)(iii) states that facilities may be exempt from mass-based limitations if the loading cannot be related to the measure of operation of the facility. Furthermore, water quality modeling indicates that the concentration-based limits are protective of water quality standards provided the maximum instream wastewater concentration is continuously maintained. Therefore, mass-based limitations are not required in the permit and have been removed.

Since mass-based limitations were also inadvertently included in the permit based on an inaccurate design flow, the removal of the limitations complies with the anti-backsliding requirements of the Clean Water Act.

Percent Removal:

The current permit includes a percent removal limitation of 85% for five-day biochemical oxygen demand based on secondary treatment standards. The facility, however, is equipped with a waste stabilization pond, thus qualifying for "equivalent to secondary treatment standards" in accordance with 40 CFR 133.103, which requires a percent removal for five-day biochemical oxygen demand of not less than 65%. Additionally, the facility maintains their pond and is unable to consistently meet the limitation of 85%.

Since the facility is unable to meet the current limit with proper operation and this limit is greater than that required by the equivalent standards, a limitation of 65% has been included in the draft permit and the change is in compliance with the anti-backsliding requirements of the Clean Water Act.

7. REPORTING

7.1 Compliance office

The facility has been assigned to the following EPD office for reporting, compliance and enforcement:

Georgia Environmental Protection Division
Watershed Compliance Program
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, Georgia 30334

7.2 E-Reporting

The permittee is required to electronically submit documents in accordance with 40 CFR Part 127.

8. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

Not applicable.

9. PERMIT EXPIRATION

The permit will expire five years from the effective date.

10. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

10.1 Comment Period

The Georgia Environmental Protection Division (EPD) proposes to issue a permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

The permit application, draft permit, and other information are available for review at 2 Martin Luther King Jr. Drive, Suite 1152 East, Atlanta, Georgia 30334, between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. For additional information, you can contact 404-463-1511.

10.2 Public Comments

Persons wishing to comment upon or object to the proposed determinations are invited to submit same in writing to the EPD address above, or via e-mail at *EPDcomments@dnr.ga.gov* within 30 days of the initiation of the public comment period. All comments received prior to that date will be considered in the formulation of final determinations regarding the application. The permit number should be placed on the top of the first page of comments to ensure that your comments will be forwarded to the appropriate staff.

10.3 Public Hearing

Any applicant, affected state or interstate agency, the Regional Administrator of the U.S. Environmental Protection Agency (EPA) or any other interested agency, person or group of persons may request a public hearing with respect to an NPDES permit application if such request is filed within thirty (30) days following the date of the public notice for such application. Such request must indicate the interest of the party filing the request, the reasons why a hearing is requested, and those specific portions of the application or other NPDES form or information to be considered at the public hearing.

The Director shall hold a hearing if he determines that there is sufficient public interest in holding such a hearing. If a public hearing is held, notice of same shall be provided at least thirty (30) days in advance of the hearing date.

In the event that a public hearing is held, both oral and written comments will be accepted; however, for the accuracy of the record, written comments are encouraged. The Director or a designee reserves the right to fix reasonable limits on the time allowed for oral statements and such other procedural requirements, as deemed appropriate.

Following a public hearing, the Director, unless it is decided to deny the permit, may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue the permit.

If no public hearing is held, and, after review of the written comments received, the Director determines that a permit should be issued and that the determinations as set forth in the proposed permit are substantially unchanged, the permit will be issued and will become final in the absence of a request for a contested hearing. Notice of issuance or denial will be made available to all interested persons and those persons that submitted written comments to the Director on the proposed permit.

If no public hearing is held, but the Director determines, after a review of the written comments received, that a permit should be issued but that substantial changes in the proposed permit are warranted, public notice of the revised determinations will be given and written comments accepted in the same manner as the initial notice of application was given and written comments accepted pursuant to EPD Rules, Water Quality Control, subparagraph 391-3-6-.06(7)(b). The Director shall provide an opportunity for public hearing on the revised determinations. Such opportunity for public hearing and the issuance or denial of a permit thereafter shall be in accordance with the procedures as are set forth above.

10.4 Final Determination

At the time that any final permit decision is made, the Director shall issue a response to comments. The issued permit and responses to comments can be found at the following address:

http://epd.georgia.gov/watershed-protection-branch-permit-and-public-comments-clearinghouse-0

10.5 Contested Hearings

Any person who is aggrieved or adversely affected by the issuance or denial of a permit by the Director of EPD may petition the Director for a hearing if such petition is filed in the office of the Director within thirty (30) days from the date of notice of such permit issuance or denial. Such hearing shall be held in accordance with the EPD Rules, Water Quality Control, subparagraph 391-3-6-.01.

Petitions for a contested hearing must include the following:

1. The name and address of the petitioner;
2. The grounds under which petitioner alleges to be aggrieved or adversely affected by the issuance or denial of a permit;
3. The reason or reasons why petitioner takes issue with the action of the Director;
4. All other matters asserted by petitioner which are relevant to the action in question.

FACT SHEET

Appendix A

Adel Water Pollution Control Plant
NPDES Permit No. GA0024911

Waste Load Allocation (WLA)

National Pollutant Discharge Elimination System
Wasteload Allocation Form

Part I: Background Information

WLA Request Type:	Reissuance ☒	Expansion ☐	Relocation ☐	New Discharge ☐			
Facility Name:	Adel WPCP		County:	Cook	WQMU:	0905	
NPDES Permit No.:	GA0024911		Expiration Date:	5/31/2018	Outfall Number:	001	
Receiving Water:	Bear Creek		River Basin:	Suwannee	10-Digit HUC:	0311020304	
Discharge Type:	Domestic ☐	Industrial ☐	Both ☒	Proportion (D:I):	Flow(s) Requested (MGD):	2.5	

Industrial Contributions Type(s): Production plating does some pretreatment prior to discharging to sewer.

Treatment Process Description: Coarse screening using manual bar screen, aerated lagoon, combined holding/stabilization pond, and chlorine disinfection. Sludge removed from aeration pond is spread onto on-site sand filter and dried. Dried sludge is disposed at the Cook County landfill.

EPD/WRP

Additional Information: (history, special conditions, other facilities): Hydrograph control release discharge with a land application system

Requested by: Kim Hembree Title: ES Program: WRP

Telephone: 404-463-4937 Date: 9/1/2017

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Part II: Receiving Water Information

Receiving Water: Bear Creek to the Withlacoochee River Designated Use Classification: Fishing

Integrated 305(b)/303(d) List: Yes ☒ No ☐ Support: ☐ Not Support: ☒ Criteria: Fecal Coliform Bacteria

Total Maximum Daily Load: Yes ☒ No ☐ Parameter(s) FC, DO WLA Complies with TMDL Yes ☒ No ☐

TMDLs for fecal coliform were completed in 2000 and 2006 in the Suwannee River Basin. A 26% load reduction of fecal coliform in Bear Creek was recommended. The fecal coliform limit of 200 counts/100 mL meets the TMDL recommendation.
A dissolved oxygen TMDL was developed in 2001 in the Suwannee River Basin. There was no recommendation in load reductions for biochemical oxygen demand, total nitrogen, and total phosphorus for point sources discharging to Bear Creek.

Part III: Water Quality Model Review Information

Model Type: Uncalibrated ☐ Calibrated ☒ Verified ☐ Cannot be Modeled ☐ Model Length (mi): 9.3

Field Data: None ☐ Fair ☒ Good ☐ Excellent ☐

Model and Field Data Description: Steady-state dissolved oxygen Georgia DOSAG model.

Critical Water Temperature:(°C):	28	Drainage Area (mi²):	24.8			7Q10 streamflow at discharge (cfs):	0.15		
7Q10 Yield (cfs/mi²):	0.006	Velocity (range fps):	0.15 - 0.19			1Q10 streamflow at discharge (cfs):	0.13		
Effluent Flow Rate (cfs):	3.54	7Q10 IWC (%):	14 (6:1) / 25 (3:1)			Mean annual streamflow at discharge (cfs):	18		
Slope (range - fpm):	5.0 - 6.0	K1:	0.15/0.02	K3:	0.7 - 1.2	Escape Coef. (ft^{-1}):	0.11	K2 (range):	2.3 - 2.9
SOD:	0.2 - 0.4	f-Ratio (BOD_u/BOD_5)	2			Background Hardness (mg/L as $CaCO_3$):	62		

The predicted minimum dissolved oxygen concentration is 5.7 mg/L, occurring approximately 1.2 miles downstream from the discharge.

