pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHCENTRAL REGIONAL OFFICE
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0008869**
Facility Type	**IW**	APS ID	**8869**
Major / Minor	**Major**	Authorization ID	**909218**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Pixelle Specialty Solutions, LLC (formerly P.H. Glatfelter Company)**	Facility Name	**Spring Grove Mill (formerly P.H. Glatfelter Company-Spring Grove Mill**
Applicant Address	228 S Main Street Spring Grove, PA 17362-1000	Facility Address	228 S Main Street Spring Grove, PA 17362
Applicant Contact	Stacey Campbell	Facility Contact	Jonas Pantalone
Applicant Phone	717-995-8301	Facility Phone	717-955-8234
Client ID	82539	Site ID	249607
SIC Code	2621	Municipality	Spring Grove Borough
SIC Description	Manufacturing - Paper Mills	County	York
Date Application Received	December 29, 2011	EPA Waived?	No
Date Application Accepted	January 6, 2012	If No, Reason	Major Facility
Purpose of Application	NPDES Renewal.		

Summary of Review

P.H. Glatfelter Company (Glatfelter) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. During the permit term, a transfer permit application was submitted to DEP, requesting all existing permits associated with Glatfelter be amended to reflect a change in ownership from Glatfelter to Pixelle Specialty Solutions, LLC (Pixelle). This fact sheet will address both renewal and transfer. Also, the terms, Pixelle and Glatfelter, will be used interchangeably as the name of the permittee throughout the fact sheet.

Based on the review, it is recommended that the NPDES permit be drafted.

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge

Approve	Return	Deny	Signatures	Date
X			Jinsu Kim Jinsu Kim / Environmental Engineering Specialist	November 16, 2023
X			Daniel W. Martin Daniel Martin P.E. / Environmental Engineer Manager	November 17, 2023
X			Maria D. Bebenek Maria D. Bebenek P.E. / Program Manager	November 17, 2023

Permit Status

The current NPDES permit renewal was issued on May 31, 2007 and became effective on July 1, 2007. The permit expired on June 30, 2012. The terms and conditions of the permit have been administratively extended since that time in accordance with 25 Pa Code §92a.7(b). The Water Quality Management (WQM) permit nos. 6780201 (1980), 6797201 (1997), 6709201 (2010, amended in 2011), and 6710201 (2010) were previously issued for construction and operation of the wastewater treatment units at this site. These WQM permits have been amended once again on June 22, 2021 to reflect a change in ownership from Glatfelter to Pixelle.

In addition to these permits, Pixelle is also required to obtain approvals from other Programs in DEP such Wase Management, Air Quality, Environmental Clean Up and Wasteways and Wetlands. All permits/approvals are available for file review at DEP Southcentral Regional Office located at 909 Elmerton Avenue, Harrisburg PA 17110.

Facility Information

Under the Standard Industrial Classification Code 2611, Pixelle owns and operates a fully integrated kraft pulp and paper mill located in Spring Grove Borough, York County, approximately 40 miles southwest of Harrisburg, Pennsylvania. This mill has been producing bleached kraft pulp and fine paper (coated and uncoated) since 1864. Considering a number of industrial activities performed and type of wastewater generated at the mill, Pixelle is categorized a major industrial facility less than 250 MGD under 25 Pa Code §92a.26(c). Given that the permit was last reissued in 2007, EPA NPDES Permit Rating Work Sheet was prepared for this permit renewal to confirm that the facility is considered a major industrial waste facility. The Work Sheet is included in Appendix A of this fact sheet. The entire site consists of the paper mill, raw material storage areas (i.e., coal pile, wood logs, etc.), loading/unloading areas, water intake structures, primary and secondary wastewater treatment plants, office building, closed landfill areas, and parking lots.

I. INDUSTIRAL PROCESS

Pixelle uses softwood (pine) and hardwood in production. The past five-year paper/pulp production data supplied by Pixelle were summarized below:

	2016	2015	2014	2013	2012
Total Annual Paper Production (tons)	423879	427990	442341	445598	453881
Annual Average* Paper Production (tons/day)	1183	1192	1233	1236	1255
Total Annual Hardwood Pulp Production (ADT**)	119166	113248	116524	112539	120903
Annual Average* Hardwood Pulp Production (ADT**/day)	336	330	331	322	342
Total Annual Softwood Pulp Production (ADT**)	108469	99370	105352	106120	105439
Annual Average* Softwood Pulp Production (ADT**/day)	306	291	300	308	306

*Average based on actual total operating days; **ADT = Air Dried Metric Tons (tons*1.10231)

Although these data were from more than 6 years ago, a representative from Pixelle has recently confirmed that no changes have been identified in terms of the industrial operations performed at the site. As a result, these data will still be used for this permit renewal.

All logs delivered to the wood yard located southwest of the facility are debarked, chipped and then segregated by the wood type. Any reject and bark will later be transported to the boilers for use as fuel. Purchased chips can also be delivered directly to the mill. All woodchips are then screened and stored outside prior to pulping process.

Pixelle utilizes the kraft chemical pulping process to separate the cellulose fiber from the lignin. Wood chips are first cooked in a digester using white liquor (cooking chemical) and heated water. The pine pulp is produced in a continuous digester and hardwood pulp is produced in nine (9) batch digesters. The pulp is then washed and screened to separate spent-white liquor (i.e., black liquor) and uncooked woodchips. Black liquor is then treated and recycled back to digesters for reuse.

The pulp formed (i.e., brown stock) is then sent to the extended oxygen delignification stage where any remaining lignin and color being removed from the pulp. All washed/screened pulps are then bleached through a chlorine dioxide stage, hydrogen peroxide reinforced caustic extraction stage, and then through a final chlorine dioxide stage prior to paper making processing. Both hardwood and softwood pulps are bleached using the elemental chlorine free bleaching (ECF) technique in which chlorine dioxide (ClO2) is used in lieu of chlorine (Cl2) and hypochlorite (ClO-),

generating reduced levels of chlorinated wastewater. Pixelle indicated that the facility produces approximately 55% bleached hardwood pulp and 45% bleached softwood pulp.

During the paper making process, materials are dewatered, pressed, dried and wound into large rolls of finished product. For the entire process, Glatfelter utilizes four (4) paper machines, two (2) coasters, one coal-fired power boiler, two (2) gas-fired power boilers and one kraft recovery boiler. The recovery boiler is used to burn the concentrated black liquor extracted from the pulp.[1]

II. SOURCES OF WASTEWATER

According to the renewal application, the facility generates about 13 MGD (average monthly) and 19 MGD (daily maximum) of process wastewater from pulping and paper making process. According to Glatfelter, of the entire process wastewater to the on-site wastewater treatment plant, 34% of influent comes from the paper machine sewer, 48% from the bleach plant and 18% from all other sources including filter plant blowdown and backwash water, boiler and cooling tower blowdown, miscellaneous pulp mill flows, coater sewer flows and collected storm water. It is noteworthy that the paper machine sewer produces significant amount of heated wastewater within this 34% flow contribution.

About 18 MGD (average monthly) and 23 MGD (daily maximum) of non-contact cooling water is generated from No. 1 turbine generator condenser (No. 2 Surface condenser is no longer being used as of June 2011) and is discharged via Outfall 002. This is once-through non-contact cooling water.

Backwash water generated from two (2) existing water treatment plants is either commingled with process wastewater or directly sent to the onsite wastewater treatment plant. About 0.12 MGD of backwash water generated from these water treatment plants.

Any sanitary wastewater generated from Pixelle is sent to Spring Grove WWTP. Previously, Pixelle received partially treated sanitary wastewater from Spring Grove Borough and Jackson Township wastewater treatment facilities and uses them as a nutrient source for its treatment processes. Glatfelter notified both municipalities via a letter dated December 11, 2013 that additional treatment will no longer be provided by Pixelle beyond June 2017. As a result, Spring Grove Borough proposed an upgrade to its treatment process in 2014 and requested an NPDES permit to discharge its effluent to the Codorus Creek. This upgrade was completed in June 2017 and Spring Grove is currently authorized under NPDES permit no. PA0266086 to discharge its effluent to Codorus Creek. Jackson Township is also currently in the process of obtaining the NPDES permit and WQM permit for upgrade/expansion of its sewage treatment plant (i.e., based on a review of Jackson Township's planning module, the termination of service is seemingly extended up to July 31, 2019). All process wastewater generated from this facility as well as sanitary wastewater, if any, is sent to an on-site wastewater treatment plant prior to discharging via Outfall 001.

Groundwater is pumped at four (4) different locations within the site and discharged to either primary wastewater treatment units or to the secondary treatment plant.

Stormwater runoff is discharged via a number of stormwater outfalls located throughout the site.

III. WASTEWATER TREATMENT TECHNOLOGY

Pixelle utilizes an on-site activated sludge wastewater treatment facility for its process wastewater. While the primary wastewater treatment units are located just south east of the mill, the rest of the treatment units ("secondary plant") are located about a mile east from the mill. These primary treatment units, except for the equalization basin, have been used since 1940s (i.e., the equalization basin was permitted in 1980s) and the secondary plant was permitted in 1997. The treatment process is as follows:

Bar Screens → Primary Clarifiers (3) → Equalization Basin → Contact Stabilization Basin/ Aeration Basins (2) → Secondary Clarifiers (4) → Effluent Cooling Basins (2) → Outfall 001 to Codorus Creek
A site visit dated December 14th of 2017 revealed that the existing stabilization and aeration basins directly receive condensate from the papermill continuously. The current environmental site representative indicated that discharges of condensate must be made to the treatment process where the biological activity occurs per its current permit issued by DEP Air Quality Program. Due to the significant amount of heated water is discharged to the on-site wastewater treatment facility, Glatfelter was required by the last permit renewal to address thermal discharge issue by installing

[1] Source Water Baseline Biological Characterization Study Plan for P.H. Glatfelter's Spring Grove mill, June 2017, Normandeau Associates.

cooling technology. As a result, Glatfelter under the WQM permit no. 6709201 (issued on June 24, 2010) constructed two (2) cooling basins equipped with spray coolers. During the site visit conducted on December 14, 2017, Glatfelter indicated that these cooling basins are capable of removing heat from effluent up to 15°F.

There are two (2) emergency basins located adjacent to the existing aeration basins. These emergency basins are used for the temporary storage of wastewater in case the wastewater treatment plant receives highly-concentrated residual wastes. The basins are either lined or concrete-based.

Sludge generated from the on-site wastewater treatment facility is processed through existing thickeners (2), flocculation tank, and filter press. According to Glatfelter, most of the waste treatment plant sludge generated on the site is burned in the boiler as supplemental fuel. Any remainder is hauled off-site to a permitted facility that composts it which other organic waste and uses the resulting product as a soil amendment in mine reclamation efforts.

According to Pixelle, there is currently no treatment associated with non-contact cooling water discharged via 002.

IV. OUTFALLS / INTERNAL MONITORING POINTS

The discharges from all existing active outfalls are to Codorus Creek. Outfall 001 is located east of the mill, just north of the treatment facility at RMI of 24.45 (39°52'42", -76°50'51"). Outfall 002 is located south of the mill at RMI of 26.3 ((39°52'13", -76°52'16"). Between these two (2) outfalls, Spring Grove discharges its treated sewage at RMI of 26.14 (39°52'24", -76°51'28") and Jackson Township is expected to discharge its treated sewage at RMI of 25.57 (39°52'44", -76°51'12"). There are fifty-six (56) stormwater outfalls located throughout the site. Most of these stormwater outfalls discharge directly into Codorus Creek or dry swale which ultimately discharges into Codorus Creek. More details on these stormwater outfalls are discussed starting on page 7 of this fact sheet.

Throughout the manufacturing process, Pixelle has been consistently monitoring certain influent wastestreams at two (2) internal monitoring points; MP-101 and MP-102. MP-101 receives bleach plant effluent from the Softwood fiber line and MP-102 receives bleach plant effluent from the Hardwood fiber line. Both internal monitoring points currently have effluent limits and monitoring requirements associated with its wastestream. More details will be discussed later in this fact sheet.

V. WATER SUPPLY

Codorus Creek is the source of water for Pixelle. The mill withdraws water from two (2) intake points in the Mill Pond, an impounded portion of Codorus Creek created by the Mill Dam located near the mill. These intake points are Powerhouse intake and New Filter Plant intake. All withdrawn water from these intake structures is used for industrial purposes only. The Powerhouse intake withdraws a maximum of 16 MGD, of which approximately 15 MGD is used for cooling water purpose(s) such as non-contact cooling, boiler water make-up, and co-gen cooling tower make-up. The New Filter Plant intake withdraws a maximum of 12 MGD, of which a majority of withdrawn water is used for process water and only small volume (i.e., 0.5 MGD) is used as cooling tower make-up. The water level of the Mill Pond is currently managed by Glatfelter in order to sufficiently supply water to the mill and maintain the water levels of Codorus Creek at the same time. In addition, Pixelle controls the dam and water releases of Lake Marburg, a 1,275-acre impoundment of Codorus Creek located approximately 8 miles upstream of the mill. A file review indicates that Pixelle has consistently expressed that the "cold water" releases from the lake lower the temperature of the main stem of the Codorus Creek.

Historically, Pixelle owned and operated a water treatment plant for public potable water supply uses. This plant however was previously sold to York Water Company; therefore, Pixelle no longer produces potable water for the Company or Spring Grove Borough.

Receiving Surface Water Information

Codorus Creek (Stream ID: 08032) is a tributary of Susquehanna River. The headwaters of the Codorus Creek begins near the PA/MD border line west of Glenville, PA, approximately 17 river miles upstream from the mill. Codorus Creek at RM 32 meets the West Branch Codorus Creek which flows into Lake Marburg and then feeds into the Codorus Creek. Codorus

Creek then flows past the Borough of Spring Grove and Borough of New Salem, through the City of York before joining the Susquehanna River. Under 25 Pa Code §93.9o, Codorus Creek is designated as Trout Stocking and Migratory fishery (TSF, MF) from source to confluence with West Branch Codorus Creek, High Quality – Cold Water and Migratory fishery (HQ-CWF, MF) from confluence with West Branch Codorus Creek to confluence with Oil Creek, and Warm Water and Migratory fishery (WWF, MF) from confluence with Oil Creek to the mouth. Since all of Pixelle's outfalls are currently located on the stream segment(s) between confluence with Oil Creek to the mouth of Codorus Creek, no special protection water(s) is currently impacted by the discharge from Pixelle. Further, no Class A Wild Trout Fishery is not impacted by this discharge.

USGS StreamStats available at https://streamstats.usgs.gov/ss/ estimates an upstream drainage area of 75.7 sq.mi. for Outfall 001 and 70.4 sq.mi. for Outfall 002. This is slightly different from the previous upstream drainage area of 78 sq.mi. determined through the use of a digital planimeter. The drainage area upstream of the regulated USGS gauging station no. 01574500 is 75.5 sq.mi. and this station is located about 0.35 miles (i.e., ~1,800 ft.) upstream of Outfall 001. Considering the distance between this station and Outfall 001, the drainage areas taken directly from USGS StreamStats are seemingly more accurate and therefore will be used for this renewal.

USGS StreamStats produces a Q7-10 flow of 8.97 ft^3/s at Outfall 001. While Outfall 001 is located less than a half mile downstream from the gauging station no. 01574500, the latest USGS low-flow statistics report[2] published Q7-10 flows of 24 ft^3/s (post-regulation period 1968-2008) and 7.1 ft^3/s (pre-regulation period 1930-1966) for this station. This station is a regulated station where flow is regulated by dam on Lake Marburg, in which a minimum release from the dam is currently managed by Pixelle. Further, discussions with USGS during this permit renewal as well as the previous permit renewal fact sheet revealed that low flow statistics for this gauging station no. 01574500 documented on the USGS report have been consistently computed based on the daily mean values of flows measured at the gauge station plus the daily mean values of discharge flows from Pixelle's Outfall 001 given the location of Outfall 001 in relation to this station. As a result, DEP performed a water quality analysis during the 2002 permit renewal using the re-computed low flow statistics supplied by USGS that were solely based on the stream flows measured at the station. For this permit renewal, USGS provided the readjusted daily mean flow data that were calculated by subtracting Outfall 001 discharge daily data from the published daily flow data for the period from 1993 to 2016. Using this data, DFLOW was utilized by DEP to re-compute the Q7-10 flow based on "actual" stream flow data. The results were shown below:

	2002 Permit Renewals (Data based on 1984-2002)	**Upcoming Permit Renewal (Data based on 1993-2016)**
Annual Q7-10	16.0 cfs	16.2 cfs
Monthly Q7-10 – January	16 cfs	16.9 cfs
Monthly Q7-10 – February	17 cfs	16.2 cfs
Monthly Q7-10 – March	21 cfs	25.4 cfs
Monthly Q7-10 – April	21 cfs	22.2 cfs
Monthly Q7-10 – May	23 cfs	21.5 cfs
Monthly Q7-10 – June	25 cfs	23.6 cfs
Monthly Q7-10 – July	24 cfs	26.6 cfs
Monthly Q7-10 – August	24 cfs	23.8 cfs
Monthly Q7-10 – September	22 cfs	21.1 cfs
Monthly Q7-10 – October	21 cfs	20.6 cfs
Monthly Q7-10 – November	18 cfs	18.4 cfs
Monthly Q7-10 – December	18 cfs	16.4 cfs

Based on the calculated low-flow yield of 0.214 cfs/sq.mi. (16.2 cfs / 75.5 sq.mi.), the Q7-10 flow at discharge points are determined to be 16.2 cfs (75.8 sq.mi. x 0.214 cfs/sq.mi.) for Outfall 001 and 15.1 cfs (70.4 sq.mi. x 0.214 cfs/sq.mi.) for Outfall 002. DFLOW also produces a Q30-10 of 19 cfs and harmonic flow of 42.2 cfs at the station, resulting in a Q30-10 of 19.07 cfs and harmonic flow of 42.37 cfs at Outfall 001.

The last permit renewal fact sheet indicates that DEP has been consistently used two (2) separate Q7-10 flow values to perform a water quality analysis; 21.3 cfs for the summer period (May 1 – October 31) and 15.8 cfs during the winter period (November 1 – April 30). It was still relevant to use these flows at the time of the 2002/2007 permit renewal review as Glatfelter can control its releases from Lake Marburg to ensure these flows are met. These values are still more conservative compared to monthly Q7-10 flows computed based on the daily mean data collected from 1993 to 2016. As such, these two (2) values will still be used to perform a water quality analysis for conventional and other pollutants subject to seasonal compliance periods. For all other pollutants, the annual Q7-10 will be used in the water quality analysis.

[2] Stuckey, M.H., and Roland, M.A., 2011, Selected streamflow statistics for Streamgage locations in and near Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-1070, 88p.

Pennsylvania's integrated water quality monitoring and assessment report which satisfies the requirements of section 305(b) and 303(d) of the Clean Water Act was last updated in 2022 to provide the current water quality status of surface waters of the Commonwealth. This report indicates that upstream of the mill is not impaired. This report however indicates that about 10.23 mile of Codorus Creek, starting near the on-site wastewater treatment facility, is impaired for thermal modifications as a result of industrial point source. Given that Pixelle is the only industrial facility associated with a significant amount of thermal discharges within this 10-mile stream stretch, the report seemingly points out Pixelle as a main source of this increase in natural water temperatures. This report identifies this segment of Codorus Creek in 2002 as Category 4b – impaired but no TMDL is needed as it is expected to meet uses within a reasonable timeframe. More details on this impairment will be discussed later in this fact sheet.

Downstream Public Water Supply Information

The nearest downstream public potable water supply intake is located on the Susquehanna River, approximately 32 miles from the mill. This intake is managed by the Wrightsville Borough Municipal Authority. Considering the distance to this intake, the discharge is not expected to significantly impact the water supply intake. The 32-mile distance was previously determined as follows:

	From Outfall 001 to confluence with Susquehanna River	24.45 mi
+	RMI of Susquehanna River at confluence with Codorus Creek	50.94 mi
-	RMI of the intake on Susquehanna River	43.54 mi
		31.85 mi

Considering its distance from this intake, the discharge from Pixelle is not expected to significantly impact the source water intake.

A summary of discharge, receiving water and water supply information is presented starting on the next page. All above-mentioned information will be considered in developing appropriate permit requirements.

Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	13.7
Latitude	39º 52' 42"	Longitude	-76º 50' 51"
Wastewater Description:	Process Wastewater covered by ELGs		
Internal Monitoring Point No.	MP-101	Wastewater Description	Softwood bleach plant effluent
Internal Monitoring Point No.	MP-102	Wastewater Description	Hardwood bleach plant effluent
Outfall No.	002	Design Flow (MGD)	18
Latitude	39º 52' 13"	Longitude	-76º 52' 16"
Wastewater Description:	Noncontact Cooling Water		

Receiving Waters	Codorus Creek	Stream Code	08032
NHD Com ID	5747-	RMI	24.45 (Outfall 001) 26.30 (Outfall 002)
Drainage Area	75.8 sq.mi. (Outfall 001) 70.4 sq. mi. (Outfall 002)	Yield (cfs/mi^2)	0.214
Q_{7-10} Flow (cfs)	16.2 (Outfall 001) 15.1 (Outfall 002)	Q_{7-10} Basis	USGS gage no. 01574500 & DFLOW
Elevation (ft)	421 (Outfall 001)	Slope (ft/ft)	Unknown
Watershed No.	7-H	Chapter 93 Class.	WWF, MF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Thermal Modifications		
Source(s) of Impairment	Industrial Point Source		
TMDL Status	Not Needed	Name	N/A

Background/Ambient Data		Data Source
Median Temperature (°F)	65 (summer) / 51 (winter)	2012-2017 DMR Data
90th Percentile Temperature (°F)	67.3 (summer) / 60.4 (winter)	2012-2017 DMR Data
CBOD5 (mg/L)	1.40	12-month data in 1995
NH3-N (mg/L)	0.06	12-month data in 1995

Nearest Downstream Public Water Supply Intake	Wrightsville Borough Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	Unknown
PWS RMI	43.54	Distance from Outfall (mi)	31.85

Stormwater Outfalls Description			
Outfall No.	SW-1	Drainage Area (acres)	0.5
Latitude	39º 52' 6.2"	Longitude	-76º 51' 58.9"
	Drainage Area Description:	Concrete Swale; East of New Filter Plant	
Outfall No.	SW-2	Drainage Area (acres)	0.14
Latitude	39º 52' 9.6"	Longitude	-76º 52' 1.2"
	Drainage Area Description:	Nos.7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-3	Drainage Area (acres)	0.14
Latitude	39º 52' 9.0"	Longitude	-76º 52' 1.2"
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-4	Drainage Area (acres)	0.19
Latitude	39º 52' 14.4"	Longitude	-76º 51' 46.8"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-5	Drainage Area (acres)	0.14
Latitude	39º 52' 8.4	Longitude	-76º 52' 0.0"
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-6	Drainage Area (acres)	0.01
Latitude	39º 52' 8.4"	Longitude	-76º 51' 59.4"
	Drainage Area Description:	Exterior Walkway Floor Drain	
Outfall No.	SW-7	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-8	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-9	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-10	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-11	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-12	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-13	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-14	Drainage Area (acres)	0.06
Latitude	39º 52' 12.2"	Longitude	-76º 51' 52.5"
	Drainage Area Description:	Discharge from Curb Inlet at northwest corner of Rt. 116 Bridge	
Outfall No.	SW-15	Drainage Area (acres)	0.17
Latitude	39º 52' 12.6"	Longitude	-76º 51' 52.2"
	Drainage Area Description:	Storm Sewer Outlet at northeast corner of Rt. 116 Bridge	
Outfall No.	SW-16	Drainage Area (acres)	0.19

Stormwater Outfalls Description			
Latitude	39º 52' 12.6"	Longitude	-76º 51'51.5"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-17	Drainage Area (acres)	0.19
Latitude	39º 52' 12.9"	Longitude	-76º 51' 50.9"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-18	Drainage Area (acres)	0.35
Latitude	39º 52' 13.5"	Longitude	-76º 51' 49.7"
	Drainage Area Description:	Coater Building Driveway (west)	
Outfall No.	SW-19	Drainage Area (acres)	0.19
Latitude	39º 52' 13.9"	Longitude	-76º 51' 49.0"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-20	Drainage Area (acres)	0.23
Latitude	39º 52' 14.2"	Longitude	-76º 51' 48.1"
	Drainage Area Description:	Coater Building Driveway (east)	
Outfall No.	SW-21	Drainage Area (acres)	0.19
Latitude	39º 52' 14.4"	Longitude	-76º 51' 47.8"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-22	Drainage Area (acres)	0.19
Latitude	39º 52' 14.5"	Longitude	-76º 51' 45.6"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-23	Drainage Area (acres)	0.19
Latitude	39º 52' 15.4"	Longitude	-76º 51' 46.2"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-24	Drainage Area (acres)	0.19
Latitude	39º 52' 15.5"	Longitude	-76º 51' 46.1"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-25	Drainage Area (acres)	0.19
Latitude	39º 52' 15.7”	Longitude	-76º 51' 45.7"
	Drainage Area Description:	Coater Building Roof Drain	
Outfall No.	SW-26	Drainage Area (acres)	1.13
Latitude	39º 51' 37.2"	Longitude	-76º 51' 56.4"
	Drainage Area Description:	East Side of PK Truck Lot	
Outfall No.	SW-27	Drainage Area (acres)	2.5
Latitude	39º 52' 17.8"	Longitude	-76º 51' 42.3”
	Drainage Area Description:	Swale East of Coater Building	
Outfall No.	SW-28	Drainage Area (acres)	2.43
Latitude	39º 52' 18.9"	Longitude	-76º 51' 44.5"
	Drainage Area Description:	Swale from Roll Grinder Area	
Outfall No.	SW-29	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-30	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-31	Drainage Area (acres)	0.14
Latitude	-	Longitude	-

Stormwater Outfalls Description			
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-32	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-33	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-34	Drainage Area (acres)	0.14
Latitude	-	Longitude	-
	Drainage Area Description:	Nos. 7 and 8 Paper Machine Building Roof Drain	
Outfall No.	SW-35	Drainage Area (acres)	7.0
Latitude	39º 52' 55"	Longitude	-76º 50' 29"
	Drainage Area Description:	East of Lagoons 15, 16, 19	
Outfall No.	SW-36	Drainage Area (acres)	> 15
Latitude	39º 52' 24"	Longitude	-76º 51' 27"
	Drainage Area Description:	Swale immediately west of equalization basin	
Outfall No.	SW-37	Drainage Area (acres)	> 15
Latitude	39º 52' 16.2"	Longitude	-76º 51' 33.6"
	Drainage Area Description:	Swale in Hedgerow between ag field	
Outfall No.	SW-38	Drainage Area (acres)	25
Latitude	39º 52' 12.6”	Longitude	-76º 52' 16.2"
	Drainage Area Description:	Pulpmill Storm Sewer	
Outfall No.	SW-39	Drainage Area (acres)	0.19
Latitude	39º 52' 12.6"	Longitude	-76º 52' 17.4"
	Drainage Area Description:	Swale West of Cooling Towers	
Outfall No.	SW-40	Drainage Area (acres)	0.46
Latitude	39º 52' 12.0"	Longitude	-76º 52' 16.8"
	Drainage Area Description:	Outlet Between Pulpmill Sewer and Railroad Tracks	
Outfall No.	SW-41	Drainage Area (acres)	0.58
Latitude	39º 52' 11.4"	Longitude	-76º 52' 5.4"
	Drainage Area Description:	Adjacent to Transformer Station	
Outfall No.	SW-42	Drainage Area (acres)	> 50
Latitude	39º 52' 38.4"	Longitude	-76º 51' 18.6"
	Drainage Area Description:	Stream East of No. 1 Supernatant Station	
Outfall No.	SW-43	Drainage Area (acres)	> 50
Latitude	39º 52' 41.4"	Longitude	-76º 51' 13.2"
	Drainage Area Description:	Swale West of Hershey Road	
Outfall No.	SW-44	Drainage Area (acres)	15
Latitude	39º 52' 45"	Longitude	-76º 51' 5.4"
	Drainage Area Description:	Outlet of Marsh North of No. 11 Lagoon	
Outfall No.	SW-45	Drainage Area (acres)	9
Latitude	39º 52' 53.4"	Longitude	-76º 50’ 38.4"
	Drainage Area Description:	Swale between Nos. 18 and 16 Lagoon	
Outfall No.	SW-46	Drainage Area (acres)	110
Latitude	39º 52' 49.8"	Longitude	-76º 50' 17.4"
	Drainage Area Description:	Outlet of Landfill Sedimentation Pond	

Stormwater Outfalls Description			
Outfall No.	SW-47	Drainage Area (acres)	0.82
Latitude	39º 52' 8.8"	Longitude	-76º 51' 54.6"
	Drainage Area Description:	Run-off from Inlets on north side of PK Lot	
Outfall No.	SW-48	Drainage Area (acres)	0.08
Latitude	39º 52' 7.3"	Longitude	-76º 51' 51.1"
	Drainage Area Description:	East Side of PK Truck Lot	
Outfall No.	SW-49	Drainage Area (acres)	0.03
Latitude	39º 52' 9.6"	Longitude	-76º 51' 51.6"
	Drainage Area Description:	East Side of PK Truck Lot	
Outfall No.	SW-50	Drainage Area (acres)	6
Latitude	39º 52' 39.6"	Longitude	-76º 50' 54.6"
	Drainage Area Description:	Swale East of Secondary Clarifiers	
Outfall No.	SW-51	Drainage Area (acres)	3.5
Latitude	39º 52' 39.6"	Longitude	-76º 50' 57.6"
	Drainage Area Description:	Swale East of Lagoons 11 and 12	
Outfall No.	SW-52	Drainage Area (acres)	1
Latitude	39º 52' 3.0"	Longitude	-76º 52' 1.8"
	Drainage Area Description:	Swale West of New Filter Plant Intake	
Outfall No.	SW-53	Drainage Area (acres)	10.5
Latitude	39º 52' 12.9"	Longitude	-76º 52' 27.8"
	Drainage Area Description:	Outlet of New Dredge Pond	
Outfall No.	SW-54	Drainage Area (acres)	2.75
Latitude	39º 52' 48.5"	Longitude	-76º 50' 23.5"
	Drainage Area Description:	Spring East of No. 19 Lagoon	
Outfall No.	SW-55	Drainage Area (acres)	18.4
Latitude	39º 52' 9.4"	Longitude	-76º 52' 34.2"
	Drainage Area Description:	Runn-off from Inlets on north side of PK Lot	
Outfall No.	SW-56	Drainage Area (acres)	> 15
Latitude	39º 52' 22.8"	Longitude	-76º 51' 27.6"
	Drainage Area Description:	Runn-off from Inlets on north side of PK Lot	

Treatment Facility Summary

Treatment Facility Name: Spring Grove Mill (formerly P.H. Glatfelter Company-Spring Grove Mill

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
	Biological (Industrial Waste)	Activated Sludge	No Disinfection	___

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
___	___	Not Overloaded	Dewatering	Combination of methods

Compliance History

Summary of DMRs:	A summary of past 12-month DMR data is presented starting on page 22 of this fact sheet.
Summary of Inspections:	7/02/2021: Brandon Bettinger, DEP Water Quality Specialist, conducted an incident inspection as a result of an unauthorized discharge of industrial wastes as a result of sludge pump faulted. 6/12/2021: Tracy Tomtishen, DEP Water Quality Specialist, conducted an incident inspection as a result of a discharge of cationic starch slurry reported by Pixelle. The discharge was caused by a pipe break. The inspection report indicates that replacement of leaking section pipe is planned to be completed on 6/13/2021. 7/29/2020: Austen Randecker conducted an inspection and noted that unauthorized discharge of process water occurred as a result of a power outage due to a heavy storm. The discharge was stormwater runoff from a coal pile. The sump pump used to pump stormwater to the treatment plant was not functional, resulting in an overflow. 8/20/2019: Austen Randecker conducted an incident inspection as a result of an unauthorized discharge of IW from the site. A power loss on 8/17/2019 caused an overflow from the pump station that last about 10 minutes. At the time of the inspection all treatment units were online. The inspection report indicates that there was no evidence of industrial wastewater on the ground or in Codorus Creek during the inspection. 6/25/2019: Austen Randecker conducted an incident inspection as a result of a fish kill reported by the permittee. About 45 dead fish were observed in the vicinity of the site. The cause was not identified at the time of inspection, but the inspection report indicates that the pond was sprayed for algae on 6/24/2019. 4/23/2019: Austen Randecker, former DEP Water Quality Specialist, conducted a routine inspection. No significant issues were noted at the time of inspection. 01/12/2017: Bob Haines, former DEP Water Quality Specialist, conducted a routine inspection and noted that all treatment units were online at the time of the inspection. The inspection report also indicates that pH and DO readings from Outfall 001 were within permitted limits. No significant issues were noted at the time of inspection. 08/30/2016: Bob Haines conducted a routine inspection. The inspection report documented DEP's recommendation/request of 1) log calibrations of dissolved oxygen meters, 2) submit supplemental forms in eDMR for January 2016 monitoring period, and 3) improve housekeeping in solids handling area and around final clarifier no. 2. No significant issues were noted at the time of inspection. 01/08/2016: Austin Pardoe, former DEP Water Quality Specialist, conducted a follow-up inspection on a reported discharged of cloudy water into the Codorus Creek. During the inspection, Mr. Pardoe noticed cloudy water being presented within a U-shaped sand-bagged area within the Codorus Creek along the northern streambank immediately downstream of the Rt. 116 bridge. Glatfelter indicated that wastes had leaked from a concrete vault located on the north side of stream in which the wastes is the influent waste going to the primary wastewater treatment plant. A truck later pumped out the wastes contained within the U-shape. 08/05/2015: Bob Haines conducted a routine inspection. The inspection report documented that significant effluent violations occurred in March due to two (2) plant upsets. Mr. Haines recommended/requested Glatfelter to 1) include (<) qualifiers on supplemental forms and eDMR report when reporting non-detects using contact lab's detection limit, 2) improve maintenance of final clarifier weirs, and 3) have flow meters calibrated at least annual by a third party provider. 07/21/2014: Bob Haines conducted a follow-up inspection in response to a notice of violation issued for a non-stormwater discharge to waters of the Commonwealth observed on 4/30/2014 during a stormwater inspection to confirm that measures taken to prevent non-stormwater discharges were implemented as outlined in the NOV response letter from Glatfelter. As part of

	the implementation, Glatfelter constructed a new concrete pads and storage area for lime and coal ash, central u-drain that collects run-off and sends to treatment plant. 04/30/2014: Bob Haines conducted a stormwater inspection the day after a routine inspection for industrial wastes. The inspection was performed on a very rainy day so most of the outfalls had significant flow and most of the outfalls had clear stormwater discharge. However, poor housekeeping conditions were observed around the sludge storage pad and access road leading from coal ash shed which resulted in the runoff of residual material (sludge and coal ash) in stormwater discharge to Codorus Creek. Mr. Haines recognized this as a violation of the NPDES permit and recommended Glatfelter to address these issues to prevent non-stormwater runoff from entering Codorus Creek. 04/29/2014: Bob Haines conducted a routine inspection and indicated that all treatment units were online at the time of inspection, except for a sludge thickener. During the inspection, a small amount of petroleum product was spilled on the ground near final clarifier no. 1, and had the potential to enter the clarifier. Once discovered, Glatfelter staff initiated containment and clean-up of the spill. Mr. Haines recommended/requested Glatfelter to 1) improve housekeeping around sludge pad, 2) address sedimentation issues around final clarifiers 1 and 2, and 3) have flow meters calibrated at least annual by a third-party provider. No violations were noted at the time of inspection. 10/07/2013: Bob Haines conducted a complaint inspection reported to DEP's emergency response hotline on 10/5/2013 regarding the color of Glatfelter industrial waste discharge in the Codorus Creek. During the inspection, Mr. Haines observed the usual tea colored brown from discharge which is permitted to a certain limit. No dead or distressed aquatic life was observed. Overall, no issues noted with the color of the receiving stream or the effluent discharge.
Other Comments:	DEP's database shows that there is no open violation associated with this permittee or faciilty. The following Notice of Violations (NOVs) and other associated enforcement orders were prepared during the last permit term: 1) An NOV was prepared on May 15, 2014 for final effluent violations as reported on the DMRs for the reporting periods from October 2012 to March 2014. Another NOV was prepared on September 15, 2015 for final effluent violations reported in the March and June 2015 DMRs. 2) An NOV was prepared on May 12, 2014 for poor housekeeping practices around the sludge processing and coal ash storage areas determined by DEP Water Quality Specialist during the stormwater inspection conducted on April 30, 2014. 3) An NOV was prepared on January 14, 2016 for discharge of unknown volume of raw, untreated industrial wastewater leaked from a crack in the concrete influent box at the onsite wastewater treatment facility into the Codorus Creek. 4) One gallon of flocculant chemical was spilled into industrial wastewater processes that discharge from Outfall 002 into Codorus Creek. 5) On October 11, 2013, untreated industrial wastewater from the Zone 5 lagoon was spilled into Codorus Creek due to a heavy rain events. 6) On October 4, 2019, an NOV was prepared for unauthorized discharge of IW from the site into Codorus Creek based on the inspection performed on August 20, 2019. 7) On November 2, 2018, an NOV was prepared for effluent limit violations occurred between March and September of 2018. Item nos. 1 through 5 were resolved through the Consent Assessment of Civil Penalty (CACP) finalized on August 1st, 2016.

	It is noteworthy that Glatfelter has consistently failed to achieve compliance with the existing 2°F hourly instream temperature change (i.e., ΔT) effluent limit during the last permit term. Glatfelter indicated that it is mostly because of natural stream variability such as streamflow and weather and also because of effluent flow interruption. As a result, these exceedances were previously not considered to be violations of the permit.

Effluent Violations & Enforcement Actions

Effluent Violations since 2012, based on the eDMR data

Date	Sampling Point	PARAMETER	Results	Limits	Units	SBC
5/31/2012	Final Effluent	Biochemical Oxygen Demand (BOD5)	2452	2335	lbs/day	Daily Maximum
5/31/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5	2	ºF	Instantaneous Maximum
6/30/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
7/31/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6	2	ºF	Instantaneous Maximum
6/30/2013	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 1	0.035	pg/L	Daily Maximum
8/31/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
9/30/2012	Final Effluent	Biochemical Oxygen Demand (BOD5)	2402	2335	lbs/day	Daily Maximum
9/30/2012	Final Effluent	Biochemical Oxygen Demand (BOD5)	1267	1168	lbs/day	Average Monthly
9/30/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
10/31/2012	Final Effluent	Biochemical Oxygen Demand (BOD5)	1188	1168	lbs/day	Average Monthly
10/31/2012	Final Effluent	Ammonia-Nitrogen	4.52	3	mg/L	Daily Maximum
10/31/2012	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
1/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	1821	1751	lbs/day	Average Monthly
4/30/2013	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
5/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	3686	2335	lbs/day	Daily Maximum
5/31/2013	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
5/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	34	25	mg/L	Daily Maximum
5/31/2013	Final Effluent	Total Suspended Solids	70	60	mg/L	Daily Maximum
6/30/2014	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 2	0.035	pg/L	Daily Maximum
8/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	1417	1168	lbs/day	Average Monthly
8/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	29	25	mg/L	Daily Maximum
8/31/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	3217	2335	lbs/day	Daily Maximum
9/30/2013	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
10/31/2013	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
11/30/2013	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
11/30/2013	Final Effluent	Biochemical Oxygen Demand (BOD5)	3751	3503	lbs/day	Daily Maximum
11/30/2013	Final Effluent	Ammonia-Nitrogen	5.4	4	mg/L	Daily Maximum
1/31/2014	Final Effluent	Biochemical Oxygen Demand (BOD5)	35	34	mg/L	Daily Maximum
1/31/2014	Final Effluent	Biochemical Oxygen Demand (BOD5)	3649	3503	lbs/day	Daily Maximum
2/28/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
3/31/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
6/30/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
7/31/2014	Final Effluent	Biochemical Oxygen Demand (BOD5)	1261	1168	lbs/day	Average Monthly
7/31/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
7/31/2014	Final Effluent	Biochemical Oxygen Demand (BOD5)	2575	2335	lbs/day	Daily Maximum
6/30/2015	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 4	0.035	pg/L	Daily Maximum
8/31/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
10/31/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
11/30/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
12/31/2014	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
1/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
12/31/2015	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 4.000	0.035	pg/L	Daily Maximum

2/28/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5	2	ºF	Instantaneous Maximum
3/31/2015	Final Effluent	Total Suspended Solids	78	60	mg/L	Daily Maximum
3/31/2015	Final Effluent	Biochemical Oxygen Demand (BOD5)	5870	3503	lbs/day	Daily Maximum
3/31/2015	Final Effluent	Biochemical Oxygen Demand (BOD5)	51	34	mg/L	Daily Maximum
3/31/2015	Final Effluent	Biochemical Oxygen Demand (BOD5)	18	17	mg/L	Average Monthly
3/31/2015	Final Effluent	Color (Pt-Co Units)	316	246	Pt-Co Units	Daily Maximum
3/31/2015	Final Effluent	Total Suspended Solids	9064	4113	lbs/day	Daily Maximum
3/31/2015	Final Effluent	Total Suspended Solids	2308	2057	lbs/day	Average Monthly
3/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6	2	ºF	Instantaneous Maximum
3/31/2015	Final Effluent	Biochemical Oxygen Demand (BOD5)	2006	1751	lbs/day	Average Monthly
4/30/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5	2	ºF	Instantaneous Maximum
5/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
6/30/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
7/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
8/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
9/30/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
10/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
11/30/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
11/30/2015	Downstream Monitoring	Temperature (deg F)	69	66	ºF	Daily Maximum
11/30/2015	Downstream Monitoring	Temperature (deg F)	60	53	ºF	Average Monthly
12/31/2015	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3	2	ºF	Instantaneous Maximum
12/31/2015	Downstream Monitoring	Temperature (deg F)	56	53	ºF	Average Monthly
1/31/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4	2	ºF	Instantaneous Maximum
1/1/2016	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 10.000	.035	pg/L	Daily Maximum
5/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
6/1/2016	Final Effluent	Biochemical Oxygen Demand (BOD5)	2359	2335	lbs/day	Daily Maximum
6/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
7/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
8/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
9/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
10/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
11/1/2016	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2017	Downstream Monitoring	Temperature (deg F)	52	50	ºF	Average Monthly
1/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2017	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 10.000	.035	pg/L	Daily Maximum
2/1/2017	Downstream Monitoring	Temperature (deg F)	56	52	ºF	Average Monthly
2/1/2017	Downstream Monitoring	Temperature (deg F)	67	59	ºF	Daily Maximum
2/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
3/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	7.0	2.0	ºF	Instantaneous Maximum
4/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
5/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
7/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
8/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
10/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
11/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
12/1/2017	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	7.0	2.0	ºF	Instantaneous Maximum

1/1/2018	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 5.190	.035	pg/L	Daily Maximum
3/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
4/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6.0	2.0	ºF	Instantaneous Maximum
5/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
6/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
7/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
8/1/2018	Final Effluent	Biochemical Oxygen Demand (BOD5)	48	25	mg/L	Daily Maximum
8/1/2018	Final Effluent	Biochemical Oxygen Demand (BOD5)	5564	2335	lbs/day	Daily Maximum
8/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
9/1/2018	Final Effluent	Biochemical Oxygen Demand (BOD5)	29	25	mg/L	Daily Maximum
9/1/2018	Final Effluent	Biochemical Oxygen Demand (BOD5)	3289	2335	lbs/day	Daily Maximum
11/1/2018	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
1/1/2019	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 5.000	.035	pg/L	Daily Maximum
6/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
7/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
8/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
9/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
10/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
11/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
12/1/2019	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
1/1/2020	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 2.000	.035	pg/L	Daily Maximum
3/1/2020	Downstream Monitoring	Temperature (deg F)	56	55	ºF	Average Monthly
6/1/2020	Final Effluent	Ammonia-Nitrogen	4.33	3.0	mg/L	Daily Maximum
6/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
7/1/2020	Final Effluent	Biochemical Oxygen Demand (BOD5)	2679	2335	lbs/day	Daily Maximum
7/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
8/1/2020	Final Effluent	Biochemical Oxygen Demand (BOD5)	2469	2335	lbs/day	Daily Maximum
9/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
10/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
10/1/2020	Instream Monitoring	Stream Flow, Minimum	20.0	21.3	cfs	Daily Minimum Average
11/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6.0	2.0	ºF	Instantaneous Maximum
12/1/2020	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
1/1/2021	Downstream Monitoring	Temperature (deg F)	51	50	ºF	Average Monthly
1/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2021	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 3.280	.035	pg/L	Daily Maximum
2/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
3/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
5/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
6/1/2021	Downstream Monitoring	Temperature (deg F)	86	83	ºF	Daily Maximum
6/1/2021	Final Effluent	Biochemical Oxygen Demand (BOD5)	3479	2335	lbs/day	Daily Maximum
6/1/2021	Final Effluent	Biochemical Oxygen Demand (BOD5)	41	25	mg/L	Daily Maximum
6/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
6/1/2021	Instream Monitoring	Stream Flow, Minimum	19.1	21.3	cfs	Daily Minimum Average
7/1/2021	Final Effluent	Biochemical Oxygen Demand (BOD5)	2690	2335	lbs/day	Daily Maximum
7/1/2021	Final Effluent	Total Suspended Solids	62	60	mg/L	Daily Maximum
7/1/2021	Final Effluent	Total Suspended Solids	6670	4113	lbs/day	Daily Maximum