Part IV: Recommended Permit Limitations and Conditions (mg/L as a monthly average except as noted)

Rationale: Same as current ☐ Revised ☒ New ☐

Location: Bear Creek

Effluent Flow Rate (MGD)	BOD_5	NH_3-N	DO (minimum)	TRC (daily max.)	TSS	Fecal Coliform (No./100ml)	pH (std. units)	Total Phosphorus	Nitrite - Nitrate	TKN	Organic Nitrogen
Monitor	30	10	2.0	0.04	90	200	6.0 – 9.0	Monitor	Monitor	Monitor	Monitor

Additional Comments:

- Priority pollutants permit limits, aquatic toxicity testing requirements, and other parameters required by categorical effluent guidelines are to be determined by WRP.
- Discharge to Bear Creek is limited to periods when the stream flow to effluent ratio is at least 6:1 (June through November) and at least 3:1 (December through May).
- The revised ammonia limit meets the U.S. EPA's Aquatic Life Ambient Water Quality Criteria for Ammonia-Freshwater 2013.
- Effluent monitoring for total phosphorus, TKN, nitrate-nitrite, and organic nitrogen is recommended. TKN, nitrate-nitrite, ammonia, and organic nitrogen should be analyzed from the same effluent sample. Nutrient monitoring data will be used to determine nutrient speciation and the nutrient loads being discharged into waters entering Florida.
- Monitoring data have shown an approximately 40% correlation of ortho-phosphorus to total phosphorus in the facility effluent.
- The City has obtained approval of its Watershed Assessment (WA). The City needs to complete its Watershed Protection Plan and submit it to the Georgia EPD for review and approval.

Prepared by: Lucy Sun Date: 10/23/2017 | Reviewed by: Josh Weitz Date: 10/25/2017

Part V: Program Manager Comment

Elizabeth A. Booth

Elizabeth Booth Date: 11/9/17

FACT SHEET

Appendix B

Adel WPCP
NPDES Permit No. GA0024911

Stream Data (upstream of the discharge):

TSS:	10	mg/L
7Q10:	0.15	ft^3/s
1Q10:	0.13	ft^3/s
Mean flow:	18	ft^3/s

Effluent Data:

TSS:	42.0	mg/L
Flow (Max):	4,300,000	gal/day
Flow:	6.7	ft^3/s

Flow Limitations :

Dilution factor (under all conditions): 3 to 1

Instream Wastewater Concentration: 25 %

Stream data (downstream of the discharge):

Hardness (at 7Q10):	25.0	mg/L
TSS (at 7Q10):	41.29	mg/L
Dilution factor (at average flow):	4.0	
Dilution factor (at 7Q10):	4.0	
Dilution factor (at 1Q10):	4.0	

$$\text{Dilution Factor} = \frac{Q_{Stream}(ft^3/sec) + Q_{Effluent}(ft^3/sec)}{Q_{Effluent}(ft^3/sec)}$$

Acute Water Quality Criteria (WQC_{Acute}) - Metals:

Metal	K_{PO}	α	f_D	Maximum effluent C_T (µg/L)	Instream C_D (µg/L)	WQC_{Acute} (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.00	**0.0**	0.0	340.00	no
Cadmium	4.00.E+06	-1.131	0.000	**0.0**	0.0	0.52	no
Chromium III	3.36.E+06	-0.930	0.00	**0.0**	0.0	183.07	no
Chromium VI	3.36.E+06	-0.930	0.00	**0.0**	0.0	16.00	no
Copper	1.04.E+06	-0.744	0.27	**3.7**	0.25	3.64	**no**
Lead	2.80.E+06	-0.800	0.00	**0.0**	0.0	13.88	no
Mercury	NA	NA	NA	**0.0**	0.0	1.40	no
Nickel	4.90.E+05	-0.572	0.29	**10.0**	0.7	144.92	**no**
Zinc	1.25.E+06	-0.704	0.21	**11.0**	0.58	36.20	**no**

$$f_D = \frac{1}{1 + K_{PO} \times TSS_{Instream}(mg/L)^{(1+\alpha)} \times 10^{-6}}$$

$$\text{Instream } C_D = \frac{\text{Effluent } C_T(mg/L) \times f_D}{DF} \quad mg/L$$

FACT SHEET

Appendix B

Adel WPCP
NPDES Permit No. GA0024911

Chronic Water Quality Criteria ($WQC_{Chronic}$) - Metals:

Metal	K_{PO}	α	f_D	Average effluent C_T (µg/L)	Instream C_D (µg/L)	$WQC_{Chronic}$ (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.00	0.0	0.0	150.00	no
Cadmium	4.00.E+06	-1.131	0.000	0.0	0.0	0.09	no
Chromium III	3.36.E+06	-0.930	0.00	0.0	0.0	23.81	no
Chromium VI	3.36.E+06	-0.930	0.00	0.0	0.0	11.00	no
Copper	1.04.E+06	-0.744	0.27	1.20	0.08	2.74	**no**
Lead	2.80.E+06	-0.800	0.00	0.0	0.0	0.54	no
Mercury	NA	NA	NA	0.0	0.0	0.012	no
Nickel	4.90.E+05	-0.572	0.29	5.7	0.4	16.10	**no**
Zinc	1.25.E+06	-0.704	0.21	8.0	0.42	36.50	**no**

$$f_D = \frac{1}{1 + K_{PO} \times TSS_{Instream}(mg/L)^{(1+\alpha)} \times 10^{-6}} \qquad \text{Instream } C_D = \frac{\text{Effluent } C_T(mg/L) \times f_D}{DF} \quad mg/L$$

Water Quality Criteria (WQC) - Non Metals:

Pollutant	Effluent C_T (µg/L)	Instream Concentration (µg/L)	WQC (µg/L)	WQC/2 (µg/L)	Action needed?
NA	0.0	0.00	0	0	**no**

NOTES:

- Water Quality Criteria (WQC) from State of Georgia Rules and Regulations 391-3-6-.03.
- If the calculated instream concentration is less than 50% of the instream water quality criteria, then the constinuent will be considered not to be present at levels of concern.
- If the calculated instream concentration is greater than 50% of the instream water quality criteria, then additional monitoring may be required or a permit limit for that constinuent may be included in the permit.

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Appendix B

City of Adel WPCP
NPDES Permit No. GA0024911

Stream Data (upstream of the discharge):

TSS:	10	mg/L
7Q10:	0.15	ft^3/s
1Q10:	0.13	ft^3/s
Mean flow:	18	ft^3/s

Effluent Data:

TSS:	42.0	mg/L
Flow (Max):	4,300,000	gal/day
Flow:	6.7	ft^3/s

Flow Limitations :

Dilution factor (under all conditions): 6 to 1

Instream Wastewater Concentration: 14 %

Stream data (downstream of the discharge):

Hardness (at 7Q10):	25.0	mg/L
TSS (at 7Q10):	41.29	mg/L
Dilution factor (at average flow):	7	
Dilution factor (at 7Q10):	7	
Dilution factor (at 1Q10):	7	

$$\text{Dilution Factor} = \frac{Q_{Stream}\,(ft^3/sec) + Q_{Effluent}\,(ft^3/sec)}{Q_{Effluent}\,(ft^3/sec)}$$

Acute Water Quality Criteria (WQC_{Acute}) - Metals:

Metal	K_{PO}	α	f_D	Maximum effluent C_T (µg/L)	Instream C_D (µg/L)	WQC_{Acute} (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.00	**0.0**	0.0	340.00	no
Cadmium	4.00.E+06	-1.131	0.000	**0.0**	0.0	0.52	no
Chromium III	3.36.E+06	-0.930	0.00	**0.0**	0.0	183.07	no
Chromium VI	3.36.E+06	-0.930	0.00	**0.0**	0.0	16.00	no
Copper	1.04.E+06	-0.744	0.27	3.7	0.14	3.64	**no**
Lead	2.80.E+06	-0.800	0.00	**0.0**	0.0	13.88	no
Mercury	NA	NA	NA	**0.0**	0.0	1.40	no
Nickel	4.90.E+05	-0.572	0.29	**10.0**	0.4	144.92	**no**
Zinc	1.25.E+06	-0.704	0.21	**11.0**	0.33	36.20	**no**

$$f_D = \frac{1}{1 + K_{PO} \times TSS_{Instream}\,(mg/L)^{(1+\alpha)} \times 10^{-6}}$$

$$\text{Instream } C_D = \frac{\text{Effluent } C_T\,(mg/L) \times f_D}{DF} \quad mg/L$$