7/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	7.0	2.0	ºF	Instantaneous Maximum
8/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6.0	2.0	ºF	Instantaneous Maximum
8/1/2021	Instream Monitoring	Stream Flow, Minimum	21.0	21.3	cfs	Daily Minimum Average
9/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
10/1/2021	Downstream Monitoring	Temperature (deg F)	70	69	ºF	Average Monthly
10/1/2021	Final Effluent	Biochemical Oxygen Demand (BOD5)	1215	1168	lbs/day	Average Monthly
10/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
11/1/2021	Final Effluent	Total Suspended Solids	2159	2057	lbs/day	Average Monthly
11/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
12/1/2021	Downstream Monitoring	Temperature (deg F)	58	53	ºF	Average Monthly
12/1/2021	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
1/1/2022	Downstream Monitoring	Temperature (deg F)	63	62	ºF	Daily Maximum
1/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	6.0	2.0	ºF	Instantaneous Maximum
1/1/2022	Final Effluent	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 1.980	.035	pg/L	Daily Maximum
2/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
3/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
6/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
7/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
8/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
9/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
11/1/2022	Downstream Monitoring	Temperature (deg F)	75	71	ºF	Daily Maximum
11/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
12/1/2022	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
1/1/2023	Final Effluent	2,3,7,8-Tetrachlorodibenzofuran	35.6	31.9	pg/L	Daily Maximum
2/1/2023	Downstream Monitoring	Temperature (deg F)	57	52	ºF	Average Monthly
2/1/2023	Downstream Monitoring	Temperature (deg F)	64	59	ºF	Daily Maximum
3/1/2023	Downstream Monitoring	Temperature (deg F)	58	55	ºF	Average Monthly
3/1/2023	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	5.0	2.0	ºF	Instantaneous Maximum
4/1/2023	Downstream Monitoring	Temperature (deg F)	68	65	ºF	Average Monthly
4/1/2023	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	4.0	2.0	ºF	Instantaneous Maximum
4/1/2023	Final Effluent	pH	9.1	9.0	S.U.	Maximum
6/1/2023	Downstream Monitoring	Temperature (deg F)	84	83	ºF	Daily Maximum
6/1/2023	Final Effluent	Ammonia-Nitrogen	4.0	3.0	mg/L	Daily Maximum
6/1/2023	Final Effluent	Biochemical Oxygen Demand (BOD5)	2527	2335	lbs/day	Daily Maximum
6/1/2023	Final Effluent	pH	9.3	9.0	S.U.	Maximum
6/1/2023	Instream Monitoring	Temperature, Delta (Discharge - Intake) (deg F)	3.0	2.0	ºF	Instantaneous Maximum
9/1/2023	Instream Monitoring	Stream Flow, Minimum	21.1	21.3	cfs	Daily Minimum Average

Previous DEP Enforcement Actions

Violation ID	Violation Date	Violation Description	Resolved Date	Inspection ID	Inspection Date	Inspection Type	Inspector	Violation Comment
535052	3/17/2008	Polluting substance(s) allowed to discharge into Waters of the Commonwealth.	3/17/2008	1693152	3/17/2008	Incident- Response to Accident or Event	ROTH, JOSEPH	discharge of sludge to a wet land area

540255	6/1/2008	Polluting substance(s) allowed to discharge into Waters of the Commonwealth.	1/5/2009	1711149	6/1/2008	Incident- Response to Accident or Event	ROTH, JOSEPH	leak from eq basin spray pump to a storm water ditch which led to the Codorus Creek
543863	7/14/2008	Industrial waste was discharged without permit.	7/15/2008	1722459	7/14/2008	Incident- Response to Accident or Event	ROTH, JOSEPH	overflow from ps to codorus creek
552673	10/22/2008	Administrative review of DMR reveals violation(s).	1/5/2009	1756014	10/22/2008	Compliance Evaluation	ROTH, JOSEPH	color reporting discrepancy
572734	9/23/2009	Industrial waste was discharged without permit.	11/6/2009	1832650	9/23/2009	Incident- Response to Accident or Event	ROTH, JOSEPH	Unpermitted discharge of cooling tower water at Outfall 002.
572735	9/20/2009	Industrial waste was discharged without permit.	11/6/2009	1832651	9/20/2009	Incident- Response to Accident or Event	ROTH, JOSEPH	Unpermitted discharge from supernatant P.S. 14 into Codorus Creek at Outfall 001.
578069	12/18/2009	Industrial waste was discharged without permit.	1/4/2010	1850817	12/18/2009	Incident- Response to Accident or Event	SWEGER, BARRY	IW discharged after sludge transfer line ruptured spilling sludge into Codorus Creek.
581169	1/5/2010	Polluting substance(s) allowed to discharge into Waters of the Commonwealth.	2/22/2010	1862687	1/5/2010	Incident- Response to Accident or Event	ROTH, JOSEPH	oily/sheen discharge from Outfall 002.
581560	2/4/2010	Industrial waste was discharged without permit.	2/22/2010	1864079	2/4/2010	Follow-up Inspection	ROTH, JOSEPH	Unpermitted discharge of black liquor through Outfall 002
649143	9/14/2012	Industrial waste was discharged without a permit	9/14/2012	2099806	9/14/2012	Incident- Response to Accident or Event	HAINES, ROBERT	IW transfer pump failure at primary treatment plant. Manhole overflow to Codorus Creek.
695330	4/30/2014	NPDES - Violation of Part C permit condition(s)	1/23/2015	2269135	4/30/2014	Storm Water Industrial-Non-Sampling	HAINES, ROBERT	Stormwater discharge contained process solids and coal ash. Email addressing remaining concerns after fui sent 1/23/15
697295	5/15/2014	NPDES - Violation of effluent limits in Part A of permit	6/4/2014	2275181	5/15/2014	Administrative/File Review	HAINES, ROBERT	10/12 NH3 and temp, 1/13 bod monthly, 4/13 temp, 5/13 BOD and TSS, 8/13 BOD, 10/13 temp, 11/13 NH3 BOD and Temp, 1/14 BOD and Temp
734499	8/5/2015	NPDES - Violation of effluent limits in Part A of permit		2406524	8/5/2015	Compliance Evaluation	HAINES, ROBERT	Various DMR vioaltions
744415	1/14/2016	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth		2443847	1/14/2016	Incident- Response to Accident or Event	HAINES, ROBERT	Contents of emergency basin leaked to underdrain system.
745212	1/8/2016	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth		2447350	1/8/2016	Incident- Response to Accident or Event	PARDOE, AUSTIN	discharge if influent IW from bank into Codorus downstream of Rt 116 Bridge
753549	1/8/2016	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth		2462103	1/8/2016	Incident- Response to Accident or Event	PARDOE, AUSTIN	

Existing Effluent Limits and Monitoring Requirements

All tables below summarize effluent limits and monitoring requirements specified in the existing permit.

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Continuous	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TSS	2,057	4,113	XXX	30	60	75	1/day	24-Hr Composite
BOD5 (5/1 – 10/31)	1,168	2,335	XXX	14	25	25	1/day	24-Hr Composite
BOD5 (11/1 – 4/30)	1,751	3,503	XXX	17	34	38	1/ay	24-Hr Composite
NH3-N (5/1 – 10/31)	XXX	Report Total Monthly	XXX	1,5	3.0	3.8	1/day	24-Hr Composite
NH3-N (11/1 – 4/30)	XXX	Report Total Monthly	XXX	2.0	4.0	5.0	1/day	24-Hr Composite
Color (PCU) (Upstream)	XXX	XXX	XXX	Report	Report	XXX	1/day	8-Hr Composite
Color (PCU) (Influent)	XXX	XXX	XXX	Report	Report	XXX	1/day	24-Hr Composite
Color (PCU) (Effluent) (5/1 – 10/31)	XXX	XXX	XXX	140	280	350	1/day	24-Hr Composite
Color (PCU) (Effluent) (11/1 – 4/30)	XXX	XXX	XXX	123	246	307	1/day	24-Hr Composite
Color (PCU) (Downstream)	XXX	XXX	XXX	Report	Report	XXX	1/day	24-Hr Composite
Absorbable Organic Halides	XXX	812	XXX	Report	Report	XXX	1/month	24-Hr Composite
Absorbable Organic Halides	XXX	364 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Temperature (°F) (Effluent)	XXX	XXX	XXX	XXX	Report	110	1/day	I-S
Temperature (°F) (Upstream)	XXX	XXX	XXX	Report	Report	XXX	1/day	I-S

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Temperature (°F) (Downstream)	XXX	XXX	XXX	Footnote 7,8		XXX	Continuous	I-S
Hourly Instream (°F) Temperature Change	XXX	XXX	XXX	XXX	Report	2.0	Continuous	I-S
Total Phosphors	Report Total Monthly	Report Total Annual	XXX	Report	2.0	2.5	1/week	24-Hr Composite
Fecal Coliform (No. / 100 mL)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
TKN	Report Total Monthly	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen	Report Total Monthly	Report Total Annual	XXX	Report	XXX	XXX	1/month	Calculation
Chloroform	XXX	XXX	XXX	0.02	0.04	0..05	1/week	Grab
COD (influent)	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
COD (effluent)	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Boron	XXX	XXX	XXX	XXX	Repot	XXX	1/month	24-Hr Composite
2,3,7,8-TCDD (pg/L)	XXX	XXX	XXX	XXX	0.035	XXX	1/year	24-Hr Composite
2,3,7,8-TCDF (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite

Outfall 002

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
BOD5	XXX	XXX	XXX	XXX	Repot	XXX	1/month	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Temperature (°F) (Effluent)	XXX	XXX	XXX	Report	Report	110	1/shit	Grab
Temperature (°F) (Upstream)	XXX	XXX	XXX	Report	Report	XXX	1/shift	Grab
Temperature (°F) (at Gage) (5/1 – 10/31)	21.3 Min 7-day average	Report Daily Min	XXX	XXX	XXX	XXX	Continuous	Recorded
Temperature (°F) (at Gage) (11/1 – 4/30)	15.8 Min 7-day average	Report Daily Min	XXX	XXX	XXX	XXX	Continuous	Recorded

IMP-101

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Kappa Number	XXX	XXX	XXX	20 Annual Avg	Report	XXX	1/week	Grab
Color (PCU)	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloroform	2.72	4.55	XXX	Report	Report	XXX	1/quarter	Grab
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measured
2,3,7,8-TCDD	XXX	XXX	XXX	< 10 pg/L	XXX	XXX	2/year	Grab
2,3,7,8-TCDF	XXX	XXX	XXX	31.9 pg/L	XXX	XXX	2/year	Grab
Trichlorosyringol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
3,4,5-trichlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
3,4,6-trichlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
Tetrachlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
3,4,5-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
3,4,6-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
4,5,6-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
Tetrachloroguaiacol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
2,4,5-trichlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
2,4,6-trichlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
2,3,4,6-tetrachlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
Pentachlorophenol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab

IMP-102

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Kappa Number	XXX	XXX	XXX	13 Annual Avg	Report	XXX	1/week	Grab
Color (PCU)	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloroform	3.16	5.28	XXX	Report	Report	XXX	1/quarter	Grab
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Measured
2,3,7,8-TCDD	XXX	XXX	XXX	< 10 pg/L	XXX	XXX	2/year	Grab
2,3,7,8-TCDF	XXX	XXX	XXX	31.9 pg/L	XXX	XXX	2/year	Grab
Trichlorosyringol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
3,4,5-trichlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
3,4,6-trichlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
Tetrachlorocatechol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
3,4,5-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
3,4,6-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
4,5,6-trichloroguaiacol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
Tetrachloroguaiacol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab
2,4,5-trichlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
2,4,6-trichlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
2,3,4,6-tetrachlorophenol	XXX	XXX	XXX	< 0.0025	XXX	XXX	2/year	Grab
Pentachlorophenol	XXX	XXX	XXX	< 0.005	XXX	XXX	2/year	Grab

Stormwater Outfalls

Parameter	Monitoring Requirements		
	Composite Sample	Grab Sample	Monitoring Frequency
BOD5	XXX	Report	1/year
COD	XXX	Report	1/year
Oil and Grease	XXX	Report	1/year
pH	XXX	Report	1/year
TSS	XXX	Report	1/year
TP	XXX	Report	1/year
TKN	XXX	Report	1/year
Total Manganese	XXX	Report	1/year
Total Iron	XXX	Report	1/year

Effluent Data

DMR Data for Outfall 001 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	12.7	14.0	13.4	13.1	13.4	13.3	13.3	13.1	13.1	13.8	14.0	13.0
Flow (MGD) Daily Maximum	16.0	14.9	14.6	14.8	14.7	14.3	15.6	14.9	15.5	18.3	15.3	15.6
pH (S.U.) Minimum	7.8	7.6	8.0	8.3	8.4	8.1	8.0	7.6	7.3	7.3	7.7	7.4
pH (S.U.) Maximum	8.8	8.5	8.7	8.7	8.7	8.7	8.5	8.3	8.5	8.2	8.1	8.3
DO (mg/L) Minimum	6.0	7.7	7.7	8.1	8.7	8.5	8.4	8.0	7.0	7.5	7.4	6.9
Color (Pt-Co Units) Average Monthly	114	121	120	119	114	115	111	114	122	125	132	134
Color (Pt-Co Units) Downstream Monitoring Average Monthly	55	59	53	42	52	52	54	59	63	52	48	54
Color (Pt-Co Units) Industrial Influent Average Monthly	301	359	353	336	295	307	310	278	324	291	320	318
Color (Pt-Co Units) Upstream Monitoring Average Monthly	17	16	15	14	16	12	21	19	20	13	16	18
Color (Pt-Co Units) Daily Maximum	190	156	155	155	148	146	147	170	174	173	189	205
Color (Pt-Co Units) Downstream Monitoring Daily Maximum	83	90	80	57	75	70	80	78	88	68	63	81
Color (Pt-Co Units) Industrial Influent Daily Maximum	680	645	770	610	595	855	630	455	680	640	675	660
Color (Pt-Co Units) Upstream Monitoring Daily Maximum	40	43	24	37	53	52	98	40	35	26	48	86
Temperature (ºF) Downstream Monitoring Average Monthly	77	69	64	55	49	51	51	61	67	70	75	77
Temperature (ºF) Upstream Monitoring Average Monthly	70	63	57	49	38	40	42	52	59	64	70	72

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Temperature (ºF) Daily Maximum	97	83	84	79	71	70	73	82	81	87	87	88
Temperature (ºF) Downstream Monitoring Daily Maximum	86	77	75	65	54	55	61	69	72	75	78	79
Temperature (ºF) Upstream Monitoring Daily Maximum	77	71	67	59	43	43	49	60	64	69	73	74
Delta T (ºF) Instream Monitoring Instantaneous Maximum	3.0	4.0	2.0	5.0	5.0	4.0	5.0	6.0	5.0	4.0	2.0	3.0
BOD5 (lbs/day) Average Monthly	1104	817	722	587	762	771	885	926	764	1164	1129	883
BOD5 (lbs/day) Daily Maximum	3479	1496	1401	1034	1103	1553	1506	1721	1705	2147	2469	2679
BOD5 (mg/L) Average Monthly	10	7	6	5	7	7	8	8	7	10	10	8
BOD5 (mg/L) Daily Maximum	41	13	12	10	9	14	14	16	14	18	21	22
COD (mg/L) Average Monthly	170	102	95	122	132	484	123	89	76	106	104	216
COD (mg/L) Industrial Influent Average Monthly	702	766	836	820	740	677	598	384	193	421	547	440
COD (mg/L) Daily Maximum	170	102	95	122	132	484	123	89	76	106	104	216
COD (mg/L) Industrial Influent Daily Maximum	702	766	836	820	740	677	598	384	193	421	547	440
TSS (lbs/day) Average Monthly	974	896	842	988	1310	1171	1232	1200	1062	992	997	1060
TSS (lbs/day) Daily Maximum	2858	2072	1670	1728	2252	1868	2052	2797	1701	1651	1664	3513
TSS (mg/L) Average Monthly	10	8	8	9	12	11	11	11	10	9	9	9
TSS (mg/L) Daily Maximum	29	18	14	15	20	16	20	26	15	15	15	27
Fecal Coliform (No./100 ml) Daily Maximum	53	2	4	5	70	13	387	13	4	33	61	5
Nitrate-Nitrite (mg/L) Average Monthly	< 0.2	< 0.1	< 0.1	< 0.1	< 0.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.4	< 0.1	< 0.1

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Nitrate-Nitrite (lbs) Total Monthly	< 530	< 360	< 330	< 330	< 2470	< 350	< 338	< 320	< 330	< 1230	< 360	< 360
Total Nitrogen (mg/L) Average Monthly	< 3.0	< 1.8	< 2.3	< 1.8	< 2.5	< 2.1	< 1.7	< 1.6	< 2.2	< 2.1	< 1.7	< 2.7
Total Nitrogen (lbs) Total Monthly	< 9090	< 6500	< 7410	< 5930	< 8140	< 7310	< 5740	< 5110	< 7360	< 6880	< 6160	< 9670
Total Nitrogen (lbs) Total Annual										84620		
Ammonia (mg/L) Average Monthly	< 0.24	< 0.15	< 0.33	< 0.29	< 0.11	< 0.1	0.11	< 0.11	< 0.10	< 0.1	< 0.12	< 0.18
Ammonia (mg/L) Daily Maximum	2.68	1.20	2.35	2.56	0.29	< 0.1	0.32	0.18	0.16	0.12	0.64	0.68
Ammonia (lbs) Total Monthly	< 620	< 550	< 960	< 990	< 340	< 340	< 385	< 380	< 350	< 350	< 430	< 610
TKN (mg/L) Average Monthly	< 2.8	1.7	2.2	< 1.7	1.8	2.0	1.6	< 1.5	2.1	< 1.7	1.6	2.6
TKN (lbs) Total Monthly	< 8560	6140	7080	< 5610	5680	6960	5400	< 4790	7020	< 5650	5790	9310
Total Phosphorus (mg/L) Daily Maximum	0.23	0.11	0.10	< 0.1	0.11	0.23	0.13	0.10	0.17	0.10	0.11	0.27
Total Phosphorus (lbs) Total Monthly	< 380	< 370	< 330	< 330	< 330	< 470	< 369	< 320	< 390	< 335	< 370	< 520
Total Phosphorus (lbs) Total Annual										4440		
Total Aluminum (mg/L) Daily Maximum	0.613	0.482	0.330	0.597	0.708	0.596	1.18	0.468	0.575	0.510	0.70	0.352
Total Boron (mg/L) Daily Maximum	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,3,7,8-TCDF (pg/L) Daily Maximum							< 2.00					
2,3,7,8-TCDD (pg/L) Daily Maximum							< 2.000					
Chloroform (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
AOX (lbs/day) Daily Maximum	127	198	< 115	192	233	166	153	433	109	161	128	150
AOX (lbs/day) Total Annual	180	182	174	185	180	172	163	166	140	143	143	154
AOX (mg/L) Average Monthly	1.0	1.8	< 1.0	1.9	2.1	1.5	1.4	3.9	1.0	1.4	1.1	1.3

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
AOX (mg/L) Daily Maximum	1.0	1.8	< 1.0	1.9	2.1	1.5	1.4	3.9	1.0	1.4	1.1	1.3

DMR Data for Outfall 002 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly				3.4	6.0	5.9	6.4	7.7	7.8	8.1	8.1	4.0
Flow (MGD) Daily Maximum				6.9	6.7	6.0	7.6	8.2	8.2	8.2	8.5	8.6
pH (S.U.) Minimum				7.3	7.3	7.4	7.1	7.2	7.1	7.3	7.1	6.9
pH (S.U.) Maximum				8.2	8.1	8.3	8.1	8.1	7.9	8.0	7.8	7.8
Temperature (ºF) Average Monthly				57	52	52	54	61	68	71	77	78
Temperature (ºF) Upstream Monitoring Average Monthly	64	60	55	47	38	39	41	51	56	59	64	66
Temperature (ºF) Daily Maximum				67	58	55	59	69	72	76	80	81
Temperature (ºF) Upstream Monitoring Daily Maximum	71	66	64	58	42	43	48	59	60	65	69	68
BOD5 (mg/L) Daily Maximum				2	< 2	< 2	< 2	E	< 2	< 2	< 2	< 2
TSS (mg/L) Daily Maximum				59	9	8	5	E	8	14	18	9
Minimum Stream Flow (cfs) Instream Monitoring Daily Minimum	15.0	20.7	18.9	34.5	15.0	14.7	13.9	15.2	10.8	28.8	35.3	32.0
Minimum Stream Flow (cfs) Instream Monitoring Daily Minimum Average	19.1	21.8	22.3	44.0	18.1	17.3	20.7	17.0	20.0	31.1	36.7	33.6

DMR Data for Stormwater Outfalls (December 2020)

Parameter	Outfall 011	Outfall 026	Outfall 027	Outfall 036	Outfall 047	Outfall 050
pH (S.U.) Maximum	7.35	8.04	7.40	7.64	8.12	7.98
BOD5 (mg/L) Annual Average	5.7	< 2.0	< 2.0	2.5	< 2.0	< 2.0
BOD5 (mg/L) Maximum	5.7	< 2.0	< 2.0	2.5	< 2.0	< 2.0
COD (mg/L) Annual Average	150	< 15	< 15	25	< 15	23
COD (mg/L) Maximum	150	< 15	< 15	25	< 15	23
TSS (mg/L) Annual Average	22	36	< 5	13	16	8
TSS (mg/L) Maximum	22	36	< 5	13	16	8
Oil and Grease (mg/L) Maximum	< 3.8	< 3.9	< 3.7	< 3.7	< 3.9	< 3.8
TKN (mg/L) Annual Average	2.3	< 1.0	< 1.0	1.2	< 1.0	1.7
TKN (mg/L) Maximum	2.3	< 1.0	< 1.0	1.2	< 1.0	1.7
Total Phosphorus (mg/L) Annual Average	< 0.1	< 0.10	< 0.1	0.16	< 0.10	0.33
Total Phosphorus (mg/L) Maximum	< 0.1	< 0.10	< 0.1	0.16	< 0.10	0.33
Total Iron (mg/L) Annual Average	0.094	0.42	< 0.030	0.38	0.29	0.17
Total Iron (mg/L) Maximum	0.094	0.42	< 0.030	0.38	0.29	0.17
Total Manganese (mg/L) Annual Average	0.026	0.035	< 0.0025	0.044	0.027	0.023
Total Manganese (mg/L) Maximum	0.026	0.035	< 0.0025	0.044	0.027	0.023

DMR Data for IMP 101 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	3.70	3.62	3.63	3.56	3.63	3.58	3.58	3.54	3.55	3.58	3.64	3.58
Flow (MGD) Daily Maximum	3.70	3.70	3.70	3.60	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Kappa Number (No.) Annual Average	10.9	10.9	10.9	10.9	11.0	11.0	10.9	10.9	10.8	10.7	10.8	10.8
Kappa Number (No.) Daily Maximum	10.7	13.2	11.3	12.6	10.4	14.1	11.2	12.4	12.5	10.6	13.1	13.6
Color (Pt-Co Units) Average Monthly	337	420	451	394	353	330	381	415	354	383	407	428
Color (Pt-Co Units) Daily Maximum	368	562	571	442	472	367	429	492	388	495	478	636
Pentachloro-phenol (mg/L) Daily Maximum	< 0.002						< 0.0020					
2,3,4,6-Tetra-chlorophenol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
2,3,7,8-TCDF (pg/L) Daily Maximum	< 5.00						< 4.00					
2,3,7,8-TCDD (pg/L) Daily Maximum	< 5.00						< 4.00					
3,4,5-Trichloro-catechol (mg/L) Daily Maximum	< 0.002						< 0.0020					
2,4,5-Trichloro-phenol (mg/L) Daily Maximum	< 0.0020						< 0.0020					
3,4,6-Trichloro-catechol (mg/L) Daily Maximum	< 0.004						< 0.0040					
3,4,5-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
3,4,6-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
4,5,6-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
2,4,6-Trichlorophenol (mg/L) Daily Maximum	< 0.0010						< 0.0010					

Chloroform (lbs/day) Average Monthly	0.27			0.16			0.19			0.14		
Chloroform (lbs/day) Daily Maximum	0.27			0.16			0.19			0.14		
Chloroform (mg/L) Average Monthly	0.009			0.005			0.006			0.005		
Chloroform (mg/L) Daily Maximum	0.009			0.005			0.006			0.005		
Tetrachloro-catechol (mg/L) Daily Maximum	< 0.002						< 0.0020					
Tetrachloro-guaiacol (mg/L) Daily Maximum	< 0.002						< 0.0020					
Trichloro-syringol (mg/L) Daily Maximum	< 0.0010						< 0.0010					

DMR Data for IMP 102 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	2.65	2.90	2.90	2.92	2.90	2.83	2.85	2.88	2.95	2.90	2.86	2.85
Flow (MGD) Daily Maximum	2.80	3.10	2.90	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Kappa Number (No.) Annual Average	8.8	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.8	8.8	8.7	8.6
Kappa Number (No.) Daily Maximum	8.6	10.3	10.0	10.6	9.7	9.3	9.1	8.6	10.1	9.1	11.0	10.0
Color (Pt-Co Units) Average Monthly	286	363	443	390	435	369	453	319	431	403	420	354
Color (Pt-Co Units) Daily Maximum	295	472	548	508	508	384	561	494	514	489	499	510
Pentachloro-phenol (mg/L) Daily Maximum	< 0.002						< 0.0020					
2,3,4,6-Tetra-chlorophenol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
2,3,7,8-TCDF (pg/L) Daily Maximum	< 3.92						< 4.00					
2,3,7,8-TCDD (pg/L) Daily Maximum	< 3.92						< 4.00					

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
3,4,5-Trichloro-catechol (mg/L) Daily Maximum	< 0.002						< 0.0020					
2,4,5-Trichloro-phenol (mg/L) Daily Maximum	< 0.0020						< 0.0020					
3,4,6-Trichloro-catechol (mg/L) Daily Maximum	< 0.002						< 0.0020					
3,4,5-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
3,4,6-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
4,5,6-Trichloro-guaiacol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
2,4,6-Trichlorophenol (mg/L) Daily Maximum	< 0.0010						< 0.0010					
Chloroform (lbs/day) Average Monthly	0.20			0.12			0.13			0.14		
Chloroform (lbs/day) Daily Maximum	0.20			0.12			0.13			0.14		
Chloroform (mg/L) Average Monthly	0.008			0.005			0.005			0.006		
Chloroform (mg/L) Daily Maximum	0.008			0.005			0.005			0.006		
Tetrachloro-catechol (mg/L) Daily Maximum	< 0.002						< 0.0020					
Tetrachloro-guaiacol (mg/L) Daily Maximum	< 0.002						< 0.0020					
Trichloro-syringol (mg/L) Daily Maximum	< 0.0010						< 0.0010					

Development of Effluent Limitations and Monitoring Requirements

Under the federal Clean Water Act (CWA) and the state Clean Streams Law (CSL), the discharge of pollutants through any point source is prohibited without an NPDES permit unless such discharge is exempted by the CWA and/or CSL. The NPDES permit is the mechanism used to apply the requirements from CWA and CSL to point sources to achieve water quality goals. The NPDES permit is developed in accordance with state and federal regulations. For Pixelle, discharges from each of existing outfalls have been evaluated to determine appropriate effluent limitations and other requirements for the upcoming permit term.

Technology-Based Effluent Limitations (TBELs)
As defined in 40 CFR § 125.3, technology-based treatment requirements represent the minimum level of control that must be imposed in a permit to meet the best practicable control technology currently available (BPT) for conventional and other pollutants (i.e., some metals), the best conventional pollutant control technology (BCT) for conventional pollutants, and the available technology economically achievable (BAT) for toxic and other non-conventional pollutants. Where no technology-based effluent guidelines are available, case-by-case effluent limitations can be established under Section 402(a)(1)(B) of the CWA. The discharge from Pixelle, in accordance with 40 CFR § 122.44(a)(1) and Subpart A of 40 CFR § 125, must meet technology-based requirements established based on effluent limitations guidelines (ELGs) and standards found in 40 CFR Part 430 (i.e., *The Pulp, Paper, And Paperboard Point Source Category*), other standards found in 40 CFR § 133.102 and 25 Pa. Code §§§ 92a.47, 92a.48, and 95.2, and/or a case-by-case determination using Best Professional Judgment (BPJ).

Water Quality-Based Effluent Limitations (WQBELs)
Per 40 CFR § 122.44(d), more stringent requirements must be included in the NPDES permit when applicable technology-based requirements are not sufficient to protect water quality standards in the receiving stream. Specifically, limitations must be developed when pollutants, in the opinion of DEP, are discharged at levels that have the reasonable potential to cause or contribute to an exceedance of water quality standards (40 CFR § 122.44(d)(1)(i)). In order to develop appropriate WQBELs, DEP performs a reasonable potential analysis through the application of computer-based water quality models such as WQM 7.0 ver. 1.1, Toxics Screening Management Spreadsheet (TMS), Thermal Discharge Limit Calculation Spreadsheet (TDCS) and TRC_CALC Spreadsheet. These models recommend a wasteload allocation (WLA) for each pollutant calculated based on stream and discharge characteristics.

Dye Study
Dye studies were performed in 1991 and 2004. The first and second dye studies conducted in September and October 1991 revealed a velocity of 0.58 ft./sec and 0.56 ft./sec, respectively. Another study conducted in August 2004 showed the velocity of 0.93 ft./sec. The value of 0.56 ft./sec has been consistently considered in water quality modeling as it provides a better representation of low flow conditions for Codorus Creek. In the opinion of DEP, it is still acceptable to use 0.56 ft./sec as an in-stream velocity for modeling purposes considering the upstream streamflow has been consistently regulated as no significant hydrologic changes have been identified within the affected area for years.

Instream Compliance Point
According to the last permit renewal fact sheet, a monitoring point at or near the point of complete mix was required to be established for the purpose of instream monitoring and compliance for color and temperature effluent limitations. Consequently, the final permit renewal issued on May 31, 2007 specifies 1,230 feet downstream of Outfall 001 as a point of compliance for final effluent limits for temperature and 1,800 feet downstream of Outfall 001 as an instream color monitoring location in which net color (i.e., upstream minus downstream color sample results) was required to be reported and must not exceed the criterion of 75 PCUs, in addition to the actual end-of-pipe effluent limits of 140 PCU (summer) and 123 PCU (winter). Throughout the next few pages, this fact sheet will address the basis of these effluent limits and compliance points and will also discuss DEP's reevaluation as to whether these site-specific requirements are still warranted.

Additional requirements will also be considered based on DEP's current technical guidance, directives, Standard Operating Procedures (SOPs), and other related policies. The published policies/regulations established by those government agencies having water quality control authority over water that may be affected by this permit will also be considered in developing permit requirements.

Development of Effluent Limitations and Monitoring Requirements – Internal Monitoring Points

As mentioned earlier, Pixelle has been consistently monitoring certain influent wastestreams at two (2) internal monitoring points (IMPs); IMP-101 and IMP-102. MP-101 receives bleach plant effluent from the Softwood fiber line and MP-102 receives bleach plant effluent from the Hardwood fiber line. Wastestreams from both IMPs are ultimately discharged via Outfall 001. DEP previously determined that internal monitoring points are necessary to establish effluent limits for specific wastestreams for Pixelle given the complexity of plant operations, various wastestream lines and etc. This approach is supported by 40 CFR§122.45(h).

The actual BAT ELG found in 40 CFR§430.24(b)(1) also requires internal monitoring points for certain toxic pollutants based on each fiber line. For this renewal, DEP therefore has decided to revisit existing permit requirements (TBELs) for these IMPs. It is noteworthy that a water quality analysis in developing WQBELs will be performed at Outfall 001 as it is an ultimate stream discharge point.

All conventional pollutants under BPT ELGs in Subpart B of 40 CFR §430.22 have been applied to Outfall 001. For toxics, as Pixelle enrolled in the Voluntary Advanced Technology Incentives Program (VATIP), BAT ELGs listed below in 40 CFR §430.24(b) apply to each IMPs. See TBEL-Toxics for Outfall 001 for more information about VATIP.

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Minimum level
TCDD	<Minimum Level (ML)	10 pg/L
TCDF	31.9	
Chloroform	6.92 (daily max); 4.14 (average monthly)	
Trichlorosyringol	<ML	2.5 ug/L
3,4,5-trichlorocatechol	<ML	5.0 ug/L
3,4,6-trichlorocatechol	<ML	5.0 ug/L
3,4,5-trichloroguaiacol	<ML	2.5 ug/L
3,4,6-trichloroguaiacol	<ML	2.5 ug/L
4,5,6-trichloroguaiacol	<ML	2.5 ug/L
2,4,5-trichlorophenol	<ML	2.5 ug/L
2,4,6-trichlorophenol	<ML	2.5 ug/L
Tetrachlorocatechol	<ML	5.0 ug/L
Tetrachloroguaiacol	<ML	5.0 ug/L
2,3,4,6-tetrachlorophenol	<ML	2.5 ug/L
Pentachlorophenol	<ML	5.0 ug/L

The current permit contains Part C conditions required the permittee to use specific EPA analytical methods to analyze these pollutants. This condition will be removed from the permit as the permittee, regardless of the pollutant types (or groups), is already required to conduct the analysis using the method that is sufficiency sensitive according to Part A.III standard conditions and 40 CFR 122.44(i)(1)(iv)) which states that “Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be sufficiently sensitive. A method is sufficiently sensitive when 1) the method minimum level is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or 2) the method has the lowest minimum level of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, for the measured pollutant or pollutant parameter; or 3) the method is specified in this permit or has been otherwise approved in writing by DEP for the measured pollutant or pollutant parameter.”

For Chloroform, these ELGs are expressed in grams per 1,000 kilograms. Each of these IMPs has been evaluated as follows:

IMP 101: Average Monthly Limit: 4.14 g/1,000 kg * 302,000 kg/day * 1 lb./453.592 g = 2.75 lbs/day.
Daily Maximum Limits: 6.92 g/1,000 kg * 302,000 kg/day * 1 lb./453.592 g = 4.60 lbs/day.

IMP 102: Average Monthly Limit: 4.14 g/1,000 kg * 332,000 kg/day * 1 lb./453.592 g = 3.03 lbs/day.
Daily Maximum Limits: 6.92 g/1,000 kg * 332,000 kg/day * 1 lb./453.592 g = 5.06 lbs/day.

IMP 101 effluent limits have slightly increased while IMP 102 effluent limits have slightly decreased when comparing these values with existing effluent limits. These limits along with the above-mentioned BAT ELGs will be included for each of these IMPs. While the ELG requires a monthly sampling for these parameters, the existing permit requires 2/year sampling requirement. This was based on the fact that the ELG allows a relaxation on the monitoring frequency for facilities under the VATIP. Past DMR data shows that all of these chlorinated organics, except for Chloroform have not been detected consistently. The existing 2/year will therefore remain unchanged.

The BAT ELG in 40 CFR§430.24(b)(1) also specifies an effluent standard of 0.623 kg/kkg as average monthly for AOX, absorbable organic halides. It is a bulk parameter that measures the total mass of chlorinated organic matter in wastewater. 40 CFR§430.24(b)(1) requires effluent limits for AOX to be developed at the end of pipe based on loadings attributable to each of fiber lines. As a result, DEP has been developing effluent limits for AOX for Outfall 001 as opposed to these IMPs.

The BAT ELG in 40 CFR§430.24(b)(4) has annual average effluent standards of 20 (softwood furnish) and 13 (hardwood furnish) for Kappa number for those facilities under Tier 1 of the VATIP. Kappa number is the lignin content of pulp, as measured by a modified permanganate test corrected to 50 percent consumption of the chemical, according 40 CFR §430.02(f)(7). These existing limits will remain unchanged in the permit.

The existing permit contains routine monitoring requirements for color and flow at these IMPs. These requirements will continue to be included in the permit in accordance with 40 CFR §122.44(i)(1)(iii) and 25 Pa Code §92a.61(c).

Development of Effluent Limitations and Monitoring Requirements – Outfall 001

Outfall No.	001	**Design Flow (MGD)**	13.7
Latitude	39º 52' 42.00"	**Longitude**	-76º 50' 51.00"

Wastewater Description: IW Process Effluent with ELG

TBELs

1) Conventional Pollutants

Pixelle utilizes a bleached kraft pulping process and is subject to BPT ELGs found in Subpart B of 40 CFR §430.22 for bleached kraft facilities where pulp and fine papers are produced:

Pollutant or pollutant parameters	kg/kkg (or pounds per 1,000 lbs) of product		
	Continuous dischargers		Non-continuous dischargers (annual average)
	Maximum for any 1 day	Average of daily values for 30 consecutive days	
BOD5	10.6	5.5	3.09
TSS	22.15	11.9	6.54
pH	Within the range of 5.0 to 9.0 at all times.		

40 CFR §430.01(n)(1) defines the production as the annual off-the machine production divided by the number of operating days during that year. An average of last 5-year annual average final paper production data is calculated to be 1,219.8 tons/day or 2,439,600 lbs/day. Using this, TBELs are calculated to be:

Pollutant	Maximum for any 1 day	Average of daily values for 30 consecutive days
BOD5	25,859.76 lbs/day	13,417.8 lbs/day
TSS	54,037.14 lbs/day	29,031.24 lbs/day
pH	5.0 to 9.0 at all times	

These calculated BOD5 and TSS mass loading TBELs are significantly higher than those specified in the existing permit renewal. Also, the state effluent standard found in 25 Pa Code §95.2(1) require industrial waste effluents to have a pH of not less than 6.0 and not greater than 9.0 which is more stringent than the ELG.

While the facility is not equipped with a system particularly designed to remove oil and grease, three (3) non-detect effluent samples results (i.e., <4.9 mg/L) demonstrate that Oil and Grease is not a pollutant of concern for effluents discharged via Outfall 001. Based on this, DEP determines that wastewater generated from this facility is not considered oil-bearing wastewater; therefore, the state effluent standard found in 25 Pa Code §95.2 (2)(ii) is not applicable to this discharge. Since all sanitary wastewater generated from Pixelle is sent to Spring Grove WWTP, secondary treatment standards for sewage found in 40 CFR Part 133 are not applicable.

40 CFR §430.03(h)(2) requires a routine monitoring for influent organic content such as COD or TOC. The existing influent COD monitoring requirement will therefore remain unchanged for the upcoming permit renewal.

2) Toxic Pollutants

During the development of the BAT ELGs for pulp and paper mill industries, US EPA introduced a Voluntary Advanced Technology Incentives Program (VATIP) to encourage facilities to achieve greater pollutant reductions than they could achieve through baseline BAT limitations and New Source Performance Standards (NSPS). As part of this program, US EPA has assembled a number of "incentives", in exchange of requiring the greater pollutant reduction, relating to permitting and enforcement matters and public recognition for those facilities voluntarily decided to enroll this program. For example, if facilities accept enforceable NPDES permit limitations at one of the given Tier levels, such facilities will be qualified for the incentive program at that level.[3] The VATIP also categorizes each Tier level with different compliance schedule so that while facilities in more advanced tiers tend to provide greater pollutant reductions by installing more advanced bleaching technology, they would also be given more additional compliance time to meet such pollutant reductions (i.e., 6 years for Tier I, 11 years for Tier II, and 16 years for Tier III). A file review reveals that Glatfelter decided to participate in Tier I of the VATIP. Through the commitment of this participation, Glatfelter installed new pulp

[3] Voluntary Advanced Technology Incentives Program Technical Support Document, US EPA, Document ID EPA821-R-97-014, Oct 97.

washing and screening units on the hardwood fiber line, new oxygen delignification on the hardwood line, and complete substitution of chlorine dioxide for elemental chlorine on both hardwood and pine fiber lines. 40 CFR §430.24(b)(4)(ii) required all dischargers enrolled in Tier I of the VATIP must achieve the Tier I limitations by April 15, 2004. Glatfelter is in the Advanced Elemental Chlorine Free Bleaching (ECF) Tier I category which it achieved in 2003, according to the last NPDES permit renewal fact sheet.

For those enrolled in the VATIP, 40 CFR §430.24(b)(3)(i) requires BAT effluent limitations of toxic pollutants found in 40 CFR §430.24(a)(1) be achieved, except for the Absorbable Organic Halides (AOX) in which the AOX BAT ELGs of 0.58 kg per kkg pulp production (daily maximum) and 0.26 kg per kkg production (annual average) found in 40 CFR §430.24(b)(4)(i) must apply to dischargers subject to Tier I. Pixelle provided the last 5-year pulp production data for each fiber line. An average of the 5-year annual average pulp production data is determined to be 332 kkg (hardwood) and 302 kkg (softwood) which results in an annual average total pulp production of 634 kkg/day (or ADTD). Based on this, effluent limits are calculated to be:

Daily Maximum = 0.58 kg/kkg production x 634 kkg production/day = 367.72 kg/day or 810.7 lbs/day = 811 lbs/day

Annual Average = 0.26 kg/kkg production x 634 kkg production/day = 164.84 kg/day or 363.4 lbs/day = 363 lbs/day

These proposed effluent limits are slightly different than current effluent limits of 364 lbs/day (annual average) and 812 lbs/day (daily maximum).

As per 40 CFR §430.24 (a)(1), BAT effluent limitations for other toxic pollutants have been evaluated at each internal monitoring point associated with each fiber line.

WQBELs

1) BOD5, NH3-N and Dissolved Oxygen
WQM 7.0 is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and Dissolved Oxygen. DEP's technical guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. DEP recently updated this model (ver. 1.1) to include the new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. Spring Grove Borough and Jackson Township now discharge their sewage effluents to Codorus Creek. BAE Systems also discharges its sewage effluent to Codorus Creek. Given that all of these discharges, including Pixelle's Outfall 001, are located within the 5-river mile stretch, a multi-discharge analysis is performed to evaluate the cumulative impacts on the stream as a result of these discharges. Further, since the existing permit renewal contains BOD5 effluent limits for Pixelle, a typical CBOD5 to BOD5 ratio of 1.2 will be considered in developing effluent limits for BOD5.

The median and 90th percentile of upstream temperature data collected per the existing permit requirement are used as design criteria for water quality analysis for NH3-N and CBOD5/DO, respectively. This approach is consistent with DEP's technical guidance no. 391-2000-006.

As mentioned earlier, dye studies were performed in 1991 and 2004. The first and second dye studies conducted in September and October 1991 revealed a velocity of 0.58 ft./sec and 0.56 ft./sec, respectively. Another study conducted in August 2004 showed the velocity of 0.93 ft./sec. The value of 0.56 ft./sec has been consistently considered in water quality modeling as it provides a better representation of low flow conditions for Codorus Creek. In the opinion of DEP, it is still acceptable to use 0.56 ft./sec as an in-stream velocity for modeling purposes considering the upstream streamflow has been consistently regulated. A reaeration rate (Kr) of 6.0 day^{-1} was used in the previous modeling and the previous fact sheet documented that this value was based on historical data from January 1997 Water Quality Protection Report. Also, tributary background concentrations of 1.4 mg/L (CBOD5) and 0.06 mg/L (NH3-N) were entered as input values in the previous modeling. It appears these concentration values are averages of 12 monthly samples collected by DEP during 1995 at the Hershey Road bridge (approximately 1,500 feet upstream from Outfall 001 and further downstream from both Spring Grove Borough and Jackson Township discharge points). Also, dissolved oxygen saturation values of 8.10 mg/L (summer) and 12.6 mg/L (winter) at Outfall 001 were used as tributary background concentrations in previous modeling. Using all of these input parameters, the model output indicates that existing effluent limits are still protective of water quality. Given that data were collected more than 20 years ago and there are now new upstream discharges, it would be reasonable for Pixelle to collect, for the subsequent permit renewal application, instream data of CBOD5, NH3-N, and DO as well as other stream characteristics further upstream from Spring Grove and Jackson Township discharge locations. A new Part C permit condition is recommended to inform

that default values will be considered for the next permit renewal unless site-specific data is collected and submitted along with the next permit renewal application.

2) Toxic Pollutants

The initial screening using DEP's previous models including Toxics Screening Analysis worksheet and PENTOXSD resulted a reasonable potential for permit requirements for the following pollutants: Total Antimony, Total Cadmium, Hexavalent Chromium, Total Copper, Total Lead, Total Phenols, Total Selenium, Total Thallium, Carbon Tetrachloride, Chlorodibromomethane, Dichlorobromomethane, 1,2-Dichloroethane, 1,3-Dichloropropylene, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, 1,1,2-Trichloroethane, and Vinyl Chloride. It appears however these pollutants, except for Total Copper and Total Lead, were non-detected in effluent samples and the worksheet recommended PENTOXSD modeling for these pollutants because samples were analyzed using the method detection limits (MDLs) higher than the state water quality criteria or DEP's current target quantitation levels (QLs). Following this initial review, DEP requested additional three (3) samples to be collected and analyzed for these pollutants using DEP's current target QLs in order for Pixelle to demonstrate the actual presence of these pollutants in the effluent without any uncertainty. On March 21, 2018, additional sample results submitted by Pixelle ruled out the need of permit requirements for these pollutants.

For Total Copper and Total Lead, these pollutants were in fact detected in effluent samples. It is noteworthy that DEP considers Total Copper and Total Lead as two of pollutants that are naturally occurring in the aquatic environment (Technical Guidance no. 391-2000-022). Given the type of industrial activities performed at the site, a question is raised as to whether the facility truly produces quantifiable levels of Total Copper and Total Lead or whether effluent levels of these pollutants actually represent the background water quality of Codorus Creek that is being used for water supply source of Glatfelter. Ten (10) samples of Total Copper and Total Lead as well as Hardness were requested for both effluent and influent. The data were received from the permittee via email on March 2018. The sample datasets presented below provide, in the opinion of DEP, a better representation of the current operations than the samples collected for the 2011 permit renewal application:

Data collected in 2018 (µg/L)											
Copper Upstream	<3.3	<3.3	<3.3	<3.3	<3.3	3.3	<3.3	<3.3	<3.3	3.3	<3.3
Copper Effluent	<3.3		<3.3	<3.3	<3.3	3.6	5.0	5.8	<3.3	<3.3	
Lead Upstream	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Lead Effluent	2.0		<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Hardness Upstream	135000	127000	114000	115000	115000	109000	113000	96600	107000	88300	111000
Hardness Effluent	252000		237000	234000	225000	239000	244000	255000	246000	231000	

As shown above, effluent concentrations were mostly identical to upstream concentrations. There are some samples events when Total Copper and Total Lead were detected in effluent but these levels are much lower than the current state water quality criteria. Consequently, no permit requirements will be needed for Total Copper and Total Lead.

The follow-up review using DEP's Toxics Management Spreadsheet (last modified on March 2021 ver. 1.3) was conducted. DEP utilizes this TMS to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet combines the functionality of DEP's Toxics Screening Analysis worksheet and PENTOXSD. While TMS recommended monitoring requirements for Total Arsenic, Hexavalent Chromium, Total Cobalt, Dissolved Iron, and Total Silver, the initial review using Toxics Screening Analysis and PENTOXSD showed no reasonable potential for these pollutants and they were non-detected at below the current water quality criteria (WQC). As a result, DEP determined no permit requirements are needed for these pollutants. For Total Cadmium, Total Manganese, Total Nickel and Total Zinc, a routine monitoring is recommended as they were detected in the effluent and recommended by TMS.

The existing permit contains a routine monitoring requirement for Total Aluminum and Total Boron. DEP's TOXCON worksheet was utilized using the latest DMR data from May 2014 to July 2022 to determine a statistical average monthly value (AMEC) with a daily coefficient of variation (CV) for these pollutants. Once AMEC and CV were obtained, these values were entered into TMS. Based on this, the effluent limits of 0.879 mg/L (average monthly) and 1.351 mg/L (daily

maximum) are recommended for Total Aluminum. TMD recommended no further requirements for Total Boron; as a result, the existing monitoring requirement for Total Boron will be removed from the permit.

It appears existing Chloroform effluent limits of 0.02 mg/L (average monthly) and 0.04 mg/L (daily maximum) were previously developed using the best professional judgment (BPJ). Chloroform has state water quality criteria of 0.39 mg/L (chronic fish and aquatic life), 1.9 mg/L (acute fish and aquatic life), and 0.0057 mg/L (human health). The 0.0057 mg/L value is a cancer risk level (CRL) human health criterion. Under 25 Pa Code §96.4(g), DEP evaluates the CRL human health impact at a harmonic mean flow (Q_h). As mentioned in page 5 of this fact sheet, the Q_h at Outfall 001 is estimated to be 42.37 cfs based on DFLOW's result at the gage station. A reasonable potential analysis using TMS indicates that WQBELs of 0.017 mg/L (average monthly) and 0.026 mg/L (daily maximum) are needed for protection of water quality standards. A review of past DMR data showed Chloroform has been consistently not detected in effluent at a concentration of 0.001 mg/L. Therefore, more stringent effluent limits, WQBELs, will be written in the draft permit as opposed to the existing BPJ effluent limits in accordance with 25 Pa Code §§92a.11 and 96.4(f)(2).

3) Color

a) Case History / Data Analysis

The fact sheet prepared during the last NPDES permit renewal contains the details on color from Glatfelter as follows:

The PA Department of Health, Sanitary Water Board issued a Water Quality Management (WQM) permit to Glatfelter on November 1, 1949 for operation of the treatment facility in existence at that time. Subsequently, WQM Permit No. 2007 was issued on April 6, 1960 and was amended on December 4, 1967. On August 7, 1968, the Sanitary Water Board issued an Administrative Order that made instream color limitations more stringent than existing limits, and Glatfelter appealed. The WQM permit was revised accordingly on February 25, 1969. On February 21,1973, the Environmental Hearing Board (EHB) entered into a Consent Agreement with Glatfelter, establishing instream color limits and sampling procedures and resolving the appeal of the Order. The limits were subject to revision every two years based upon available technology.

An NPDES permit was issued to Glatfelter by Department of Environmental Resources (DER) on May 22, 1984. Pursuant to the Consent Agreement, Glatfelter demonstrated it is not technologically possible to meet the water quality criteria for instream color. On May 16, 1989, an Amended Consent Adjudication was executed which modified the 1973 Consent Agreement and included the following schedule: 1) Submit an annual report detailing efforts made to achieve regulatory color limits (25 Pa. Code § 95.4) including a review of technological developments; 2) Complete pilot studies on the pulp bleaching process by December 31, 1990 and submit the results by April 1, 1991 (completed on schedule); 3) Submit a preliminary plan for pilot plant studies of external color reduction technologies by January 1, 1994 (submitted on January 4, 1994) and submit a final plan by August 31, 1994 (received on September 1, 1994); 4) Submit a report of pilot plant studies within 180 days of completion which includes an implementation plan and schedule (External Color Reduction Plan), and implement the plan as approved.

Following the expiration of the 1984-issued NPDES permit, in 1989, a draft renewed permit was issued in 1990 and again in 1991. A third draft permit was not issued until March 4, 1997; the delays were due, in part, to the development of EPA guidance on the basis for technology limits, stream surveys and studies and other Glatfelter projects. Following issuance of the third draft permit, a meeting was held on October 9, 1997 with EPA to discuss comments, followed by a meeting with Glatfelter and EPA on November 3, 1997. Revised draft NPDES permits were sent out December 24, 1997, February 29, 1998 and December 29, 1998. A public meeting was held on April 23, 1998. A Consent Order and Agreement (COA) was drafted and issued to Glatfelter on January 26, 1999. Meetings were held on June 10 and July 12, 1999 with Glatfelter and EPA to discuss the Best Demonstrated Technology (BDT) requirements for color. Another draft NPDES permit was issued on October 4, 1999, which was approved by EPA on January 10, 2000. On February 26, 2000, the Department published a draft Consent Adjudication/COA and draft NPDES permit in the Pennsylvania Bulletin. On March 20, 2000, EPA notified the Department that it is objecting to the NPDES permit on the basis that the Consent Adjudication/COA modifies the draft NPDES permit. A public hearing was held on April 5, 2000. A formal objection letter was received from EPA on May 12, 2000, and EPA withdrew the objection on August 9, 2000.

The final NPDES permit and an Administrative Order were issued on September 7, 2000. Glatfelter and a citizens group appealed the permit. A Petition for Supersedeas was also filed and a hearing was held on September 27-28, 2000. Partial Supersedeas was granted on September 29, 2000 for meeting existing water quality criteria of 50 color units. Supersedeas was denied for meeting the proposed criteria of 75 color units. On October 13, 2000, the citizens were granted their petition to intervene. A Consent Assessment of Civil Penalty (CACP) was executed on

September 24, 2001, which included a settlement in the amount of $84,750 for failure to report pollution incidents and effluent violations. A Consent Decree was filed in U.S. District Court on October 26, 2001, and signed by Commonwealth Court on November 26, 2001, requiring Glatfelter to come into compliance with limits based on 75 color units and to pay $2.5 million in penalties. The EHB dismissed the appeal on December 4, 2001. An NPDES permit amendment was issued on November 2, 2001, which incorporates the interim limits and schedule from the Consent Decree as follows: 1) Start construction of oxygen delignification (OD) by April 2003 (Glatfelter began on June 21, 2002); 2) Start construction of chlorine dioxide bleach by October 1, 2003 (began May 1, 2003); 3) Complete construction of chlorine dioxide by January 15, 2004 (completed October 31, 2003); 4) Complete construction of OD by February 15, 2004 (completed October 1, 2003); and 5) meet final color limits by April 15, 2004.

In 2001, Glatfelter began a series of environmental-related projects that was collectively called the "New Century Project" that is intended to comply with the Maximum Achievable Control Technology (MACT) requirements of the EPA Cluster Rule. The New Century Project was first announced on April 20, 1999, when Glatfelter announced ISO 14001 certification for its environmental management system. Projects that have been completed to reduce effluent color and local odors include: 1) Collection and incineration of gases from the softwood fiber line, hardwood fiber line, and softwood chip bin; 2) Collection and scrubbing of vent gases from bleach plants; 3) Implementation of a new washing and screening system on the hardwood fiber line; 4) Elimination of the use of elemental chlorine for bleaching on both fiber lines through the use of 100% chlorine dioxide in the first bleaching stage of the softwood line and by using ozone and chlorine dioxide for the first stage of the hardwood line; and 5) Use of oxygen delignification on the hardwood fiber line to match the existing system on the softwood line. As of February 2004, all systems were installed and operating.

The improvements to the paper mill have not, by themselves, provided the color reduction needed to meet final effluent limits for color (123 PCU in winter, 140 PCU in summer). Glatfelter has been introducing a color-reducing polymer into the secondary plant to meet limits. Without the polymer, Glatfelter believes that effluent color would be 160 to 180 PCU on average.

According to an international expert on treatment of pulp mill wastes in a report prepared for the Maine Department of Environmental Protection, the Glatfelter facility is the "lowest effluent discharger in the US, and one of the lowest in the world" (referring to the overall quality of the effluent in comparison with other mill discharges).

During the past permit term, Glatfelter has collected daily color samples, as required by the permit, at four different locations; effluent and influent of the treatment plant and upstream and downstream of Codorus Creek. Upstream data were collected just above Outfall 001. The downstream data were collected within 1,800 ft. downstream of Outfall 001. Consequently, over 3,000 raw daily data points from May 2012 through July 2022[4] submitted to DEP were extracted from DMR Supplemental Forms for evaluation.

A data analysis shows effluent and influent color levels were fairly-consistent throughout these years, except for the period between late May and early June of each year where both effluent and influent levels seem to be dropped exponentially resulting lowering the downstream color levels ultimately. This "drop" could be caused by annual maintenance occurring at the mill when a temporary shutdown occurs. Effluent color was typically in between 90 and 150 PCU[5] whereas influent color was in between 200 and 500 PCU. For instream color, both upstream and downstream color levels show much greater fluctuation than those monitored at influent and effluent of the treatment plant. While upstream color levels widely varied, no seasonal or year-to-year changes can be identified in upstream color data. The downstream color levels in first few months of the year were, to some extent, lower than those observed during the remainder of the year. Upstream color were typically in between 5 to 35 PCU whereas downstream color were in between 20 and 80 PCU. The table below summarizes the basic statistical analysis on each monitoring locations:

in PCU	**Upstream**	**Downstream**	**Effluent**	**Influent**
Typical Range	5 to 35	20 to 80	90 to 150	200 to 500
Maximum	136	146	339	1935
Minimum	0	0	9	10
Median	14	47	119	295
Average	16.5	46.4	118	315.2

[4] DEP's database shows past DMR & DMR Supplemental forms submitted by Glatfelter since May 2012; presumably this is when Glatfelter first elected to register for eDMR system to submit required reports.
[5] Platinum cobalt unit or Pt/Co scale; this measurement unit is used to measure the appearance of trace amounts of yellowness in water. See ASTM D1209 or ASTM D5386 test methods for more detailed information.

90th Percentile	28	66	150	475

Further, a typical treatment removal efficiency calculation (i.e., (influent – effluent)/influent) estimates an average removal efficiency of 40-60% each year. See the table below for more detailed information. The maximum removal efficiency in each year was also calculated to be 90-95%. It is noteworthy that these calculations were performed without considering day-to-day retention time at each treatment units.

Basic Color Removal Efficiency Rate* throughout the treatment process (in %)											
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Max	90	92.3	93	94.5	90.5	92.8	92.7	88.6	96.3	93.5	96.2
Median	62.6	64.5	61.7	56.3	61.6	61.5	54	57.8	57.4	58.2	58.6
Average	61.4	62.6	59.5	53.5	58.1	59.3	50.5	54.7	56.3	55.8	56
90th	76.5	78.6	77.5	75.8	75.9	78.4	71.9	74	74.9	73.5	74

*Calculated by Influent Color minus Effluent Color divided by Influent Color

All raw data as well as statistical analysis/graphs are available for further review in Appendix of this fact sheet.

b) Existing Effluent Limitations

The existing permit renewal contains effluent limits of 140 PCU (average monthly), 280 PCU (daily maximum), and 350 PCU (instantaneous maximum) for the summer periods from May through October and 123 PCU (average monthly), 246 PCU (daily maximum), and 307 PCU (instantaneous maximum) for the winter periods from November through April. These limits appeared to be developed by a mass balance equation using the assumed background color of 10 PCU, Q7-10 streamflow, discharge flow and the state water quality criterion of 75 PCU. This calculation is shown below:

Summer: 75 PCU * 42.5 cfs (Q7-10 plus discharge flow) = (Color Effluent Limit * 21.2 cfs) + (10 PCU * 21.3 cfs)
Color Effluent Limit = 140 PCU

Winter: 75 PCU * 37 cfs (Q7-10 plus discharge flow) = (Color Effluent Limit * 21.2 cfs) + (10 PCU * 15.8 cfs)
Color Effluent Limit = 123 PCU

The last permit renewal fact sheet pointed out that these limits should have been imposed as daily maximum effluent limits as opposed to average monthly effluent limits since 25 Pa Code §93.7(a) defines this criterion as “maximum” 75 units on the platinum-cobalt scale; no other colors perceptible to the human eye. When this issue was discussed with Glatfelter during the last permit renewal, DEP ultimately agreed to express these effluent limits as average monthly end-of-pipe requirements as long as the instream water quality standard of 75 PCU after mixed with discharge is being met. This agreement essentially resulted in a continuation of average monthly effluent limits with the 1,800 feet downstream compliance point to meet the net color effluent limit of 75 PCU. During the site visit dated December 14, 2017, Glatfelter expressed that perhaps it is unnecessary to continue to comply with this net color effluent limit as Glatfelter has been consistently achieving compliance with this limit and upstream color could potentially attribute to the net color limit exceedance.

c) Recommended Effluent Limits @ Outfall 001

DEP developed a Standard Operating Procedure (SOP) no. BCW-PMT-035 for implementing General Water Quality Criteria. This SOP discusses the development of color effluent limits using a water quality model for those facilities that may potentially exceed the 75 PCU water quality criterion. As recommended by this SOP, DEP determined to use TMS to determine appropriate color effluent limits.

As mentioned earlier, the default value of 10 PCU was previously used as a background concentration to determine existing effluent limit. Since Pixelle has been collecting upstream color, DMR data will be used as a background color concentration in the water quality analysis. First, using equations listed on pages 3 and 4 of DEP’s technical guidance no. 391-2000-022, the long-term average background concentration and its variability were calculated (TOXCON Worksheet only accepted up to 100 datasets and there are over 1,000 datasets available for more accurate analysis). These values are 17.6 PCU with CV of 0.587 for summer and 15.2 PCU with CV of 0.616 for winter. Once these values were entered into TMS and TMS produced effluent limits of 133 PCU (average monthly limit) and 207 PCU (daily maximum limit) for summer and 120 PCU (average monthly limit) and 187 PCU (daily maximum limit) for winter. These effluent limits are stringent than existing effluent limits, particularly, due to the fact that actual background color data was used as opposed to the default value of 10 PCU. The table below summarizes the proposed effluent limits vs. DMR data from 2012 through 2022.

No. of Exceedance if Proposed Effluent Limits were placed in the current permit.			
AML (Summer)	DML (Summer)	AML (Winter)	DML (Winter)
9	5	2	2

As shown above, Pixelle would have exceeded effluent limits if the current permit has these limits only a few times based on over 1,000 datasets. No compliance schedule is therefore needed to achieve compliance with these effluent limits. These effluent limits will be placed in the permit in accordance with 40 CFR §122.44(d)(1)(i).

4) Temperature
Under 25 Pa Code §96.6(c), facilities associated with heated wastewater discharges must achieve compliance with the temperature water quality standards specified in 25 Pa Code §93.7 unless alternative effluent limitations for the control of the thermal component of such discharges are considered in accordance with section 316(a) of the CWA in order to necessarily prevent potential adverse impacts on the receiving water. The 316(a) variance condition has been authorized to Pixelle. A further detail of temperature requirements will be discussed later in the Additional Consideration Section of this fact sheet.

BPJ Limitations

1) Total Suspended Solids
The existing permit contains numerical effluent Total Suspended Solids (TSS) limits of 30 mg/L/2,057 lbs/day (average monthly), 60 mg/L/4,113 lbs/day (daily maximum), and 75 mg/L (instantaneous maximum). As stated in the August 10, 2006 fact sheet, it appears these limits were developed using BPJ. The federal ELGs identified TSS as one of pollutants of concern for paper and pulp manufacturing facilities which demonstrate the need of effluent limits. However, the calculated BAT TBELs are significantly higher than existing limits (i.e., 29,031 lbs/day v. 2,057 lbs/day for average monthly and 54,037 lbs/day v. 4,113 lbs/day for daily maximum). DEP has decided to reevaluate existing limits through a brief BPT BPJ analysis to further support the basis of existing effluent limits that may not well be documented previously. Past effluent data prove that Pixelle has been consistently achieving compliance with existing effluent limits. Therefore, no additional cost is necessary to further meet these limits (40 CFR §125.3(d)(1)(i)). While the original treatment plant was built in 1940's, the treatment technology equipped at the on-site wastewater treatment facility was last upgraded in last 90's and is well capable of treating TSS down to these limits (40 CFR §§§§125.3(d)(1)(i), (ii), (iii) and (iv)). No treatment process has been changed and any non-water quality environmental impact associated with this BPJ effluent limits would be minimal (40 CFR §125.3(d)(1)(vi)). Based on the review, no more stringent permit requirements are necessary at this time and it is still appropriate to impose existing effluent limits in the upcoming permit renewal. No reasonable justification is available to relax or remove these limits; therefore, these existing effluent limits should still remain unchanged in the permit in accordance with 40 CFR §122.44(l)(1).

Sediment Monitoring Study
A sediment issue was previously recognized by DEP and Glatfelter (Pixelle) has previously acknowledged that the solids discharged from Outfall 001 cause a perceptible visual difference in surficial sediments at nearby downstream locations while believing that there is no indication that there is toxicity associated with the solids discharged from Outfall 001. DEP determined that a sediment monitoring study for chemicals of concern with comparison to published standards would be another method to evaluate the need for further effluent controls or even sediment remediation. As a result, DEP requested Glatfelter to perform a sediment monitoring study to evaluate the need for further effluent controls or even sediment remediation. This decision was made presumably due to the fact that segments of the Codorus Creek have been evidently impaired for solids and also downstream sediment issues, to a certain degree, recognized by Glatfelter previously. As part of the sediment monitoring study performed during the last permit term, four (4) sediment samples (i.e., 2 downstream 2 upstream) were collected and analyzed for Total Copper, Total Iron, Total Manganese, Total Zinc, Total Sulfides, Total Phenol, Total Organic Carbon, Total Solids and wet/dry densities. The study report was submitted on April 26, 2012. The report concluded that upstream and downstream sediments differ significantly and consistently only in sulfide content, most probably due to the known difference in sulfate concentrations of the overlying water and an actual impact to the biotic condition of the stream from any difference between the upstream and downstream sediment samples collected in the study is likely minimal. These numbers have compared with Upper Effects Threshold (UET) values listed in NOAA's Screening Quick Reference Tables as shown below:

	Toxics in Sediment (mg/kg (dry weight))				
	NOAA UET	Upstream		Downstream	
Copper	86	0.034	17.8	11.8	16.2

Iron	4% (40,000)	33.9	20100	12100	18400
Manganese	1,100	1.5	987	1280	1090
Zinc	520	0.23	137	96.1	143
Sulfides	130	<25	<1	30	150
Phoenol	0.048	3.0	<2.7	<2.4	<2.6

Except for manganese, both downstream and upstream sediment data for toxics are below UET values. The downstream manganese is significantly higher than upstream manganese. Manganese is typically found in iron and steel manufacturers or dry cell battery manufacturers. A water quality analysis conducted for Outfall 001 showed a routine monitoring of Total Manganese is needed. Other than those listed above in WQBEL section, no further requirement including any additional sediment monitoring study is recommended for the upcoming permit renewal.

2) Dissolved Oxygen
The existing dissolved oxygen effluent limit is minimum 5.0 mg/L. This is consistent with the current state water quality criterion for warm water fishes surface waters found on 25 Pa Code §93.7(a). Since DO is likely a parameter of concern for Outfall 001 discharge, it is appropriate to retain this effluent limit for the upcoming permit renewal to ensure that existing water quality standards be protected and maintained.

3) Dioxin (2,3,7,8-tetrachloro-p-dibenzo-dioxin or 2,3,7,8 TCDD)
The existing permit contains a daily maximum effluent concentration limit of 0.035 pg/L for 2,3,7,8- TCDD for Outfall 001 effluent. As mentioned earlier, it appears this limit was developed using the BPJ but the basis of this effluent limit is not defined clearly. The latest report[6] prepared by US Department of Health and Human Services documents that polychlorinated dibenzo-p-dioxins (CDDs) including TCDD are inadvertently produced by paper and pulp bleaching and the greatest unintentional production of CDDs occurs from waste incineration, metal production, and fossil-fuel and wood combustion. As part of this application review, DEP has decided to revisit this limit. Annual sampling of this pollutant required by the permit produced six (6) results since 2012. The pollutant was evidently non-detected in all of six (6) samples at different MDLs (i.e., 1 pg/L, 4 pg/L, and 10 pg/L). These MDLs are much higher than the actual effluent limit; yet, the current manufacturing technology as well as process controls practiced by Glatfelter is seemingly not designed to produce significant levels of dioxins (40 CFR §§§§125.3 (d)(3)(i)(ii)(iii) and (iv)). During the site visit on December 14, 2017, Glatfelter expressed that 0.035 pg/L is not practically achievable by its laboratory. While the current state water quality criteria is 0.00086 pg/L CRL (or $8.6x10^{-10}$ µg/L), DEP confirmed that EPA analytical method 1613 which is likely the most sensitive EPA analytical method for dioxin, has the MDL of 10 pg/L for 2,3,7,8-TCDD. As a result, the cost to achieve compliance with this effluent limit is questionable (40 CFR §§§§125.3 (d)(3)(v)). In the opinion of DEP, it is reasonable to request Glatfelter to use 10 pg/L as the MDL to demonstrate the presence of dioxin in the effluent. Accordingly, the upcoming permit renewal will continue to include 0.035 pg/L as Part A numerical effluent limit in accordance with 40 CFR §122.44 (l)(1), but will contain Part C condition that will allow Glatfelter to use 10 pg/L as the MDL. This means if dioxin is not detected in effluent samples at 10 pg/L, Glatfelter will still be in compliance with the permit requirement despite the fact that the Glatfelter would fail to analyze the data down to 0.035 pg/L.

4) Total Phosphorus
The existing permit requires 2.0 mg/L (average monthly) and 2.5 mg/L (daily maximum) for Total Phosphorus effluent levels. These effluent limits were presumably developed on a case-by-case basis using the BPJ. Almost all point source dischargers located within the lower Susquehanna River sub-basin were assigned with the average monthly effluent limit of either 2.0 mg/L or less for the protection of associated local watersheds. This has consistently been a standard practice and the approach was evidently derived from DEP's technical guidance no. 391-2000-018. Past DMR data proved Glatfelter has not had any non-compliance with this limit nor this requirement would place a significant financial burden on Glatfelter. Based on the review, the existing effluent limits will remain unchanged in the upcoming permit renewal in accordance with 40 CFR §122.44 (l)(1).

Monitoring Requirements

1) Existing Instream Monitoring Program
The existing permit requires an instream monitoring at five (5) different stream locations: Codorus Creek (below mil dam and across from primary treatment plant; within 1,230 ft. downstream of Outfall 001; at Marlines Bridge; Spring entering Codorus Creek east of Lagoon No. 19) and Unnamed Tributary of Codorus Creek east of No.1 Supernatant Pump Station (SW-42). As part of this monitoring program, Pixelle is required to collect samples and analyze them for Total

[6] "2,3,7,8-Tetrachlorodibenzo-p-dioxin", Report on Carcinogens, 14th edition, National Toxicology Program, US Department of Health and Human Services, 2016

Boron, Total Cadmium, Total Iron, pH, Ammonia-Nitrogen, Total Aluminum, Chloride, Total Manganese, Sulfate, Total Dissolved Solids, COD and Fluoride. This requirement was developed mainly due to the fact that certain lagoons were not capped at that time and also even capping lagoons may not fully prevent from leaching which could potentially generate groundwater pollution according to the fact sheet developed for the last permit renewal. A continuation of this monitoring requirement is recommended.

2) Total Nitrogen, Total Kjeldahl Nitrogen, and Nitrate-Nitrite as N
The existing permit requires a weekly monitoring of Total Nitrogen and its major constituents including Total Kjeldahl Nitrogen and Nitrate-Nitrite as N as part of DEP's implementation strategy for the Chesapeake Bay TMDL. See Additional Considerations section of this fact sheet for more detailed information regarding the Chesapeake Bay TMDL.

3) Fecal Coliform
The existing permit requires a monthly monitoring for fecal coliform. This monitoring requirement was included in the previous permit renewal based on submitted data (i.e., three samples produced maximum of 156,000/100 mL and average of 54,800/100 mL). The source is unknown but recent DMR data from September 2017 through July 2022 that is summarized below showed that fecal coliform is not of concern. The existing fecal coliform monitoring will therefore be removed from the permit.

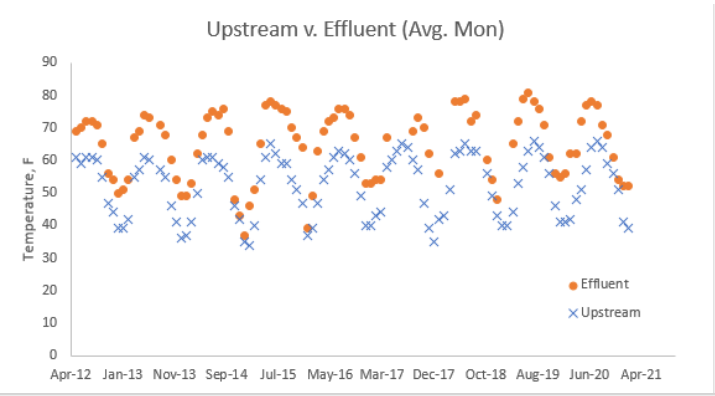
	Fecal Coliform (no. per 100 mL)
Maximum	530
Minimum	1
Average	95
Median	36
90th Percentile	362.7

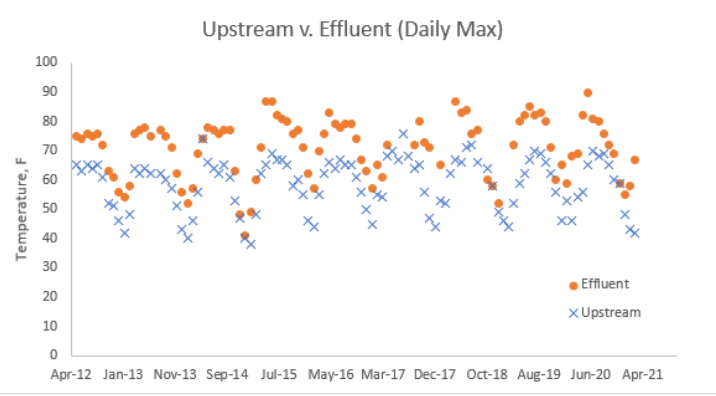
Development of Effluent Limitations and Monitoring Requirements – Outfall 002

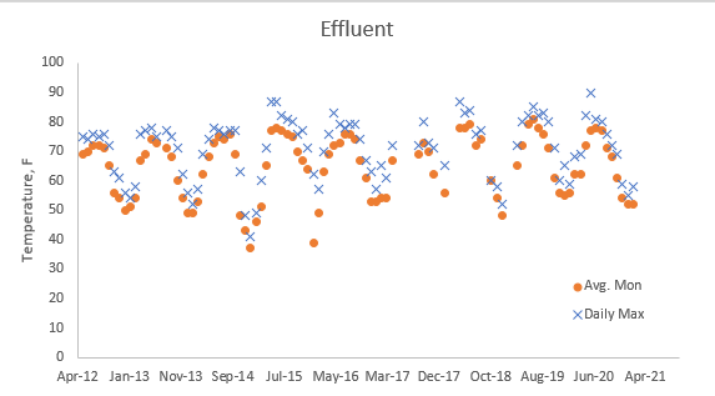
Outfall No.	002	Design Flow (MGD)	18
Latitude	39º 52' 13"	Longitude	-76º 52' 16"
Wastewater Description:	Noncontact Cooling Water		

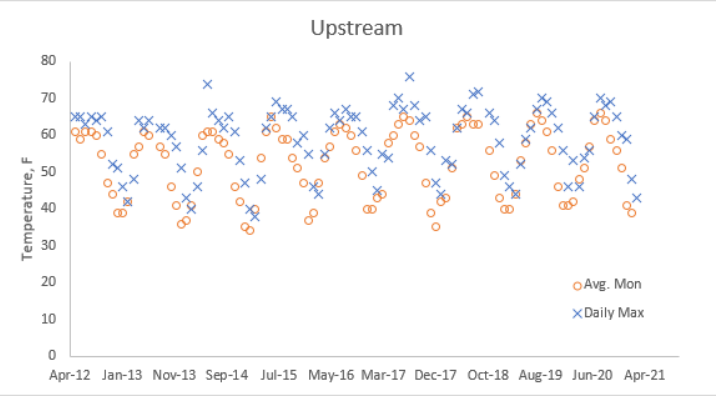
As mentioned earlier, about 18 MGD (average monthly) and 23 MGD (daily maximum) of non-contact cooling water is generated from No. 1 turbine generator condenser (No. 2 Surface condenser is no longer being used as of June 2011) and is discharged via Outfall 002. Typically, non-contact cooling water does not generate pollutants, other than heated wastewater. This is once-through non-contact cooling water; therefore, it is not process wastewater as defined in 40 CFR §430.01(m). It is still considered an industrial waste and existing pH limits of 6.0-9.0 derived from 25 Pa Code §95.2(1) will therefore remain in the permit. The existing permit requires a routine monitoring for BOD5 and Total Suspended Solids. Past DMR since 2012 shows fairly consistent data trend at 2 mg/L for BOD5 (or non-detected) but somewhat variability on TSS. Further monitoring is needed for TSS but the existing monitoring requirement for BOD5 will be removed from the permit as BOD5 is not a parameter of concern for this type of discharge.

Heated wastewater is subject to requirements under 25 Pa Code §96.6. Pixelle has been continuously monitoring for effluent temperature as well as upstream temperature for Outfall 002. These data since March 2012 has been summarized as follows:









These figures clearly show a consistent pattern occurs throughout the year with both effluent and upstream temperature decreases in winter months but increases in summer months, providing a direct relationship between upstream and effluent data. The differences in average monthly and daily maximum are very low in both effluent and upstream; meaning temperature has been steadily changing throughout the year. The requirement to monitor for temperature in both effluent and upstream will be continued. Given the fact that Outfall 002 is located upstream of Outfall 001 and the distance between these outfalls is very short, any numerical or narrative effluent limits based on water quality standards or any requirements under 25 Pa Code §96.6 have been established at Outfall 001. This same approach will apply to this permit renewal.

Development of Effluent Limitations and Monitoring Requirements – Stormwater Outfalls

Pixelle utilizes fifty-six (56) stormwater outfalls collecting stormwater draining from different areas within the site. The current permit requires annual stormwater sampling for the following parameters: BOD5, COD, Oil/Grease, pH, Total Suspended Solids, Total Phosphorus, Total Kjeldahl Nitrogen, Total Manganese, and Total Iron. The basis of requiring these parameters to be analyzed is not clear but DEP generally establishes the monitoring requirement that is aligned with the NPDES PAG-03 General Permit requirements. Given the facility's current SIC code (2611), the facility would be identified under Appendix E of the current NPDES PAG-03 General Permit which requires a semi-annual sampling for pH, COD and TSS. Past DMR data (see Appendix for the entire data) show that Total Manganese, Oil/Grease, Total Kjeldahl Nitrogen, Total Phosphorus levels are consistently very low (below the water quality criteria) while Total Iron is still detected at a level higher than the current water quality criteria. It is recommended that the existing monitoring requirements for Total Manganese, Oil/Grease, Total Kjeldahl Nitrogen, and Total Phosphorus be removed from the permit. Total Iron will still be included in one of parameters to be sampled for stormwater. For BOD5, while it is still detected, the levels have been consistently low around 4 to 5 mg/L. BOD5 can be detected in stormwater generally because of plant debris, animal waste, gasoline/motor oil, fertilizers and pesticides. The average BOD5 concentration in forest runoff and urban runoff is about 3-4 mg/L.[7]. It appears BOD5 is not a parameter of concern in stormwater discharged from this facility; therefore, BOD5 will be removed from the monitoring requirement. The monitoring frequency has increased from 1/year to 2/year to be consistent with the NPDES PAG-03 General Permit requirements.

Additional Considerations

[7] K.McCabe, E.Smith, S.Lang, C.Osburn, C.Benitez-Nelson, Jan. 2021 Particulate and Dissolved Organic Matter in Stormwater Runoff Influences Oxygen Demand in Urbanized Headwater Catchments,

1) Local TMDL
DEP has not yet developed a Total Maximum Daily Load (TMDL) strategy to address impairments identified in the Codorus Creek watershed. As a result, no local TMDL has been taken into consideration during this permit review. In the event the TMDL is developed, DEP may reopen this permit to implement any requirements specified in the TMDL in accordance with 40 CFR §122.62.

2) Chesapeake Bay TMDL
The Chesapeake Bay and its tributaries contain excess nutrients and sediment from various sources which ultimately lead to adverse environmental impacts. The Chesapeake Bay TMDL identifies the necessary pollution reductions from these sources across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. Pennsylvania and other states with river basins that drain into the Chesapeake Bay are each creating a Watershed Implementation Plan that describes the work to be done to reduce pollution from these sources. DEP has developed its TMDL implementation plans in 2004 (i.e. Chesapeake Bay TMDL Strategy), 2011 (Chesapeake Bay Watershed Implementation Plan Phase I), and 2012 (Chesapeake Bay Watershed Implementation Plan Phase II). In 2019, DEP finalized Pennsylvania's Chesapeake Bay Watershed Implementation Plan Phase 3 (i.e., Phase 3 WIP). This Phase 3 WIP to ensure that all practices and controls be in place by 2025 to achieve the nutrient and sediment reduction planning targets. A more detailed history of DEP's TMDL initiative is available at www.dep.pa.gov.

DEP previously categorized Pixelle as a significant industrial discharger which resulted in the development of a routine monitoring requirement for nutrients in the permit. While long-term data recently provided by Pixelle clearly demonstrated that effluent discharged via Outfall 001 consistently exceeds the significant discharger thresholds of 75 lbs/day TN or 25 lbs/day TP, it is important not to neglect the fact that Codorus Creek withdrawn by Pixelle already contains quantifiable levels of TN and TP based on upstream long-term data also provided by Pixelle. When considering the net contribution, Pixelle does not meet the thresholds. In all sampling data, the TN concentration in effluent was, in fact, less than those identified in upstream data, causing a "net sink" for TN. Most of sampling events for TP also indicated this net sink. For those sampling events when TP effluent concentrations were higher than TP upstream concentrations, the 25 lbs/day gross load threshold exceedance did not occur. DEP previously recognized this issue in many other industrial facilities in which DEP then ultimately declassified these facilities from significant to non-significant dischargers using the following explanation documented in the Phase 3 WIP:

DEP has discovered that the industrial facilities listed in Table 3 withdraw water from the same stream where the discharge occurs. The WLAs provided to these facilities in the TMDL are gross loads that include background nutrients withdrawn from those streams. When reviewing the net contribution from the facilities, it appears that the facilities do not meet the original thresholds used (75 lbs/day TN or 25 lbs/day TP) to determine the Significant IW discharger list, i.e., if their net loads had been considered, they would not have been considered significant. Facilities that are no longer considered significant have had their loads transferred to the non-significant sector.

As a result, Pixelle has become a non-significant discharger and all of its pending[8] wasteload allocations has been moved to the non-significant sector. These loads were then assigned to Jackson Township and Spring Grove Borough as these facilities have decided to withdraw their discharges from Pixelle and proposed new stream discharges. The Phase 3 WIP documented this case with DEP's permitting approach as follows:

Jackson Township and Spring Grove Borough in York County have sewage treatment plants that discharge effluent into PH Glatfelter Company's industrial wastewater treatment facility (PA0008869). Glatfelter uses the effluent as a nutrient source for its treatment processes. Glatfelter has notified Jackson and Spring Grove that they must remove their discharges into Glatfelter's facility. Glatfelter was originally considered a Significant IW discharger in the Bay TMDL. As discussed in Section II.B, below, Glatfelter has not been assigned Cap Loads to date because of the current belief that they do not actually meet the criteria for a Significant IW discharger. The WLAs assigned to Glatfelter have been moved to the Non-Significant sector. Normally DEP would authorize no new loads to a facility proposing a stream discharge that withdraws from another facility with Cap Loads; however, since Glatfelter does not have Cap Loads, DEP will authorize new loads for Jackson (proposed 0.6 MGD discharge) and Spring Grove (proposed 0.33 MGD discharge). Jackson will be considered a Significant Sewage discharger upon issuance of its NPDES permit, while Spring Grove will be considered a non-significant discharger. Cap loads that are assigned to both facilities will be moved from the Non-Significant sector (from Glatfelter's original WLAs).

Pixelle has demonstrated based on data from 2012 through 2021 that the facility is not considered a non-significant discharger. Consequently, the requirement to monitor for Total Nitrogen and its major constituents is not necessary in the upcoming permit renewal. The existing TP effluent limits with a weekly sampling requirement were developed for

[8] The previously-determined wasteload allocations of 117,588 lbs TN/yr and 6,821 lbs TP/yr were never officially included in Pixelle's permit. Thus, Glatfelter was never required to achieve compliance with these wasteload allocations.

the purpose of the local watershed protection rather than of the Chesapeake Bay watershed protection. Thus, the existing TP permit requirements will be maintained in the upcoming permit renewal as discussed previously in this fact sheet.

3) Whole Effluent Toxicity (WET) Testing

Pixelle has completed four (4) Whole Effluent Toxicity Testing as part of the application package in accordance with Part C.G of the existing permit. Chronic testing was conducted using a dilution series of 100%, 75%, 56%, 42% and 32% effluent for *Ceriodpahinia dubia and Pimephales promelas*. Also, acute testing was conducted using a 50% dilution series for *Selenastrum capricornutum*. These testing has been summarized as follows:

	***Ceriodaphnia* Results (% Effluent)**		***Pimephales* Results (% Effluent)**		***Selenastrum capricomutum* (% Effluent)**	**Pass? ***
Test Date	**NOEC Survival**	**NOEC Reproduction**	**NOEC Survival**	**NOEC Growth**	**LC25**	
Oct 2010	100	100	100	100	100	Yes
Dec 2010	100	100	100	100	100	Yes
Feb 2011	100	100	100	100	100	Yes
June 2011	100	100	100	100	100	Yes

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

DEP's Whole Effluent Toxicity Analysis worksheet was utilized and confirmed this finding. Given the nature of this discharge and also the fact that these WET testing was conducted almost 20 year ago, it is recommended that another set (i.e., four tests) of chronic WETT be conducted for the subsequent permit renewal application. The permit will include a condition that requires Pixelle to conduct an annual WET testing.

4) Chemical Additives

A chemical additive is a chemical product introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Pixelle reported a number of chemical products used throughout the manufacturing plant. The term generally excludes chemicals used for neutralization of waste streams, the production of goods, and treatment of wastewater. The application pointed out that, except for ACT-400 WB, there is no chemical substance that is known or expected to be present in the effluent. A further analysis is needed to determine if permit requirements are necessary. A list of these chemical products is described below:

BYO-GON PX 109

An average rate of 42 lbs/day with a maximum rate of 84 lbs/day of this chemical product is used in the wastewater treatment facility. It appears, according to the manufacturer's website, this product is a non-toxic, non-corrosive, 100% organic and biodegradable safe product that assists in development of a healthy facultative bacterial population improving biological treatment. DEP determined that this is considered a chemical product used for wastewater treatment; therefore, it is not a chemical additive.

Parafloc 710

Pixelle uses about 180 lbs/day (average) and 375 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

ACT 1625C

Same as Parafloc 710, Pixelle uses about 180 lbs/day (average) and 375 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

ACT-400WB

Pixelle uses about 180 lbs/day (average) and 375 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

Hydrogen Peroxide (50%)

Pixelle uses about 14,400 lbs/day (average) and 21,000 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

Phosphoric Acid

Pixelle uses about 180 lbs/day (average) and 375 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

Polymer A & Polymer B
Pixelle uses a polyaluminum chloride polymer (Polymer A) Pixelle uses about 180 lbs/day (average) and 375 lbs/day (maximum) of this chemical product as a flocculant in the wastewater treatment plant. It is used for wastewater treatment; therefore, it is not a chemical additive.

5) Temperature

a) Thermal Discharge under 316(a) thermal variances
The existing permit renewal contains interim and final effluent limits for temperature and requires Glatfelter to meet these effluent limits at the instream compliance point of 1,230 feet. Based on a review of this permit renewal fact sheet, it appears these effluent limits were not developed using DEP's current Thermal Discharge Limit Calculation worksheet, but rather, were 316(a) variance effluent limits developed based on actual temperature data collected during the 2001 316(a) variance study conducted by Glatfelter. Within two (2) years following the permit effective date, Glatfelter was required to submit the WQM permit application for the cooling system to meet the final effluent limits. This cooling system is the existing spray cooling basins constructed in 2010. Previously, DEP determined that applying effluent limits at the instream compliance point was warranted as there is no known upstream thermal sources and Glatfelter can, to a large extent, control upstream temperatures through its releases from Lake Marburg.

For this permit renewal, all existing permit requirements will remain unchanged as no significant changes in facility wastewater were indicated. The basis of these requirements is specified in the fact sheet developed for the previous permit renewal; however, the facility will be required to conduct another biological monitoring study to support continuation of the thermal variance for the subsequent permit renewal.

b) 316(b) Cooling Water Intake Structure Requirements
The facility has conducted a source water base line study; yet no further studies have been conducted to fully support impingement and entrainment compliance. As a result, the following conditions along with other standard conditions related to 316(b) cooling water intake structure will be provided in Part C of the permit.