FACT SHEET

Appendix B

City of Adel WPCP
NPDES Permit No. GA0024911

Chronic Water Quality Criteria ($WQC_{Chronic}$) - Metals:

Metal	K_{PO}	α	f_D	Average effluent C_T (µg/L)	Instream C_D (µg/L)	$WQC_{Chronic}$ (µg/L)	Action needed?
Arsenic	4.80.E+05	-0.729	0.00	0.0	0.0	150.00	no
Cadmium	4.00.E+06	-1.131	0.000	0.0	0.0	0.09	no
Chromium III	3.36.E+06	-0.930	0.00	0.0	0.0	23.81	no
Chromium VI	3.36.E+06	-0.930	0.00	0.0	0.0	11.00	no
Copper	1.04.E+06	-0.744	0.27	1.20	0.05	2.74	**no**
Lead	2.80.E+06	-0.800	0.00	0.0	0.0	0.54	no
Mercury	NA	NA	NA	0.0	0.0	0.012	no
Nickel	4.90.E+05	-0.572	0.29	5.7	0.2	16.10	**no**
Zinc	1.25.E+06	-0.704	0.21	8.0	0.24	36.50	**no**

$$f_D = \frac{1}{1 + K_{PO} \times TSS_{Instream}(mg/L)^{(1+\alpha)} \times 10^{-6}}$$

$$\text{Instream } C_D = \frac{\text{Effluent } C_T(mg/L) \times f_D}{DF} \quad mg/L$$

Water Quality Criteria (WQC) - Non Metals:

Pollutant	Effluent C_T (µg/L)	Instream Concentration (µg/L)	WQC (µg/L)	WQC/2 (µg/L)	Action needed?
NA	0.0	0.00	0	0	**no**

NOTES:

- Water Quality Criteria (WQC) from State of Georgia Rules and Regulations 391-3-6-.03.
- If the calculated instream concentration is less than 50% of the instream water quality criteria, then the constinuent will be considered not to be present at levels of concern.
- If the calculated instream concentration is greater than 50% of the instream water quality criteria, then additional monitoring may be required or a permit limit for that constinuent may be included in the permit.

FACT SHEET

Appendix C

Adel Water Pollution Control Plant
NPDES Permit No. GA0024911

WET Test PMSD Values:

PMSD = Minimum Significant Data (MSD) / Control Mean x 100 %

WET Test #1 **2014**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	--	--	**24.80**	Within
Fathead Minnow (P. promelas)	12-30	--	--	**13.80**	Within

WET Test #2 **2015**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	--	--	**23.4**	Within
Fathead Minnow (P. promelas)	12-30	--	--	**21.4**	Within

WET Test #3 **2016**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	--	--	**14.9**	Within
Fathead Minnow (P. promelas)	12-30	--	--	**21.2**	Within

WET Test #4 **2017**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	--	--	**13.1**	Within
Fathead Minnow (P. promelas)	12-30	--	--	**16.5**	Within

WET Test #5 **2018**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	--	--	**19.0**	Within
Fathead Minnow (P. promelas)	12-30	--	--	**11.2**	Within

WET Test #6 **2019**

Species	PMSD Bounds	MSD	Control Mean	PMSD	
Water Flea (C. dubia)	13-47	5.13	27.10	**18.9**	Within
Fathead Minnow (P. promelas)	12-30	0.07	0.28	**26.2**	Within

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Appendix D

Adel Water Pollution Control Plant
NPDES Permit No. GA0024911

Ammonia Toxicity Calculation

Ammonia Toxicity Analysis
for
Waste Load Allocation Development (Updated 2013)

Date: 10/19/2017
Facility: City of Adel
NPDES Permit Number: GA0024911
Receiving Stream: Bear Creek to Withlacoochee River
Engineer: Lucy Sun
Comments: HCR + LAS Permit

Stream and Facility Data:

Background Stream pH (standard units):	6.8		WQ Data
Effluent pH (standard units):	9.0		
Final Stream pH (standard units):	6.87		
Stream Temperature (Celsius):	24.0		Not Critical Condition
7Q10 Streamflow (cfs):	0.15		June-Nov
Stream background concentration (Total NH3-N, mg/L):	0.07		WQ Data
Facility Discharge (MGD/cfs):	0.016	0.025	1/6 Stream Flow
Total Combined Flow (cfs):	0.17		

Effluent concentration (Total NH3-N, mg/L) = 10.34

If 10.34 is greater than 17.4 mg/L, use 17.4 mg/L in WLA modeling.

Chronic Criterion based on Villosa iris (Rainbow mussel):

Instream CCC = criterion continuous concentration (chronic criterion):

$$CCC = 0.8876 \times \left(\frac{0.0278}{1 + 10^{(7.688 - pH)}} + \frac{1.1994}{1 + 10^{(pH - 7.688)}}\right) \times \left(2.126 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$$

Allowable instream concentration CCC (Total NH3-N, mg/l) = 1.53

Acute Criterion when Oncorhynchus salmonid species are present:

Instream Criterion Maximum Concentration (CMC) = same as acute criterion:

$$\text{Instream CMC} = \text{Min}\left(\left(\frac{0.275}{1 + 10^{(7.204 - pH)}} + \frac{39.0}{1 + 10^{(pH - 7.204)}}\right), 0.7249 \times \left(\frac{0.0114}{1 + 10^{(7.204 - pH)}} + \frac{1.6181}{1 + 10^{(pH - 7.204)}}\right) \times \left(23.12 \times 10^{(0.036 \times (20 - T))}\right)\right)$$

Allowable instream concentration CMC, (Total NH3-N mg/l) = 13.38

Acute Criterion when Oncorhynchus salmonid species are absent:

$$\text{Instream CMC} = 0.7249 \times \left(\frac{0.0114}{1 + 10^{(7.204 - pH)}} + \frac{1.6181}{1 + 10^{(pH - 7.204)}}\right) \times \text{MIN}\left(51.93, 23.12 \times 10^{(0.036 \times (20 - T))}\right)$$

Allowable instream concentration CMC, (Total NH3-N mg/l) = 13.38

Based on National Criterion For Ammonia In Fresh Water As Revised In Year 2013

Source: Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater 2013, U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology, EPA-822-R-13-001. April 2013. Washington, D.C.

Ammonia Toxicity Analysis
for
Waste Load Allocation Development (Updated 2013)

Date: 10/19/2017
Facility: City of Adel
NPDES Permit Number: GA0024911
Receiving Stream: Bear Creek to Withlacoochee River
Engineer: Lucy Sun
Comments: HCR + LAS Permit

Stream and Facility Data:

Background Stream pH (standard units):	6.8		WQ Data
Effluent pH (standard units):	9.0		
Final Stream pH (standard units):	6.92		
Stream Temperature (Celsius):	16.0		Dec-May
7Q10 Streamflow (cfs):	0.15		
Stream background concentration (Total NH3-N, mg/L):	0.07		WQ Data
Facility Discharge (MGD/cfs):	0.032	0.050	1/3 Stream Flow
Total Combined Flow (cfs):	0.20		

Effluent concentration (Total NH3-N, mg/L) = 9.90

If 9.90 is greater than 17.4 mg/L, use 17.4 mg/L in WLA modeling.