The Department acknowledges that no detailed studies have not been conducted to support both impingement and entrainment compliance. The Department has therefore determined to provide the following 316(b) Cooling Water Intake Structure Project Milestones:

a) The permittee shall conduct an Impingement and Entrainment Reduction Study to investigate the feasibility of implementing alternatives to present operations to reduce both impingement and entrainment resulting from operation of cooling water intake structures. A minimum of three alternatives must be evaluated in the report. The report should also include details of the source water physical data, cooling water intake structure data, cooling water system data, and operational status. For all alternatives that are evaluated, the report shall include an assessment of the estimated reductions in impingement and entrainment in the surface waters in which withdrawals are made and a schedule for implementation. The permittee shall select and justify their choice of alternative.

i. The permittee shall first submit an Impingement and Entrainment Reduction Study plan within three (3) months from permit effective date for the Department's review and approval.

ii. Within sixteen (16) months from the Department's written approval, the permittee shall conduct and submit an Impingement and Entrainment Reduction Study report.

b) The permittee shall implement, if necessary, technologies that constitute Best Technology Available (BTA) for impingement and entrainment within sixteen (16) months from the Department's written approval of an Impingement and Entrainment Reduction Study report.

c) The permittee shall conduct an impingement and entrainment study during the post- implementation of selected BTA technologies, if any, for twelve (12) months. The study report shall be included in the subsequent permit renewal application.

d) The permittee shall submit a progress report by the anniversary of the effective date of the permit each year

detailing the status of activities being conducted until BTA for impingement and entrainment is implemented.

e) The annual progress report described above shall include any modifications to the operation of any unit at the facility that impacts cooling water withdrawals or operation of the cooling water intake structure(s) during a calendar year. If not applicable, the permittee shall indicate that no modifications have occurred.

c) Additional Consideration

DEP's technical guidance no. 391-2000-017 recommends thermal discharges not to exceed 110°F at any point accessible to the public in order to protect public safety. Thermal discharges may also not cause a change of surface water temperature of more than 2°F during any 1-hour period according to 25 Pa. Code §96.6(b). The maximum temperature limit of 110 °F will continue to be included in the permit. The 2°F requirement will also continue to be included in the permit but will be moved from Part A to Part C condition.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001) and/or BPJ.

Outfall 001 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Continuous	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Color (Pt-Co Units) (Pt-Co Units) Nov 1 - Apr 30	XXX	XXX	XXX	120	187	300	1/day	24-Hr Composite
Color (Pt-Co Units) (Pt-Co Units) May 1 - Oct 31	XXX	XXX	XXX	133	207	332	1/day	24-Hr Composite
Color (Pt-Co Units) (Pt-Co Units) Industrial Influent	XXX	XXX	XXX	Report	Report	XXX	1/day	24-Hr Composite
Color (Pt-Co Units) (Pt-Co Units) Downstream Monitoring (3)	XXX	XXX	XXX	Report	Report	XXX	1/day	24-Hr Composite
Color (Pt-Co Units) (Pt-Co Units) Upstream Monitoring (3)	XXX	XXX	XXX	Report	Report	XXX	1/day	24-Hr Composite
Temperature (deg F) (ºF) Upstream Monitoring (4)	XXX	XXX	XXX	Report	Report	XXX	Continous	I-S
Temperature (deg F) (ºF) Effluent	XXX	XXX	XXX	Report	Report	110	1/day	I-S
Temperature (deg F) (ºF) Downstream Monitoring January (4)(5)	XXX	XXX	XXX	50	62	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring February (4)(5)	XXX	XXX	XXX	52	59	XXX	Continuous	I-S

Outfall 001 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Temperature (deg F) (ºF) Downstream Monitoring March (4)(5)	XXX	XXX	XXX	55	70	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring April (4)(5)	XXX	XXX	XXX	65	78	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring May (4)(5)	XXX	XXX	XXX	74	81	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring June (4)(5)	XXX	XXX	XXX	82	83	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring July (4)(5)	XXX	XXX	XXX	87	87	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring August (4)(5)	XXX	XXX	XXX	87	87	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring September (4)(5)	XXX	XXX	XXX	81	82	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring October (4)(5)	XXX	XXX	XXX	69	78	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring November (4)(5)	XXX	XXX	XXX	62	71	XXX	Continuous	I-S
Temperature (deg F) (ºF) Downstream Monitoring December (4)(5)	XXX	XXX	XXX	53	66	XXX	Continuous	I-S
Biochemical Oxygen Demand (BOD5) Nov 1 - Apr 30	1751	3503	XXX	17.0	34.0	38	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) May 1 - Oct 31	1168	2335	XXX	14.0	25.0	25	1/day	24-Hr Composite
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite

Outfall 001 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chemical Oxygen Demand (COD) Industrial Influent	XXX	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Suspended Solids	2057	4113	XXX	30.0	60.0	75	1/day	24-Hr Composite
Total Nitrogen	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	Report Total Mo	XXX	2.0	4.0	5	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	Report Total Mo	XXX	1.5	3.0	3.8	1/day	24-Hr Composite
Total Kjeldahl Nitrogen	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	Report Total Mo	XXX	XXX	Report	2.0	2.5	1/week	24-Hr Composite
Aluminum, Total	XXX	XXX	XXX	0.879	1.351	XXX	1/week	24-Hr Composite
2,3,7,8-Tetrachlorodibenzofuran (pg/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	24-Hr Composite
2,3,7,8-Tetrachlorodibenzo-p-dioxin (pg/L)	XXX	XXX	XXX	XXX	0.035	XXX	1/year	24-Hr Composite
Chloroform	XXX	XXX	XXX	0.017	0.026	XXX	1/week	Grab
Adsorbable Organic Halides (AOX)	XXX	812	XXX	Report	Report	XXX	1/month	24-Hr Composite
Adsorbable Organic Halides (AOX)	XXX	364 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Cadmium	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Manganese	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Nickel	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Zinc	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Outfall 002 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (cfs) Upstream Monitoring Nov 1 - Apr 30	15.8 Min Weekly Avg	Report Minimum Daily	XXX	XXX	XXX	XXX	Continuous	Recorded
Flow (cfs) Upstream Monitoring March 1 - Oct 31	21.3 Min Weekly Avg	Report Minimum Daily	XXX	XXX	XXX	XXX	Continuous	Recorded
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	Report	1/day	Grab
Temperature (deg F) (ºF)	XXX	XXX	Report Avg Mo	Report Daily Max	XXX	110	1/shift	Grab
Temperature (deg F) (ºF) Upstream Monitoring	XXX	XXX	Report Avg Mo	Report Daily Max	XXX	XXX	1/shift	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab

IMP 101 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report Avg Mo	Report	XXX	XXX	XXX	XXX	1/week	Measured
Kappa Number (No.) Internal Monitoring Point	XXX	XXX	XXX	20 Avg Mo	Report	XXX	1/week	Grab
Color (Pt-Co Units) (Pt-Co Units) Internal Monitoring Point	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	Grab
Pentachlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
2,3,4,6-Tetrachlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
2,3,7,8-Tetrachlorodibenzofuran (pg/L) Internal Monitoring Point	XXX	XXX	XXX	0.319	XXX	XXX	2/year	Grab
2,3,7,8-Tetrachlorodibenzo-p-dioxin (pg/L) Internal Monitoring Point	XXX	XXX	XXX	0.01	XXX	XXX	2/year	Grab
3,4,5-Trichlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
2,4,5-Trichlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
3,4,6-Trichlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
3,4,5-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
3,4,6-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.025	XXX	XXX	2/year	Grab
4,5,6-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
2,4,6-Trichlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
Chloroform Internal Monitoring Point	2.72	4.55	XXX	Report Avg Qrtly	Report	XXX	1/quarter	Grab
Tetrachlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
Tetrachloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab

IMP 101 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
Trichlorosyringol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab

IMP 102 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report Avg Mo	Report	XXX	XXX	XXX	XXX	1/week	Measured
Kappa Number (No.) Internal Monitoring Point	XXX	XXX	XXX	13 Avg Mo	Report	XXX	1/week	Grab
Color (Pt-Co Units) (Pt-Co Units) Internal Monitoring Point	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/week	Grab
Pentachlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
2,3,4,6-Tetrachlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
2,3,7,8-Tetrachlorodibenzofuran (pg/L) Internal Monitoring Point	XXX	XXX	XXX	0.319	XXX	XXX	2/year	Grab
2,3,7,8-Tetrachlorodibenzo-p-dioxin (pg/L) Internal Monitoring Point	XXX	XXX	XXX	0.01	XXX	XXX	2/year	Grab
3,4,5-Trichlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
2,4,5-Trichlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
3,4,6-Trichlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
3,4,5-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
3,4,6-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.025	XXX	XXX	2/year	Grab
4,5,6-Trichloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
2,4,6-Trichlorophenol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab
Chloroform Internal Monitoring Point	3.16	5.28	XXX	Report Avg Qrtly	Report	XXX	1/quarter	Grab
Tetrachlorocatechol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab
Tetrachloroguaiacol Internal Monitoring Point	XXX	XXX	XXX	0.005	XXX	XXX	2/year	Grab

IMP 102 Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
Trichlorosyringol Internal Monitoring Point	XXX	XXX	XXX	0.0025	XXX	XXX	2/year	Grab

Stormwater Outfalls Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Semi-Annual Average	Daily Maximum	Instant. Maximum		
COD	XXX	XXX	XXX	XXX	Report	XXX	2/year	Grab
pH	XXX	XXX	XXX	XXX	Report	XXX	2/year	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	2/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	2/year	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Appendices

Appendix A – Facility Information

- US EPA NPDES Permit Rating Work Sheet
- Site Location Map
- Process Flow Diagram
- Wastewater Treatment Technology

Appendix B – Water Quality Analysis (RP Analysis)

- USGS StreamStats
- WQM 7.0 VER. 1.1
- Toxics Screening Analysis
- WET Analysis Spreadsheet

Appendix C – Data Analysis for Color

Appendix D – Data Analysis for Temperature

Appendix E – Previous Records w/DMR Summary

Appendix A – EPA Rating Sheet

NPDES Permit Rating Work Sheet

☐ Regular Addition
☐ Discretionary Addition
☐ Score change, but no status change
☐ Deletion

NPDES No.: PA0008869

Facility Name: Pixelle Specialty Solutions LLC (formerly P.H. Glatfelter Company)

City: Spring Grove

Receiving Water: Codorus Creek

Reach Number: _____

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

☐ YES; score is 600 (**stop here**) ☑ NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

☐ YES; score is 700 (**stop here**)
☑ NO (continue)

FACTOR 1:Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 2611

Other SIC Codes: _____ _____ _____ _____

Industrial Subcategory Code: _____ (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. *(Be sure to use the TOTAL toxicity potential column and **check one**)*

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	15	☐ 7	7	35
☐ 1.	1	5	☐ 4.	4	20	☐ 8.	8	40
☐ 2.	2	10	☐ 5.	5	25	☐ 9.	9	45
			☐ 6.	6	30	☑ 10.	10	50

Code Number Checked: ____

Total Points Factor 1: 50

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; **check only one**)*

Section A - Wastewater Flow Only Considered

Wastewater type (See Instructions)			Code	Points
Type I:	Flow < 5 MGD	☐	11	0
	Flow 5 to 10 MGD	☐	12	10
	Flow>10 to 50 MGD	☐	13	20
	Flow> 50 MGD	☐	14	30
Type II:	Flow<1 MGD	☐	21	10
	Flow 1 to 5 MGD	☐	22	20
	Flow >5 to 10 MGD	☐	23	30
	Flow>10 MGD	☐	24	50
Type III:	Flow <1 MGD	☐	31	0
	Flow 1 to 5 MGD	☐	32	10
	Flow >5 to 10 MGD	☐	33	20
	Flow >10 MGD	☐	34	30

Section B - Wastewater and Stream Flow Considered

Wastewater type (See Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow		Code	Points
Type I/III:	<10%	☐	41	0
	≥10% to <50%	☐	42	10
	≥50%	☑	43	20
Type II	<10%	☐	51	0
	≥10% to <50%	☐	52	20
	≥50%	☐	53	30

Code Checked from Section A or B: ____

Total Points Factor 2: 20

1

NPDES Permit Rating Work Sheet

FACTOR 3: Conventional Pollutants NPDES No.: PA0008869
(only when limited by the permit)

A. Oxygen Demanding Pollutants (check one) ☑ BOD ☐ COD ☐ OTHER: _____

Permit Limits (**check one**)		Code	Points
	<100 lbs/day	1	0
	100 to 1000 lbs/day	2	5
☑	>1000 to 3000 lbs/day	3	15
	>3000 lbs/day	4	20

Code Checked: ____
Points Scored: 15

B. Total Suspended Solids (TSS)

Permit Limits (**check one**)		Code	Points
	<100 lbs/day	1	0
	100 to 1000 lbs/day	2	5
☑	>1000 to 5000 lbs/day	3	15
	>5000 lbs/day	4	20

Code Checked: ____
Points Scored: 15

C. Nitrogen Pollutants (**check one**) ☑ Ammonia ☐ OTHER: _____

Permit Limits (**check one**)		Nitrogen Equivalent	Code	Points
☑	<300 lbs/day		1	0
	300 to 1000 lbs/day		2	5
	>1000 to 3000 lbs/day		3	15
	>3000 lbs/day		4	20

Code Checked: ____
Points Scored: 0
Total Points Factor 3: 30

FACTOR 4: Public Health Impact
Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

☑ YES (if yes, check toxicity potential number below)
☐ NO (**if no, go to Factor 5**)

*Determine the human health toxicity potential from Appendix A. Use the same SIC Code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column and **check one below**)*

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
☐ No process waste streams	0	0	☐ 3.	3	0	☐ 7.	7	15
☐ 1.	1	0	☐ 4.	4	0	☐ 8.	8	20
☐ 2.	2	0	☐ 5.	5	5	☐ 9.	9	25
			☐ 6.	6	10	☑ 10.	10	30

Code Number Checked: ____
Total Points Factor 4: 30

NPDES Permit Rating Work Sheet

FACTOR 5: Water Quality Factors NPDES No.: PA0008869

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge?*

	Code	Points
☐ YES	1	10
☑ NO	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

	Code	Points
☐ YES	1	0
☑ NO	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

	Code	Points
☐ YES	1	10
☐ NO	2	0

Code Number Checked: **A.** ____ **B.** ____ **C.** ____

Total Points Factor 5 A. 0 +B. 5 +C. 0 = 5

FACTOR 6: Proximity to Near Coastal Waters

A. *Base Score: Enter flow code here (from Factor 2):* _____

Enter the multiplication factor that corresponds to the flow code: 0.00

Check appropriate facility HPRI Code (from PSC):

	HPRI#	Code	HPRI Score
☐	1	1	20
☐	2	2	0
☐	3	3	30
☑	4	4	0
☐	5	5	20

Flow code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI Code Checked:

Base Score (HPRI Score) 0 x (Multiplication Factor) 0.00 = 0 (Total Points)

B. *Additional Points – NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
☐ YES	1	10
☑ NO	2	0

C. *Additional Points – Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)?

	Code	Points
☐ YES	1	10
☑ NO	2	0

Code Number Checked: **A.** ____ **B.** ____ **C.** ____

Total Points Factor 6 A. 0 +B. 0 +C. 0 = 0

3

NPDES Permit Rating Work Sheet

Score Summary NPDES No.: PA0008869

Factor	Description	Total Points
1.	Toxic Pollutant Potential	50
2.	Flow/Streamflow Volume	20
3.	Conventional Pollutants	30
4.	Public Health Impacts	30
5.	Water Quality Factors	5
6.	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1 through 6)	135

S1. Is the total score equal to or greater than 80? ☑ YES (Facility is a major) ☐ NO

S2. If the answer to the above question is no, would you like this facility to be discretionary major?

☑ NO

☐ YES (Add 500 points to the above score and provide reason below:

Reason: _____

NEW SCORE: 135

OLD SCORE: _____

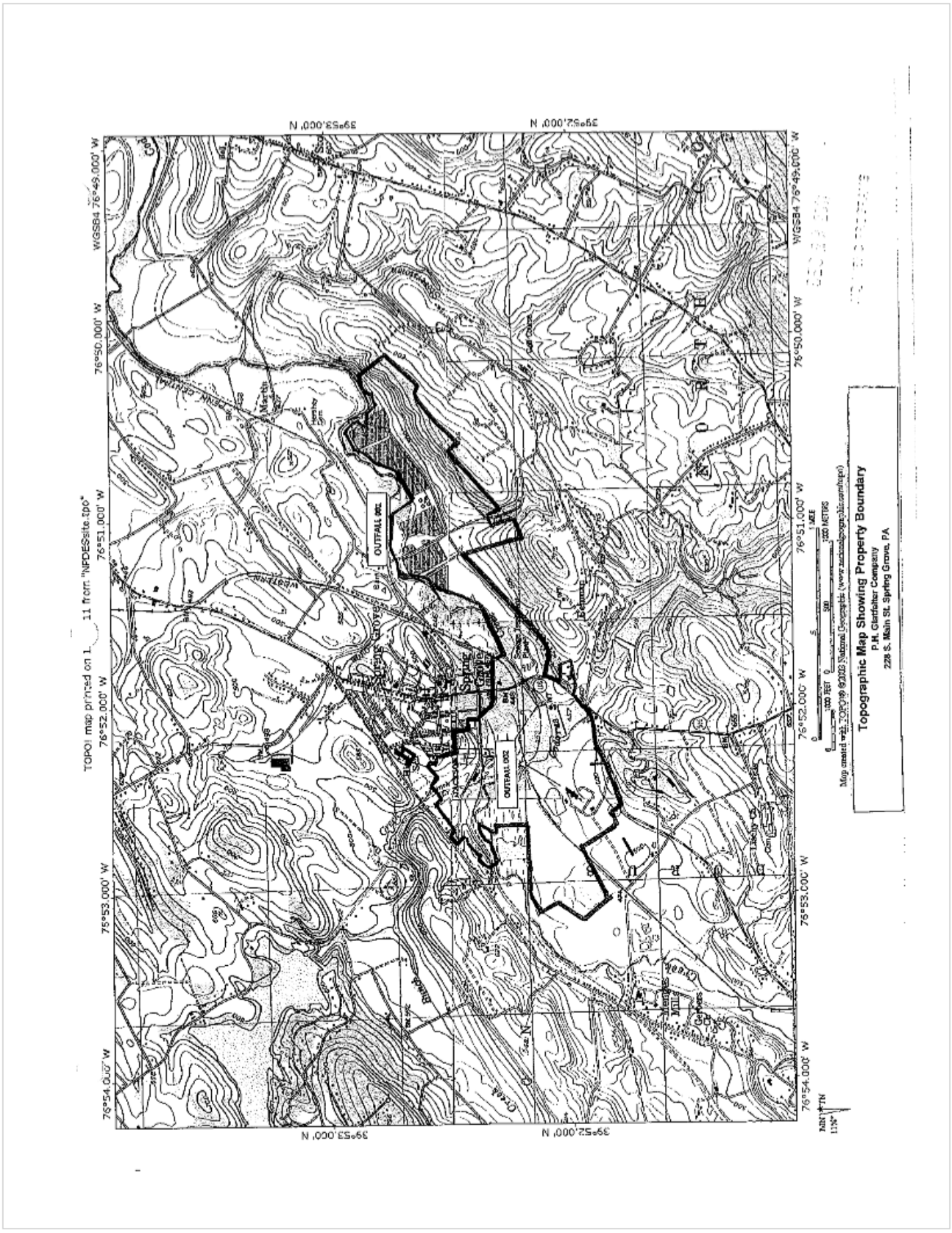
Jinsu Kim
Permit Reviewer's Name

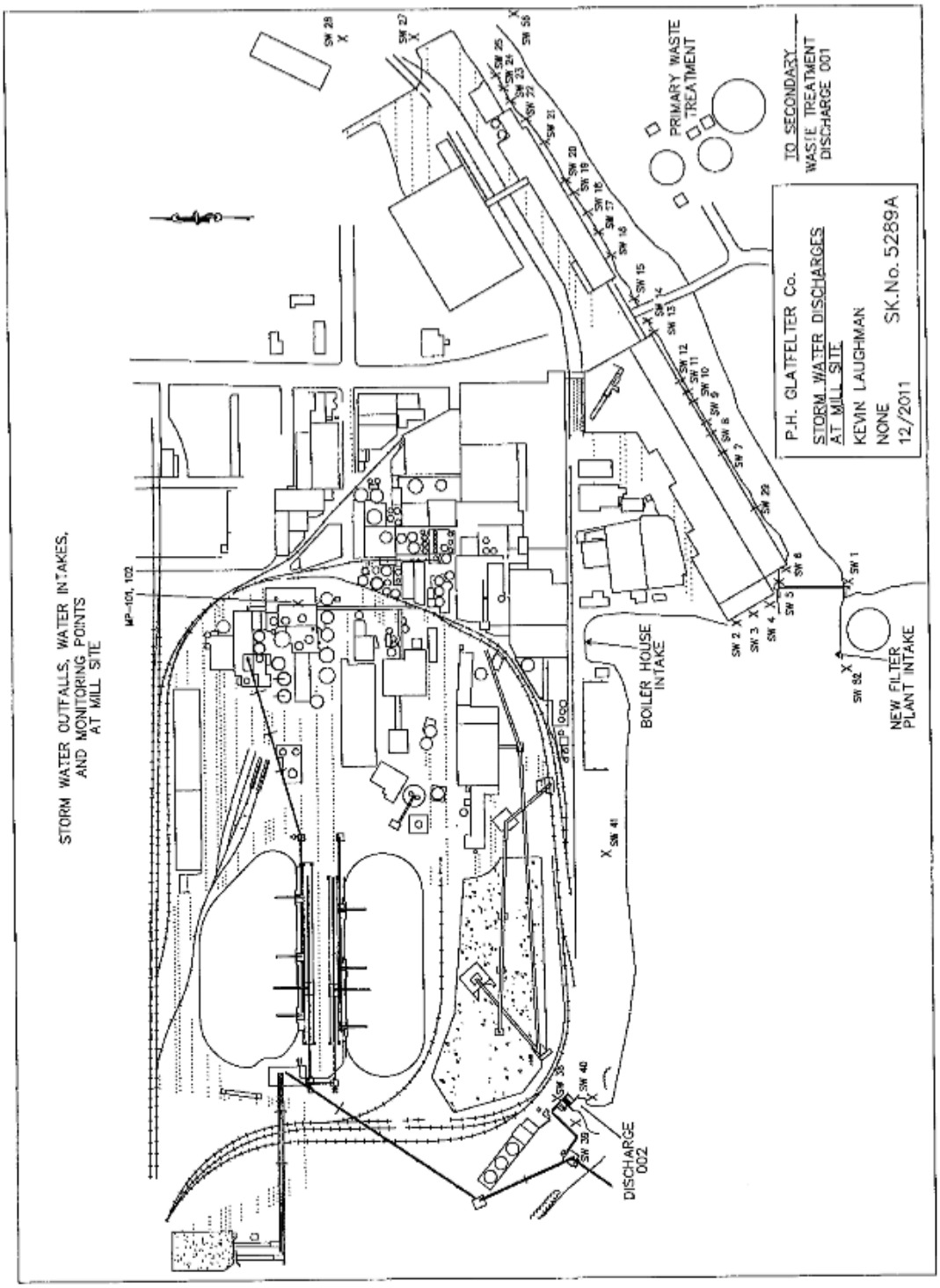
(717) 705-4825
Phone Number

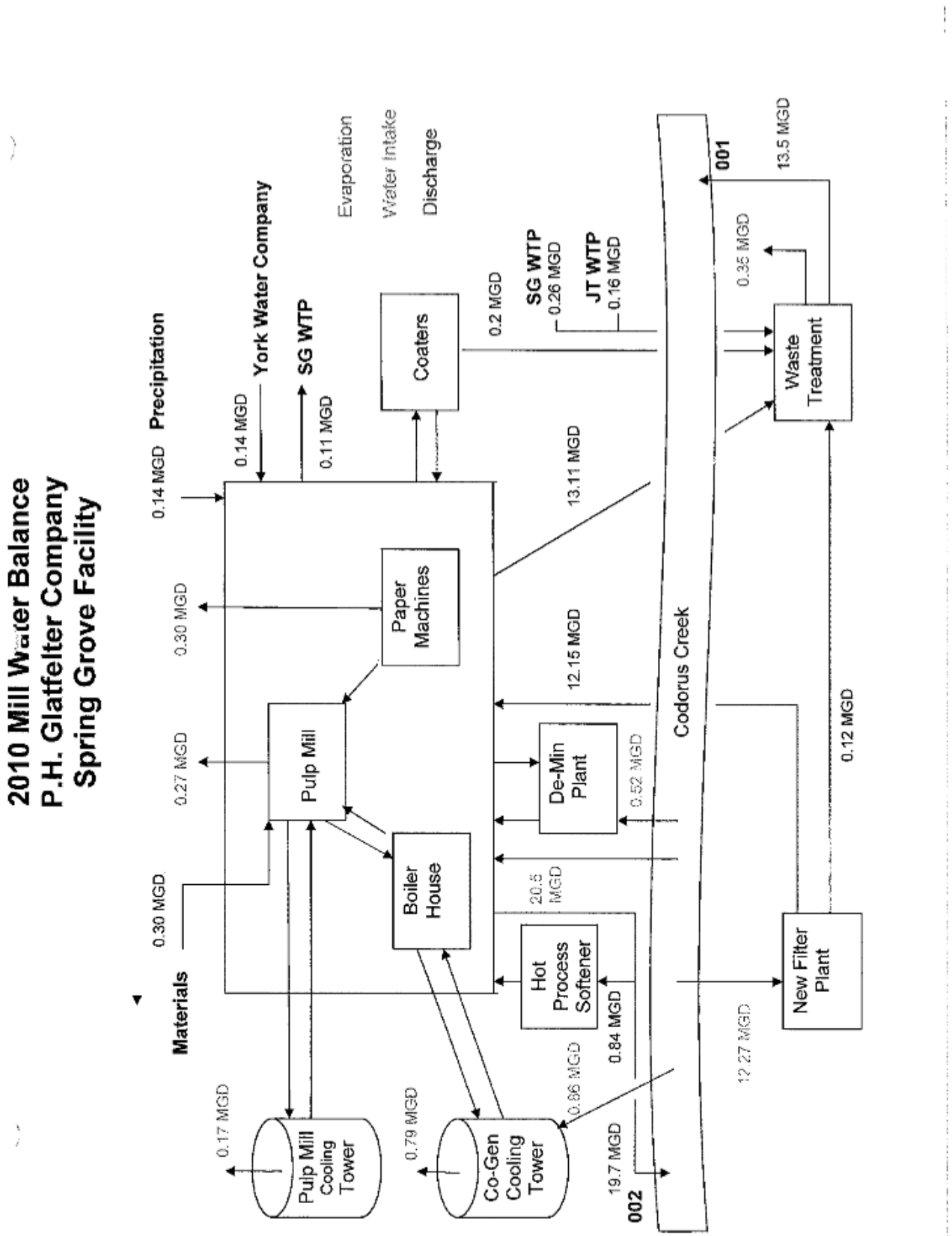
08/22/2022
Date

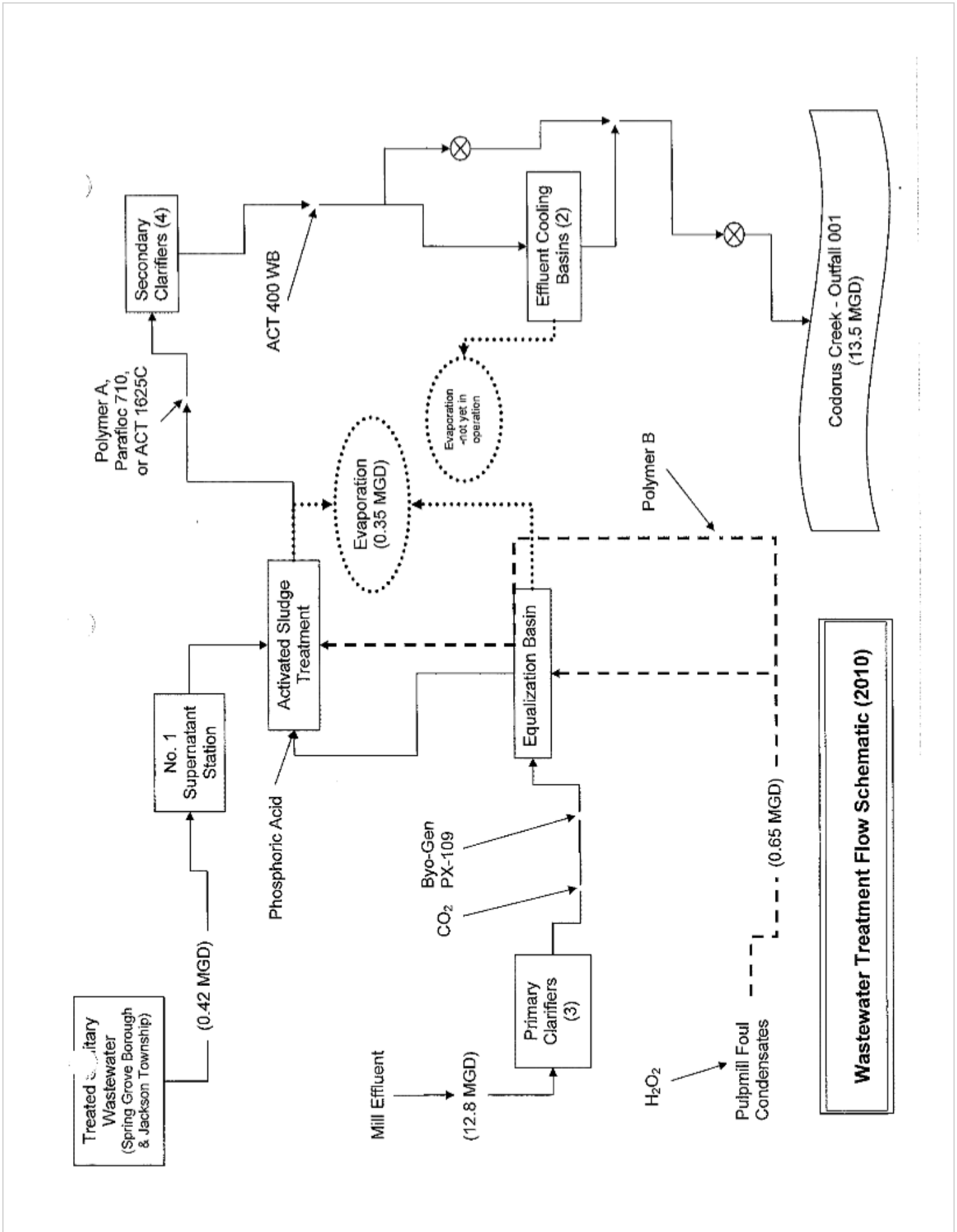
Reset Form

Appendix A – Site Location Map, Process Flow Diagram & Wastewater Treatment Technology




STORM WATER OUTFALLS, WATER INTAKES,
AND MONITORING POINTS
AT MILL SITE
MP-101, 102
SW 28
SW 27
SW 25
SW 24
SW 23
SW 22
SW 21
SW 20
SW 19
SW 16
SW 17
SW 18
SW 15
SW 14
SW 13
SW 12
SW 11
SW 10
SW 9
SW 8
SW 7
SW 29
SW 6
SW 5
SW 4
SW 3
SW 2
SW 1
SW 52
SW 41
SW 40
SW 39
SW 38
PRIMARY WASTE
TREATMENT
TO SECONDARY
WASTE TREATMENT
DISCHARGE 001
P.H. GLATFELTER Co.
STORM WATER DISCHARGES
AT MILL SITE
KEVIN LAUGHMAN
NONE
12/2011
SK.No. 5289A
BOILER HOUSE
INTAKE
NEW FILTER
PLANT INTAKE
DISCHARGE
002

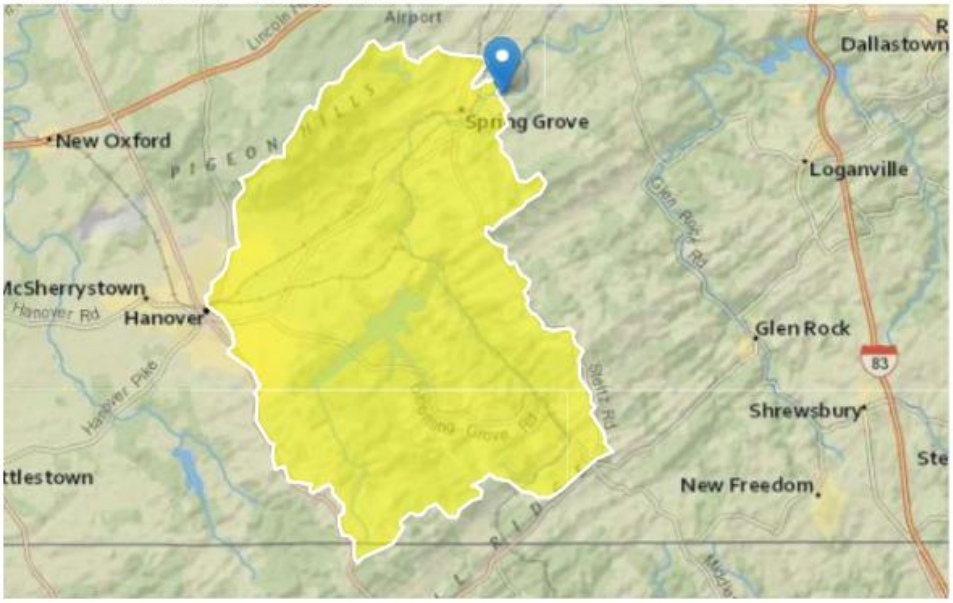

2010 Mill Water Balance
P.H. Glatfelter Company
Spring Grove Facility
Materials
0.30 MGD
Precipitation
0.14 MGD
York Water Company
0.14 MGD
SG WTP
0.11 MGD
Evaporation
Water Intake
Discharge
Coaters
0.2 MGD
SG WTP
0.26 MGD
JT WTP
0.16 MGD
13.11 MGD
Paper Machines
0.30 MGD
12.15 MGD
Pulp Mill
0.27 MGD
Boiler House
De-Min Plant
0.52 MGD
20.8 MGD
Hot Process Softener
0.84 MGD
0.86 MGD
Codorus Creek
001
0.35 MGD
13.5 MGD
Waste Treatment
0.12 MGD
New Filter Plant
12.27 MGD
0.17 MGD
Pulp Mill Cooling Tower
0.79 MGD
Co-Gen Cooling Tower
19.7 MGD
002


Wastewater Treatment Flow Schematic (2010)
Treated Sanitary Wastewater (Spring Grove Borough & Jackson Township)
(0.42 MGD)
No. 1 Supernatant Station
Activated Sludge Treatment
Phosphoric Acid
Polymer A, Parafloc 710, or ACT 1625C
Secondary Clarifiers (4)
ACT 400 WB
Evaporation (0.35 MGD)
Evaporation -not yet in operation
Effluent Cooling Basins (2)
Codorus Creek - Outfall 001 (13.5 MGD)
Polymer B
Equalization Basin
Byo-Gen PX-109
CO_2
Primary Clarifiers (3)
Mill Effluent
(12.8 MGD)
H_2O_2
Pulpmill Foul Condensates
(0.65 MGD)

Appendix B – USGS StreamStats

StreamStats Report

Region ID: PA
Workspace ID: PA20211001140609727000
Clicked Point (Latitude, Longitude): 39.87846, -76.84726
Time: 2021-10-01 10:06:30 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	75.7	square miles
BSLOPD	Mean basin slope measured in degrees	5.6193	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	3.7059	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	75.7	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.6193	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	3.7059	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	16.5	ft^3/s	46	46
30 Day 2 Year Low Flow	20.8	ft^3/s	38	38
7 Day 10 Year Low Flow	8.69	ft^3/s	51	51
30 Day 10 Year Low Flow	11.1	ft^3/s	46	46
90 Day 10 Year Low Flow	15.6	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Appendix B – WQM 7.0 ver. 1.1

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**26.140**	438.00	74.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Spring Grove	PA0260860	0.3300	0.3300	0.3300	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	21.00	1.40	0.00	1.50
Dissolved Oxygen	5.00	8.10	0.00	6.00
NH3-N	7.50	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**25.710**	431.00	75.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jackson Townshi	PA0065660	0.8000	0.8000	0.8000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	22.00	1.40	0.00	1.50
Dissolved Oxygen	5.00	8.10	0.00	6.00
NH3-N	8.00	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**25.260**	428.00	75.80	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	1.40	0.00	1.50
Dissolved Oxygen	3.00	8.10	0.00	6.00
NH3-N	25.00	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**24.450**	421.00	76.00	0.00080	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	21.60	0.000	0.560	40.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Pixelle 001	PA000886900	13.7000	13.7000	13.7000	0.000	33.00	7.30

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	14.00	1.40	0.00	1.50
Dissolved Oxygen	5.00	8.10	0.00	6.00
NH3-N	1.50	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**23.900**	419.00	76.40	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	1.40	0.00	1.50
Dissolved Oxygen	3.00	8.10	0.00	6.00
NH3-N	25.00	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**21.000**	408.00	83.60	0.00080	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	40.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
BAE Systems	PA00092530	0.0710	0.0710	0.0710	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	1.40	0.00	1.50
Dissolved Oxygen	5.00	8.10	0.00	6.00
NH3-N	23.00	0.06	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8032	CODORUS CREEK	**20.600**	406.00	88.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.214	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	1.40	0.00	1.50
Dissolved Oxygen	3.00	8.10	0.00	6.00
NH3-N	25.00	0.06	0.00	0.70

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
26.140	0.330	24.844	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
54.977	0.794	69.217	0.374
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.468	0.29	1.016
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.003	6.730	User Supplied	5
Reach Travel Time (days)			
0.070			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.007	2.00	0.29	7.56
0.014	2.00	0.29	7.56
0.021	1.99	0.29	7.56
0.028	1.98	0.28	7.56
0.035	1.97	0.28	7.56
0.042	1.96	0.28	7.56
0.049	1.96	0.28	7.56
0.056	1.95	0.28	7.56
0.063	1.94	0.27	7.56
0.070	1.93	0.27	7.56

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
25.710	1.130	24.512	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
60.143	0.818	73.512	0.364
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.31	0.902	0.80	0.991
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.392	6.678	User Supplied	5
Reach Travel Time (days)			
0.075			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.008	3.28	0.80	7.38
0.015	3.25	0.79	7.36
0.023	3.22	0.78	7.35
0.030	3.20	0.78	7.34
0.038	3.17	0.77	7.33
0.045	3.14	0.77	7.32
0.053	3.12	0.76	7.31
0.060	3.09	0.76	7.30
0.068	3.07	0.75	7.30
0.075	3.04	0.74	7.29

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
25.260	1.130	24.514	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
59.361	0.813	73.055	0.373
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.04	0.831	0.74	0.991
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.293	6.678	User Supplied	5
Reach Travel Time (days)			
0.133			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	3.00	0.73	7.29
0.027	2.96	0.72	7.29
0.040	2.92	0.71	7.29
0.053	2.88	0.70	7.29
0.066	2.84	0.70	7.29
0.080	2.80	0.69	7.29
0.093	2.76	0.68	7.30
0.106	2.72	0.67	7.30
0.120	2.69	0.66	7.31
0.133	2.65	0.65	7.32

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
24.450	14.830	28.610	7.118
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
86.689	0.918	94.481	0.560
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.90	1.363	0.98	1.358
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.309	7.359	User Supplied	5
Reach Travel Time (days)			
0.060			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.006	7.80	0.98	6.20
0.012	7.71	0.97	6.10
0.018	7.62	0.96	6.01
0.024	7.53	0.95	5.92
0.030	7.43	0.94	5.84
0.036	7.34	0.94	5.76
0.042	7.26	0.93	5.69
0.048	7.17	0.92	5.62
0.054	7.08	0.91	5.56
0.060	7.00	0.91	5.50

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.900	14.830	28.603	7.117
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
85.534	0.903	94.766	0.578
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.99	1.300	0.90	1.357
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.504	7.358	User Supplied	5
Reach Travel Time (days)			
0.307			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.031	6.58	0.87	5.30
0.061	6.21	0.83	5.17
0.092	5.85	0.80	5.10
0.123	5.51	0.77	5.08
0.153	5.20	0.73	5.10
0.184	4.90	0.70	5.14
0.215	4.62	0.68	5.20
0.245	4.35	0.65	5.27
0.276	4.10	0.62	5.36
0.307	3.87	0.60	5.45

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
21.000	14.901	28.463	7.113
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
87.577	0.906	96.713	0.584
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.83	1.215	0.63	1.343
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.537	7.334	User Supplied	5
Reach Travel Time (days)			
0.042			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	3.81	0.63	5.55
0.008	3.78	0.63	5.56
0.013	3.75	0.62	5.58
0.017	3.72	0.62	5.59
0.021	3.69	0.61	5.60
0.025	3.67	0.61	5.62
0.029	3.64	0.61	5.63
0.034	3.61	0.60	5.64
0.038	3.58	0.60	5.66
0.042	3.56	0.60	5.67

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
26.140	15.84	0.00	15.84	.5105	0.00308	.794	54.98	69.22	0.37	0.070	24.84	7.00
25.710	16.18	0.00	16.18	1.7481	0.00126	.818	60.14	73.51	0.36	0.075	24.51	7.00
25.260	16.22	0.00	16.22	1.7481	0.00164	.813	59.36	73.06	0.37	0.133	24.51	7.00
24.450	21.60	0.00	21.60	22.942	0.00080	.918	86.69	94.48	0.56	0.060	28.61	7.12
23.900	21.69	0.00	21.69	22.942	0.00072	.903	85.53	94.77	0.58	0.307	28.60	7.12
21.000	23.23	0.00	23.23	23.0518	0.00080	.906	87.58	96.71	0.58	0.042	28.46	7.11
Q1-10 Flow												
26.140	10.14	0.00	10.14	.5105	0.00308	NA	NA	NA	0.29	0.089	24.76	7.00
25.710	10.35	0.00	10.35	1.7481	0.00126	NA	NA	NA	0.29	0.094	24.28	7.00
25.260	10.38	0.00	10.38	1.7481	0.00164	NA	NA	NA	0.30	0.166	24.28	7.00
24.450	13.82	0.00	13.82	22.942	0.00080	NA	NA	NA	0.52	0.064	29.37	7.15
23.900	13.88	0.00	13.88	22.942	0.00072	NA	NA	NA	0.52	0.341	29.37	7.15
21.000	14.86	0.00	14.86	23.0518	0.00080	NA	NA	NA	0.52	0.047	29.23	7.14
Q30-10 Flow												
26.140	25.34	0.00	25.34	.5105	0.00308	NA	NA	NA	0.48	0.054	24.90	7.00
25.710	25.89	0.00	25.89	1.7481	0.00126	NA	NA	NA	0.46	0.059	24.68	7.00
25.260	25.95	0.00	25.95	1.7481	0.00164	NA	NA	NA	0.47	0.104	24.68	7.00
24.450	34.56	0.00	34.56	22.942	0.00080	NA	NA	NA	0.67	0.050	27.80	7.09
23.900	34.70	0.00	34.70	22.942	0.00072	NA	NA	NA	0.67	0.266	27.79	7.09
21.000	37.16	0.00	37.16	23.0518	0.00080	NA	NA	NA	0.68	0.036	27.66	7.08

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.6	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
26.140	Spring Grove	11.3	15	11.3	15	0	0
25.710	Jackson Townshi	11.57	16	11.76	16	0	0
25.260		NA	NA	11.75	NA	NA	NA
24.450	Pixelle 001	6.37	3	6.68	3	0	0
23.900		NA	NA	6.69	NA	NA	NA
21.000	BAE Systems	11.11	46	6.8	46	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
26.140	Spring Grove	1.38	7.5	1.38	7.5	0	0
25.710	Jackson Townshi	1.39	8	1.4	8	0	0
25.260		NA	NA	1.4	NA	NA	NA
24.450	Pixelle 001	1.08	1.5	1.1	1.5	0	0
23.900		NA	NA	1.1	NA	NA	NA
21.000	BAE Systems	1.37	23	1.11	23	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
26.14	Spring Grove	21	21	7.5	7.5	5	5	0	0
25.71	Jackson Townshi	22	22	8	8	5	5	0	0
25.26		NA	NA	NA	NA	NA	NA	NA	NA
24.45	Pixelle 001	14	14	1.5	1.5	5	5	0	0
23.90		NA	NA	NA	NA	NA	NA	NA	NA
21.00	BAE Systems	25	25	23	23	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07H	8032	CODORUS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
26.140	Spring Grove	PA02860860	0.330	CBOD5	21		
				NH3-N	7.5	15	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
25.710	Jackson Townshi	PA02865660	0.800	CBOD5	22		
				NH3-N	8	16	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
24.450	Pixelle 001	PA000886900	13.700	CBOD5	14		
				NH3-N	1.5	3	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
21.000	BAE Systems	PA00092530	0.071	CBOD5	25		
				NH3-N	23	46	
				Dissolved Oxygen			5

Appendix B – Toxics Screening Analysis

"New" Toxics

	Concentration in µg/L				
Pollutants	**Average Monthly Limit**	**Daily Maximum Limit**	**Non-Detected?**	**MDL used**	**DEP's Target QL**
1,1,2-Trichloroethane	Monitor	Monitor	Y	1.0	0.5
1,1,2,2-Tetrachloroethane	0.85	1.326	Y	1.0	0.5
1,2-Dichloroehtane	1.899	2.963	Y	1.0	0.5
1,3-Dichloropropylene	1.699	2.651	Y	1.0	0.5
Total Antimony	9.88	15.415	Y	6.0	2.0
Total Cadmium	0.842	1.314	Y	3.0	0.2
Carbon Tetrachloride	1.15	1.794	Y	1.0	0.5
Chlorodibromomethane	1.999	3.119	Y	1.0	0.5
Hexavalent Chromium	14.211	22.172	Y	50	1.0
Total Copper	28.861	45.028	N		
Dichlorobromomethane	Monitor	Monitor	Y	1.0	0.5
Total Lead	14.211	22.172	N		
Total Selenium	8.803	13.734	Y	8.0	5.0
Tetrachloroethylene	Monitor	Monitor	Y	1.0	0.5
Total Thallium	0.423	0.661	Y	10	2.0
Vinyl Chloride	0.125	0.195	Y	1.0	0.5
Total Dissolved Solids	Monitor	Monitor	N		
Sulfate	Monitor	Monitor	N		
Chloride	Monitor	Monitor	N		
Bromide	Monitor	Monitor	N		
1,4-dioxane	TBD	TBD			

"Existing" Toxics

	Concentration in µg/L		
Pollutants	**Existing**	**Average Monthly Limit**	**Daily Maximum Limit**
Total Aluminum	Monitor	TBD	TBD
Total Boron	Monitor	N/A	N/A
Chloroform	20	20	31
2,3,7,8 – TCDD (pg/L)	0.035	0.035	0.035

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.4

Facility: P.H. Glatfelter Pulp & Paper Mill
Analysis Hardness (mg/L): 249
NPDES Permit No.: PA0008869
Discharge Flow (MGD): 13.7
Outfall: 001
Analysis pH (SU): 7

	Parameter		Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		1260000	500000	Yes		Monitor
	Chloride			250000			Monitor
	Bromide		1000	N/A	No		Monitor
	Sulfate		486000	250000	Yes		Monitor
	Fluoride		230	2000	No		
Group 2	Total Aluminum		764	750	Yes		
	Total Antimony		0.36	5.6	No	9.88	
	Total Arsenic	<	5	10	No		
	Total Barium		147	2400	No		
	Total Beryllium	<	1	N/A	No (Value < QL)		
	Total Boron		96.8074	1600	No		
	Total Cadmium		0.37	0.532	No	0.842	
	Total Chromium	<	3	N/A	No (Value < QL)		
	Hexavalent Chromium	<	2	10.4	No	14.211	
	Total Cobalt	<	5	19	No		
	Total Copper		66.3	20.3	Yes	28.861	Establish Limits
	Total Cyanide	<	5	N/A	No (Value < QL)		
	Total Iron	<	70	1500	No		
	Dissolved Iron	<	70	300	No		
	Total Lead		17.3	10.2	Yes	14.879	Establish Limits
	Total Manganese		325	1000	No		
	Total Mercury	<	0.2	0.05	No (Value < QL)		
	Total Molybdenum	<	20	N/A	No		
	Total Nickel		37.1	112.9	No		
	Total Phenols (Phenolics)	<	50	5	Yes	37051.79	No Limits/Monitoring
	Total Selenium		0.23	5.0	No	8.803	
	Total Silver	<	6	18.2	No		
	Total Thallium	<	0.028	0.24	No (Value < QL)	0.423	
	Total Zinc		24.7	259.5	No		
Group 3	Acrolein	<	2	3	No (Value < QL)		
	Acrylamide	<		0.07			
	Acrylonitrile	<	2	0.051	No (Value < QL)		
	Benzene	<	1	1.2	No		
	Bromoform	<	1	4.3	No		
	Carbon Tetrachloride	<	0.34	0.23	No (Value < QL)	1.15	
	Chlorobenzene	<	1	130	No		
	Chlorodibromomethane	<	0.43	0.4	No (Value < QL)	1.999	
	Chloroethane	<	1	N/A	No		
	2-Chloroethyl Vinyl Ether	<	2	3500	No (Value < QL)		
	Chloroform	<	1	5.7	No		
	Dichlorobromomethane	<	0.35	0.55	No (Value < QL)	2.749	
	1,1-Dichloroethane	<	1	N/A	No		
	1,2-Dichloroethane	<	0.36	0.38	No (Value < QL)	1.899	
	1,1-Dichloroethylene	<	1	33	No		
	1,2-Dichloropropane	<	1	2200	No		
	1,3-Dichloropropylene	<	0.37	0.34	No (Value < QL)	1.699	
	Ethylbenzene	<	1	530	No		
	Methyl Bromide		1.1	47	No		
	Methyl Chloride	<	1	5500	No		
	Methylene Chloride	<	1	4.6	No		
	1,1,2,2-Tetrachloroethane	<	0.34	0.17	No (Value < QL)	0.851	
	Tetrachloroethylene	<	0.33	0.69	No (Value < QL)	3.449	
	Toluene	<	1	330	No		
	1,2-trans-Dichloroethylene	<	1	140	No		
	1,1,1-Trichloroethane	<	1	610	No		
	1,1,2-Trichloroethane	<	0.45	0.59	No (Value < QL)	2.949	
	Trichloroethylene	<	1	2.5	No		
	Vinyl Chloride	<	0.31	0.025	No (Value < QL)	0.125	
Group 4	2-Chlorophenol	<		81			
	2,4-Dichlorophenol	<		77			
	2,4-Dimethylphenol	<		130			
	4,6-Dinitro-o-Cresol	<		13			
	2,4-Dinitrophenol	<		69			
	2-Nitrophenol	<		1600			
	4-Nitrophenol	<		470			
	p-Chloro-m-Cresol	<		30			
	Pentachlorophenol	<		0.27			
	Phenol	<		10400			
	2,4,6-Trichlorophenol	<		1.4			
	Acenaphthene	<		17			

Toxics Screening Analysis Spreadsheet (v 2.4)- revised, 11/13/2023

Group 5	Acenaphthylene	<		N/A			
	Anthracene	<		8300			
	Benzidine	<		0.000086			
	Benzo(a)Anthracene	<		0.0038			
	Benzo(a)Pyrene	<		0.0038			
	3,4-Benzofluoranthene	<		0.0038			
	Benzo(ghi)Perylene	<		N/A			
	Benzo(k)Fluoranthene	<		0.0038			
	Bis(2-Chloroethoxy)Methane	<		N/A			
	Bis(2-Chloroethyl)Ether	<		0.03			
	Bis(2-Chloroisopropyl)Ether	<		1400			
	Bis(2-Ethylhexyl)Phthalate	<		1.2			
	4-Bromophenyl Phenyl Ether	<		54			
	Butyl Benzyl Phthalate	<		35			
	2-Chloronaphthalene	<		1000			
	4-Chlorophenyl Phenyl Ether	<		N/A			
	Chrysene	<		0.0038			
	Dibenzo(a,h)Anthrancene	<		0.0038			
	1,2-Dichlorobenzene	<		160			
	1,3-Dichlorobenzene	<		69			
	1,4-Dichlorobenzene	<		150			
	3,3-Dichlorobenzidine	<		0.021			
	Diethyl Phthalate	<		800			
	Dimethyl Phthalate	<		500			
	Di-n-Butyl Phthalate	<		21			
	2,4-Dinitrotoluene	<		0.05			
	2,6-Dinitrotoluene	<		0.05			
	1,4-Dioxane	<		N/A			
	Di-n-Octyl Phthalate	<		N/A			
	1,2-Diphenylhydrazine	<		0.036			
	Fluoranthene	<		40			
	Fluorene	<		1100			
	Hexachlorobenzene	<		0.00028			
	Hexachlorobutadiene	<		0.44			
	Hexachlorocyclopentadiene	<		1			
	Hexachloroethane	<		1.4			
	Indeno(1,2,3-cd)Pyrene	<		0.0038			
	Isophorone	<		35			
	Naphthalene	<		43			
	Nitrobenzene	<		17			
	n-Nitrosodimethylamine	<		0.00069			
	n-Nitrosodi-n-Propylamine	<		0.005			
	n-Nitrosodiphenylamine	<		3.3			
	Phenanthrene	<		1			
	Pyrene	<		830			
	1,2,4-Trichlorobenzene	<		26			
Group 6	Aldrin	<		0.000049			
	alpha-BHC	<		0.0026			
	beta-BHC	<		0.0091			
	gamma-BHC	<		0.098			
	delta BHC	<		N/A			
	Chlordane	<		0.0008			
	4,4-DDT	<		0.00022			
	4,4-DDE	<		0.00022			
	4,4-DDD	<		0.00031			
	Dieldrin	<		0.000052			
	alpha-Endosulfan	<		0.056			
	beta-Endosulfan	<		0.056			
	Endosulfan Sulfate	<		N/A			
	Endrin	<		0.036			
	Endrin Aldehyde	<		0.29			
	Heptachlor	<		0.000079			
	Heptachlor Epoxide	<		0.000039			
	PCB-1242	<		N/A			
	PCB-1254	<		N/A			
	PCB-1221	<		N/A			
	PCB-1232	<		N/A			
	PCB-1248	<		N/A			
	PCB-1260	<		N/A			
	PCB-1016	<		N/A			
	Toxaphene	<		0.0002			
	2,3,7,8-TCDD	<		0.000000005			
Group 7	Gross Alpha (pCi/L)	<		N/A			
	Total Beta (pCi/L)	<		N/A			
	Radium 226/228 (pCi/L)	<		N/A			
	Total Strontium	<		4000			
	Total Uranium	<		N/A			

Toxics Screening Analysis Spreadsheet (v 2.4)- revised, 11/13/2023

Facility:	P.H. Glatfelter Pulp and Paper Mill
NPDES #:	PA0008869
Outfall No:	001
n (Samples/Month):	4
Reviewer/Permit Engineer:	Jinsu Kim

Parameter Name	Total Aluminum	Total Boron	Color (summer)	Color (winter)
Units	mg/L	mg/L	other	other
Detection Limit		0.05		
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*			
5/1/2014	0.703	0.064		
5/1/2014	0.703	0.064		
6/1/2014	0.703	0.064		
7/1/2014	0.432	< 0.05		
8/1/2014	0.414	< 0.05		
9/1/2014	0.27	< 0.05		
10/1/2014	0.45	< 0.05		
11/1/2014	0.56	< 0.05		
12/1/2014	0.507	< 0.05		
1/1/2015	1.8	< 0.05		
2/1/2015	0.757	< 0.05		
3/1/2015	0.598	0.056		
4/1/2015	0.48	0.059		
5/1/2015	0.48	0.059		
6/1/2015	1.84	0.391		
7/1/2015	0.431	0.071		
8/1/2015	0.428	0.088		
9/1/2015	0.444	0.122		
10/1/2015	0.539	0.054		
11/1/2015	0.502	0.056		
12/1/2015	0.46	< 0.05		
1/1/2016	0.55	< 0.05		
2/1/2016	0.529	0.054		
3/1/2016	0.404	< 0.050		
4/1/2016	0.518	< 0.05		
5/1/2016	0.564	< 0.050		
6/1/2016	0.551	< 0.050		
7/1/2016	0.874	< 0.050		
8/1/2016	0.467	< 0.050		
9/1/2016	0.617	< 0.050		
10/1/2016	0.518	< 0.050		
11/1/2016	0.445	< 0.050		
12/1/2016	0.677	< 0.050		
1/1/2017	0.488	< 0.050		
2/1/2017	0.415	< 0.050		
3/1/2017	0.482	< 0.050		
4/1/2017	0.564	< 0.050		
5/1/2017	0.564	< 0.050		
6/1/2017	0.564	< 0.050		
7/1/2017	0.564	< 0.050		
8/1/2017	0.329	< 0.050		
9/1/2017	0.603	0.0511		
10/01/2017	0.603	0.051		
11/01/2017	0.603	0.0511		
12/01/2017	0.603	0.0511		
01/01/2018	0.542	< 0.050		
02/01/2018	0.324	< 0.050		
03/01/2018	0.264	< 0.050		
04/01/2018	0.435	< 0.050		

1

11/13/2023

Parameter Name	Total Aluminum	Total Boron	Color (summer)	Color (winter)									
Units	mg/L	mg/L	other	other									
Detection Limit		0.05											
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*												
05/01/2018	0.346	< 0.050											
06/01/2018	0.346	< 0.050											
07/01/2018	0.346	< 0.050											
08/01/2018	0.334	< 0.050											
09/01/2018	0.303	< 0.0500											
10/01/2018	0.303	< 0.050											
11/01/2018	0.38	< 0.050											
12/01/2018	0.351	< 0.050											
01/01/2019	0.496	< 0.050											
02/01/2019	0.414	< 0.050											
03/01/2019	0.414	< 0.050											
04/01/2019	0.414	< 0.050											
05/01/2019	0.414	< 0.050											
06/01/2019	1.32	0.19											
07/01/2019	0.35	0.057											
08/01/2019	0.415	0.057											
09/01/2019	0.305	0.066											
10/01/2019	0.439	0.058											
11/01/2019	0.697	0.053											
12/01/2019	0.478	0.054											
01/01/2020	0.62	< 0.050											
02/01/2020	0.709	< 0.050											
03/01/2020	0.522	< 0.050											
04/01/2020	0.522	< 0.0500											
05/01/2020	0.745	< 0.050											
06/01/2020	0.345	< 0.050											
07/01/2020	0.352	< 0.050											
08/01/2020	0.7	< 0.050											
09/01/2020	0.51	< 0.050											
10/01/2020	0.575	< 0.050											
11/01/2020	0.468	< 0.050											
12/01/2020	1.18	< 0.050											
01/01/2021	0.596	< 0.050											
02/01/2021	0.708	< 0.050											
03/01/2021	0.597	< 0.050											
04/01/2021	0.33	< 0.050											
05/01/2021	0.482	< 0.050											
06/01/2021	0.613	< 0.050											
07/01/2021	0.523	< 0.050											
08/01/2021	0.503	< 0.050											
09/01/2021	0.474	< 0.050											
10/01/2021	0.646	< 0.050											
11/01/2021	0.108	< 0.050											
12/01/2021	0.749	< 0.050											
01/01/2022	1.28	< 0.050											
02/01/2022	1.07	< 0.050											
03/01/2022	1.27	0.054											
04/01/2022	1.18	0.0622											
05/01/2022	0.672	0.0853											
06/01/2022	0.672	0.0853											
07/01/2022	3.61	0.215											

Parameter Name												
Units												
Detection Limit												
Sample Date												
5/1/2014												
5/1/2014												
6/1/2014												
7/1/2014												
8/1/2014												
9/1/2014												
10/1/2014												
11/1/2014												
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11/01/2017												
12/01/2017												
01/01/2018												
02/01/2018												
03/01/2018												
04/01/2018												

Parameter Name												
Units												
Detection Limit												
Sample Date												
05/01/2018												
06/01/2018												
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04/01/2022												
05/01/2022												
06/01/2022												
07/01/2022												

Reviewer/Permit Engineer: Jinsu Kim

Facility: P.H. Glatfelter Pulp and Paper Mill
NPDES #: PA0008869
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Aluminum (mg/L)	Lognormal	0.4737515	0.9918290
Total Boron (mg/L)	Delta-Lognormal	0.4516499	0.0910889
Color (summer) (other)			
Color (winter) (other)			

Appendix B – WET Analysis Spreadsheet

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.56
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Pixelle Speciality Solutions LLC

Permit No.: PA0008869

Test Completion Date: 10/26/2010

Replicate No.	Control	TIWC
1	1	0.9
2	1	0.9
3	1	0.8
4	0.9	0.7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.825
Std Dev.	0.050	0.096
# Replicates	4	4

T-Test Result: 5.6359
Deg. of Freedom: 4
Critical T Value: 0.7407
Pass or Fail: **PASS**

Test Completion Date: 12/22/2010

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result:
Deg. of Freedom:
Critical T Value:
Pass or Fail: **PASS**

Test Completion Date: 2/22/2011

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result:
Deg. of Freedom:
Critical T Value:
Pass or Fail: **PASS**

Test Completion Date: 6/14/2011

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result:
Deg. of Freedom:
Critical T Value:
Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.56
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Pixelle Speciality Solutions LLC

Permit No.

PA0008869

Replicate No.	Test Completion Date: 10/26/2010 Control	TIWC
1	0.384	0.419
2	0.397	0.351
3	0.403	0.397
4	0.351	0.405
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.379	0.393
Std Dev.	0.025	0.029
# Replicates	4	4
T-Test Result	6.2261	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 12/22/2010 Control	TIWC
1	0.82	0.81
2	0.84	0.9
3	0.75	0.71
4	0.83	0.8
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.810	0.805
Std Dev.	0.041	0.078
# Replicates	4	4
T-Test Result	4.7310	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 2/22/2011 Control	TIWC
1	0.55	0.73
2	0.7	0.98
3	0.8	0.87
4	0.67	0.83
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.680	0.853
Std Dev.	0.103	0.103
# Replicates	4	4
T-Test Result	5.3080	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 6/14/2011 Control	TIWC
1	1.14	1.09
2	1.36	1.5
3	1.32	1.4
4	1.23	1.57
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	1.263	1.390
Std Dev.	0.098	0.212
# Replicates	4	4
T-Test Result	3.9524	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.56
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name
Pixelle Speciality Solutions LLC

Permit No.
PA0008869

Test Completion Date: 10/26/2010

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 12/22/2010

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 2/22/2011

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail: **PASS**

Test Completion Date: 6/14/2011

Replicate No.	Control	TIWC
1	1	1
2	1	0
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10

T-Test Result: 1.5000
Deg. of Freedom: 9
Critical T Value: 0.8834
Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.56
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Pixelle Speciality Solutions LLC

Permit No.: PA0008869

Test Completion Date: 10/26/2010

Replicate No.	Control	TIWC
1	18	20
2	14	24
3	27	11
4	22	22
5	20	18
6	20	38
7	15	15
8	32	40
9	35	34
10	23	40
11		
12		
13		
14		
15		
Mean	22.600	26.200
Std Dev.	6.899	10.881
# Replicates	10	10

T-Test Result	2.4277
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	PASS

Test Completion Date: 12/22/2010

Replicate No.	Control	TIWC
1	19	16
2	19	20
3	19	18
4	1	15
5	16	20
6	16	16
7	17	17
8	17	18
9	17	17
10	16	21
11		
12		
13		
14		
15		
Mean	15.700	17.800
Std Dev.	5.314	1.989
# Replicates	10	10

T-Test Result	4.2778
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 2/22/2011

Replicate No.	Control	TIWC
1	20	22
2	18	23
3	10	17
4	25	22
5	23	18
6	22	14
7	14	22
8	23	23
9	24	13
10	19	25
11		
12		
13		
14		
15		
Mean	19.800	19.900
Std Dev.	4.756	4.122
# Replicates	10	10

T-Test Result	2.9296
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 6/14/2011

Replicate No.	Control	TIWC
1	18	11
2	15	15
3	16	14
4	11	13
5	17	15
6	15	15
7	16	12
8	14	10
9	12	15
10	16	12
11		
12		
13		
14		
15		
Mean	15.000	13.200
Std Dev.	2.160	1.874
# Replicates	10	10

T-Test Result	2.4894
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

WET Summary and Evaluation

Facility Name	Pixelle Speciality Solutions LLC
Permit No.	PA0008869
Design Flow (MGD)	13.7
Q_{7-10} Flow (cfs)	21.6
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/10	12/22/10	2/22/11	6/14/11
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/10	12/22/10	2/22/11	6/14/11
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/10	12/22/10	2/22/11	6/14/11
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

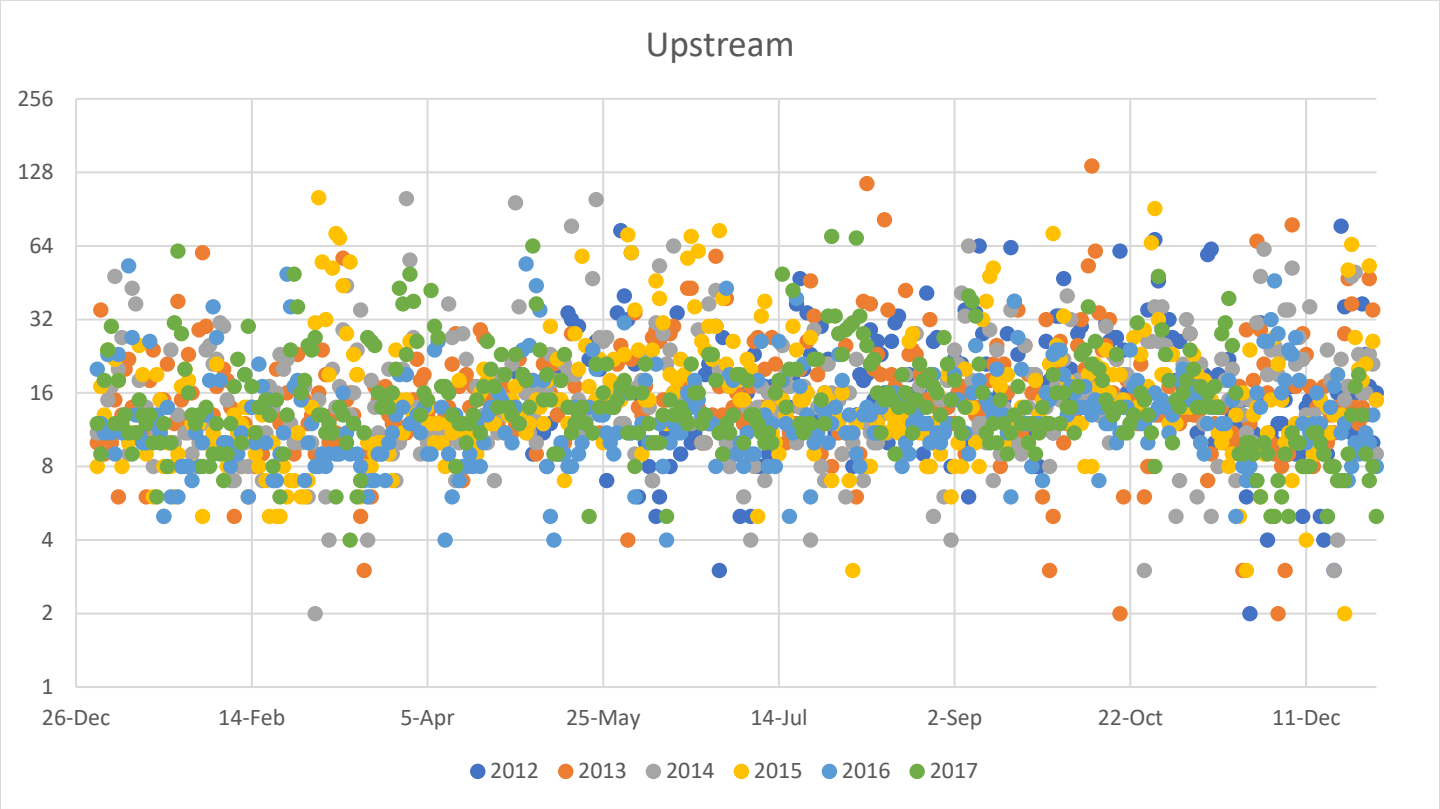
		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/26/10	12/22/10	2/22/11	6/14/11
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

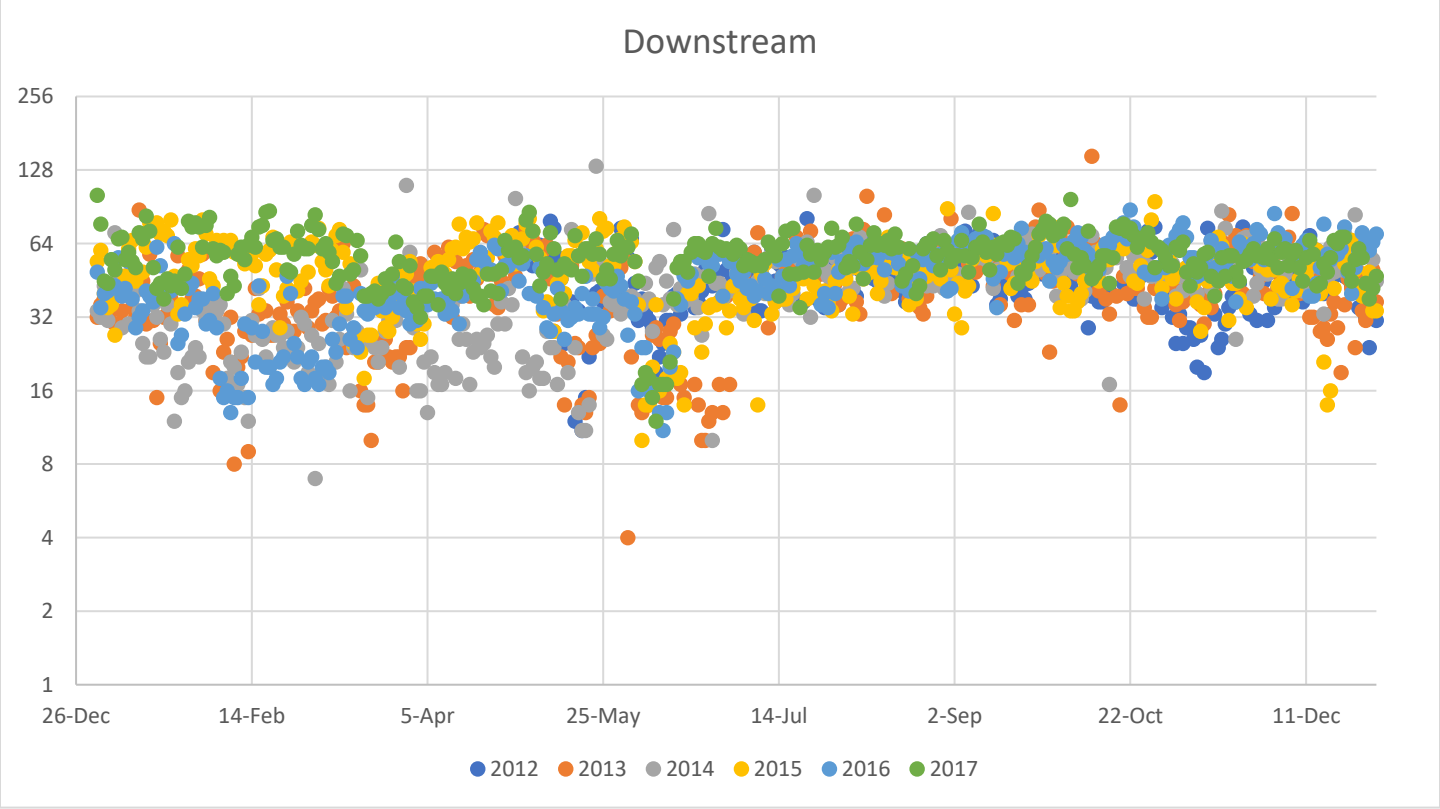
Reasonable Potential? NO

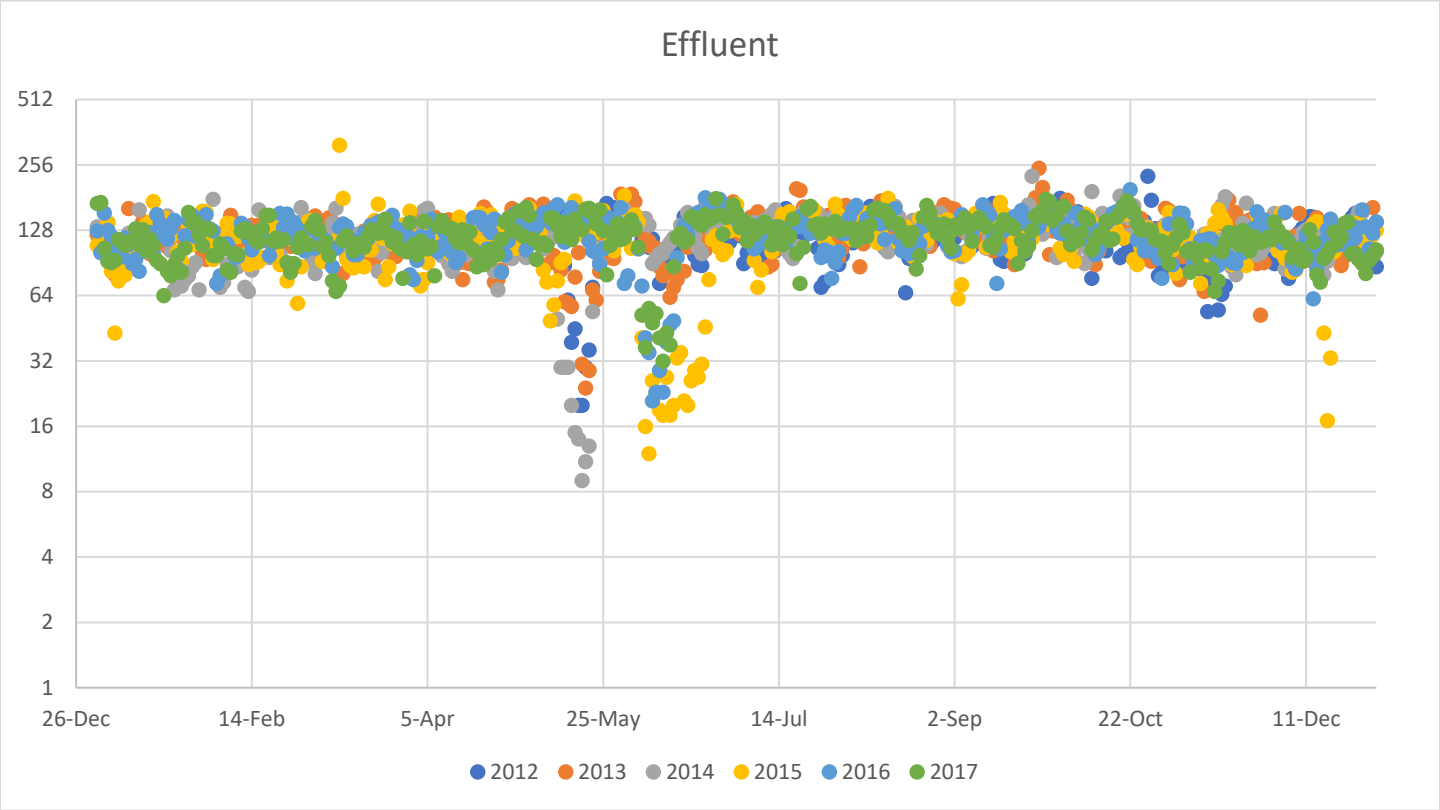
Permit Recommendations

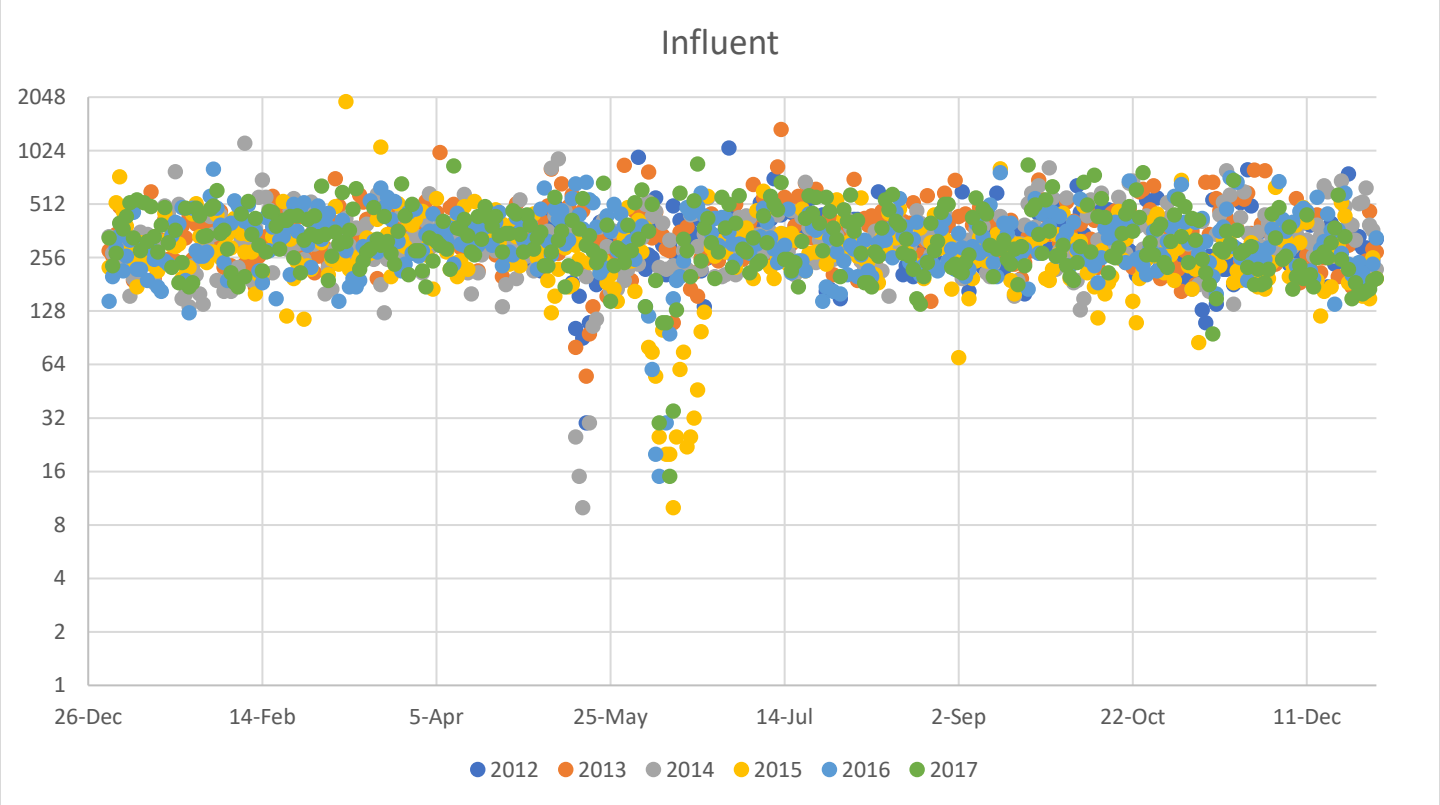
Test Type	**Chronic**
TIWC	**50** % Effluent
Dilution Series	**13, 25, 50, 75, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

Appendix C – Data Analysis for Color






Effluent
512
256
128
64
32
16
8
4
2
1
26-Dec
14-Feb
5-Apr
25-May
14-Jul
2-Sep
22-Oct
11-Dec
2012
2013
2014
2015
2016
2017


Influent
2048
1024
512
256
128
64
32
16
8
4
2
1
26-Dec
14-Feb
5-Apr
25-May
14-Jul
2-Sep
22-Oct
11-Dec
2012
2013
2014
2015
2016
2017

	Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent
5/1/2012	19	71	140	375	1/1/2013	10	32	122	280	1/1/2014	11	34	133	335
5/2/2012	19	60	133	260	1/2/2013	35	36	120	260	1/2/2014	12	32	125	270
5/3/2012	16	59	117	240	1/3/2013	9	38	121	345	1/3/2014	17	43	132	320
5/4/2012	13	56	111	325	1/4/2013	17	39	139	495	1/4/2014	15	31	114	255
5/5/2012	9	52	113	215	1/5/2013	10	34	108	260	1/5/2014	17	37	101	305
5/6/2012	14	54	124	475	1/6/2013	15	30	80	340	1/6/2014	48	71	105	285
5/7/2012	11	63	144	445	1/7/2013	6	30	113	300	1/7/2014	20	47	113	155
5/8/2012	11	52	142	400	1/8/2013	13	34	108	190	1/8/2014	27	29	103	195
5/9/2012	8	59	153	505	1/9/2013	20	47	99	520	1/9/2014			103	315
5/10/2012	12	79	153	315	1/10/2013	22	55	161	290	1/10/2014	9	30	124	355
5/11/2012	19	74	153	400	1/11/2013	14	35	119	320	1/11/2014	43	50	123	275
5/12/2012	13	56	158	405	1/12/2013	14	32	102	330	1/12/2014	37	41	102	345
5/13/2012	9	46	156	435	1/13/2013	13	88	128	600	1/13/2014	18	34	159	290
5/14/2012	20	25	88	185	1/14/2013	11	45	141	195	1/14/2014	14	25	125	185
5/15/2012	34	36	61	102	1/15/2013	6	30	109	250	1/15/2014	14	22	102	290
5/16/2012	32	37	39	155	1/16/2013	18	58	100	320	1/16/2014	10	22	117	315
5/17/2012	12	12	45	90	1/17/2013	24	31	98	420	1/17/2014	8	36	141	500
5/18/2012	30	34	20	30	1/18/2013	12	15	119	250	1/18/2014	11	32	139	455
5/19/2012	12	11	20	110	1/19/2013	15	25	117	380	1/19/2014	10	26	143	345
5/20/2012	11	15	30	310	1/20/2013	15	32	119	245	1/20/2014	5	23	136	780
5/21/2012	22	22	36	180	1/21/2013	21	33	107	325	1/21/2014	14	36	149	510
5/22/2012	24	33	70	405	1/22/2013	10	38	118	385	1/22/2014	24	30	103	150
5/23/2012	26	40	105	400	1/23/2013	12	42	135	330	1/23/2014	10	12	68	160
5/24/2012	20	41	100	235	1/24/2013	38	57	130	440	1/24/2014	13	19	75	135
5/25/2012	14	37	120	305	1/25/2013	15	44	126	250	1/25/2014	8	15	71	230
5/26/2012	7	49	170	310	1/26/2013	12	34	112	395	1/26/2014	11	16	76	205
5/27/2012	15	50	163	325	1/27/2013	23	50	120	280	1/27/2014	11	21	79	160
5/28/2012	16	47	163	240	1/28/2013	16	38	121	390	1/28/2014	9	22	87	140
5/29/2012	34	40	146	230	1/29/2013	11	39	133	420	1/29/2014	11	24	91	310
5/30/2012	74	74	134	315	1/30/2013	29	46	133	370	1/30/2014	10	22	68	435
5/31/2012	40	56	154	325	1/31/2013	60	58	101	315	1/31/2014	12	34	115	345
6/1/2012	32	56	144	310	2/1/2013	30	31	94	325	2/1/2014	24	31	127	190
6/2/2012	60	67	130	940	2/2/2013	13	32	99	465	2/2/2014	25	37	123	445
6/3/2012	21	44	149	260	2/3/2013	13	19	111	225	2/3/2014	21	32	178	165
6/4/2012	6	31	140	220	2/4/2013	17	34	118	225	2/4/2014	22	34	119	170
6/5/2012	15	38	115	265	2/5/2013	10	16	108	230	2/5/2014	31	36	70	165
6/6/2012	10	33	113	255	2/6/2013	20	23	105	405	2/6/2014	30	30	74	205
6/7/2012	8	31	107	555	2/7/2013	18	26	132	415	2/7/2014	15	18	89	225
6/8/2012	7	29	117	385	2/8/2013	14	32	150	315	2/8/2014	7	21	131	325
6/9/2012	5	19	90	300	2/9/2013	5	8	119	235	2/9/2014	7	20	125	1125
6/10/2012	6	22	73	205	2/10/2013	12	20	116	250	2/10/2014	11	17	87	330
6/11/2012	8	25	84	300	2/11/2013	8	22	116	225	2/11/2014	8	23	90	190
6/12/2012	11	31	97	500	2/12/2013	12	28	106	175	2/12/2014	10	15	70	375
6/13/2012	8	31	107	260	2/13/2013	6	9	99	260	2/13/2014	8	12	67	560
6/14/2012	16	39	104	415	2/14/2013	11	27	135	195	2/14/2014	14	31	84	700
6/15/2012	34	40	113	395	2/15/2013	8	42	128	335	2/15/2014	11	27	124	560
6/16/2012	9	33	111	390	2/16/2013	10	33	135	330	2/16/2014	11	42	159	475
6/17/2012	12	48	148	360	2/17/2013	9	34	132	565	2/17/2014	7	26	129	210
6/18/2012	14	45	140	330	2/18/2013	15	34	117	495	2/18/2014	11	22	122	290
6/19/2012	10	37	118	425	2/19/2013	13	27	116	430	2/19/2014	17	20	96	380
6/20/2012	11	35	98	215	2/20/2013	13	27	112	405	2/20/2014	14	29	106	345
6/21/2012	12	37	89	135	2/21/2013	20	28	103	290	2/21/2014	16	27	124	285
6/22/2012	10	41	88	255	2/22/2013	12	33	118	360	2/22/2014	23	27	99	470
6/23/2012	19	50	128	345	2/23/2013	12	30	121	355	2/23/2014	20	24	119	550
6/24/2012	21	52	133	340	2/24/2013	16	37	110	430	2/24/2014	22	28	122	305
6/25/2012	12	43	132	275	2/25/2013	11	28	108	235	2/25/2014	12	22	142	315
6/26/2012	30	48	116	340	2/26/2013	9	28	116	275	2/26/2014	10	21	139	250
6/27/2012	3	37	122	420	2/27/2013	23	34	113	305	2/27/2014	11	24	128	490
6/28/2012	27	73	169	1060	2/28/2013	16	32	126	410	2/28/2014	10	32	163	525
6/29/2012	9	50	151	460	3/1/2013	15	42	138	210	3/1/2014	17	30	147	305
6/30/2012	8	44	113	275	3/2/2013	12	29	106	260	3/2/2014	6	19	112	335
7/1/2012	10	45	125	340	3/3/2013	13	34	123	400	3/3/2014	10	27	92	325
7/2/2012	13	53	148	355	3/4/2013	9	37	149	290	3/4/2014	2	7	81	160
7/3/2012	5	40	121	370	3/5/2013	16	38	134	240	3/5/2014	15	25	93	225
7/4/2012	12	34	90	345	3/6/2013	24	30	117	410	3/6/2014	9	19	117	170
7/5/2012	16	45	101	350	3/7/2013	19	31	134	710	3/7/2014	6	20	116	285
7/6/2012	5	48	133	375	3/8/2013	10	42	146	500	3/8/2014	4	17	127	305
7/7/2012	23	59	134	520	3/9/2013	13	39	140	365	3/9/2014	20	31	138	340
7/8/2012	8	34	99	255	3/10/2013	11	32	118	400	3/10/2014	14	21	162	425
7/9/2012	8	34	97	340	3/11/2013	10	34	112	300	3/11/2014	17	26	130	300
7/10/2012	17	45	112	420	3/12/2013	57	64	81	335	3/12/2014	29	42	110	270
7/11/2012	9	41	133	710	3/13/2013	15	24	98	325	3/13/2014	44	33	99	375
7/12/2012	17	61	131	280	3/14/2013	16	26	114	575	3/14/2014	13	16	95	275
7/13/2012	13	45	103	445	3/15/2013	13	43	117	525	3/15/2014	16	24	122	375
7/14/2012	16	53	127	300	3/16/2013	19	27	121	420	3/16/2014	24	28	123	395
7/15/2012	15	51	149	495	3/17/2013	5	16	115	425	3/17/2014	35	50	122	300
7/16/2012	18	56	161	460	3/18/2013	3	14	127	535	3/18/2014	11	25	121	250
7/17/2012	14	56	151	340	3/19/2013	9	14	104	195	3/19/2014	4	15	112	580
7/18/2012	18	44	126	350	3/20/2013	6	10	93	320	3/20/2014	18	37	136	180
7/19/2012	37	57	150	245	3/21/2013	17	21	95	325	3/21/2014	14	24	104	125
7/20/2012	47	59	127	480	3/22/2013	15	21	99	305	3/22/2014	11	21	83	250
7/21/2012	20	37	120	570	3/23/2013	14	25	124	465	3/23/2014	9	24	101	320
7/22/2012	34	81	139	555	3/24/2013	17	26	135	375	3/24/2014	10	28	122	275
7/23/2012	23	53	145	335	3/25/2013	13	22	122	465	3/25/2014	20	31	133	240
7/24/2012	13	46	143	280	3/26/2013	12	21	100	340	3/26/2014	9	31	123	445
7/25/2012	30	38	106	445	3/27/2013	12	22	97	430	3/27/2014	7	31	132	280
7/26/2012	30	38	70	165	3/28/2013	11	22	129	380	3/28/2014	10	20	119	275
7/27/2012	16	35	74	170	3/29/2013	11	16	135	470	3/29/2014	20	46	110	335
7/28/2012	22	48	98	255	3/30/2013	11	24	128	325	3/30/2014	100	111	111	340
7/29/2012	12	61	130	315	3/31/2013	14	24	131	475	3/31/2014	56	59	105	300
7/30/2012	11	55	143	150	4/1/2013	15	44	139	365	4/1/2014	27	29	100	210
7/31/2012	15	36	89	310	4/2/2013	22	48	144	530	4/2/2014	14	16	108	410