Chronic Criterion based on Villosa iris (Rainbow mussel):

Instream CCC = criterion continuous concentration (chronic criterion):

$$CCC = 0.8876 \times (0.0278 / (1 + 10^{(7.688 - pH)}) + 1.1994 / (1 + 10^{(pH - 7.688)})) \times (2.126 \times 10^{0.028 \times (20 - MAX(T;7))})$$

Allowable instream concentration CCC (Total NH3-N, mg/l) = 2.51

Acute Criterion when Oncorhynchus salmonid species are present:

Instream Criterion Maximum Concentration (CMC) = same as acute criterion:

$$\text{Instream CMC} = Min((0.275 / (1 + 10^{(7.204 - pH)})) + (39.0 / (1 + 10^{(pH - 7.204)})), 0.7249 \times (0.0114/(1 + 10^{(7.204 - pH)}) + 1.6181 / (1 + 10^{(pH - 7.204)})) \times (23.12 \times 10^{(0.036 \times (20 - T))}))$$

Allowable instream concentration CMC, (Total NH3-N mg/l) = 24.89

Acute Criterion when Oncorhynchus salmonid species are absent:

$$\text{Instream CMC} = 0.7249 \times (0.0114/(1 + 10^{(7.204 - pH)}) + 1.6181 / (1 + 10^{(pH - 7.204)})) \times MIN(51.93, 23.12 \times 10^{(0.036 \times (20 - T))})$$

Allowable instream concentration CMC, (Total NH3-N mg/l) = 24.89

Based on National Criterion For Ammonia In Fresh Water As Revised In Year 2013

Source: Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater 2013, U.S. Environmental Protection Agency, Office of Water, Office of Science and Technology, EPA-822-R-13-001, April 2013, Washington, D.C.

Alcoa Corporation

201 Isabella Street
Suite 500
Pittsburgh, PA 15212-5858 USA
Tel: 1 412 315 2900

MEMORANDUM

To: Piper Peterson, USEPA Region 10, Superfund Project Manager Date: April 7, 2020

From: Ghosh, Rajat, PH.D., PE, Alcoa Corp

Re: Fluoride Removal from Industrial Wastewaters – A Technology Review

Introduction

Fluorides are found in wastewater discharges from a number of industries: glass manufacturers, electroplating operations, steel and aluminum, pesticides and fertilizer, groundwater and the semiconductor industry. Fluoride effluent concentrations can vary over a wide range, and restrictions on final effluent level depend on place of discharge. For aluminum smelting, fluoride is present in a variety of wastes generated during the electrolytic process:

- Potliner
- Pot bath material
- Used anode (bath often stuck to anode)
- Dusts in the potrooms (rafters, floor, underpot, etc.).
- Wastes from air emission control, including wet scrubbing sludge, bag house dusts, etc.

The majority of the fluoride present in these materials is in the form of sodium fluoride, which is a very soluble fluoride species. As such, whenever these wastes get wet or materials contaminated with these wastes get wet, fluoride impacted waters result. Such waters may also contain elevated concentrations of sodium, carbonate/bi-carbonate alkalinity, sulfate, ammonia, cyanide, TOC, and exhibit low ORP. More dilute fluoride wastewaters occur when leachate impacts stormwater runoff or groundwater.

Alcoa has conducted various fluoride waste water treatment studies, including treatment with lime (Dzombak et al., 1996), various adsorbents including activated alumina (Alcoa Mt. Holly operations; Alcoa Portovesme operations ATC Rpt RDE 09-109, Alcoa Technical Center Rpt. RDE 06-005) as well as electro-coagulation (Mead Custodial Trust Report, 2017), all with mixed success. This white paper summarizes the results from these various treatment studies and highlights the inherent challenges associated with sustainable treatment of fluoride in waste waters to low ppm levels on a continuous or interim basis.

Technology Background

Treatment of wastewaters for fluoride removal has been actively studied over the past several decades as wastewater discharge limits have become increasingly more stringent. Cost effective treatment options vary with the concentration of fluoride, its speciation and the characteristics of the wastewater. The most common treatment methods fall into the following categories:

- Electrodialysis (and reverse electrodialysis);
- Reverse osmosis;
- Absorption;
- Adsorption;
- Calcium-based precipitation;
- Combined sequestration and separation/precipitation;
- Evaporation/crystallization; and
- Electro-coagulation

Of these treatment technologies, only four types of technologies are practical for treating dilute industrial wastewaters with fluoride levels less than 50 mg/l from physical footprint as well as cost effectiveness standpoint. These technologies are:

- Calcium based precipitation (lime or calcium chloride with pH adjustments)
- Adsorption (primarily activated alumina as the adsorbent)
- Electro-coagulation
- Reverse osmosis

The other technologies, like evaporation/crystallization as well as electrodialysis are suitable for low flow (volume) highly concentrated wastes such as, scrubber blowdown where fluoride levels are expected to be greater than 100-150 mg/l.

The rest of the white paper focusses on discussing the relative advantages and disadvantages as well as overall technical practicability of the four technologies highlighted above for treating fluoride in industrial discharges with concentrations between 5-50 mg/l and flow rates in the 10-200 gpm range, that are typically seen at non-operating leachate impacted groundwater as well as surface water sites.

Chemical Precipitation Technology

Calcium-based precipitation approaches have been studied extensively by many including Alcoa in laboratory, pilot and full scale (Dzombak et al. (1996)). These programs have primarily involved addition of calcium chloride or calcium hydroxide. The general chemistry associated with calcium-based precipitation is pretty straight forward, where an abundant source of calcium, either in the form of calcium chloride or in the form of slaked lime reacts with dissolved fluoride

ions to promote chemical precipitation of calcium fluoride which is stable in the neutral to high pH range according to the following reactions:

$$CaCl_2 + 2F^- = CaF_2 + 2Cl^- \quad (1)$$

$$Ca(OH)_2 + 2F^- + = CaF_2 + H_2O + 0.5O_2 \quad (2)$$

Although both sources of calcium can be used, lime is most easily handled as an emulsified slurry. Most typically lime is supplied as a dry and somewhat corrosive powder that is difficult to handle.

Figure 1 shows the results of pilot-scale chemical precipitation of fluoride containing stormwater from one of Alcoa's operations in Massena, NY. The treatment system was implemented to treat variable stormwater flows impacted with dissolved fluoride in the 20 – 100 mg/l range at one of the facility's outfalls. Given the use of calcium chloride, a pH stabilizer (an alkali) was used to stabilize the calcium fluoride precipitate. Even with significant excess stoichiometric addition of calcium, lowest treated effluent fluoride concentration was limited to 5 mg/l at a high pH between 9.5 and 10.

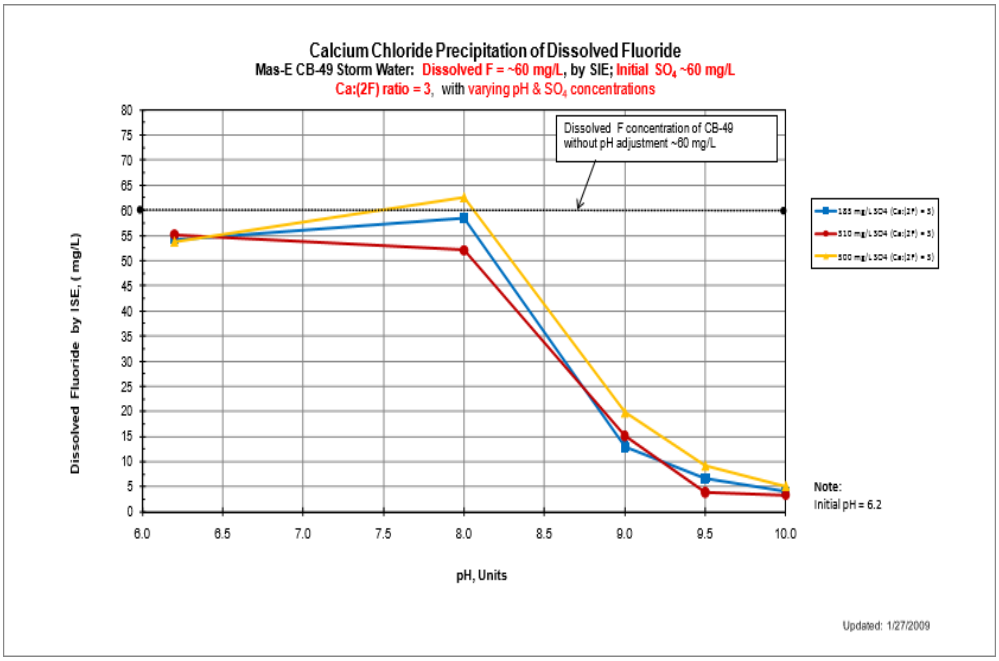

Figure 1. Massena East CB-49 Stormwater Fluoride Precipitation using Calcium Chloride and Caustic.