8/1/2012	16	39	98	360	4/3/2013	18	53	117	290	4/3/2014	9	16	138	585
8/2/2012	11	48	118	300	4/4/2013	19	47	110	310	4/4/2014	14	21	158	300
8/3/2012	11	65	122	420	4/5/2013	13	48	111	460	4/5/2014	10	13	162	320
8/4/2012	8	42	112	420	4/6/2013	14	49	115	1000	4/6/2014	11	22	137	385
8/5/2012	13	39	123	290	4/7/2013	11	59	147	400	4/7/2014	10	19	128	320
8/6/2012	19	50	138	290	4/8/2013	10	56	137	360	4/8/2014	12	17	110	350
8/7/2012	18	51	131	250	4/9/2013	12	47	125	490	4/9/2014	11	17	98	400
8/8/2012	19	55	121	390	4/10/2013	13	56	124	510	4/10/2014	10	19	106	345
8/9/2012	29	64	165	285	4/11/2013	14	62	143	325	4/11/2014	37	40	90	240
8/10/2012	15	46	137	600	4/12/2013	21	32	120	290	4/12/2014	27	36	83	325
8/11/2012	26	45	118	330	4/13/2013	28	54	91	285	4/13/2014	7	18	104	580
8/12/2012	23	54	119	425	4/14/2013	17	39	91	400	4/14/2014	10	26	116	210
8/13/2012	16	54	134	360	4/15/2013	7	43	76	325	4/15/2014	28	30	100	160
8/14/2012	10	50	157	440	4/16/2013	19	52	91	295	4/16/2014	22	26	99	310
8/15/2012	26	46	147	425	4/17/2013	14	39	90	215	4/17/2014	8	17	131	210
8/16/2012	31	59	146	340	4/18/2013	17	55	91	405	4/18/2014	10	23	125	265
8/17/2012	33	56	135	205	4/19/2013	15	46	120	360	4/19/2014	17	26	115	320
8/18/2012	16	41	114	230	4/20/2013	29	49	134	395	4/20/2014	10	24	111	335
8/19/2012	12	37	66	325	4/21/2013	27	73	164	395	4/21/2014	13	25	123	345
8/20/2012	19	51	95	200	4/22/2013	15	69	156	265	4/22/2014	10	27	122	280
8/21/2012	11	41	101	255	4/23/2013	13	48	98	275	4/23/2014	12	22	114	375
8/22/2012	16	43	106	280	4/24/2013	12	36	74	200	4/24/2014	7	20	83	135
8/23/2012	16	47	124	330	4/25/2013	12	35	76	260	4/25/2014	11	30	68	180
8/24/2012	9	55	136	300	4/26/2013	18	45	84	290	4/26/2014	19	37	101	320
8/25/2012	41	64	127	300	4/27/2013	11	57	126	365	4/27/2014	13	30	113	290
8/26/2012	12	43	118	260	4/28/2013	16	56	141	515	4/28/2014	15	42	96	195
8/27/2012	26	49	114	420	4/29/2013	11	58	161	320	4/29/2014	21	36	95	540
8/28/2012	27	57	125	300	4/30/2013	12	47	128	420	4/30/2014	96	98	105	440
8/29/2012	14	63	144	325	5/1/2013	22	53	101	275	5/1/2014	36	60	118	260
8/30/2012	11	60	143	405	5/2/2013	17	63	114	335	5/2/2014	18	22	125	395
8/31/2012	14	63	140	275	5/3/2013	12	73	149	385	5/3/2014	16	19	96	215
9/1/2012	8	50	116	250	5/4/2013	11	72	168	450	5/4/2014	11	16	113	230
9/2/2012	22	61	118	255	5/5/2013	13	66	151	415	5/5/2014	13	20	125	320
9/3/2012	16	49	139	600	5/6/2013	9	63	140	225	5/6/2014	10	21	138	330
9/4/2012	21	55	128	250	5/7/2013	17	56	148	500	5/7/2014	16	18	127	360
9/5/2012	35	72	133	165	5/8/2013	21	60	169	805	5/8/2014	12	18	105	815
9/6/2012	6	50	104	295	5/9/2013	17	63	155	330	5/9/2014	16	28	126	440
9/7/2012	10	43	108	340	5/10/2013	16	46	91	270	5/10/2014	23	24	117	920
9/8/2012	34	53	130	305	5/11/2013	21	28	98	665	5/11/2014	18	24	125	360
9/9/2012	64	70	119	225	5/12/2013	13	33	121	475	5/12/2014	15	17	50	470
9/10/2012	28	54	122	360	5/13/2013	18	22	84	495	5/13/2014			30	350
9/11/2012	21	55	133	430	5/14/2013	10	14	60	575	5/14/2014	21	36	30	
9/12/2012	15	56	137	415	5/15/2013	19	21	59	80	5/15/2014	19	19	30	25
9/13/2012	13	66	170	590	5/16/2013	28	52	57	235	5/16/2014	77	73	20	15
9/14/2012	15	36	125	300	5/17/2013	17	25	78	470	5/17/2014	19	24	15	10
9/15/2012	16	38	94	220	5/18/2013	12	24	101	55	5/18/2014	15	13	14	200
9/16/2012	15	43	92	325	5/19/2013	12	14	31	95	5/19/2014	13	11	9	30
9/17/2012	28	65	121	275	5/20/2013	14	13	24	135	5/20/2014	11	11	11	105
9/18/2012	63	63	116	295	5/21/2013	14	15	29	365	5/21/2014	13	14	13	115
9/19/2012	38	62	103	355	5/22/2013	11	24	68	325	5/22/2014	47	48	54	380
9/20/2012	23	39	104	290	5/23/2013	15	27	61	285	5/23/2014	99	133	106	415
9/21/2012	10	42	116	160	5/24/2013	11	25	83	155	5/24/2014	27	54	91	295
9/22/2012	11	38	100	330	5/25/2013	14	39	109	215	5/25/2014	26	27	107	165
9/23/2012	12	44	113	330	5/26/2013	16	46	104	280	5/26/2014	27	26	106	360
9/24/2012	8	50	134	560	5/27/2013	16	34	96	265	5/27/2014	14	37	106	170
9/25/2012	8	62	150	450	5/28/2013	14	44	95	320	5/28/2014	16	36	109	210
9/26/2012	8	53	134	350	5/29/2013	21	50	144	845	5/29/2014	16	37	125	190
9/27/2012	17	48	133	340	5/30/2013	25	51	188	270	5/30/2014	12	33	125	220
9/28/2012	26	52	153	285	5/31/2013	17	55	133	190	5/31/2014	12	35	160	275
9/29/2012	18	55	131	360	6/1/2013	4	4	147	465	6/1/2014	11	36	135	275
9/30/2012	11	54	134	405	6/2/2013	22	22	188	500	6/2/2014	11	39	130	235
10/1/2012	33	72	166	525	6/3/2013	34	34	174	380	6/3/2014	9	38	130	330
10/2/2012	33	57	180	395	6/4/2013	14	14	143	430	6/4/2014	17	36	145	510
10/3/2012	47	60	166	275	6/5/2013	13	13	108	775	6/5/2014	18	36	145	525
10/4/2012	20	45	123	310	6/6/2013	17	17	118	330	6/6/2014	23	44	145	435
10/5/2012	20	43	127	400	6/7/2013	14	14	114	460	6/7/2014	14	38	135	465
10/6/2012	15	48	154	650	6/8/2013	27	27	107	345	6/8/2014	7	28	90	225
10/7/2012	28	49	156	460	6/9/2013	29	29	106	340	6/9/2014	31	51	95	400
10/8/2012	30	51	147	345	6/10/2013	26	26	87	285	6/10/2014	53	54	100	220
10/9/2012	14	48	133	245	6/11/2013	15	15	79	280	6/11/2014	28	36	100	320
10/10/2012	14	29	92	235	6/12/2013	15	15	83	110	6/12/2014	21	45	107	230
10/11/2012	15	39	77	430	6/13/2013	28	28	63	225	6/13/2014	24	38	112	220
10/12/2012	17	44	101	500	6/14/2013	30	30	70	355	6/14/2014	64	73	118	215
10/13/2012	13	37	104	325	6/15/2013	18	18	76	215	6/15/2014	15	36	119	280
10/14/2012	16	37	106	295	6/16/2013	17	17	82	380	6/16/2014	14	42	135	220
10/15/2012	31	41	103	475	6/17/2013	15	15	83	170	6/17/2014	13	37	120	445
10/16/2012	26	41	117	455	6/18/2013	43	43	107	210	6/18/2014	14	39	155	450
10/17/2012	27	67	126	395	6/19/2013	43	43	119	155	6/19/2014	12	38	143	295
10/18/2012	27	67	125	285	6/20/2013	17	17	115	255	6/20/2014	17	48	120	220
10/19/2012	61	65	96	275	6/21/2013	14	14	128	250	6/21/2014	29	35	106	345
10/20/2012	24	44	99	395	6/22/2013	10	10	107	290	6/22/2014	10	27	100	555
10/21/2012	16	42	114	280	6/23/2013	10	10	104	450	6/23/2014	10	47	165	295
10/22/2012	12	41	121	270	6/24/2013	12	12	117	275	6/24/2014	37	85	150	200
10/23/2012	13	38	108	205	6/25/2013	13	13	116	245	6/25/2014	0	10	125	275
10/24/2012	15	38	106	230	6/26/2013	58	58	133	315	6/26/2014	42	44	130	200
10/25/2012	16	47	116	260	6/27/2013	17	17	146	320	6/27/2014	20	44	135	205
10/26/2012	15	51	141	540	6/28/2013	13	13	151	310	6/28/2014	9	38	135	320
10/27/2012	35	72	227	295	6/29/2013	39	39	151	270	6/29/2014	10	42	150	265
10/28/2012	16	59	176	380	6/30/2013	17	17	152	510	6/30/2014	8	41	128	205
10/29/2012	68	75	130	555	7/1/2013	14	60	173	255	7/1/2014	10	42	130	430
10/30/2012	46	50	79	230	7/2/2013	16	54	140	250	7/2/2014	9	49	151	345
10/31/2012	30	35	83	300	7/3/2013	9	47	123	360	7/3/2014	9	44	138	440
11/1/2012	26	38	96	235	7/4/2013	12	48	130	405	7/4/2014	6	33	126	430

11/2/2012	32	45	108	240	7/5/2013	13	57	129	660	7/5/2014	14	43	137	340
11/3/2012	27	32	97	210	7/6/2013	17	57	147	345	7/6/2014	4	40	128	460
11/4/2012	18	25	87	300	7/7/2013	26	59	136	445	7/7/2014	8	43	139	345
11/5/2012	26	33	104	240	7/8/2013	27	71	156	555	7/8/2014	14	45	124	270
11/6/2012	17	25	98	190	7/9/2013	14	52	145	240	7/9/2014	17	49	117	311
11/7/2012	16	29	93	225	7/10/2013	20	44	114	255	7/10/2014	7	40	142	355
11/8/2012	18	29	98	225	7/11/2013	8	29	87	510	7/11/2014	16	56	145	320
11/9/2012	20	26	110	205	7/12/2013	27	40	89	830	7/12/2014	15	55	152	445
11/10/2012	11	20	101	260	7/13/2013	21	37	104	1345	7/13/2014	13	54	159	245
11/11/2012	14	27	85	130	7/14/2013	17	43	117	560	7/14/2014	14	41	150	345
11/12/2012	19	19	73	110	7/15/2013	14	47	130	510	7/15/2014	25	46	124	275
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11/14/2012	62	66	78	540	7/17/2013	11	44	127	385	7/17/2014	17	36	100	205
11/15/2012	10	33	104	140	7/18/2013	12	53	151	565	7/18/2014	11	40	95	230
11/16/2012	19	24	55	250	7/19/2013	12	68	199	485	7/19/2014	10	46	108	430
11/17/2012	14	26	65	220	7/20/2013	20	60	196	670	7/20/2014	14	55	134	680
11/18/2012	11	30	71	220	7/21/2013	17	58	164	430	7/21/2014	17	60	156	375
11/19/2012	22	35	113	235	7/22/2013	26	56	150	330	7/22/2014	16	65	154	390
11/20/2012	13	39	117	180	7/23/2013	46	72	133	620	7/23/2014	4	32	130	240
11/21/2012	14	37	103	285	7/24/2013	33	57	137	340	7/24/2014	29	101	128	320
11/22/2012	12	44	122	520	7/25/2013	19	58	151	290	7/25/2014	14	56	154	260
11/23/2012	15	75	140	565	7/26/2013	9	48	122	250	7/26/2014	8	54	145	350
11/24/2012	6	38	128	800	7/27/2013	21	49	123	435	7/27/2014	7	50	143	295
11/25/2012	2	33	131	500	7/28/2013	12	48	150	205	7/28/2014	21	47	131	250
11/26/2012	11	51	111	340	7/29/2013	8	43	123	330	7/29/2014	16	49	129	340
11/27/2012	10	31	105	225	7/30/2013	12	44	119	355	7/30/2014	14	56	151	300
11/28/2012	31	60	106	360	7/31/2013	11	36	96	390	7/31/2014	15	58	143	305
11/29/2012	15	45	124	385	8/1/2013	9	38	106	390	8/1/2014	9	47	128	420
11/30/2012	4	31	113	270	8/2/2013	25	66	167	290	8/2/2014	6	48	123	380
12/1/2012	11	38	94	440	8/3/2013	11	52	156	705	8/3/2014	16	41	123	380
12/2/2012	10	35	90	285	8/4/2013	11	67	160	190	8/4/2014	10	42	124	280
12/3/2012	12	42	102	305	8/5/2013	6	37	121	245	8/5/2014	22	56	121	245
12/4/2012	12	47	104	285	8/6/2013	9	33	87	425	8/6/2014	13	68	137	220
12/5/2012	15	48	104	340	8/7/2013	38	73	111	390	8/7/2014	7	55	154	270
12/6/2012	9	39	77	235	8/8/2013	115	100	148	440	8/8/2014	12	55	134	245
12/7/2012	17	48	106	255	8/9/2013	37	53	140	240	8/9/2014	11	53	138	360
12/8/2012	9	43	115	300	8/10/2013	20	50	138	405	8/10/2014	10	55	145	315
12/9/2012	9	41	125	255	8/11/2013	23	55	149	465	8/11/2014	10	60	146	215
12/10/2012	5	37	131	195	8/12/2013	19	54	175	425	8/12/2014	13	44	128	270
12/11/2012	14	44	131	295	8/13/2013	82	84	131	285	8/13/2014	15	39	106	155
12/12/2012	15	69	148	390	8/14/2013	35	53	126	295	8/14/2014	11	44	102	275
12/13/2012	11	60	147	285	8/15/2013	19	40	134	335	8/15/2014	15	68	159	350
12/14/2012	9	60	142	185	8/16/2013	17	56	134	280	8/16/2014	13	63	165	400
12/15/2012	5	43	101	310	8/17/2013	16	53	133	410	8/17/2014	9	58	148	305
12/16/2012	4	40	95	305	8/18/2013	16	61	127	340	8/18/2014	12	49	123	295
12/17/2012	9	49	107	175	8/19/2013	42	52	114	400	8/19/2014	19	44	106	295
12/18/2012	11	45	102	400	8/20/2013	23	38	126	520	8/20/2014	15	47	119	325
12/19/2012	3	47	112	235	8/21/2013	24	38	130	230	8/21/2014	13	44	142	470
12/20/2012	16	50	109	330	8/22/2013	23	39	133	265	8/22/2014	28	56	141	400
12/21/2012	77	66	109	280	8/23/2013	19	35	112	320	8/23/2014	17	47	141	340
12/22/2012	36	47	116	365	8/24/2013	11	33	118	570	8/24/2014	14	44	117	320
12/23/2012	17	57	135	755	8/25/2013	15	39	129	145	8/25/2014	11	43	110	265
12/24/2012	11	43	146	355	8/26/2013	32	61	108	335	8/26/2014	8	49	139	345
12/25/2012	16	45	153	310	8/27/2013	10	49	140	300	8/27/2014	5	43	125	365
12/26/2012	13	35	140	335	8/28/2013	14	53	155	400	8/28/2014	11	58	143	345
12/27/2012	37	46	107	290	8/29/2013	14	60	143	590	8/29/2014	15	69	154	460
12/28/2012	23	32	98	290	8/30/2013	14	64	168	385	8/30/2014	6	42	127	245
12/29/2012	17	24	104	270	8/31/2013	14	44	151	310	8/31/2014	18	53	108	240
12/30/2012	10	34	95	245	9/1/2013	12	81	162	695	9/1/2014	4	47	137	315
12/31/2012	16	31	87	325	9/2/2013	12	61	160	435	9/2/2014	24	61	130	265
					9/3/2013	16	61	145	300	9/3/2014	21	48	99	195
					9/4/2013	17	58	135	450	9/4/2014	41	62	97	260
					9/5/2013	9	43	125	285	9/5/2014	33	57	102	320
					9/6/2013	15	53	135	390	9/6/2014	64	86	122	300
					9/7/2013	16	50	133	280	9/7/2014	18	59	135	370
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					9/9/2013	14	51	119	320	9/9/2014	12	56	146	385
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					9/12/2013	18	52	145	260	9/12/2014	29	60	118	235
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					9/16/2013	21	51	134	335	9/16/2014	14	55	134	300
					9/17/2013	16	50	123	415	9/17/2014	13	61	131	315
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					9/19/2013	10	31	89	270	9/19/2014	10	57	106	190
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					9/26/2013	16	88	247	540	9/26/2014	12	50	141	355
					9/27/2013	6	55	202	440	9/27/2014	12	52	123	500
					9/28/2013	32	48	129	345	9/28/2014	14	60	142	820
					9/29/2013	3	23	99	440	9/29/2014	8	60	158	555
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					10/2/2013	26	68	132	235	10/2/2014	15	48	104	300
					10/3/2013	10	61	141	525	10/3/2014	22	53	125	555
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					10/5/2013	12	59	159	410	10/5/2014	32	55	112	185

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						10/8/2013	32	61	137	315	10/8/2014	17	38	111	150
						10/9/2013	20	56	134	470	10/9/2014	15	41	90	440
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						10/14/2013	24	44	126	280	10/14/2014	17	61	153	410
						10/15/2013	25	38	144	335	10/15/2014	30	51	137	345
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						10/17/2013	16	57	138	470	10/17/2014	23	60	140	290
						10/18/2013	22	39	129	375	10/18/2014	22	56	143	560
						10/19/2013	2	14	130	250	10/19/2014	15	75	184	470
						10/20/2013	6	47	118	240	10/20/2014	19	75	183	270
						10/21/2013	18	40	124	475	10/21/2014	19	51	121	670
						10/22/2013	15	49	150	225	10/22/2014	18	47	146	690
						10/23/2013	13	42	129	235	10/23/2014	18	57	166	380
						10/24/2013	12	42	126	600	10/24/2014	17	67	132	390
						10/25/2013	21	59	145	620	10/25/2014	16	56	132	285
						10/26/2013	6	35	116	280	10/26/2014	3	38	131	440
						10/27/2013	8	32	95	475	10/27/2014	26	52	133	370
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						10/29/2013	13	42	122	210	10/29/2014	36	48	108	290
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						11/12/2013	12	30	67	680	11/12/2014	12	48	123	240
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						11/14/2013	9	35	95	680	11/14/2014	5	42	100	200
						11/15/2013	12	40	99	550	11/15/2014	14	54	98	345
						11/16/2013	8	45	109	470	11/16/2014	8	57	116	445
						11/17/2013	14	59	137	360	11/17/2014	22	67	167	525
						11/18/2013	10	64	160	425	11/18/2014	18	74	183	790
						11/19/2013	11	84	177	380	11/19/2014	15	55	109	575
						11/20/2013	11	60	141	545	11/20/2014	20	51	86	140
						11/21/2013	10	69	155	370	11/21/2014	7	26	80	365
						11/22/2013	17	63	114	245	11/22/2014	15	56	100	430
						11/23/2013	3	40	102	545	11/23/2014	13	67	138	600
						11/24/2013	29	69	114	590	11/24/2014	11	68	171	350
						11/25/2013	12	67	143	350	11/25/2014	15	63	132	218
						11/26/2013	18	54	137	795	11/26/2014	10	39	101	275
						11/27/2013	67	65	90	255	11/27/2014	31	44	99	355
						11/28/2013	29	47	52	395	11/28/2014	48	50	101	295
						11/29/2013	21	40	91	790	11/29/2014	62	61	108	445
						11/30/2013	16	51	138	360	11/30/2014	19	48	126	400
						12/1/2013	10	49	143	360	12/1/2014	24	55	140	330
						12/2/2013	9	58	137	235	12/2/2014	25	51	153	260
						12/3/2013	2	42	109	370	12/3/2014	19	38	151	310
						12/4/2013	8	45	107	300	12/4/2014	23	38	101	265
						12/5/2013	3	41	108	320	12/5/2014	35	48	85	255
						12/6/2013	9	68	109	345	12/6/2014	35	53	97	280
						12/7/2013	78	85	97	295	12/7/2014	52	56	113	295
						12/8/2013	17	41	121	550	12/8/2014	21	42	105	350
						12/9/2013	22	40	153	185	12/9/2014	27	42	111	420
						12/10/2013	28	43	104	220	12/10/2014	22	41	125	400
						12/11/2013	23	40	97	265	12/11/2014	13	47	129	320
						12/12/2013	17	32	93	220	12/12/2014	36	51	117	310
						12/13/2013	8	32	107	410	12/13/2014	13	56	122	260
						12/14/2013	14	46	146	445	12/14/2014	12	60	122	390
						12/15/2013	15	28	140	210	12/15/2014	11	52	90	340
						12/16/2013	17	29	101	255	12/16/2014	14	33	80	650
						12/17/2013	10	26	96	290	12/17/2014	24	46	92	600
						12/18/2013	13	33	103	300	12/18/2014	18	62	120	260
						12/19/2013	11	37	122	300	12/19/2014	3	49	115	260
						12/20/2013	14	29	101	200	12/20/2014	4	50	108	270
						12/21/2013	14	19	88	530	12/21/2014	22	50	114	690
						12/22/2013	28	36	97	350	12/22/2014	15	70	132	495
						12/23/2013	47	46	110	300	12/23/2014	17	63	129	400
						12/24/2013	37	42	105	175	12/24/2014	48	51	131	390
						12/25/2013	14	24	102	180	12/25/2014	50	84	144	320
						12/26/2013	12	49	95	160	12/26/2014	23	63	156	515
						12/27/2013	14	34	91	215	12/27/2014	16	57	155	525
						12/28/2013	13	31	108	245	12/28/2014	16	61	114	630
						12/29/2013	47	45	122	465	12/29/2014	23	58	129	390
						12/30/2013	35	50	163	285	12/30/2014	21	55	122	365
						12/31/2013	15	37	140	275	12/31/2014	9	45	102	220
Max	77	81	227	1060		Max	136	146	247	1345		100	133	227	1125
Min	2	11	20	30		Min	2	4	24	55		0	0	9	10
Median	15	45	118	310		Median	14	42	120	335		15	42	122	315
Average	18.98	46.24	117.47	333.52		Average	17.93	42.27	120.84	364.17		17.92	41.80	119.23	336.16
90th %	33.6	63.6	150.6	489		90th %	29	53	151.6	533		30.8	60.8	151	518.5

	Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent
1/1/2015	8	54	109	225	1/1/2016	20	49	127	145	1/1/2017	12	101	170	330
1/2/2015	17	60	120	325	1/2/2016	12	35	101	200	1/2/2017	9	77	172	230
1/3/2015	13	40	118	520	1/3/2016	11	40	154	290	1/3/2017	18	45	106	270
1/4/2015	24	35	139	730	1/4/2016	23	41	128	340	1/4/2017	24	44	92	400
1/5/2015	23	36	83	465	1/5/2016	11	42	120	215	1/5/2017	30	55	91	370
1/6/2015	22	27	43	385	1/6/2016	9	43	107	260	1/6/2017	12	50	93	435
1/7/2015	18	40	75	280	1/7/2016	23	56	100	320	1/7/2017	18	67	116	520
1/8/2015	8	40	85	245	1/8/2016	11	39	97	460	1/8/2017	12	68	113	330
1/9/2015	11	47	80	175	1/9/2016	13	42	118	220	1/9/2017	13	55	109	540
1/10/2015	10	61	109	310	1/10/2016	53	54	110	220	1/10/2017	11	59	113	280
1/11/2015	11	66	108	260	1/11/2016	27	38	90	300	1/11/2017	9	54	115	520
1/12/2015	11	45	117	240	1/12/2016	13	29	94	190	1/12/2017	11	51	130	315
1/13/2015	25	48	114	235	1/13/2016	11	32	83	285	1/13/2017	15	71	110	495
1/14/2015	19	49	113	245	1/14/2016	10	34	103	250	1/14/2017	13	67	129	335
1/15/2015	9	62	136	215	1/15/2016	10	41	125	175	1/15/2017	12	83	103	275
1/16/2015	10	78	140	235	1/16/2016	26	39	125	165	1/16/2017	13	72	117	390
1/17/2015	6	74	174	455	1/17/2016	12	37	101	245	1/17/2017	10	51	109	490
1/18/2015	19	78	147	325	1/18/2016	13	62	151	235	1/18/2017	6	42	93	310
1/19/2015	15	70	132	300	1/19/2016	11	52	138	340	1/19/2017	10	44	90	225
1/20/2015	8	72	146	295	1/20/2016	5	39	121	405	1/20/2017	12	38	64	365
1/21/2015	10	69	129	305	1/21/2016	14	44	117	395	1/21/2017	8	46	83	185
1/22/2015	8	80	120	195	1/22/2016	6	41	130	490	1/22/2017	10	43	79	240
1/23/2015	6	47	89	225	1/23/2016		64	142	190	1/23/2017	31	45	89	485
1/24/2015	9	33	102	225	1/24/2016	6	25	85	125	1/24/2017	61	62	98	175
1/25/2015	17	36	92	450	1/25/2016	8	27	83	485	1/25/2017	28	42	82	185
1/26/2015	20	43	121	515	1/26/2016	8	33	121	280	1/26/2017	20	48	106	485
1/27/2015	18	55	134	335	1/27/2016	8	42	143	260	1/27/2017	16	79	155	440
1/28/2015	12	52	110	335	1/28/2016	7	44	150	260	1/28/2017	13	75	139	335
1/29/2015	8	61	143	240	1/29/2016	11	35	120	275	1/29/2017	12	78	140	340
1/30/2015	12	57	123	275	1/30/2016	8	38	132	565	1/30/2017	13	75	122	480
1/31/2015	5	80	157	275	1/31/2016	10	38	144	805	1/31/2017	8	62	109	500
2/1/2015	10	70	155	445	2/1/2016	13	30	151	485	2/1/2017	14	76	131	610
2/2/2015	10	46	113	255	2/2/2016	18	31	130	390	2/2/2017	8	82	129	350
2/3/2015	11	43	94	290	2/3/2016	36	40	127	240	2/3/2017	9	61	98	365
2/4/2015	21	66	113	345	2/4/2016	27	29	73	190	2/4/2017	12	57	98	285
2/5/2015	10	65	120	290	2/5/2016	18	18	79	400	2/5/2017	9	60	111	210
2/6/2015	10	66	117	425	2/6/2016	10	15	110	535	2/6/2017	7	59	105	185
2/7/2015	8	63	138	390	2/7/2016	10	16	111	500	2/7/2017	9	40	84	175
2/8/2015	8	66	137	350	2/8/2016	8	13	84	440	2/8/2017	12	47	82	450
2/9/2015	13	59	125	275	2/9/2016	9	15	98	410	2/9/2017	17	43	100	200
2/10/2015	11	61	120	345	2/10/2016	9	15	97	505	2/10/2017	22	58	99	530
2/11/2015	12	57	97	275	2/11/2016	11	18	138	370	2/11/2017	10	62	127	345
2/12/2015	14	53	99	160	2/12/2016	19	30	134	360	2/12/2017	19	55	130	425
2/13/2015	14	59	89	205	2/13/2016	6	15	118	215	2/13/2017	30	63	125	300
2/14/2015	11	58	92	210	2/14/2016	14	29	104	185	2/14/2017	17	68	126	215
2/15/2015	9	52	91	280	2/15/2016	10	21	119	430	2/15/2017	11	62	116	275
2/16/2015	8	36	92	455	2/16/2016	21	43	118	280	2/16/2017	14	75	113	465
2/17/2015	13	43	96	335	2/17/2016	17	28	116	380	2/17/2017	14	76	130	460
2/18/2015	7	58	125	300	2/18/2016	10	20	115	150	2/18/2017	15	86	150	385
2/19/2015	5	60	140	325	2/19/2016	15	20	98	320	2/19/2017	13	87	150	285
2/20/2015	10	68	134	530	2/20/2016	7	17	112	335	2/20/2017	8	66	114	415
2/21/2015	5	50	101	120	2/21/2016	7	18	118	380	2/21/2017	15	67	118	415
2/22/2015	5	29	89	325	2/22/2016	9	21	153	205	2/22/2017	6	62	114	435
2/23/2015	8	39	89	195	2/23/2016	11	22	132	510	2/23/2017	9	62	116	255
2/24/2015	6	42	75	240	2/24/2016	49	47	152	360	2/24/2017	13	50	91	440
2/25/2015	7	65	122	445	2/25/2016	36	40	119	480	2/25/2017	24	49	82	210
2/26/2015	7	59	115	115	2/26/2016	17	25	139	520	2/26/2017	49	58	90	320
2/27/2015	11	41	59	230	2/27/2016	18	22	130	300	2/27/2017	36	72	107	420
2/28/2015	6	45	87	220	2/28/2016	15	18	116	225	2/28/2017	16	63	118	345
3/1/2015	6	62	112	335	2/29/2016					3/1/2017	18	61	111	440
3/2/2015	7	49	141	355	3/1/2016	7	17	103	370	3/2/2017	25	61	110	335
3/3/2015	14	65	142	310	3/2/2016	10	21	107	500	3/3/2017	24	76	134	645
3/4/2015	31	63	130	430	3/3/2016	12	22	130	325	3/4/2017	27	84	142	345
3/5/2015	101	74	109	205	3/4/2016	8	18	106	405	3/5/2017	13	73	129	190
3/6/2015	55	54	92	250	3/5/2016	8	17	114	455	3/6/2017	13	61	108	260
3/7/2015	32	50	98	495	3/6/2016	9	20	117	370	3/7/2017	11	64	113	355
3/8/2015	19	43	108	235	3/7/2016	8	20	115	370	3/8/2017	12	59	98	305
3/9/2015	52	60	108	250	3/8/2016	9	19	105	145	3/9/2017	11	54	75	595
3/10/2015	72	69	115	1935	3/9/2016	11	26	87	415	3/10/2017	6	44	67	315
3/11/2015	69	73	316	220	3/10/2016	9	23	106	280	3/11/2017	14	47	71	365
3/12/2015	44	59	180	210	3/11/2016	9	30	132	175	3/12/2017	13	70	115	480
3/13/2015	28	35	94	235	3/12/2016	16	39	137	195	3/13/2017	10	69	121	625
3/14/2015	55	53	88	260	3/13/2016	11	39	134	175	3/14/2017	4	48	112	220
3/15/2015	23	25	86	255	3/14/2016	9	26	117	190	3/15/2017	12	50	103	245
3/16/2015	19	26	90	330	3/15/2016	12	29	99	295	3/16/2017	6	66	111	275
3/17/2015	6	23	88	270	3/16/2016	9	24	99	275	3/17/2017	7	57	108	285
3/18/2015	8	18	87	320	3/17/2016	8	40	116	535	3/18/2017	11	39	107	490
3/19/2015	10	27	104	420	3/18/2016	7	34	125	315	3/19/2017	27	39	119	325
3/20/2015	8	27	104	1070	3/19/2016	6	33	117	275	3/20/2017	26	40	129	300
3/21/2015	9	36	142	460	3/20/2016	7	35	135	630	3/21/2017	25	41	127	435
3/22/2015	10	44	169	345	3/21/2016	7	35	133	490	3/22/2017	16	38	124	315
3/23/2015	10	34	118	200	3/22/2016	9	39	140	560	3/23/2017	14	40	131	270
3/24/2015	10	29	76	315	3/23/2016	9	37	129	420	3/24/2017	15	46	144	235
3/25/2015	9	28	87	515	3/24/2016	7	35	142	530	3/25/2017	14	42	122	360
3/26/2015	7	32	111	325	3/25/2016	10	38	135	315	3/26/2017	16	48	113	665
3/27/2015	24	43	118	295	3/26/2016	11	47	150	215	3/27/2017	20	65	118	440
3/28/2015	15	39	121	410	3/27/2016	13	41	131	235	3/28/2017	43	54	106	205
3/29/2015	11	49	135	390	3/28/2016	19	35	125	460	3/29/2017	37	43	77	510
3/30/2015	15	48	136	420	3/29/2016	14	39	113	270	3/30/2017	23	42	102	280
3/31/2015	26	54	157	280	3/30/2016	19	34	124	480	3/31/2017	49	52	139	280
4/1/2015	13	41	121	465	3/31/2016	12	30	80	260	4/1/2017	38	37	110	215
4/2/2015	13	30	76	265	4/1/2016	12	32	76	280	4/2/2017	26	35	99	175

4/3/2015	11	26	71	315	4/2/2016	13	31	93	345	4/3/2017	13	32	114	330
4/4/2015	12	30	76	170	4/3/2016	11	42	120	360	4/4/2017	16	39	141	245
4/5/2015	14	37	91	550	4/4/2016	14	38	116	450	4/5/2017	15	39	105	315
4/6/2015	12	51	125	360	4/5/2016	9	36	119	360	4/6/2017	42	47	108	300
4/7/2015	10	51	130	340	4/6/2016	9	44	144	300	4/7/2017	30	47	79	410
4/8/2015	12	54	131	275	4/7/2016	24	38	133	345	4/8/2017	27	36	134	285
4/9/2015	10	52	121	220	4/8/2016	26	46	102	320	4/9/2017	17	49	142	220
4/10/2015	8	48	103	390	4/9/2016	14	38	108	375	4/10/2017	17	44	134	840
4/11/2015	12	55	111	200	4/10/2016	4	33	124	235	4/11/2017	16	42	130	375
4/12/2015	11	61	98	245	4/11/2016	9	38	108	455	4/12/2017	13	46	130	370
4/13/2015	8	62	129	495	4/12/2016	6	34	101	305	4/13/2017	8	40	117	420
4/14/2015	18	77	147	220	4/13/2016	13	45	91	300	4/14/2017	12	44	112	340
4/15/2015	12	61	123	285	4/14/2016	7	30	96	320	4/15/2017	12	48	129	275
4/16/2015	11	68	126	530	4/15/2016	8	39	127	335	4/16/2017	10	45	112	265
4/17/2015	10	65	121	360	4/16/2016	8	43	121	380	4/17/2017	12	47	126	435
4/18/2015	10	67	123	425	4/17/2016	9	46	126	300	4/18/2017	13	42	104	325
4/19/2015	9	78	140	320	4/18/2016	8	45	146	325	4/19/2017	15	39	87	495
4/20/2015	16	48	153	310	4/19/2016	12	55	147	380	4/20/2017	11	39	98	430
4/21/2015	20	51	112	335	4/20/2016	8	59	146	460	4/21/2017	17	36	89	385
4/22/2015	18	56	113	475	4/21/2016	10	54	136	300	4/22/2017	26	48	102	435
4/23/2015	12	72	151	310	4/22/2016	13	49	105	405	4/23/2017	20	41	94	340
4/24/2015	12	68	139	395	4/23/2016	14	50	125	460	4/24/2017	17	48	106	275
4/25/2015	16	78	123	260	4/24/2016	17	63	144	230	4/25/2017	14	40	99	350
4/26/2015	14	64	130	235	4/25/2016	16	61	105	265	4/26/2017	23	50	116	350
4/27/2015	14	59	120	395	4/26/2016	15	41	82	275	4/27/2017	19	66	140	470
4/28/2015	13	61	128	335	4/27/2016	11	52	99	265	4/28/2017	14	60	146	450
4/29/2015	15	69	112	230	4/28/2016	14	52	115	430	4/29/2017	13	61	127	345
4/30/2015	17	53	106	380	4/29/2016	10	55	138	360	4/30/2017	23	62	127	275
5/1/2015	13	57	121	400	4/30/2016	14	57	153	320	5/1/2017	12	56	157	445
5/2/2015	12	67	123	285	5/1/2016	12	45	131	420	5/2/2017	19	57	121	390
5/3/2015	11	77	152	450	5/2/2016	24	53	139	390	5/3/2017	18	80	163	285
5/4/2015	12	81	162	255	5/3/2016	54	57	104	325	5/4/2017	14	86	150	330
5/5/2015	18	72	135	275	5/4/2016	25	40	113	220	5/5/2017	64	72	117	355
5/6/2015	15	62	119	260	5/5/2016	18	40	127	480	5/6/2017	37	58	94	230
5/7/2015	14	56	125	190	5/6/2016	44	39	133	630	5/7/2017	24	43	110	230
5/8/2015	12	34	84	125	5/7/2016	35	51	143	315	5/8/2017	15	49	112	275
5/9/2015	18	37	74	155	5/8/2016	18	35	154	265	5/9/2017	19	53	109	560
5/10/2015	30	35	49	220	5/9/2016	8	29	155	480	5/10/2017	15	71	146	320
5/11/2015	15	28	58	315	5/10/2016	5	28	139	420	5/11/2017	9	61	145	360
5/12/2015	22	44	75	290	5/11/2016	4	33	162	470	5/12/2017	9	50	135	175
5/13/2015	15	46	91	175	5/12/2016	9	42	168	305	5/13/2017	18	38	120	230
5/14/2015	7	40	94	180	5/13/2016	10	34	131	320	5/14/2017	23	53	139	415
5/15/2015	12	57	126	300	5/14/2016	9	26	113	550	5/15/2017	14	51	131	220
5/16/2015	14	57	150	250	5/15/2016	8	31	147	665	5/16/2017	11	50	116	370
5/17/2015	28	66	175	335	5/16/2016	8	32	163	445	5/17/2017	12	69	144	550
5/18/2015	20	57	159	345	5/17/2016	14	35	152	370	5/18/2017	13	57	132	300
5/19/2015	58	71	123	240	5/18/2016	9	33	144	680	5/19/2017	14	47	129	340
5/20/2015	25	58	120	240	5/19/2016	10	40	154	540	5/20/2017	12	61	160	280
5/21/2015	17	54	114	260	5/20/2016	12	47	139	520	5/21/2017	5	61	162	240
5/22/2015	14	50	106	220	5/21/2016	14	33	114	380	5/22/2017	11	58	153	260
5/23/2015	15	61	125	245	5/22/2016	24	38	103	210	5/23/2017	21	67	137	670
5/24/2015	22	81	147	185	5/23/2016	20	33	101	225	5/24/2017	14	58	159	390
5/25/2015	10	72	158	205	5/24/2016	13	29	89	440	5/25/2017	16	46	127	145
5/26/2015	16	74	139	170	5/25/2016	13	32	105	360	5/26/2017	21	50	80	230
5/27/2015	18	52	118	145	5/26/2016	11	44	147	510	5/27/2017	14	46	109	290
5/28/2015	22	52	103	290	5/27/2016	10	42	145	280	5/28/2017	14	58	123	280
5/29/2015	17	59	137	330	5/28/2016	9	41	140	450	5/29/2017	15	66	137	240
5/30/2015	15	67	146	490	5/29/2016	11	47	140	385	5/30/2017	17	57	116	390
5/31/2015	23	75	185	245	5/30/2016	16	43	163	300	5/31/2017	18	62	118	280
6/1/2015	71	70	144	165	5/31/2016	31	38	73	315	6/1/2017	11	62	130	520
6/2/2015	60	65	106	415	6/1/2016	16	27	79	250	6/2/2017	16	70	143	325
6/3/2015	35	54	151	275	6/2/2016	11	37	134	364	6/3/2017	8	54	129	615
6/4/2015	24	36	140	375	6/3/2016	6	33	133	385	6/4/2017	11	45	107	135
6/5/2015	9	10	41	80	6/4/2016	11	16	105	135	6/5/2017	16	17	52	360
6/6/2015	15	14	16	75	6/5/2016	12	24	71	120	6/6/2017	21	19	37	510
6/7/2015	15	14	12	55	6/6/2016	18	24	41	60	6/7/2017	12	18	56	190
6/8/2015	24	20	26	25	6/7/2016	10	16	35	20	6/8/2017	10	15	48	30
6/9/2015	46	36	23	100	6/8/2016	0	0	21	15	6/9/2017	10	12	53	110
6/10/2015	39	16	19	20	6/9/2016	21	17	23	0	6/10/2017	10	17	41	110
6/11/2015	31	0	18	20	6/10/2016	12	13	29	30	6/11/2017	13	17	32	15
6/12/2015	12	18	27	10	6/11/2016	8	11	23	95	6/12/2017	5	17	43	35
6/13/2015	19	25	18	25	6/12/2016	4	13	39	150	6/13/2017	15	21	38	130
6/14/2015	16	23	20	60	6/13/2016	10	20	47	190	6/14/2017	13	38	87	590
6/15/2015	18	18	33	75	6/14/2016	12	23	49	200	6/15/2017	13	51	119	325
6/16/2015	22	19	35	22	6/15/2016	11	38	96	245	6/16/2017	14	54	124	280
6/17/2015	19	14	21	25	6/16/2016	11	36	118	490	6/17/2017	13	54	113	200
6/18/2015	57	40	20	32	6/17/2016	14	47	135	455	6/18/2017	12	49	116	535
6/19/2015	70	40	26	46	6/18/2016	16	45	122	470	6/19/2017	21	59	148	860
6/20/2015	36	29	29	98	6/19/2016	14	48	137	495	6/20/2017	16	64	145	245
6/21/2015	61	43	27	125	6/20/2016	18	58	151	590	6/21/2017	16	64	139	375
6/22/2015	26	23	31	565	6/21/2016	15	56	155	440	6/22/2017	12	60	135	425
6/23/2015	24	30	46	290	6/22/2016	13	58	147	390	6/23/2017	13	59	151	310
6/24/2015	30	35	76	260	6/23/2016	13	59	181	350	6/24/2017	23	47	143	195
6/25/2015	22	36	116	315	6/24/2016	12	53	160	425	6/25/2017	23	64	146	275
6/26/2015	30	36	121	420	6/25/2016	12	52	164	300	6/26/2017	18	74	179	560
6/27/2015	74	37	106	275	6/26/2016	8	58	174	430	6/27/2017	11	62	151	375
6/28/2015	39	39	99	325	6/27/2016	11	58	178	430	6/28/2017	9	60	123	510
6/29/2015	21	29	103	335	6/28/2016	9	39	162	355	6/29/2017	12	61	147	225
6/30/2015	17	34	127	225	6/29/2016	43	60	156	305	6/30/2017	11	60	148	400
7/1/2015	26	43	140	320	6/30/2016	19	54	163	245	7/1/2017	13	58	168	570
7/2/2015	18	44	168	330	7/1/2016	18	55	159	305	7/2/2017	19	63	154	285
7/3/2015	15	38	128	375	7/2/2016	9	48	143	300	7/3/2017	19	61	132	275
7/4/2015	15	35	139	300	7/3/2016	10	45	138	285	7/4/2017	10	52	142	210