Another wet precipitation approach that Alcoa's Brazilian operations (Modified Pocos process) have implemented in full scale is fluoride removal via calcium fluorapatite formation, which exhibits lower solubility than calcium fluoride. The chemical reaction entailed in here is as follows:

$$15Ca(OH)_2 + 10H_3PO_4 + 3F^- = 3Ca_5(PO_4)_3F(s) + 27H_2O + PO_4^{3-} + 3H^+ + 3OH^- \quad (3)$$

Figure 2 presents the result of the modified POCOS process as applied to a fluoride containing stormwater from a former smelting operations. Different stoichiometric amounts of lime were added to optimize treatment effectiveness (Tests A, B and C). Test C with the highest stoichiometric dose of lime was able to bring the final treated fluoride concentrations to below 6 ppm. However, test C also generated the highest sludge concentration at 1635 mg/l TSS compared to the other tests.

Similar to the POCOS process, the Brazilian operations have also looked at straight treatment of fluoride using lime (Equation 2) with aluminum sulfate as the coagulant to help the reaction to enhance the sludge formation. Figure 3 shows the results of full-scale treatment using the lime-aluminum sulfate combination which was able to treat influent fluoride levels from ~45 mg/l to < 10 mg/l legal limit. However, the lime efficiency in treating the fluoride was only 6% from stoichiometric standpoint resulting in addition of excess lime and hence significant sludge production. Figure 3 also shows the aerial view of the treatment ponds indicating the sludge production.

Implementation of Chemical Precipitation: Alcoa's experience with chemical precipitation of fluoride is mixed. Problems have ranged from precipitation of large quantities of gypsum where sulfate is present; to unacceptably high levels of fluoride in the treated wastewater; and, frequently, concomitant scaling of the equipment with solids, such as calcium carbonates.

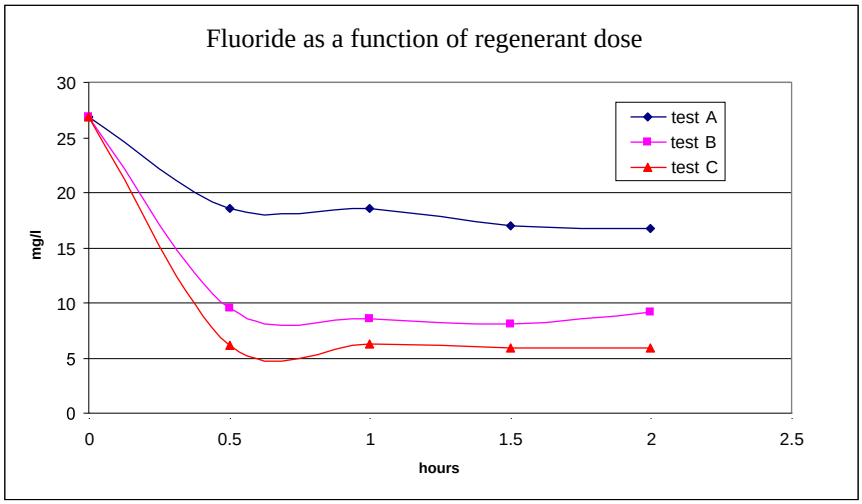

Figure 2. Fluoride treatment data using Modified Pocos Process.

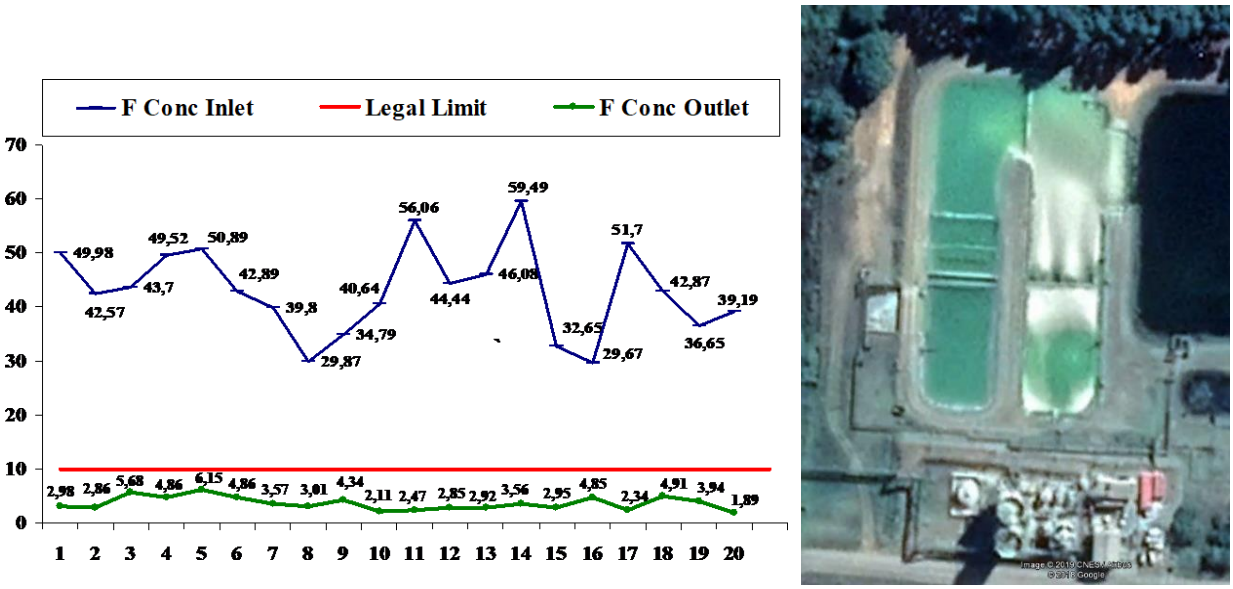

Figure 3. Full scale Fluoride treatment smelter stormwater fluoride at Alcoa's Brazilian operation.

Typically, pH adjustment with acids and/or caustic is needed on inflow and effluent. The hydroxide demand of the fluoride reduction system is met long before the calcium demand is met which means the pH ends up much higher than allowed for discharge and post pH adjustment is required when lime is used as the primary source of calcium for precipitation. Such is not the case for calcium chloride as the calcium source, which is purchased as a liquid and is far easier to handle and deliver. However sometime, additional alkali is added to optimize fluoride removal.

The treatment plant requires chemical storage, chemical mixing and reaction tanks, large settling pond, press for the settled solids, and means to dispose of the filter cake. The process is energy and thus carbon intensive in that large amounts of chemicals are used and large amounts of sludge must be managed. Treatment plants typically require daily, if not fulltime attendance.

Adsorption Technology

The four most common adsorbents for dissolved fluoride for influent levels < 50 ppm are activated alumina, bonechar, hydroxyapatite and tricalcium phosphate, respectively, in the order from most efficient to less efficient.

Open source literature is flooded with studies involving treatment of fluoride from wastewater and drinking water using some form of activated alumina sorbent (Ghorai and Pant (2004, 2005); Ku and Chiou (2002); Tang et al., (2009)). In majority of these studies, sorption data have been correlated with Langmuir and Freundlich isotherms and pH has been shown as a critical master variable on fluoride removal. Alcoa has performed a series of studies to further optimize commercially available activated alumina to meet low effluent fluoride levels from its smelter stormwater streams. Pre-conditioning of activated alumina was performed by acid treating the media with a combination of caustic, DI water and sulfuric acid to create more positively charged sites to improve the sorption capacity. Figure 4 presents the results of the long-term pilot tests performed at a smelter location (Ghosh et al., (2009)). Figure 5 shows the cumulative adsorption

loading capacity over the course of these tests. During the course of this pilot operation, the media was recycled 3 times with no significant loss in the capacity.

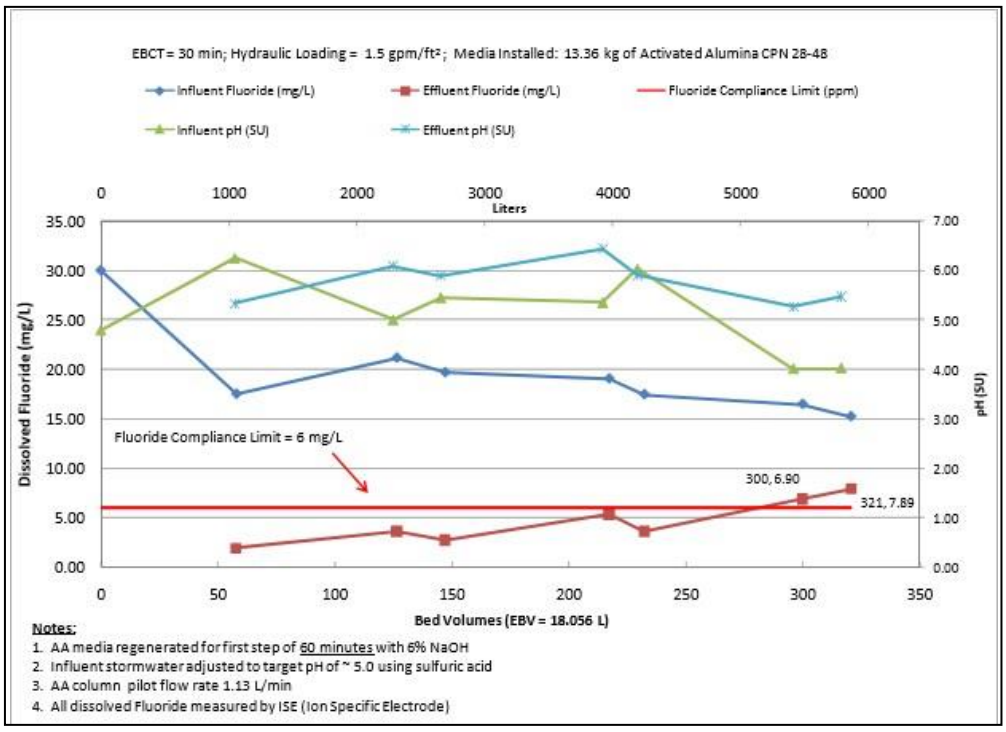

Figure 4. Results of modified activated alumina adsorption for treatment of smelter stormwater containing dissolved fluoride in the 15-30 mg/l.

As shown in Figure 4, even with modified activated alumina surface, treated effluent levels below 2 ppm cannot be achieved. Also, as shown in Figure 5, to achieve concentrations below 2 ppm, the loading on the activated alumina media will be in the 1 mg/gm which is impractical from the physical footprint and media change out frequency perspective. Even to achieve 6 mg/l treated effluent, the loading on the activated alumina was only 6 mg/gm or 0.6%; which outlines the need to frequently change the media for disposal following few cycles of regeneration.

Alcoa also performed bench scale studies to evaluate the feasibility of treating smelter stormwater and landfill leachates containing dissolved fluoride using various other adsorbents, namely, hydroxyapatite, tri-calcium phosphate and bone-char, respectively (Ghosh et al., (2006)). Of all mineral phases, fluorapatite is the most stable form of fluoridic mineral under the environmental conditions found in shallow surface aquifers ($K_{sp} = 1\times10^{60}$) (Rao, 2003). Equation 4 shows the reaction between the fluoride ion and hydroxyapatite:

$$Ca_5(PO_4)_3OH\ (s) + F^- = Ca_5(PO_4)_3F\ (s) + OH^- \qquad (4)$$

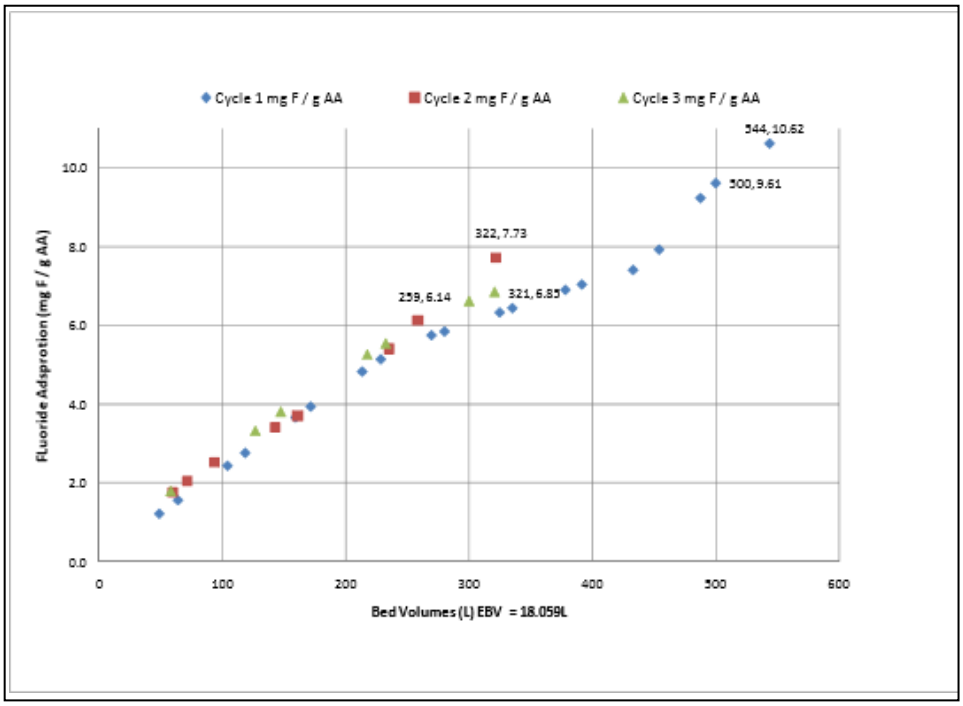

Figure 5. Fluoride adsorption capacity onto modified activated alumina over three cycles of regeneration.

Fluorapatite is stable over a wide pH range (2.5<pH<13) and is widely used for the production of phosphorus fertilizers. Hydroxyapatite has been used heavily for in situ as well as surface treatment of heavy metals, like, Pb, U at many DOD sites (Ma et al., 1993, 1994), and is a common constituent in animal and fish bones.

One way of introducing calcium phosphates in the treatment mix was to use a combination of calcium chloride and phosphoric acid, while another option was to use crystals of hydroxyapatite (calcined fish bone powder) or simply rock phosphate mixed with some form of calcium salt. The final objective of either treatment mix is to form a stable fluoride precipitant with low enough dissolved fluoride concentration (< 4 ppm) in the aqueous phase, theoretical minimal sludge generation and benign by-products (e.g. sulfates, chlorides, minimal phosphates).

Figures 6, 7 and 8 presents the results of the bench scale treatability study with hydroxyapatite (HAP), tri-calcium phosphate (TCP) and bone char, respectively. All of these media were in the form of powder and were tested in bench scale jars where different amounts of sorbent were used for a fixed volume of fluoride containing groundwater. As shown in Figure 6, significantly high dose of HAP is required to lower the fluoride levels in the contaminated groundwater to below the MCL of 4 ppm. In fact, to achieve a consistent fluoride concentration of less than 4 ppm, a HAP loading of 122 g per liter of solution and a contact period of 24 hours are required, which translates to a fluoride loading of only 0.5 mg/g HAP. Given this performance, HAP as a sorbent is not recommended as a solution for F treatment of leachate impacted groundwater.

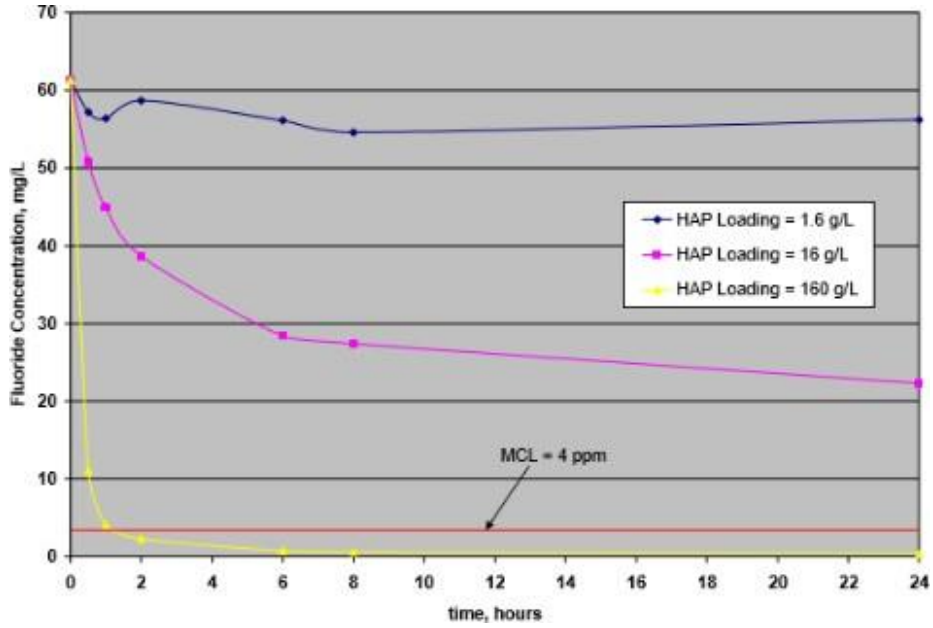

Figure 6. Fluoride removal from leachate impacted smelter groundwater with different amount of hydroxyapatite (HAP) (Influent F concentration = 61 mg/l)

As shown in Figure 7, significantly high dose of TCP is also required to lower the fluoride levels in the leachate impacted smelter groundwater to below the MCL of 4 ppm. In fact, to achieve a consistent fluoride concentration of less than 4 ppm, a TCP loading of 140 g per liter of solution and a contact period of 24 hours are required, which translates to a fluoride loading of only 0.4 mg/g HAP. Given this performance, TCP as a sorbent is not recommended as a solution for F treatment of groundwater.