7/5/2015	22	52	119	195	7/4/2016	8	49	134	270	7/5/2017	18	55	114	330
7/6/2015	20	38	126	470	7/5/2016	11	42	127	320	7/6/2017	13	54	135	235
7/7/2015	13	31	93	335	7/6/2016	9	43	122	305	7/7/2017	13	52	123	245
7/8/2015	5	14	70	605	7/7/2016	9	39	105	335	7/8/2017	12	53	128	440
7/9/2015	33	48	84	485	7/8/2016	18	41	109	485	7/9/2017	11	52	132	310
7/10/2015	38	53	122	225	7/9/2016	26	52	137	405	7/10/2017	10	55	140	565
7/11/2015	14	40	128	195	7/10/2016	13	46	120	330	7/11/2017	11	65	133	510
7/12/2015	11	33	102	255	7/11/2016	8	40	119	285	7/12/2017	10	62	110	475
7/13/2015	10	37	131	350	7/12/2016	12	43	110	240	7/13/2017	16	57	121	675
7/14/2015	9	39	137	305	7/13/2016	8	42	133	265	7/14/2017	18	39	133	250
7/15/2015	15	38	151	235	7/14/2016	26	55	133	300	7/15/2017	49	64	110	250
7/16/2015	13	38	127	350	7/15/2016	18	47	130	480	7/16/2017	14	72	125	215
7/17/2015	12	44	156	320	7/16/2016	12	55	113	210	7/17/2017	20	48	120	240
7/18/2015	30	42	141	320	7/17/2016	5	43	132	230	7/18/2017	42	74	144	175
7/19/2015	24	47	138	480	7/18/2016	11	57	141	245	7/19/2017	20	48	100	315
7/20/2015	15	48	142	215	7/19/2016	39	64	133	245	7/20/2017	12	35	73	425
7/21/2015	15	46	142	270	7/20/2016	17	61	148	215	7/21/2017	11	49	107	570
7/22/2015	16	38	141	375	7/21/2016	21	52	133	450	7/22/2017	12	63	160	455
7/23/2015	27	47	138	275	7/22/2016	13	55	135	375	7/23/2017	12	58	165	560
7/24/2015	9	43	159	355	7/23/2016	6	52	124	365	7/24/2017	22	49	135	400
7/25/2015	11	39	137	275	7/24/2016	10	53	134	380	7/25/2017	22	60	137	280
7/26/2015	14	40	126	235	7/25/2016	11	55	124	145	7/26/2017	15	55	124	560
7/27/2015	16	41	116	345	7/26/2016	14	36	96	175	7/27/2017	12	59	137	465
7/28/2015	15	37	108	265	7/27/2016	13	40	104	330	7/28/2017	33	62	135	375
7/29/2015	7	34	131	540	7/28/2016	10	35	102	165	7/29/2017	70	74	130	325
7/30/2015	13	45	169	275	7/29/2016	12	59	77	275	7/30/2017	33	62	141	200
7/31/2015	12	50	151	420	7/30/2016	14	40	91	160	7/31/2017	28	63	128	475
8/1/2015	16	48	143	310	7/31/2016	23	49	102	245	8/1/2017	23	68	132	410
8/2/2015	11	46	123	275	8/1/2016	18	54	124	205	8/2/2017	29	51	130	575
8/3/2015	7	39	126	345	8/2/2016	11	51	124	300	8/3/2017	30	54	130	360
8/4/2015	3	33	116	260	8/3/2016	13	60	146	285	8/4/2017	31	52	130	415
8/5/2015	12	51	140	555	8/4/2016	11	64	159	200	8/5/2017	69	77	115	270
8/6/2015	13	58	149	250	8/5/2016	9	65	167	265	8/6/2017	33	59	130	185
8/7/2015	13	46	139	245	8/6/2016	8	53	122	320	8/7/2017	28	46	120	185
8/8/2015	8	48	154	280	8/7/2016	13	53	133	215	8/8/2017	25	55	120	175
8/9/2015	8	49	144	205	8/8/2016	14	62	145	200	8/9/2017	21	63	135	275
8/10/2015	13	55	143	185	8/9/2016	13	56	143	275	8/10/2017	22	71	159	260
8/11/2015	12	40	112	330	8/10/2016	11	65	144	310	8/11/2017	16	63	162	375
8/12/2015	14	45	124	295	8/11/2016	11	56	139	320	8/12/2017	11	64	158	540
8/13/2015	11	52	147	455	8/12/2016	14	61	137	320	8/13/2017	15	63	158	475
8/14/2015	15	68	180	260	8/13/2016	15	50	116	370	8/14/2017	16	66	150	580
8/15/2015	13	54	145	330	8/14/2016	16	59	146	255	8/15/2017	15	61	139	410
8/16/2015	12	51	141	480	8/15/2016	15	61	137	460	8/16/2017	9	70	138	390
8/17/2015	11	55	112	355	8/16/2016	16	58	161	550	8/17/2017	14	62	137	270
8/18/2015	12	57	123	280	8/17/2016	15	53	117	340	8/18/2017	19	45	125	325
8/19/2015	13	54	133	260	8/18/2016	8	43	103	380	8/19/2017	16	48	125	260
8/20/2015	26	36	111	235	8/19/2016	10	46	109	240	8/20/2017	14	61	115	220
8/21/2015	28	44	97	230	8/20/2016	9	41	100	325	8/21/2017	11	52	125	150
8/22/2015	12	38	103	375	8/21/2016	12	41	106	405	8/22/2017	15	40	85	140
8/23/2015	11	52	145	195	8/22/2016	13	59	124	285	8/23/2017	21	43	98	200
8/24/2015	11	55	129	230	8/23/2016	12	46	111	230	8/24/2017	18	61	147	240
8/25/2015	8	47	115	310	8/24/2016	12	55	134	245	8/25/2017	14	64	167	400
8/26/2015	8	52	127	445	8/25/2016	12	56	140	230	8/26/2017	19	64	154	280
8/27/2015	12	52	141	285	8/26/2016	10	58	151	230	8/27/2017	17	67	135	315
8/28/2015	16	49	140	290	8/27/2016	19	52	136	215	8/28/2017	16	57	125	460
8/29/2015	9	46	132	325	8/28/2016	11	57	136	370	8/29/2017	13	50	123	510
8/30/2015	12	54	131	310	8/29/2016	10	58	135	420	8/30/2017	27	66	137	510
8/31/2015	19	89	143	170	8/30/2016	11	55	135	245	8/31/2017	21	60	117	225
9/1/2015	6	50	128	240	8/31/2016	12	41	110	285	9/1/2017	15	54	106	235
9/2/2015	8	33	100	70	9/1/2016	15	42	102	220	9/2/2017	18	57	135	215
9/3/2015	10	44	62	265	9/2/2016	19	57	103	350	9/3/2017	12	57	130	210
9/4/2015	8	29	72	235	9/3/2016	15	66	131	290	9/4/2017	11	66	135	240
9/5/2015	20	41	99	150	9/4/2016	11	71	151	200	9/5/2017	14	57	146	265
9/6/2015	14	43	103	195	9/5/2016	11	62	134	220	9/6/2017	40	49	132	430
9/7/2015	14	55	136	245	9/6/2016	9	61	137	295	9/7/2017	38	56	114	555
9/8/2015	10	58	153	330	9/7/2016	16	60	125	400	9/8/2017	33	62	139	375
9/9/2015	8	60	147	270	9/8/2016	25	67	141	270	9/9/2017	21	77	146	480
9/10/2015	32	60	134	245	9/9/2016	18	68	144	335	9/10/2017	16	65	138	450
9/11/2015	38	57	107	275	9/10/2016	16	69	168	285	9/11/2017	11	59	133	300
9/12/2015	48	64	134	295	9/11/2016	15	68	157	505	9/12/2017	10	50	109	200
9/13/2015	52	85	148	345	9/12/2016	14	63	150	240	9/13/2017	12	62	107	285
9/14/2015	18	49	148	810	9/13/2016	13	46	122	200	9/14/2017	10	58	117	290
9/15/2015	17	61	172	290	9/14/2016	20	35	73	770	9/15/2017	15	64	132	320
9/16/2015	10	57	152	325	9/15/2016	13	49	105	400	9/16/2017	12	65	143	250
9/17/2015	19	53	130	190	9/16/2016	13	58	128	350	9/17/2017	9	63	137	235
9/18/2015	12	42	102	160	9/17/2016	11	61	136	400	9/18/2017	11	68	135	285
9/19/2015	12	44	114	305	9/18/2016	6	60	138	250	9/19/2017	13	67	130	180
9/20/2015	12	53	123	240	9/19/2016	38	56	148	260	9/20/2017	17	44	90	295
9/21/2015	14	54	141	295	9/20/2016	27	64	138	270	9/21/2017	12	49	115	230
9/22/2015	12	53	139	305	9/21/2016	20	74	158	285	9/22/2017	14	48	102	850
9/23/2015	10	47	125	295	9/22/2016	12	59	138	170	9/23/2017	10	52	108	475
9/24/2015	12	45	117	305	9/23/2016	12	54	113	370	9/24/2017	12	57	127	505
9/25/2015	18	54	136	500	9/24/2016	8	58	145	550	9/25/2017	9	62	149	345
9/26/2015	13	69	140	335	9/25/2016	12	60	136	270	9/26/2017	11	70	147	270
9/27/2015	15	60	151	195	9/26/2016	12	57	133	450	9/27/2017	14	73	159	540
9/28/2015	16	56	137	190	9/27/2016	7	59	146	365	9/28/2017	12	79	178	360
9/29/2015	21	52	136	220	9/28/2016	16	61	145	385	9/29/2017	12	77	174	640
9/30/2015	72	75	150	345	9/29/2016	15	45	155	460	9/30/2017	19	69	142	260
10/1/2015	25	63	155	270	9/30/2016	23	54	151	260	10/1/2017	16	72	150	265
10/2/2015	22	35	106	455	10/1/2016	24	51	130	435	10/2/2017	12	72	161	300
10/3/2015	33	44	99	355	10/2/2016	24	54	124	325	10/3/2017	16	77	165	230
10/4/2015	18	39	113	195	10/3/2016	19	63	137	360	10/4/2017	14	61	127	200
10/5/2015	12	34	106	320	10/4/2016	13	58	121	230	10/5/2017	14	97	110	190

10/6/2015	12	34	92	275	10/5/2016	17	61	125	405	10/6/2017	11	58	115	240
10/7/2015	12	37	117	315	10/6/2016	16	66	154	285	10/7/2017	17	51	115	295
10/8/2015	12	40	145	500	10/7/2016	14	71	153	545	10/8/2017	23	56	125	680
10/9/2015	8	45	152	210	10/8/2016	14	68	136	265	10/9/2017	24	52	147	505
10/10/2015	19	47	148	220	10/9/2016	17	60	118	250	10/10/2017	36	72	143	275
10/11/2015	8	51	140	175	10/10/2016	14	58	137	245	10/11/2017	21	46	104	745
10/12/2015	21	56	122	117	10/11/2016	13	50	131	230	10/12/2017	26	48	115	435
10/13/2015	17	45	107	280	10/12/2016	15	55	99	185	10/13/2017	20	52	122	550
10/14/2015	20	61	125	160	10/13/2016	7	50	106	255	10/14/2017	18	57	124	430
10/15/2015	24	55	122	185	10/14/2016	14	57	124	375	10/15/2017	15	57	141	210
10/16/2015	16	55	122	200	10/15/2016	12	64	138	330	10/16/2017	14	44	115	260
10/17/2015	19	58	122	350	10/16/2016	12	63	143	345	10/17/2017	13	56	117	255
10/18/2015	14	62	129	465	10/17/2016	13	68	153	405	10/18/2017	23	75	147	290
10/19/2015	19	69	152	250	10/18/2016	10	74	156	350	10/19/2017	14	74	153	350
10/20/2015	15	61	118	325	10/19/2016	11	70	159	410	10/20/2017	11	77	165	450
10/21/2015	14	70	152	395	10/20/2016	14	78	166	240	10/21/2017	11	72	175	495
10/22/2015	12	66	153	145	10/21/2016	14	67	160	680	10/22/2017	12	74	165	360
10/23/2015	27	45	94	110	10/22/2016	24	88	197	405	10/23/2017	13	69	156	615
10/24/2015	14	44	89	195	10/23/2016	17	75	153	250	10/24/2017	31	62	138	430
10/25/2015	23	52	107	215	10/24/2016	18	70	116	255	10/25/2017	16	67	129	770
10/26/2015	29	65	127	250	10/25/2016	12	66	115	230	10/26/2017	15	68	128	265
10/27/2015	17	60	131	270	10/26/2016	12	49	103	205	10/27/2017	13	71	129	310
10/28/2015	66	80	126	415	10/27/2016	10	48	109	290	10/28/2017	11	65	128	265
10/29/2015	91	95	106	450	10/28/2016	13	48	109	360	10/29/2017	8	51	117	370
10/30/2015	32	48	102	250	10/29/2016	16	48	100	215	10/30/2017	48	62	115	395
10/31/2015	19	42	121	210	10/30/2016	14	51	95	265	10/31/2017	29	60	114	240
11/1/2015	19	51	133	290	10/31/2016	15	38	77	250	11/1/2017	23	56	101	225
11/2/2015	12	55	155	265	11/1/2016	14	51	107	315	11/2/2017	18	52	90	315
11/3/2015	23	46	104	190	11/2/2016	11	63	137	380	11/3/2017	10	52	109	445
11/4/2015	12	38	81	290	11/3/2016	13	62	89	565	11/4/2017	15	62	118	545
11/5/2015	14	62	125	695	11/4/2016	14	69	138	410	11/5/2017	14	60	136	335
11/6/2015	14	50	115	370	11/5/2016	18	73	154	660	11/6/2017	16	65	125	495
11/7/2015	16	51	116	230	11/6/2016	20	78	153	405	11/7/2017	18	49	102	240
11/8/2015	14	52	119	170	11/7/2016	19	68	137	310	11/8/2017	24	43	82	425
11/9/2015	23	44	99	220	11/8/2016	15	56	105	420	11/9/2017	20	53	105	320
11/10/2015	19	37	92	85	11/9/2016	17	56	91	405	11/10/2017	14	49	97	415
11/11/2015	17	28	73	245	11/10/2016	15	47	98	270	11/11/2017	17	51	86	250
11/12/2015	18	35	90	245	11/11/2016	10	48	115	425	11/12/2017	14	58	104	210
11/13/2015	17	45	124	230	11/12/2016	9	51	109	315	11/13/2017	16	59	103	180
11/14/2015	15	55	124	210	11/13/2016	12	58	117	240	11/14/2017	14	47	85	95
11/15/2015	14	57	138	250	11/14/2016	14	66	117	200	11/15/2017	17	39	67	150
11/16/2015	11	68	159	230	11/15/2016	14	51	98	160	11/16/2017	14	45	75	285
11/17/2015	10	63	147	325	11/16/2016	14	49	88	360	11/17/2017	28	56	102	275
11/18/2015	11	55	138	275	11/17/2016	12	61	110	380	11/18/2017	31	47	112	360
11/19/2015	8	31	94	310	11/18/2016	12	53	98	480	11/19/2017	39	57	125	305
11/20/2015	9	44	89	185	11/19/2016	18	56	97	720	11/20/2017	25	57	122	695
11/21/2015	13	44	97	215	11/20/2016	15	47	91	295	11/21/2017	16	49	124	365
11/22/2015	5	38	116	190	11/21/2016	5	37	90	680	11/22/2017	9	45	110	270
11/23/2015	16	64	98	240	11/22/2016	9	65	113	255	11/23/2017	9	54	128	280
11/24/2015	3	35	88	240	11/23/2016	8	61	101	260	11/24/2017	10	55	121	225
11/25/2015	24	61	121	310	11/24/2016	7	55	110	190	11/25/2017	10	58	103	295
11/26/2015	13	58	122	190	11/25/2016	8	55	115	265	11/26/2017	9	61	120	180
11/27/2015	14	55	151	175	11/26/2016	7	64	130	290	11/27/2017	7	57	115	220
11/28/2015	6	52	133	205	11/27/2016	16	73	156	255	11/28/2017	6	57	113	180
11/29/2015	9	56	140	170	11/28/2016	14	70	140	280	11/29/2017	10	56	114	185
11/30/2015	11	50	117	195	11/29/2016	26	55	143	250	11/30/2017	9	61	119	220
12/1/2015	15	38	120	240	11/30/2016	26	56	127	290	12/1/2017	5	55	116	450
12/2/2015	27	50	117	635	12/1/2016	32	62	121	370	12/2/2017	5	67	140	330
12/3/2015	21	43	103	405	12/2/2016	46	85	123	330	12/3/2017	7	51	128	490
12/4/2015	15	44	153	320	12/3/2016	28	71	122	685	12/4/2017	6	59	120	250
12/5/2015	10	41	95	320	12/4/2016	16	62	112	420	12/5/2017	9	61	119	260
12/6/2015	11	42	96	200	12/5/2016	18	67	155	360	12/6/2017	5	52	112	380
12/7/2015	7	36	82	230	12/6/2016	24	60	114	280	12/7/2017	11	58	96	170
12/8/2015	12	41	84	390	12/7/2016	23	42	91	405	12/8/2017	10	60	99	200
12/9/2015	10	46	97	310	12/8/2016	27	58	85	230	12/9/2017	10	51	105	230
12/10/2015	8	49	101	490	12/9/2016	18	57	93	465	12/10/2017	8	45	92	195
12/11/2015	4	47	100	405	12/10/2016	12	63	108	485	12/11/2017	8	56	96	445
12/12/2015	12	52	119	195	12/11/2016	10	66	122	465	12/12/2017	8	66	129	205
12/13/2015	9	61	137	195	12/12/2016	11	39	97	215	12/13/2017	11	58	113	175
12/14/2015	9	60	141	190	12/13/2016	12	39	62	195	12/14/2017	11	43	80	255
12/15/2015	15	40	104	120	12/14/2016	16	44	85	560	12/15/2017	10	44	74	260
12/16/2015	9	21	43	165	12/15/2016	12	51	105	285	12/16/2017	9	53	95	275
12/17/2015	14	14	17	260	12/16/2016	9	77	113	315	12/17/2017	5	49	100	255
12/18/2015	11	16	33	175	12/17/2016	5	58	129	450	12/18/2017	8	56	106	310
12/19/2015	13	42	102	265	12/18/2016	14	55	144	365	12/19/2017	8	66	126	375
12/20/2015	19	66	111	300	12/19/2016	17	58	131	140	12/20/2017	7	64	113	575
12/21/2015	13	60	118	520	12/20/2016	19	58	110	365	12/21/2017	7	68	119	250
12/22/2015	2	53	126	440	12/21/2016	11	61	124	270	12/22/2017	7	68	138	335
12/23/2015	51	59	127	185	12/22/2016	12	75	114	590	12/23/2017	9	50	140	220
12/24/2015	65	66	127	195	12/23/2016	7	49	109	235	12/24/2017	13	45	100	150
12/25/2015	27	50	137	195	12/24/2016	8	40	135	205	12/25/2017	17	55	100	185
12/26/2015	20	43	138	175	12/25/2016	10	51	118	185	12/26/2017	19	61	94	165
12/27/2015	18	39	125	155	12/26/2016	9	60	131	240	12/27/2017	13	56	90	160
12/28/2015	21	40	112	190	12/27/2016	10	71	159	210	12/28/2017	9	44	81	165
12/29/2015	53	49	116	150	12/28/2016	11	65	133	170	12/29/2017	7	38	93	170
12/30/2015	26	34	98	255	12/29/2016	10	60	105	180	12/30/2017	8	42	98	190
12/31/2015	15	34	128	195	12/30/2016	13	65	124	235	12/31/2017	5	47	104	195
Max	101	95	316	1935	Max	54	88	197	805	Max	70	101	179	860
Min	2	0	12	10	Min	0	0	21	0	Min	4	12	32	15
Median	14	49	121	275	Median	12	47	124	315	Median	14	57	120	315
Average	17.94	49.16	115.41	291.51	Average	13.91	46.37	122.25	331.52	Average	16.54	56.16	119.46	341.26
90th %	30	68	150.6	450	90th %	23	65	153	488.5	90th %	27.6	72	149.6	526

	Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent
1/1/2018	6	57	105	195	1/1/2019	14	22	112	230	1/2/2020	13	40	101	170
1/2/2018	18	64	111	240	1/2/2019	7	18	129	355	1/3/2020	16	52	118	290
1/3/2018	6	45	101	430	1/3/2019	6	18	149	355	1/4/2020	11	47	113	210
1/4/2018	10	63	147	320	1/4/2019	7	17	143	350	1/5/2020	8	45	111	210
1/5/2018	8	75	135	350	1/5/2019	8	16	131	340	1/6/2020	8	55	116	280
1/6/2018	2	63	142	475	1/6/2019	7	15	106	390	1/7/2020	7	59	142	215
1/7/2018	13	62	133	200	1/7/2019	6	17	86	280	1/8/2020	30	60	135	220
1/8/2018	8	46	97	375	1/8/2019	7	13	94	340	1/9/2020	4	46	112	250
1/9/2018	9	42	87	445	1/9/2019	8	15	105	180	1/10/2020	11	65	141	420
1/10/2018	8	49	92	320	1/10/2019	8	14	103	190	1/11/2020	12	57	129	505
1/11/2018	7	52	106	240	1/11/2019	10	18	117	140	1/12/2020	17	43	102	200
1/12/2018	17	44	107	225	1/12/2019	7	18	92	230	1/13/2020	62	70	65	120
1/13/2018	70	72	90	240	1/13/2019	5	22	99	240	1/14/2020	25	36	84	185
1/14/2018	71	76	106	170	1/14/2019	8	28	127	160	1/15/2020	10	28	104	160
1/15/2018	40	66	113	180	1/15/2019	5	21	105	405	1/16/2020	7	27	85	175
1/16/2018	14	57	97	90	1/16/2019	10	26	109	270	1/17/2020	13	34	97	320
1/17/2018	9	40	77	135	1/17/2019	13	23	90	225	1/18/2020	15	43	107	500
1/18/2018	8	52	75	140	1/18/2019	5	19	88	285	1/19/2020	11	48	143	450
1/19/2018	8	45	86	240	1/19/2019	11	23	106	305	1/20/2020	9	46	162	290
1/20/2018	7	61	105	310	1/20/2019	27	33	102	165	1/21/2020	8	46	145	325
1/21/2018	7	60	122	385	1/21/2019	11	16	68	115	1/22/2020	7	47	121	210
1/22/2018	9	52	124	370	1/22/2019	13	15	62	295	1/23/2020	4	43	109	255
1/23/2018	45	35	93	205	1/23/2019	17	25	92	165	1/24/2020	9	45	126	295
1/24/2018	38	51	100	340	1/24/2019	29	30	99	295	1/25/2020	16	48	117	505
1/25/2018	28	59	118	270	1/25/2019	12	22	120	425	1/26/2020	48	58	121	210
1/26/2018	14	62	120	205	1/26/2019	6	14	126	365	1/27/2020	17	28	108	230
1/27/2018	11	58	105	385	1/27/2019	4	15	131	240	1/28/2020	10	23	127	385
1/28/2018	11	62	133	255	1/28/2019	7	20	138	225	1/29/2020	13	39	122	330
1/29/2018	12	59	108	205	1/29/2019	14	21	136	410	1/30/2020	8	25	108	250
1/30/2018	11	61	106	215	1/30/2019	11	27	129	370	1/31/2020	9	27	121	300
1/31/2018	9	61	124	175	1/31/2019	4	14	119	370	2/1/2020	7	27	115	300
2/1/2018	10	55	106	245	2/1/2019	5	19	120	365	2/2/2020	14	31	107	275
2/2/2018	8	49	86	485	2/2/2019	5	15	107	280	2/3/2020	11	26	97	180
2/3/2018	9	68	120	215	2/3/2019	17	18	102	305	2/4/2020	12	32	98	270
2/4/2018	10	46	97	240	2/4/2019	8	18	99	340	2/5/2020	9	31	125	395
2/5/2018	21	34	91	240	2/5/2019	7	16	105	190	2/6/2020	9	34	113	340
2/6/2018	20	38	110	495	2/6/2019	7	18	92	220	2/7/2020	27	26	96	355
2/7/2018	14	36	99	195	2/7/2019	9	20	117	340	2/8/2020	21	30	112	245
2/8/2018	35	34	91	205	2/8/2019	6	20	102	520	2/9/2020	20	33	131	255
2/9/2018	20	40	84	210	2/9/2019	12	27	122	210	2/10/2020	21	27	105	175
2/10/2018	12	28	99	210	2/10/2019	9	27	124	190	2/11/2020	6	22	96	205
2/11/2018	45	51	101	190	2/11/2019	16	32	133	210	2/12/2020	2	17	98	290
2/12/2018	29	51	103	200	2/12/2019	13	25	128	120	2/13/2020	10	21	85	260
2/13/2018	20	37	115	165	2/13/2019	10	15	78	180	2/14/2020	2	14	93	270
2/14/2018	9	46	98	205	2/14/2019	6	17	96	230	2/15/2020	10	29	87	140
2/15/2018	15	32	114	255	2/15/2019	8	19	128	245	2/16/2020	6	22	91	210
2/16/2018	36	45	97	195	2/16/2019	10	24	124	330	2/17/2020	5	17	92	370
2/17/2018	19	35	112	240	2/17/2019	10	24	118	270	2/18/2020	10	23	103	370
2/18/2018	11	27	114	195	2/18/2019	8	23	131	355	2/19/2020	4	19	74	135
2/19/2018	11	31	113	380	2/19/2019	14	32	130	400	2/20/2020	19	19	66	210
2/20/2018	17	33	110	430	2/20/2019	5	21	129	360	2/21/2020	8	25	90	245
2/21/2018	11	35	131	220	2/21/2019	9	22	136	180	2/22/2020	14	32	115	445
2/22/2018	17	33	121	345	2/22/2019	9	20	109	325	2/23/2020	27	41	133	535
2/23/2018	16	30	109	315	2/23/2019	5	19	132	380	2/24/2020	10	29	118	190
2/24/2018	17	31	99	200	2/24/2019	17	21	117	195	2/25/2020	4	30	116	360
2/25/2018	30	35	88	170	2/25/2019	5	15	116	210	2/26/2020	6	51	122	300
2/26/2018	19	28	108	195	2/26/2019	5	18	115	170	2/27/2020	7	42	120	265
2/27/2018	11	27	117	205	2/27/2019	16	25	115	175	2/28/2020	13	36	101	300
2/28/2018	10	45	119	365	2/28/2019	14	24	116	230	2/29/2020	3	31	107	285
3/1/2018	12	28	125	250	3/1/2019	6	19	125	395	3/1/2020	8	40	113	260
3/2/2018	25	35	114	330	3/2/2019	9	19	102	350	3/2/2020	10	40	127	325
3/3/2018	13	32	109	215	3/3/2019	9	18	105	240	3/3/2020	10	52	109	195
3/4/2018	12	33	116	180	3/4/2019	7	20	125	490	3/4/2020	12	34	80	230
3/5/2018	10	32	116	310	3/5/2019	9	19	119	300	3/5/2020	14	47	113	275
3/6/2018	10	29	116	500	3/6/2019	7	18	119	385	3/6/2020	15	48	134	190
3/7/2018	7	29	101	255	3/7/2019	5	14	103	555	3/7/2020	10	42	123	270
3/8/2018	10	31	94	210	3/8/2019	14	22	83	315	3/8/2020	15	37	83	255
3/9/2018	8	34	97	220	3/9/2019	8	22	115	290	3/9/2020	12	61	102	225
3/10/2018	9	34	81	250	3/10/2019	37	38	115	225	3/10/2020	8	44	118	300
3/11/2018	7	35	84	155	3/11/2019	21	30	134	230	3/11/2020	18	52	117	260
3/12/2018	11	36	93	120	3/12/2019	12	24	119	135	3/12/2020	11	50	129	290
3/13/2018	6	29	61	80	3/13/2019	15	28	95	240	3/13/2020	6	36	133	290
3/14/2018	4	27	56	215	3/14/2019	11	22	125	295	3/14/2020	10	47	117	400
3/15/2018	7	41	96	370	3/15/2019	13	30	143	505	3/15/2020	5	41	122	210
3/16/2018	8	46	88	255	3/16/2019	13	36	136	350	3/16/2020	5	51	146	180
3/17/2018	5	49	110	430	3/17/2019	14	39	139	565	3/17/2020	9	46	119	200
3/18/2018	8	50	127	220	3/18/2019	15	32	141	245	3/18/2020	11	46	128	335
3/19/2018	11	54	124	430	3/19/2019	14	38	129	365	3/19/2020	21	38	119	250
3/20/2018	11	47	111	395	3/20/2019	20	39	113	995	3/20/2020	23	47	105	220
3/21/2018	9	45	101	295	3/21/2019	36	43	116	215	3/21/2020	15	39	100	290
3/22/2018	5	40	96	180	3/22/2019	34	43	96	255	3/22/2020	16	42	105	325
3/23/2018	11	40	106	220	3/23/2019	12	15	88	400	3/23/2020	7	34	172	370
3/24/2018	13	37	108	285	3/24/2019	15	24	83	235	3/24/2020	7	30	92	150
3/25/2018	16	40	100	220	3/25/2019	14	23	106	230	3/25/2020	9	28	92	205
3/26/2018	13	37	115	200	3/26/2019	10	18	208	200	3/26/2020	10	35	115	265
3/27/2018	17	36	114	210	3/27/2019	11	22	119	305	3/27/2020	9	32	124	280
3/28/2018	19	33	122	290	3/28/2019	23	35	119	285	3/28/2020	29	43	99	230
3/29/2018	15	35	133	350	3/29/2019	10	24	105	205	3/29/2020	20	34	96	210
3/30/2018	11	32	109	240	3/30/2019	6	14	96	355	3/30/2020	14	33	138	225
3/31/2018	13	36	120	165	3/31/2019	5	15	111	225	3/31/2020	9	45	117	240
4/1/2018					4/1/2019	7	17	108	355	4/1/2020	15	30	107	290
4/2/2018					4/2/2019	6	15	107	233	4/2/2020	26	31	99	220

4/3/2018					4/3/2019	9	14	78	205	4/3/2020	13	26	138	360
4/4/2018					4/4/2019	6	15	88	375	4/4/2020	13	28	106	260
4/5/2018					4/5/2019	7	17	107	285	4/5/2020	10	34	107	305
4/6/2018					4/6/2019	6	26	107	285	4/6/2020	9	37	122	455
4/7/2018					4/7/2019	10	28	117	220	4/7/2020	22	39	138	285
4/8/2018					4/8/2019	4	23	113	265	4/8/2020	5	33	131	390
4/9/2018					4/9/2019	15	36	129	205	4/9/2020	6	37	124	280
4/10/2018					4/10/2019	13	39	132	400	4/10/2020	8	35	104	250
4/11/2018					4/11/2019	19	49	144	695	4/11/2020	5	24	87	360
4/12/2018					4/12/2019	28	52	168	220	4/12/2020	3	33	154	630
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4/14/2018					4/14/2019	25	30	98	150	4/14/2020	21	33	134	280
4/15/2018					4/15/2019	43	44	82	280	4/15/2020	9	23	87	260
4/16/2018					4/16/2019	19	27	99	195	4/16/2020	17	22	96	405
4/17/2018					4/17/2019	15	23	102	280	4/17/2020	14	25	95	490
4/18/2018					4/18/2019	10	21	127	405	4/18/2020	22	29	120	290
4/19/2018					4/19/2019	10	23	123	160	4/19/2020	9	23	100	335
4/20/2018					4/20/2019	11	19	97	135	4/20/2020	5	21	93	270
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4/23/2018					4/23/2019	16	35	118	260	4/23/2020	12	22	91	265
4/24/2018					4/24/2019	17	39	134	485	4/24/2020	12	24	97	200
4/25/2018					4/25/2019	8	32	119	310	4/25/2020	15	27	98	320
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4/27/2018					4/27/2019	15	36	129	245	4/27/2020	15	25	115	155
4/28/2018					4/28/2019	11	34	148	295	4/28/2020	12	34	87	415
4/29/2018					4/29/2019	11	42	175	310	4/29/2020	10	29	82	300
4/30/2018					4/30/2019	8	34	149	375	4/30/2020	34	47	89	235
5/1/2018	10	37	115	205	5/1/2019	12	37	150	560	5/1/2020	26	36	189	230
5/2/2018	11	44	104	135	5/2/2019	14	42	172	495	5/2/2020	16	33	122	370
5/3/2018	5	34	92	215	5/3/2019	20	39	158	365	5/3/2020	9	25	133	280
5/4/2018	13	47	116	310	5/4/2019	33	42	140	465	5/4/2020	8	30	120	550
5/5/2018	13	53	130	205	5/5/2019	68	81	126	185	5/5/2020	16	37	128	300
5/6/2018	12	39	118	225	5/6/2019	27	30	100	205	5/6/2020	12	28	127	220
5/7/2018	10	55	131	230	5/7/2019	11	17	107	410	5/7/2020	9	29	111	190
5/8/2018	11	61	108	280	5/8/2019	18	30	116	185	5/8/2020	13	21	94	150
5/9/2018	12	57	117	360	5/9/2019	6	16	124	455	5/9/2020	19	24	87	180
5/10/2018	11	54	115	365	5/10/2019	15	25	125	425	5/10/2020	8	25	104	220
5/11/2018	10	69	147	275	5/11/2019	7	21	127	275	5/11/2020	11	27	124	290
5/12/2018	12	56	150	245	5/12/2019	21	20	108	260	5/12/2020	13	31	130	160
5/13/2018	22	48	132	400	5/13/2019	26	30	118	455	5/13/2020	9	23	93	190
5/14/2018	32	56	141	255	5/14/2019	12	22	148	310	5/14/2020	9	20	106	375
5/15/2018	49	67	142	195	5/15/2019	8	18	122	270	5/15/2020	12	26	101	250
5/16/2018	58	61	117	240	5/16/2019	8	17	119	290	5/16/2020	14	30	102	230
5/17/2018	42	67	110	290	5/17/2019	8	19	109	310	5/17/2020	8	29	104	200
5/18/2018	25	33	102	280	5/18/2019	4	15	107	665	5/18/2020	11	34	106	845
5/19/2018	47	47	118	240	5/19/2019	5	20	153	275	5/19/2020	8	29	136	380
5/20/2018	23	35	138	225	5/20/2019	7	20	122	375	5/20/2020	18	44	135	1325
5/21/2018	16	32	139	215	5/21/2019	9	31	120	285	5/21/2020	10	45	160	720
5/22/2018	13	29	107	251	5/22/2019	14	34	115	220	5/22/2020	17	38	135	390
5/23/2018	3	33	123	325	5/23/2019	4	24	110	195	5/23/2020	24	48	116	310
5/24/2018	11	36	134	340	5/24/2019	12	24	97	250	5/24/2020	41	59	106	510
5/25/2018	13	42	138	320	5/25/2019	10	28	114	445	5/25/2020	9	48	156	245
5/26/2018	14	41	164	420	5/26/2019	10	30	128	355	5/26/2020	15	42	132	375
5/27/2018	34	54	165	350	5/27/2019	11	36	149	710	5/27/2020	15	46	122	170
5/28/2018	35	57	167	325	5/28/2019	6	41	160	230	5/28/2020	19	35	96	160
5/29/2018	16	43	151	280	5/29/2019	12	37	156	170	5/29/2020	10	19	61	120
5/30/2018	13	42	145	345	5/30/2019	19	31	125	395	5/30/2020	29	32	53	300
5/31/2018	11	41	144	475	5/31/2019	7	30	135	735	5/31/2020	17	21	50	150
6/1/2018	20	42	147	285	6/1/2019	7	30	116	235	6/1/2020	19	24	37	45
6/2/2018	35	46	130	180	6/2/2019	5	15	74	98	6/2/2020	5	10	38	65
6/3/2018	22	31	110	25	6/3/2019	13	15	39	70	6/3/2020	3	5	24	35
6/4/2018	30	34	44	125	6/4/2019	15	19	24	55	6/4/2020	23	33	29	110
6/5/2018	19	21	37	40	6/5/2019	7	9	22	190	6/5/2020	39	38	20	30
6/6/2018	14	17	53	25	6/6/2019	8	9	29	190	6/6/2020	23	12	16	15
6/7/2018	11	15	50	15	6/7/2019	8	13	28	210	6/7/2020	14	13	18	130
6/8/2018	7	11	46	30	6/8/2019	11	10	21	70	6/8/2020	16	13	16	130
6/9/2018	7	8	18	25	6/9/2019	9	16	29	100	6/9/2020	9	12	15	405
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6/15/2018	13	25	135	210	6/15/2019	11	26	106	275	6/15/2020	21	37	44	435
6/16/2018	11	35	121	325	6/16/2019	11	39	112	385	6/16/2020	15	31	75	935
6/17/2018	32	42	118	445	6/17/2019	12	39	119	200	6/17/2020	15	48	112	390
6/18/2018	38	30	143	360	6/18/2019	9	38	112	380	6/18/2020	7	45	114	135
6/19/2018	11	35	117	240	6/19/2019	15	36	119	370	6/19/2020	14	32	72	165
6/20/2018	10	33	105		6/20/2019	20	44	114	305	6/20/2020	9	46	127	375
6/21/2018	6	32	107	310	6/21/2019	13	42	104	340	6/21/2020	9	51	123	420
6/22/2018	11	36	111	270	6/22/2019	11	53	141	285	6/22/2020	14	44	100	390
6/23/2018	16	36	114	300	6/23/2019	10	56	138	345	6/23/2020	15	46	108	215
6/24/2018	12	34	116	395	6/24/2019	13	62	155	320	6/24/2020	13	36	100	280
6/25/2018	20	49	113	625	6/25/2019	13	44	143	395	6/25/2020	8	38	104	370
6/26/2018	14	37	130	375	6/26/2019	15	49	114	235	6/26/2020	8	41	119	325
6/27/2018	10	35	108	175	6/27/2019	14	50	151	380	6/27/2020	16	52	129	240
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7/1/2018	10	37	108	240	7/1/2019	11	61	156	440	7/1/2020	20	61	142	420
7/2/2018	10	57	166	255	7/2/2019	11	50	125	325	7/2/2020	14	56	125	490
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7/6/2018	10	42	106	310	7/6/2019	28	50	124	180	7/6/2020	11	40	107	240
7/7/2018	10	48	112	215	7/7/2019	20	45	113	220	7/7/2020	26	49	117	225
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7/25/2018	45	47	97	135	7/25/2019	12	56	133	320	7/25/2020	14	79	205	345
7/26/2018	20	24	86	195	7/26/2019	10	44	125	250	7/26/2020	4	36	118	235
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7/29/2018	13	18	81	205	7/29/2019	6	46	117	270	7/29/2020	12	62	169	250
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7/31/2018	15	18	95	325	7/31/2019	9	46	116	295	7/31/2020	10	40	144	220
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8/2/2018	9	47	162	250	8/2/2019	5	41	124	370	8/2/2020	9	47	162	250
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8/5/2018	32	44	100	235	8/5/2019	6	68	164	220	8/5/2020	32	44	100	235
8/6/2018	13	36	122	355	8/6/2019	8	60	139	185	8/6/2020	13	36	122	355
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8/31/2018	4	51	153	340	8/31/2019	7	66	146	200	8/31/2020	4	51	153	340
9/1/2018	15	37	130	340	9/1/2019	5	68	149	215	9/1/2020	15	53	152	415
9/2/2018	13	37	124	200	9/2/2019	4	58	141	220	9/2/2020	10	56	159	325
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9/4/2018	14	39	129	165	9/4/2019	17	69	126	510	9/4/2020	14	51	120	305
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9/7/2018	19	41	122	205	9/7/2019	4	48	126	475	9/7/2020	18	51	107	185
9/8/2018	41	45	115	270	9/8/2019	12	70	138	520	9/8/2020	21	40	88	170
9/9/2018	47	43	100	275	9/9/2019	10	73	142	290	9/9/2020	10	40	98	360
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12/13/2018	9	25	118	415	12/13/2019	14	42	107	285	12/13/2020	18	68	122	340
12/14/2018	7	23	84	220	12/14/2019	21	37	88	165	12/14/2020	14	55	140	450
12/15/2018	25	27	90	225	12/15/2019	26	42	79	285	12/15/2020	15	59	147	390
12/16/2018	46	50	103	305	12/16/2019	19	48	132	680	12/16/2020	16	50	114	320
12/17/2018	18	21	104	220	12/17/2019	40	50	138	330	12/17/2020	15	57	94	450
12/18/2018	2	10	106	300	12/18/2019	20	30	106	605	12/18/2020	5	48	100	380
12/19/2018	9	26	117	305	12/19/2019	13	32	106	155	12/19/2020	17	64	116	205
12/20/2018	14	17	113	245	12/20/2019	11	29	85	135	12/20/2020	6	49	109	340
12/21/2018	36	32	126	170	12/21/2019	14	28	71	245	12/21/2020	14	53	105	280
12/22/2018	22	26	107	195	12/22/2019	11	39	93	215	12/22/2020	14	42	102	415
12/23/2018	9	20	114	260	12/23/2019	9	41	101	205	12/23/2020	21	40	86	360
12/24/2018	7	18	123	225	12/24/2019	8	45	108	155	12/24/2020	24	46	116	185
12/25/2018	8	16	116	250	12/25/2019	8	45	101	165	12/25/2020	98	72	106	175
12/26/2018	10	22	151	250	12/26/2019	7	46	98	190	12/26/2020	42	52	106	160
12/27/2018	6	20	152	245	12/27/2019	15	49	103	210	12/27/2020	24	37	108	175
12/28/2018	34	30	139	205	12/28/2019	11	53	119	140	12/28/2020	17	36	109	160
12/29/2018	17	22	119	210	12/29/2019	17	45	100	180	12/29/2020	18	44	101	153
12/30/2018	4	16	129	180	12/30/2019	21	42	112	140	12/30/2020	27	55	99	150
12/31/2018	16	23	107	190	12/31/2019	15	36	93	160	12/31/2020	17	42	94	185
Max	86	76	189	725	Max	87	88	208	995	Max	98	88	205	1325
Min	2	8	16	15	Min	4	9	21	55	Min	0	5	15	15
Median	12	36	113	240	Median	12	42	118	270	Median	14	46	115	280
Average	15.94	37.51	112.12	263.62	Average	13.95	40.74	117.54	296.08	Average	15.80	45.03	113.96	295.09
90th %	32	57	141	394	90th %	22	64	146.6	445	90th %	26	64	145.6	428