Brimac™ bone-char (20×60 mesh) was used to remove fluoride from leachate impacted smelter groundwater at different loading. As shown in Figure 8, bone-char performed better than the HAP and TCP as far fluoride removal is concerned. To achieve a consistent fluoride concentration of less than 4 ppm, a bone-char loading of 74 g per liter of solution and a contact period of 24 hours are required, which translates to a fluoride loading of only 0.8 mg/g bone-char. Still, this is considered a low enough loading rate as far as an adsorbent capacity is concerned when compared to activated alumina and is not deemed as a suitable sorbent for removing fluoride.

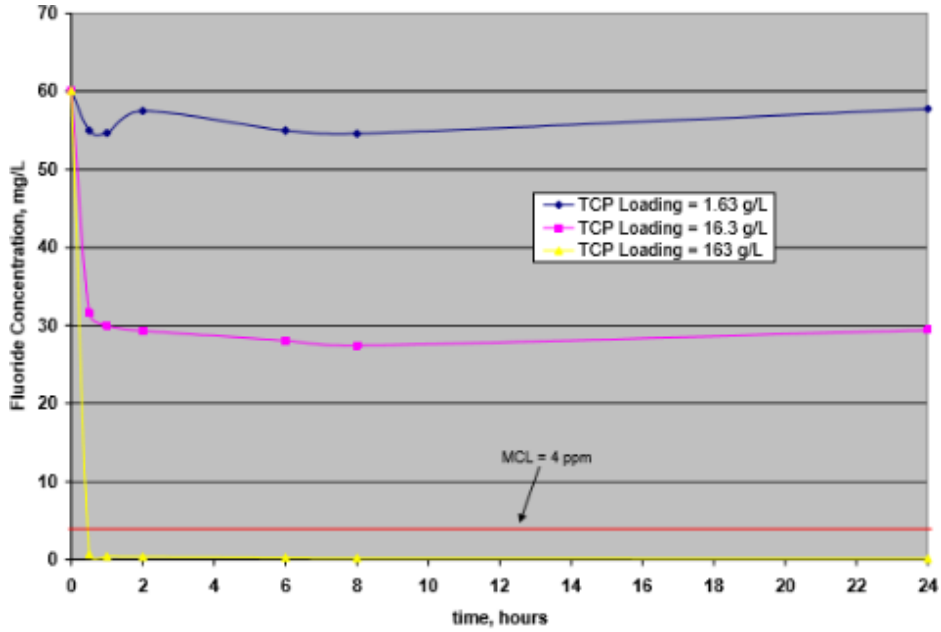

Figure 7. Fluoride removal from leachate impacted smelter groundwater with different amount of tri-calcium phosphate (TCP) (Influent F concentration = 61 mg/l)

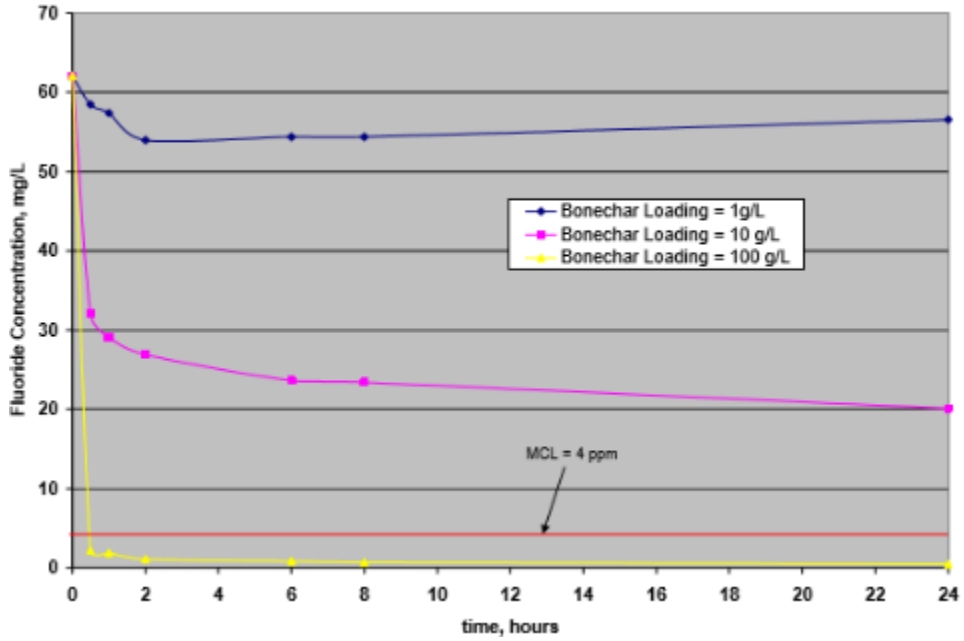

Figure 8. Fluoride removal from leachate impacted smelter groundwater with different amount of bonechar (Influent F concentration = 61 mg/l)

Implementation of Chemical Adsorption: Due to the poor adsorption efficiencies (mass fluoride adsorbed per mass of sorbent); adsorption is not a cost-effective option for moderate to large mass loading of fluoride. It is best applicable for low flows at low concentrations (i.e., concentrations < 10 mg/l). This is in contrast with adsorbent technologies for other contaminants, such as PAHs and organics, where activated carbon as the sorbent media can function with high loading capacities at low empty bed contact time of ~20 minutes, resulting in longer operating times and smaller physical footprint. Moreover, such carbon media can be regenerable over multiple cycles

thereby increasing the operating times of these sorption columns. In contrast, for fluoride adsorption, media like activated alumina has lower adsorption rates and loses its efficiency rapidly over few cycles of regeneration resulting in the need for frequent media replacements. As such the process is energy and thus carbon intensive in that large amount of chemical media (activated alumina) are used and large amounts of used media must be managed via landfilling. On the other hand, adsorption involves simple treatment train and requires infrequent attendance as compared with chemical precipitation.

Electro-Coagulation Technology

In the electro-coagulation (EC) process, electric current is passed through a set of electrodes immersed in a fixed volume of electrolyte solution, $CaCl_2$, where pH adjusted fluoride containing water is introduced. Calcium ions produced as a result of electrolysis at one of the electrodes reacts in a stoichiometric manner with dissolved fluoride to form flocs of calcium fluoride precipitate. A polymer solution is added to improve the floc formation and settling process. Figure 9 shows the schematic of an electro-coagulation reactor including an influent pre-treatment chamber for pH adjustment of the influent and post treatment chamber for improved flocculation and settling using a polymer. This figure and associated data presented below are from a technical report prepared by Arconic Technology (Arconic, 2017).

Table 1 shows the performance of the EC process during pilot testing of smelter groundwater impacted with fluoride at a former smelting site in the State of Washington. As shown in Table 1, the EC removal efficiency ranges from 51% to 92% for the well water with fluoride levels between 5 and 45 ppm. The practical treatment limit of the technology is about 2 ppm. Sludge generated during EC treatment at the rate of 3.152 lbs. (91.4% moisture) per 40 gallons of wastewater, or 0.0788 lbs/gal, which is ~25-30% lower than traditional chemical precipitation process using $CaCl_2$.

Table 1. EC Performance of Smelter groundwater Treatment

Test ID	Influent F, ppm	Effluent F, ppm	Removal %
Well TW-1B	5.1	2.5	50.98%
Well KMCP-4B	12.7	3.2	74.80%
Well KM-5	38	2.9	92.37%

Implementation of electro-coagulation: One inherent advantage of this technology over traditional chemical precipitation process is lower sludge production. On the other hand, it's an energy intensive process and there is still a significant volume of sludge to press and dispose of.

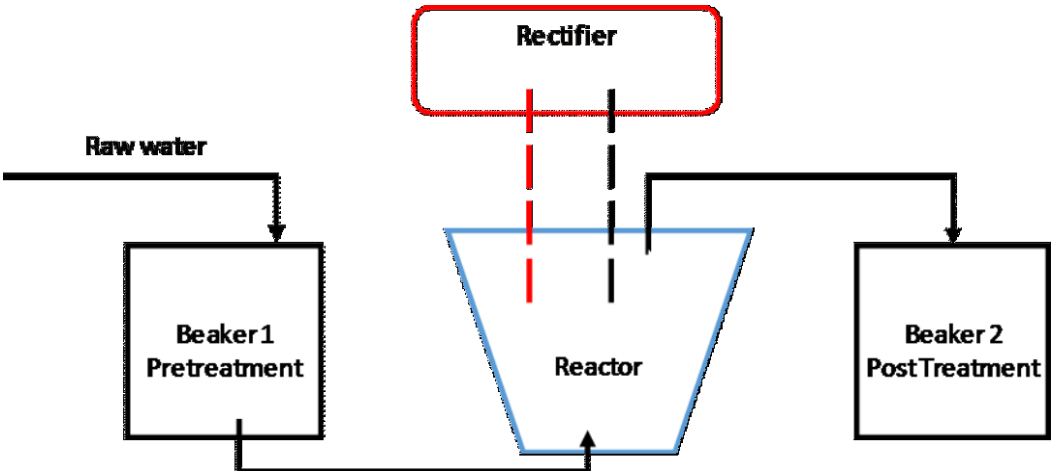

Figure 9. Schematic of the Electro-Coagulation Reactor

Reverse Osmosis (RO) Technology

Both low and high pressure RO membranes are available to remove influent fluoride levels in the 10-20 mg/l range to close to 0.2 mg/l in the treated effluent. However, the throughput at flows over 25 gpm requires large membrane footprint and becomes cost prohibitive. Also, RO membranes are not suitable for treating higher concentrations of fluoride in the 50 mg/l and higher range as the rejection efficiency decreases resulting in generation of higher amounts of concentrated reject that needs treatment. Also, in almost all the cases, the treated stream becomes acidic and needs pH adjustment prior to discharge. Overall, although RO system is suitable for treating low concentration of fluoride for drinking water supply, however, it becomes technologically inefficient and cost prohibitive for sustaining treatment of industrial discharges containing fluoride in excess of 30-40 mg/l range and flows above 10-20 gpm. (Shen and Schafer (2015)).

Implementation of RO: While RO can treat moderate flows at low concentrations (typically, less than 30 ppm), the concentrated reject has to be dealt with. Without an affordable means to dispose of the reject (for example, discharge to POTW), it serves no purpose other than a concentration step for a second phase of treatment to actually remove the fluoride from the liquid phase in the first place.

Summary of Technology Performance

Table 2 shows the performance of the various relevant technologies for removal of fluoride from stormwaters, surface water as well as groundwater impacted by current and former smelting operations. As shown in Table 2, every technology listed can work in removing fluoride to low-medium effluent levels, but has its own inherent limitations in terms of costs for labor, maintenance, energy intensity, and disposal of unwanted. In other words, there is no optimum technology available for removal of fluoride from large and dilute flows to low levels of 1-2 ppm, a situation typically encountered at many active and former aluminum production sites.

Table 2. Technology Screening Matrix for Treatment of Smelter Fluoride Wastewater and Groundwater

Technology Class	Technology Type	Ideal Influent F conc. range, mg/l	Treated F conc. Range, mg/l	Comments
Chemical Precipitation	Calcium Chloride	10-100	>4	Moderate Sludge Generation, Additional alkali added to optimize F removal
	Lime	10-100	>3	Significant Sludge Generation, Equipment scaling, pH adjustment prior to final discharge
	Calcium Phosphate	10-50	> 5	High sludge generation
Chemical Adsorption	Activated Alumina	5-50	2-6	pre-conditioning of AA is needed; limited sorption capacity (~1 mg/g at 2 ppm, 6 mg/g at 6 ppm); frequent change out of media
	Bone Char	5-60	4-20	Limited adosption capacity (<1 mg/g); not feasible for sustaining full-scale treatment
	Hydroxy-apatite	5-60	4-20	Low adsorption capacity (~0.4 mg/g); not feasible for sustaining full-scale treatment
	Tri-calcium Phosphate	5-60	4-20	Low adsorption capacity (~0.5 mg/g); not feasible for sustaining full-scale treatment
Electro-coagulation	Calcium Chloride	5-50	~2.5	Lowest sludge generation; not efficient for F levels less than 15-20 ppm
Reverse Osmosis	Membrane Filtration	5-20	< 1	Expensive; need to manage concentrated reject; not sustainable for managing industrial flows > 20 gpm and concentrations > 30 mg/l

While chemical precipitation technologies are more robust to treat large flows at 10-100 ppm range, there is a significant energy and secondary waste footprint in addition to the labor-intensive operation. Sorption technologies on the other hand can generate lesser residuals but they work for low to medium flow rates and moderate fluoride levels (5-50 ppm) with low loading capacities. This means that the media might require frequent replacements. Electro-coagulation generates lower sludge compared to chemical precipitation, but it does involve a high energy penalty, hence increased carbon footprint for the same amount of treatment and is only effective over a narrow influent concentration range (namely, 20-50 ppm). Finally, the reverse osmosis or nanofiltration processes, although very effective in treating effluents to less than 1 ppm, works only for drinking water and other dilute concentration with flows in the 1-20 gpm range. Concentrations in excess of 20 ppm will increase the amount of reject to maintain the same treatment efficiency in these membranes thereby requiring a secondary treatment process for the reject or disposal of highly concentrated brine either via incineration or landfilling.

References

Arconic Technology (2017) Final Report for Ex-Situ Treatability Study 2016 Activities for Kaiser Mead NPL Site, Prepared for Mead Custodial Trust, Olympia, WA.

Dzombak, D.A., Dobbs, C.L., Culleiton, C.J., Smith, J.R. and Krause, D. (1996), "Removal of Cyanide from Spent Potlining Leachate by Iron Cyanide Precipitation." *Proceedings of WEFTEC96, Vol. 3, Part I. Remediation of Soil and Groundwater,* Water Environment Federation, Alexandria, VA, 107-116.

Ghorai, S and Pant, K. (2004) Investigations on the column performance of fluoride adsorption by activated alumina in a fixed-bed, *Chemical Engineering Journal*, 98, pp. 165-173.

Ghorai, S and Pant, K. (2005) Equilibrium, kinetics and breakthrough studies for adsorption of fluoride on activated alumina, *Separation and Purification Technology*, 42 (3), pp. 265-271.

Ghosh, R. et al. (2006) Final Report for Bench Testing Evaluation of Various Treatment Mechanisms for Fluoride Removal from Wastewater, *Alcoa Internal Report RDE 06-005 cs0036P*.

Ghosh, R. et al. (2009) Portovesme Defluoridation Pilot Project Report, *Alcoa Internal Report RDE 09-109 cs1829P*.

Ku, Y and Chiou, H. (2002) The Adsorption of Fluoride Ion from Aqueous Solution by Activated Alumina,

Ma, Q.Y., Traina, S.J., Logan, T.J., and Ryan, J.A. (1993) "In Situ Lead Immobilization by Apatite." *Environ. Sci. Technol*., 27:9, 1803-1810.

Ma, Q.Y., Traina, S.J., Logan, T.J., and Ryan, J.A. (1994) "Effects of Aqueous Al, Cd, Cu, Fe(II), Ni, and Zn on Pb Immobilization by Apatite." *Environ. Sci. Technol*., 28:7, 1219-1228.

Rao, N.S. and Devadas, D. (2003) Fluoride incidence in groundwater in an area of Peninsular India.

Shen, J. and Schafer, A. (2015) Factors affecting fluoride and natural organic matter (NOM) removal from natural waters in Tanzania by nanofiltration/reverse osmosis, *Science of the Total Environment*, 527-528, pp. 520-529.

Tang, Y., Guan, X., Su, T., Gao, N and Wang, J. (2009) Fluoride adsorption onto activated alumina: Modeling the effects of pH and some competing ions, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 337, pp. 33-38.