	Upstream	Downstream	Effluent	Influent		Upstream	Downstream	Effluent	Influent
1/1/2021	17	48	115	200	1/1/2022	17	35	84	230
1/2/2021	52	59	132	150	1/2/2022	21	28	72	210
1/3/2021	32	41	113	205	1/3/2022	30	58	68	180
1/4/2021	21	48	112	400	1/4/2022	18	54	92	405
1/5/2021	13	35	128	235	1/5/2022	20	69	92	220
1/6/2021	16	39	129	425	1/6/2022	14	89	88	280
1/7/2021	13	41	122	855	1/7/2022	9	88	155	220
1/8/2021	10	46	138	150	1/8/2022	10	68	121	400
1/9/2021	11	43	119	358	1/9/2022	10	53	140	285
1/10/2021	11	48	115	564	1/10/2022	11	56	150	265
1/11/2021	10	60	146	385	1/11/2022	10	51	107	395
1/12/2021	8	54	131	200	1/12/2022	7	39	85	135
1/13/2021	3	33	103	260	1/13/2022	7	35	77	240
1/14/2021	5	40	88	470	1/14/2022	8	47	112	240
1/15/2021	7	40	90	230	1/15/2022	8	50	112	200
1/16/2021	9	39	102	240	1/16/2022	9	47	87	215
1/17/2021	10	58	135	360	1/17/2022	12	30	100	200
1/18/2021	10	63	145	250	1/18/2022	16	35	85	340
1/19/2021	10	52	97	335	1/19/2022	9	30	73	175
1/20/2021	13	57	95	280	1/20/2022	18	31	95	180
1/21/2021	9	56	99	225	1/21/2022	20	37	90	450
1/22/2021	4	53	104	255	1/22/2022	9	34	99	335
1/23/2021	8	52	99	220	1/23/2022	8	42	118	315
1/24/2021	11	58	96	335	1/24/2022	9	47	140	420
1/25/2021	10	61	108	205	1/25/2022	9	39	102	300
1/26/2021	8	53	98	240	1/26/2022	8	31	63	425
1/27/2021	8	70	127	310	1/27/2022	6	44	99	480
1/28/2021	5	66	111	190	1/28/2022	7	65	150	320
1/29/2021	9	66	125	330	1/29/2022	4	63	147	380
1/30/2021	15	65	138	305	1/30/2022	2	50	146	240
1/31/2021	9	57	120	350	1/31/2022	7	53	118	205
2/1/2021	13	55	120	200	2/1/2022	12	53	103	240
2/2/2021	8	43	98	225	2/2/2022	5	52	120	210
2/3/2021	10	47	92	200	2/3/2022	30	50	107	185
2/4/2021	13	61	104	215	2/4/2022	45	50	117	240
2/5/2021	10	56	119	300	2/5/2022	30	60	151	350
2/6/2021	7	54	127	230	2/6/2022	22	68	173	320
2/7/2021	10	50	98	280	2/7/2022	9	55	170	235
2/8/2021	10	61	118	320	2/8/2022	14	48	128	350
2/9/2021	12	65	118	130	2/9/2022	7	47	110	140
2/10/2021	8	46	79	210	2/10/2022	3	40	90	205
2/11/2021	10	60	97	275	2/11/2022	23	41	80	215
2/12/2021	9	57	106	485	2/12/2022	7	38	93	240
2/13/2021	9	75	137	290	2/13/2022	10	42	101	245
2/14/2021	14	74	145	400	2/14/2022	11	51	117	225
2/15/2021	11	59	133	310	2/15/2022	8	55	140	190
2/16/2021	19	29	99	270	2/16/2022	6	45	120	230
2/17/2021	40	44	89	280	2/17/2022	10	45	132	640
2/18/2021	22	42	110	340	2/18/2022	20	42	120	300
2/19/2021	10	40	101	430	2/19/2022	15	44	108	500
2/20/2021	8	46	109	245	2/20/2022	11	48	117	280
2/21/2021	11	60	125	280	2/21/2022	10	46	109	280
2/22/2021	9	63	148	300	2/22/2022	10	46	113	390
2/23/2021	12	59	127	595	2/23/2022	12	47	115	405
2/24/2021	18	37	123	295	2/24/2022	13	46	90	250
2/25/2021	25	35	107	280	2/25/2022	19	32	97	380
2/26/2021	35	57	112	370	2/26/2022	22	41	119	1365
2/27/2021	27	38	117	295	2/27/2022	9	65	148	230
2/28/2021	53	44	133	220	2/28/2022	10	53	133	290
3/1/2021	37	44	140	230	3/1/2022	8	56	134	430
3/2/2021	25	36	106	150	3/2/2022	33	66	109	315
3/3/2021	19	37	97	340	3/3/2022	8	45	125	190
3/4/2021	15	36	115	300	3/4/2022	8	42	112	26
3/5/2021	13	28	109	330	3/5/2022	13	61	122	330
3/6/2021	11	31	108	285	3/6/2022	14	53	129	285
3/7/2021	8	38	129	380	3/7/2022	17	56	134	295
3/8/2021	10	40	153	345	3/8/2022	9	51	121	450
3/9/2021	10	38	142	410	3/9/2022	13	33	82	280
3/10/2021	10	44	144	350	3/10/2022	19	44	87	260
3/11/2021	9	33	115	370	3/11/2022	11	42	92	320
3/12/2021	6	33	116	450	3/12/2022	15	49	116	280
3/13/2021	9	41	122	510	3/13/2022	11	40	115	400
3/14/2021	13	50	135	430	3/14/2022	11	43	124	300
3/15/2021	13	57	155	340	3/15/2022	13	37	108	210
3/16/2021	11	45	122	290	3/16/2022	8	33	102	270
3/17/2021	7	46	103	315	3/17/2022	12	38	125	210
3/18/2021	12	34	104	205	3/18/2022	11	38	119	420
3/19/2021	18	44	104	210	3/19/2022	11	43	145	430
3/20/2021	15	49	109	440	3/20/2022	13	52	169	290
3/21/2021	13	46	121	215	3/21/2022	12	54	164	300
3/22/2021	11	44	109	315	3/22/2022	9	46	129	280
3/23/2021	8	48	125	355	3/23/2022	8	34	91	235
3/24/2021	17	39	122	405	3/24/2022	10	32	95	300
3/25/2021	20	38	109	460	3/25/2022	12	42	120	480
3/26/2021	28	56	114	250	3/26/2022	12	42	120	200
3/27/2021	11	43	106	340	3/27/2022	18	57	117	400
3/28/2021	19	41	114	265	3/28/2022	6	51	137	690
3/29/2021	12	33	113	610	3/29/2022	13	62	142	285
3/30/2021	16	51	114	250	3/30/2022	7	54	126	250
3/31/2021	14	57	117	275	3/31/2022	17	51	143	200
4/1/2021	14	34	96	300	4/1/2022	48	54	117	225
4/2/2021	12	36	87	675	4/2/2022	25	46	127	290

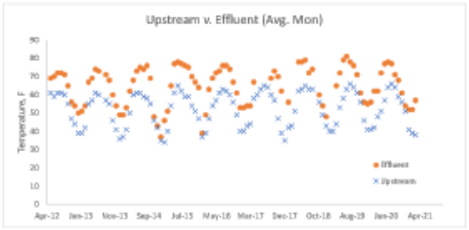
	4/3/2021	13	45	111	645	4/3/2022	14	46	134	230
	4/4/2021	12	50	121	410	4/4/2022	12	44	131	315
	4/5/2021	13	50	125	460	4/5/2022	12	41	121	280
	4/6/2021	12	50	130	270	4/6/2022	16	37	105	240
	4/7/2021	13	45	121	340	4/7/2022	48	51	100	290
	4/8/2021	16	50	107	460	4/8/2022	39	59	108	280
	4/9/2021	14	40	97	310	4/9/2022	23	56	112	430
	4/10/2021	18	50	118	450	4/10/2022	16	41	106	325
	4/11/2021	19	37	125	770	4/11/2022	15	60	112	300
	4/12/2021	39	54	130	370	4/12/2022	17	61	134	330
	4/13/2021	20	50	127	430	4/13/2022	26	33	131	390
	4/14/2021	16	50	140	370	4/14/2022	10	29	136	310
	4/15/2021	16	53	136	285	4/15/2022	10	35	123	430
	4/16/2021	13	49	100	235	4/16/2022	9	30	115	280
	4/17/2021	12	45	101	270	4/17/2022	11	40	132	270
	4/18/2021	12	51	118	320	4/18/2022	12	39	143	300
	4/19/2021	9	58	130	350	4/19/2022	21	41	135	215
	4/20/2021	15	69	138	290	4/20/2022	15	38	96	215
	4/21/2021	13	43	115	280	4/21/2022	12	29	83	230
	4/22/2021	13	56	103	210	4/22/2022	9	39	95	310
	4/23/2021	1312	53	102	310	4/23/2022	19	41	99	0
	4/24/2021	24	67	127	250	4/24/2022	9	39	115	270
	4/25/2021	23	66	139	325	4/25/2022	19	52	137	450
	4/26/2021	15	65	129	250	4/26/2022	10	67	157	240
	4/27/2021	6	75	127	390	4/27/2022	10	32	84	435
	4/28/2021	10	80	155	280	4/28/2022	7	45	116	300
	4/29/2021	22	68	125	305	4/29/2022	10	40	102	200
	4/30/2021	11	53	107	275	4/30/2022	12	43	111	345
	5/1/2021	23	64	107	300	5/1/2022	43	49	141	320
	5/2/2021	10	54	129	390	5/2/2022	13	53	152	430
	5/3/2021	14	60	151	410	5/3/2022	12	47	120	320
	5/4/2021	6	40	151	645	5/4/2022	12	38	111	370
	5/5/2021	20	52	1556	370	5/5/2022	11	46	121	320
	5/6/2021	21	67	142	300	5/6/2022	64	103	136	415
	5/7/2021	20	53	134	590	5/7/2022	68	74	113	280
	5/8/2021	17	51	153	600	5/8/2022	39	60	105	295
	5/9/2021	10	42	124	420	5/9/2022	39	47	122	250
	5/10/2021	20	50	112	400	5/10/2022	36	28	103	160
	5/11/2021	11	47	98	280	5/11/2022	10	22	96	290
	5/12/2021	16	47	90	315	5/12/2022	32	27	120	240
	5/13/2021	14	44	81	190	5/13/2022	8	35	134	220
	5/14/2021	43	90	87	305	5/14/2022	10	31	143	300
	5/15/2021	27	50	96	380	5/15/2022	9	34	136	390
	5/16/2021	13	46	87	400	5/16/2022	11	35	134	210
	5/17/2021	10	55	131	350	5/17/2022	11	35	126	355
	5/18/2021	11	76	137	260	5/18/2022	11	34	125	355
	5/19/2021	12	63	114	180	5/19/2022	19	48	170	430
	5/20/2021	11	60	112	205	5/20/2022	14	45	161	300
	5/21/2021	15	66	119	465	5/21/2022	13	52	158	220
	5/22/2021	13	67	125	320	5/22/2022	14	37	139	500
	5/23/2021	16	79	124	335	5/23/2022	49	69	114	220
	5/24/2021	11	54	112	430	5/24/2022	14	29	95	340
	5/25/2021	18	71	129	315	5/25/2022	7	29	117	320
	5/26/2021	14	64	134	250	5/26/2022	8	40	132	215
	5/27/2021	17	72	129	310	5/27/2022	14	41	133	475
	5/28/2021	15	63	125	370	5/28/2022	15	50	153	330
	5/29/2021	18	43	112	335	5/29/2022	13	46	150	450
	5/30/2021	24	68	133	370	5/30/2022	13	52	154	390
	5/31/2021	17	70	131	340	5/31/2022	12	56	178	360
	6/1/2021	10	72	161	610	6/1/2022	13	56	167	460
	6/2/2021	15	76	155	195	6/2/2022	13	55	159	300
	6/3/2021	16	65	134	340	6/3/2022	50	56	136	325
	6/4/2021	16	63	150	270	6/4/2022	28	47	127	260
	6/5/2021	24	71	171	220	6/5/2022	37	42	132	285
	6/6/2021	15	47	153	315	6/6/2022	25	25	59	225
	6/7/2021	40	39	120	120	6/7/2022	14	15	35	58
	6/8/2021	18	25	49	65	6/8/2022	22	17	19	15
	6/9/2021	14	13	35	30	6/9/2022	16	17	10	22
	6/10/2021	14	20	33	70	6/10/2022	15	20	10	260
	6/11/2021	19	25	33	70	6/11/2022	88	29	13	110
	6/12/2021	24	24	24	65	6/12/2022	14	15	16	70
	6/13/2021	10	12	339	180	6/13/2022	10	13	15	30
	6/14/2021	16	23	43	595	6/14/2022	27	26	35	350
	6/15/2021	15	50	96	360	6/15/2022	25	60	119	170
	6/16/2021	14	71	122	485	6/16/2022	16	47	103	230
	6/17/2021	13	68	125	135	6/17/2022	39	63	92	420
	6/18/2021	14	66	118	295	6/18/2022	11	69	120	400
	6/19/2021	23	72	133	425	6/19/2022	11	62	125	260
	6/20/2021	12	52	108	635	6/20/2022	9	57	122	280
	6/21/2021	14	69	150	335	6/21/2022	22	66	144	230
	6/22/2021	19	56	131	255	6/22/2022	36	72	117	355
	6/23/2021	23	83	125	215	6/23/2022	18	60	155	330
	6/24/2021	20	82	190	680	6/24/2022	77	68	153	295
	6/25/2021	11	75	160	430	6/25/2022	14	64	139	360
	6/26/2021	12	69	143	230	6/26/2022	11	52	142	290
	6/27/2021	14	69	136	315	6/27/2022	12	60	138	325
	6/28/2021	13	69	126	295	6/28/2022	10	70	155	270
	6/29/2021	15	64	131	350	6/29/2022	12	62	130	300
	6/30/2021	15	62	125	440	6/30/2022	9	70	110	260
	7/1/2021	12	62	138	380	7/1/2022	46	72	124	305
	7/2/2021	14	55	148	375	7/2/2022	31	51	103	270
	7/3/2021	15	62	19	290	7/3/2022	28	63	132	270
	7/4/2021	16	69	151	260	7/4/2022	35	75	145	320

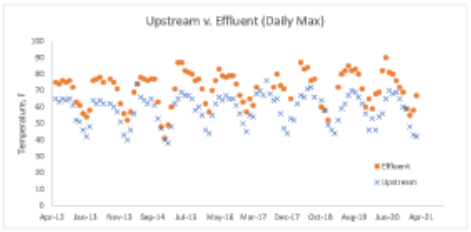
	7/5/2021	10	68	146	310	7/5/2022	42	81	146	230
	7/6/2021	10	61	125	200	7/6/2022	43	57	114	265
	7/7/2021	11	65	116	270	7/7/2022	54	46	114	340
	7/8/2021	13	57	109	325	7/8/2022	25	60	136	320
	7/9/2021	12	61	144	260	7/9/2022	16	62	164	360
	7/10/2021	12	62	141	306	7/10/2022	18	69	149	510
	7/11/2021	10	54	138	370	7/11/2022	14	68	154	300
	7/12/2021	14	65	135	350	7/12/2022	15	58	126	510
	7/13/2021	13	57	129	265	7/13/2022	13	72	160	350
	7/14/2021	22	57	105	295	7/14/2022	18	70	131	410
	7/15/2021	17	58	116	435	7/15/2022	19	72	143	630
	7/16/2021	16	60	121	205	7/16/2022	17	52	118	170
	7/17/2021	13	58	127	375	7/17/2022	16	49	109	230
	7/18/2021	22	60	141	230	7/18/2022	16	62	127	500
	7/19/2021	14	66	138	305	7/19/2022	21	81	140	280
	7/20/2021	40	64	122	235	7/20/2022	9	77	130	410
	7/21/2021	15	63	132	365	7/21/2022	16	67	143	210
	7/22/2021	17	70	134	210	7/22/2022	18	72	157	420
	7/23/2021	17	74	135	200	7/23/2022	23	71	151	480
	7/24/2021	18	69	119	350	7/24/2022	13	68	149	420
	7/25/2021	24	62	111	520	7/25/2022	7	48	122	310
	7/26/2021	24	56	144	225	7/26/2022	5	48	113	220
	7/27/2021	19	61	149	240	7/27/2022	12	56	109	250
	7/28/2021	21	73	132	250	7/28/2022	7	59	119	260
	7/29/2021	18	67	154	280	7/29/2022	13	58	120	670
	7/30/2021	16	72	116	270	7/30/2022	15	61	116	230
	7/31/2021	12	63	120	360	7/31/2022	27	53	116	230
	8/1/2021	9	54	106	220	8/1/2022				
	8/2/2021	13	62	124	320	8/2/2022				
	8/3/2021	10	71	137	360	8/3/2022				
	8/4/2021	8	60	123	315	8/4/2022				
	8/5/2021	15	76	155	375	8/5/2022				
	8/6/2021	12	80	155	350	8/6/2022				
	8/7/2021	14	64	125	290	8/7/2022				
	8/8/2021	15	66	132	400	8/8/2022				
	8/9/2021	11	62	127	315	8/9/2022				
	8/10/2021	17	51	105	355	8/10/2022				
	8/11/2021	21	51	115	215	8/11/2022				
	8/12/2021	15	58	120	480	8/12/2022				
	8/13/2021	12	67	127	670	8/13/2022				
	8/14/2021	11	61	123	250	8/14/2022				
	8/15/2021	11	68	127	295	8/15/2022				
	8/16/2021	21	64	125	220	8/16/2022				
	8/17/2021	35	66	135	185	8/17/2022				
	8/18/2021	55	61	120	255	8/18/2022				
	8/19/2021	32	45	126	205	8/19/2022				
	8/20/2021	43	86	140	400	8/20/2022				
	8/21/2021	22	76	165	260	8/21/2022				
	8/22/2021	38	57	146	170	8/22/2022				
	8/23/2021	22	55	113	305	8/23/2022				
	8/24/2021	20	58	109	260	8/24/2022				
	8/25/2021	24	63	132	310	8/25/2022				
	8/26/2021	10	64	151	360	8/26/2022				
	8/27/2021	39	72	130	390	8/27/2022				
	8/28/2021	44	72	149	360	8/28/2022				
	8/29/2021	28	77	133	270	8/29/2022				
	8/30/2021	28	82	143	300	8/30/2022				
	8/31/2021	16	60	131	270	8/31/2022				
	9/1/2021	80	83	114	185	9/1/2022				
	9/2/2021	50	54	93	180	9/2/2022				
	9/3/2021	27	55	109	440	9/3/2022				
	9/4/2021	24	51	162	250	9/4/2022				
	9/5/2021	24	59	168	265	9/5/2022				
	9/6/2021	21	57	171	360	9/6/2022				
	9/7/2021	19	50	133	185	9/7/2022				
	9/8/2021	27	4	114	230	9/8/2022				
	9/9/2021	45	55	115	215	9/9/2022				
	9/10/2021	32	28	110	155	9/10/2022				
	9/11/2021	26	53	119	220	9/11/2022				
	9/12/2021	20	49	117	185	9/12/2022				
	9/13/2021	12	52	125	355	9/13/2022				
	9/14/2021	18	60	135	245	9/14/2022				
	9/15/2021	17	49	123	315	9/15/2022				
	9/16/2021	51	72	117	265	9/16/2022				
	9/17/2021	23	51	135	220	9/17/2022				
	9/18/2021	21	66	138	225	9/18/2022				
	9/19/2021	19	64	127	210	9/19/2022				
	9/20/2021	19	71	134	330	9/20/2022				
	9/21/2021	16	66	144	175	9/21/2022				
	9/22/2021	16	61	130	315	9/22/2022				
	9/23/2021	69	72	132	280	9/23/2022				
	9/24/2021	41	59	150	275	9/24/2022				
	9/25/2021	25	58	162	375	9/25/2022				
	9/26/2021	19	63	160	415	9/26/2022				
	9/27/2021	20	73	188	305	9/27/2022				
	9/28/2021	16	66	165	245	9/28/2022				
	9/29/2021	16	59	134	260	9/29/2022				
	9/30/2021	17	58	103	380	9/30/2022				
	10/1/2021	12	52	111	325	10/1/2022				
	10/2/2021	37	76	116	210	10/2/2022				
	10/3/2021	13	84	135	350	10/3/2022				
	10/4/2021	13	60	143	300	10/4/2022				
	10/5/2021	12	53	131	565	10/5/2022				

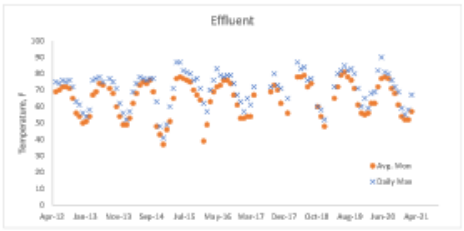
10/6/2021	14	53	109	250	10/6/2022				
10/7/2021	12	53	102	245	10/7/2022				
10/8/2021	19	66	128	330	10/8/2022				
10/9/2021	15	67	145	180	10/9/2022				
10/10/2021	15	70	128	575	10/10/2022				
10/11/2021	19	58	121	255	10/11/2022				
10/12/2021	20	83	119	155	10/12/2022				
10/13/2021	16	54	96	220	10/13/2022				
10/14/2021	23	65	108	205	10/14/2022				
10/15/2021	1	43	121	210	10/15/2022				
10/16/2021	14	55	118	195	10/16/2022				
10/17/2021	15	54	111	200	10/17/2022				
10/18/2021	12	72	134	295	10/18/2022				
10/19/2021	12	65	136	250	10/19/2022				
10/20/2021	13	58	109	250	10/20/2022				
10/21/2021	9	59	135	240	10/21/2022				
10/22/2021	13	64	114	220	10/22/2022				
10/23/2021	12	57	122	260	10/23/2022				
10/24/2021	11	60	133	230	10/24/2022				
10/25/2021	19	52	140	280	10/25/2022				
10/26/2021	33	58	132	305	10/26/2022				
10/27/2021	31	73	125	200	10/27/2022				
10/28/2021	21	64	116	205	10/28/2022				
10/29/2021	52	69	135	205	10/29/2022				
10/30/2021	60	68	127	320	10/30/2022				
10/31/2021	27	49	134	390	10/31/2022				
11/1/2021	17	47	129	330	11/1/2022				
11/2/2021	15	44	118	205	11/2/2022				
11/3/2021	13	42	96	200	11/3/2022				
11/4/2021	10	38	94	345	11/4/2022				
11/5/2021	32	55	106	390	11/5/2022				
11/6/2021	11	79	170	335	11/6/2022				
11/7/2021	7	65	155	300	11/7/2022				
11/8/2021	8	60	133	545	11/8/2022				
11/9/2021	10	54	112	195	11/9/2022				
11/10/2021	9	50	106	665	11/10/2022				
11/11/2021	10	61	118	420	11/11/2022				
11/12/2021	27	57	113	350	11/12/2022				
11/13/2021	32	64	119	200	11/13/2022				
11/14/2021	21	60	111	170	11/14/2022				
11/15/2021	18	58	109	220	11/15/2022				
11/16/2021	15	65	123	225	11/16/2022				
11/17/2021	14	64	133	150	11/17/2022				
11/18/2021	15	61	100	230	11/18/2022				
11/19/2021	14	58	105	200	11/19/2022				
11/20/2021	15	61	106	315	11/20/2022				
11/21/2021	13	65	112	240	11/21/2022				
11/22/2021	11	58	116	210	11/22/2022				
11/23/2021	15	55	96	180	11/23/2022				
11/24/2021	11	64	107	160	11/24/2022				
11/25/2021	12	65	111	280	11/25/2022				
11/26/2021	11	71	132	225	11/26/2022				
11/27/2021	9	82	143	185	11/27/2022				
11/28/2021	9	57	114	290	11/28/2022				
11/29/2021	9	48	93	225	11/29/2022				
11/30/2021	16	53	101	300	11/30/2022				
12/1/2021	10	60	115	275	12/1/2022				
12/2/2021	10	52	107	260	12/2/2022				
12/3/2021	15	48	94	150	12/3/2022				
12/4/2021	22	41	96	230	12/4/2022				
12/5/2021	22	60	89	280	12/5/2022				
12/6/2021	17	54	103	225	12/6/2022				
12/7/2021	18	72	119	420	12/7/2022				
12/8/2021	13	51	86	141	12/8/2022				
12/9/2021	17	62	90	440	12/9/2022				
12/10/2021	11	61	108	250	12/10/2022				
12/11/2021	10	65	122	190	12/11/2022				
12/12/2021	11	67	120	240	12/12/2022				
12/13/2021	8	82	140	290	12/13/2022				
12/14/2021	14	68	113	355	12/14/2022				
12/15/2021	14	66	105	210	12/15/2022				
12/16/2021	10	63	96	230	12/16/2022				
12/17/2021	15	55	93	250	12/17/2022				
12/18/2021	13	50	90	200	12/18/2022				
12/19/2021	8	49	87	290	12/19/2022				
12/20/2021	11	59	107	265	12/20/2022				
12/21/2021	9	63	120	255	12/21/2022				
12/22/2021	7	59	114	304	12/22/2022				
12/23/2021	11	60	109	290	12/23/2022				
12/24/2021	8	65	111	306	12/24/2022				
12/25/2021	8	61	104	310	12/25/2022				
12/26/2021	5	62	128	270	12/26/2022				
12/27/2021	11	56	101	250	12/27/2022				
12/28/2021	9	51	106	300	12/28/2022				
12/29/2021	8	61	113	280	12/29/2022				
12/30/2021	12	51	101	200	12/30/2022				
12/31/2021	14	56	92	230	12/31/2022				
Max	1312	90	1556	855	Max	88	103	178	1365
Min	1	4	19	30	Min	2	13	10	0
Median	14	58	121	290	Median	13	48	120	290
Average	20.34	56.47	124.81	304.76	Average	17.24	49.00	118.06	304.84
90th %	27	72	146	430	90th %	34.8	68	151.9	430

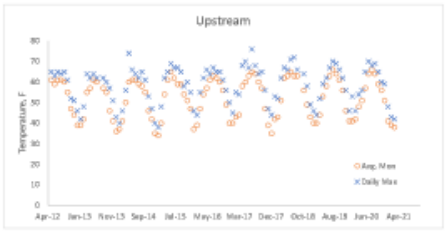
Appendix D – Data Analysis for Temperature

	Effluent				Upstream				
MONITORING START DATE	CONC 3 VALUE	CONC 3 SDC	CONC 3 VALUE	CONC 3 SDC	CONC 3 VALUE	CONC 3 SDC	CONC 3 VALUE	CONC 3 SDC	
May-12	69	Average Monthly	75	Daily Maximum	61	Average Monthly	65	Daily Maximum	
Jun-12	70	Average Monthly	74	Daily Maximum	59	Average Monthly	63	Daily Maximum	
Jul-12	72	Average Monthly	76	Daily Maximum	61	Average Monthly	65	Daily Maximum	
Aug-12	72	Average Monthly	75	Daily Maximum	61	Average Monthly	64	Daily Maximum	
Sep-12	71	Average Monthly	76	Daily Maximum	60	Average Monthly	65	Daily Maximum	
Oct-12	65	Average Monthly	72	Daily Maximum	55	Average Monthly	61	Daily Maximum	
Nov-12	56	Average Monthly	63	Daily Maximum	47	Average Monthly	52	Daily Maximum	
Dec-12	54	Average Monthly	61	Daily Maximum	44	Average Monthly	51	Daily Maximum	
Jan-13	50	Average Monthly	56	Daily Maximum	39	Average Monthly	46	Daily Maximum	
Feb-13	51	Average Monthly	54	Daily Maximum	39	Average Monthly	42	Daily Maximum	
Mar-13	54	Average Monthly	58	Daily Maximum	42	Average Monthly	48	Daily Maximum	
Apr-13	67	Average Monthly	76	Daily Maximum	55	Average Monthly	64	Daily Maximum	
May-13	69	Average Monthly	77	Daily Maximum	57	Average Monthly	62	Daily Maximum	
Jun-13	74	Average Monthly	78	Daily Maximum	61	Average Monthly	64	Daily Maximum	
Jul-13	73	Average Monthly	75	Daily Maximum	60	Average Monthly	62	Daily Maximum	
Sep-13	71	Average Monthly	77	Daily Maximum	57	Average Monthly	62	Daily Maximum	
Oct-13	68	Average Monthly	75	Daily Maximum	55	Average Monthly	60	Daily Maximum	
Nov-13	60	Average Monthly	71	Daily Maximum	46	Average Monthly	57	Daily Maximum	
Dec-13	54	Average Monthly	62	Daily Maximum	41	Average Monthly	51	Daily Maximum	
Jan-14	49	Average Monthly	56	Daily Maximum	36	Average Monthly	43	Daily Maximum	
Feb-14	49	Average Monthly	52	Daily Maximum	37	Average Monthly	40	Daily Maximum	
Mar-14	53	Average Monthly	57	Daily Maximum	41	Average Monthly	46	Daily Maximum	
Apr-14	62	Average Monthly	69	Daily Maximum	50	Average Monthly	58	Daily Maximum	
May-14	68	Average Monthly	74	Daily Maximum	60	Average Monthly	74	Daily Maximum	
Jun-14	73	Average Monthly	78	Daily Maximum	61	Average Monthly	66	Daily Maximum	
Jul-14	75	Average Monthly	77	Daily Maximum	61	Average Monthly	64	Daily Maximum	
Aug-14	74	Average Monthly	76	Daily Maximum	59	Average Monthly	62	Daily Maximum	
Sep-14	76	Average Monthly	77	Daily Maximum	58	Average Monthly	65	Daily Maximum	
Oct-14	69	Average Monthly	77	Daily Maximum	55	Average Monthly	61	Daily Maximum	
Nov-14	48	Average Monthly	63	Daily Maximum	46	Average Monthly	53	Daily Maximum	
Dec-14	43	Average Monthly	48	Daily Maximum	42	Average Monthly	47	Daily Maximum	
Jan-15	37	Average Monthly	41	Daily Maximum	35	Average Monthly	40	Daily Maximum	
Feb-15	46	Average Monthly	49	Daily Maximum	34	Average Monthly	38	Daily Maximum	
Mar-15	51	Average Monthly	60	Daily Maximum	40	Average Monthly	48	Daily Maximum	
Apr-15	65	Average Monthly	71	Daily Maximum	54	Average Monthly	62	Daily Maximum	
May-15	77	Average Monthly	87	Daily Maximum	61	Average Monthly	65	Daily Maximum	
Jun-15	78	Average Monthly	87	Daily Maximum	65	Average Monthly	69	Daily Maximum	
Jul-15	77	Average Monthly	82	Daily Maximum	62	Average Monthly	67	Daily Maximum	
Aug-15	76	Average Monthly	81	Daily Maximum	59	Average Monthly	67	Daily Maximum	
Sep-15	75	Average Monthly	80	Daily Maximum	59	Average Monthly	65	Daily Maximum	
Oct-15	70	Average Monthly	76	Daily Maximum	54	Average Monthly	58	Daily Maximum	
Nov-15	67	Average Monthly	77	Daily Maximum	51	Average Monthly	60	Daily Maximum	
Dec-15	64	Average Monthly	71	Daily Maximum	47	Average Monthly	55	Daily Maximum	
Jan-16	39	Average Monthly	62	Daily Maximum	37	Average Monthly	46	Daily Maximum	
Feb-16	49	Average Monthly	57	Daily Maximum	39	Average Monthly	44	Daily Maximum	
Mar-16	63	Average Monthly	70	Daily Maximum	47	Average Monthly	55	Daily Maximum	
Apr-16	69	Average Monthly	76	Daily Maximum	54	Average Monthly	62	Daily Maximum	
May-16	72	Average Monthly	83	Daily Maximum	57	Average Monthly	66	Daily Maximum	
Jun-16	73	Average Monthly	79	Daily Maximum	61	Average Monthly	64	Daily Maximum	
Jul-16	76	Average Monthly	78	Daily Maximum	63	Average Monthly	67	Daily Maximum	
Aug-16	76	Average Monthly	79	Daily Maximum	62	Average Monthly	65	Daily Maximum	
Sep-16	74	Average Monthly	79	Daily Maximum	60	Average Monthly	65	Daily Maximum	
Oct-16	67	Average Monthly	74	Daily Maximum	56	Average Monthly	61	Daily Maximum	
Nov-16	61	Average Monthly	67	Daily Maximum	49	Average Monthly	56	Daily Maximum	
Dec-16	53	Average Monthly	63	Daily Maximum	40	Average Monthly	50	Daily Maximum	
Jan-17	53	Average Monthly	57	Daily Maximum	40	Average Monthly	45	Daily Maximum	
Feb-17	54	Average Monthly	65	Daily Maximum	43	Average Monthly	55	Daily Maximum	
Mar-17	54	Average Monthly	61	Daily Maximum	44	Average Monthly	54	Daily Maximum	
Apr-17	67	Average Monthly	72	Daily Maximum	58	Average Monthly	68	Daily Maximum	
May-17					60	Average Monthly	70	Daily Maximum	









	Jun-17					63	Average Monthly	67	Daily Maximum
	Jul-17					65	Average Monthly	76	Daily Maximum
	Aug-17					64	Average Monthly	68	Daily Maximum
	Sep-17	69	Average Monthly	72	Daily Maximum	60	Average Monthly	64	Daily Maximum
	Oct-17	73	Average Monthly	80	Daily Maximum	57	Average Monthly	65	Daily Maximum
	Nov-17	70	Average Monthly	73	Daily Maximum	47	Average Monthly	56	Daily Maximum
	Dec-17	62	Average Monthly	71	Daily Maximum	39	Average Monthly	47	Daily Maximum
	Jan-18					35	Average Monthly	44	Daily Maximum
	Feb-18	56	Average Monthly	65	Daily Maximum	42	Average Monthly	53	Daily Maximum
	Mar-18					43	Average Monthly	52	Daily Maximum
	Apr-18					51	Average Monthly	62	Daily Maximum
	May-18	78	Average Monthly	87	Daily Maximum	62	Average Monthly	67	Daily Maximum
	Jun-18	78	Average Monthly	83	Daily Maximum	63	Average Monthly	66	Daily Maximum
	Jul-18	79	Average Monthly	84	Daily Maximum	65	Average Monthly	71	Daily Maximum
	Aug-18	72	Average Monthly	76	Daily Maximum	63	Average Monthly	72	Daily Maximum
	Sep-18	74	Average Monthly	77	Daily Maximum	63	Average Monthly	66	Daily Maximum
	Nov-18	60	Average Monthly	60	Daily Maximum	56	Average Monthly	64	Daily Maximum
	Dec-18	54	Average Monthly	58	Daily Maximum	49	Average Monthly	58	Daily Maximum
	Jan-19	48	Average Monthly	52	Daily Maximum	43	Average Monthly	49	Daily Maximum
	Feb-19					40	Average Monthly	46	Daily Maximum
	Mar-19					40	Average Monthly	44	Daily Maximum
	Apr-19	65	Average Monthly	72	Daily Maximum	44	Average Monthly	52	Daily Maximum
	May-19	72	Average Monthly	80	Daily Maximum	53	Average Monthly	59	Daily Maximum
	Jun-19	79	Average Monthly	82	Daily Maximum	58	Average Monthly	62	Daily Maximum
	Jul-19	81	Average Monthly	85	Daily Maximum	63	Average Monthly	67	Daily Maximum
	Aug-19	78	Average Monthly	82	Daily Maximum	66	Average Monthly	70	Daily Maximum
	Sep-19	76	Average Monthly	83	Daily Maximum	64	Average Monthly	69	Daily Maximum
	Oct-19	71	Average Monthly	80	Daily Maximum	61	Average Monthly	66	Daily Maximum
	Nov-19	61	Average Monthly	71	Daily Maximum	56	Average Monthly	62	Daily Maximum
	Dec-19	56	Average Monthly	60	Daily Maximum	46	Average Monthly	56	Daily Maximum
	Jan-20	55	Average Monthly	65	Daily Maximum	41	Average Monthly	46	Daily Maximum
	Feb-20	56	Average Monthly	59	Daily Maximum	41	Average Monthly	53	Daily Maximum
	Mar-20	62	Average Monthly	68	Daily Maximum	42	Average Monthly	46	Daily Maximum
	Apr-20	62	Average Monthly	69	Daily Maximum	48	Average Monthly	54	Daily Maximum
	May-20	72	Average Monthly	82	Daily Maximum	51	Average Monthly	56	Daily Maximum
	Jun-20	77	Average Monthly	90	Daily Maximum	57	Average Monthly	65	Daily Maximum
	Jul-20	78	Average Monthly	81	Daily Maximum	64	Average Monthly	70	Daily Maximum
	Aug-20	77	Average Monthly	80	Daily Maximum	66	Average Monthly	68	Daily Maximum
	Sep-20	71	Average Monthly	76	Daily Maximum	64	Average Monthly	69	Daily Maximum
	Oct-20	68	Average Monthly	72	Daily Maximum	59	Average Monthly	65	Daily Maximum
	Nov-20	61	Average Monthly	69	Daily Maximum	56	Average Monthly	60	Daily Maximum
	Dec-20	54	Average Monthly	59	Daily Maximum	51	Average Monthly	59	Daily Maximum
	Jan-21	52	Average Monthly	55	Daily Maximum	41	Average Monthly	48	Daily Maximum
	Feb-21	52	Average Monthly	58	Daily Maximum	39	Average Monthly	43	Daily Maximum
	Mar-21	57	Average Monthly	67	Daily Maximum	38	Average Monthly	42	Daily Maximum

Appendix E – Previous Records w/ DMR Summary

Calciner Waste - Effluent Chemical Concentration Analysis

	TCLP ug/L	Wastewater ug/L	Basin Concentration ug/L	Final Effluent ug/L		
Antimony	300	0.5	34.64	0.84	5.6	2
Arsenic	90	0.57	10.77	0.67	10	3
Cadmium	22	0.26	2.74	0.28	0.27	0.2
Cobalt	56	0.55	6.87	0.61	19	
Copper	110	4.3	16.35	4.42	9.3	
Lead	58	0.57	7.12	0.64	3.2	
Mercury	2	0.00382	0.2314	0.0061	0.05	
Nickel	220	8.2	32.35	8.44	52	
Selenium	220	0.5	25.52	0.75	5	
Silver	44	0.5	5.46	0.55	3.8	
Thallium	220	0.1	25.17	0.35	0.24	

Notes All cells highlighted in yellow are non-detect and should be treated as < values. Cell highlighted in amber is value flagged J (below RDL but quantified).

All TCLP values that were non-detect are the more conservative RDL values based on an analytical dilution factor of 3.

Basin concentration was calculated based on calculated basin dilution / TCLP dilution ratio of 8.79.

Effluent concentration based on 558,000 gallons of basin content fed into 53,087,500 gallons of effluent over 3.875 days.

Total Nitrogen	Total Annual (lbs)	Annual Average (lbs/day)
2012	69020	189.10
2013	73600	201.64
2014	58390	159.97
2015	84960	232.77
2016	< 71360	< 195.51

Total Phosphorus	Total Annual (lbs)	Annual Average (lbs/day)
2012	4220	11.56
2013	5290	14.49
2014	4690	12.85
2015	6090	16.68
2016	< 5200	< 14.25

Date	Upstream NO2/NO3 mg/l	Upstream TKN mg/l	Upstream Total N mg/l
01/03/12	3.6	1	4.6
01/10/12	3.7	1	4.7
01/17/12	3.6	1	4.6
01/24/12	3.6	1	4.6
01/31/12	4.2	1	5.2
02/07/12	3.5	1	4.5
02/14/12	3.6	1	4.6
02/21/12	3.6	1	4.6
02/28/12	2.1	1	3.1
03/06/12	4.1	1	5.1
03/13/12	3.9	1	4.9
03/20/12	3.3	1	4.3
03/27/12	2.9	1	3.9
04/03/12	2.5	1	3.5
04/10/12	2.6	1	3.6
04/17/12	2.6	1	3.6
04/24/12	2.8	1	3.8
05/01/12	3.3	1	4.3
05/08/12	2.5	1	3.5
05/15/12	2.4	1	3.4
05/22/12	2	1	3
05/29/12	2.2	1	3.2
06/05/12	2.6	1	3.6
06/12/12	2.6	1	3.6
06/19/12	2.4	1	3.4
06/26/12	2.2	1	3.2
07/03/12	2	1	3
07/10/12	1.7	1	2.7
07/17/12	1.5	1	2.5
07/24/12	2.1	1	3.1
07/31/12	1.9	1	2.9
08/07/12	1.5	1	2.5
08/14/12	1.7	1	2.7
08/21/12	2.2	1	3.2
08/28/12	1.6	1	2.6
09/04/12	1.8	1	2.8
09/11/12	1.7	1	2.7
09/18/12	1.7	1	2.7
09/25/12	2.3	1	3.3
10/02/12	2	1	3
10/09/12	2.2	1	3.2
10/16/12	2.4	1	3.4
10/23/12	2.3	1	3.3
10/29/12	1.3	1	2.3
11/06/12	3.3	1	4.3
11/13/12	3.4	1	4.4
11/20/12	3.5	1	4.5
11/27/12	3.5	1	4.5
12/04/12	3.4	1	4.4
12/11/12	3.4	1	4.4
12/18/12	3.3	1	4.3
12/27/12	2.4	1	3.4
12/31/12	4.2	1	5.2
01/08/13	4	1	5
01/15/13	3.9	1	4.9
01/22/13	4.1	1.2	5.3
01/29/13	4.7	1	5.7
02/05/13	3.3	1	4.3
02/12/13	3.2	1	4.2
02/19/13	3.4	1	4.4
02/26/13	3.1	1	4.1
03/05/13	3.5	1	4.5
03/12/13	3.4	1	4.4
03/19/13	3.1	1	4.1
03/26/13	2.9	1	3.9
04/02/13	3.7	1	4.7
04/09/13	3.9	1	4.9
04/16/13	3.3	1	4.3
04/23/13	3.3	1	4.3
04/30/13	3.2	1	4.2
05/07/13	0.1	1	1.1
05/14/13	2.5	1	3.5
05/21/13	2.5	1	3.5
05/28/13	2.2	1	3.2
06/04/13	2.1	1	3.1
06/11/13	2.5	1	3.5
06/18/13	2.9	1	3.9
06/25/13	2.6	1	3.6
07/02/13	2.3	1	3.3
07/09/13	2	1	3
07/16/13	1.8	1	2.8
07/23/13	1.6	1	2.6
07/30/13	1.6	1	2.6
08/06/13	1.6	1	2.6
08/13/13	0.94	1	1.94
08/20/13	2.3	1	3.3
08/27/13	1.9	1	2.9
09/03/13	1.6	1	2.6
09/10/13	1.6	1	2.6
09/17/13	1.7	1	2.7
09/24/13	1.5	1	2.5
10/01/13	1.7	1	2.7
10/08/13	1.06	1	2.06

Date	Effluent NO2/NO3 mg/l	Effluent TKN mg/l	Effluent Total N mg/l	Effluent Total N lbs/day
01/04/12	0.1	1.9	2	228.516
01/11/12	0.1	2.7	2.8	319.9224
01/18/12	0.1	2.1	2.2	251.3676
01/25/12	0.1	1.5	1.6	182.8128
02/01/12	0.1	2.3	2.4	274.2192
02/08/12	0.1	1.4	1.5	171.387
02/15/12	0.1	1.7	1.8	205.6644
02/22/12	0.1	3	3.1	354.1998
02/29/12	0.1	2.2	2.3	262.7934
03/06/12	0.1	2.5	2.6	297.0708
03/13/12	0.1	2.4	2.5	285.645
03/20/12	0.1	1.4	1.5	171.387
03/27/12	0.1	1.8	1.9	217.0902
04/04/12	0.1	2	2.1	239.9418
04/11/12	0.1	1	1.1	125.6838
04/18/12	0.1	1.2	1.3	148.5354
04/25/12	0.1	1.1	1.2	137.1096
05/02/12	0.1	1.6	1.7	194.2386
05/09/12	0.1	1.5	1.6	182.8128
05/16/12	0.71	1.4	2.11	241.0844
05/23/12	0.1	1.2	1.3	148.5354
05/30/12	0.1	1.4	1.5	171.387
06/06/12	0.1	1.9	2	228.516
06/13/12	0.1	1.2	1.3	148.5354
06/20/12	0.1	1.4	1.5	171.387
06/27/12	0.1	1.1	1.2	137.1096
07/04/12	0.1	1	1.1	125.6838
07/11/12	0.1	1	1.1	125.6838
07/18/12	0.1	1	1.1	125.6838
07/25/12	0.1	1	1.1	125.6838
08/01/12	0.1	1	1.1	125.6838
08/08/12	0.1	1.1	1.2	137.1096
08/15/12	0.1	6.4	6.5	742.677
08/22/12	0.1	1	1.1	125.6838
08/29/12	0.1	1.7	1.8	205.6644
09/05/12	0.1	1.6	1.7	194.2386
09/12/12	0.1	1.8	1.9	217.0902
09/19/12	0.1	1.3	1.4	159.9612
09/26/12	0.1	1.3	1.4	159.9612
10/03/12	0.1	4.8	4.9	559.8642
10/10/12	0.1	3.2	3.3	377.0514
10/17/12	0.1	1.1	1.2	137.1096
10/24/12	0.1	1.5	1.6	182.8128
10/31/12	0.1	1.6	1.7	194.2386
11/07/12	0.1	2	2.1	239.9418
11/14/12	0.1	1.5	1.6	182.8128
11/21/12	0.1	2.8	2.9	331.3482
11/28/12	0.1	2.1	2.2	251.3676
12/05/12	0.1	1.7	1.8	205.6644
12/12/12	0.1	2.3	2.4	274.2192
12/19/12	0.1	1.5	1.6	182.8128
12/26/12	0.1	1.5	1.6	182.8128
01/01/13	0.1	1.6	1.7	194.2386
01/08/13	0.1	2	2.1	239.9418
01/15/13	0.1	1.4	1.5	171.387
01/22/13	0.1	2.8	2.9	331.3482
01/29/13	0.1	1.5	1.6	182.8128
02/05/13	0.1	2.1	2.2	251.3676
02/12/13	0.1	1.6	1.7	194.2386
02/19/13	0.1	1.9	2	228.516
02/26/13	0.1	1.6	1.7	194.2386
03/05/13	0.1	1.4	1.5	171.387
03/12/13	0.1	4.2	4.3	491.3094
03/19/13	0.1	2.2	2.3	262.7934
03/26/13	0.1	2.4	2.5	285.645
04/02/13	0.1	2.1	2.2	251.3676
04/09/13	0.1	2.4	2.5	285.645
04/16/13	0.1	1.3	1.4	159.9612
04/23/13	0.1	1.3	1.4	159.9612
04/30/13	0.1	1.6	1.7	194.2386
05/07/13	0.1	1	1.1	125.6838
05/14/13	1.2	1.7	2.9	331.3482
05/21/13	1.2	1	2.2	251.3676
05/28/13	0.1	1	1.1	125.6838
06/04/13	0.1	1.6	1.7	194.2386
06/11/13	0.1	1.3	1.4	159.9612
06/18/13	0.1	1	1.1	125.6838
06/25/13	0.1	1	1.1	125.6838
07/02/13	0.1	1.3	1.4	159.9612
07/09/13	0.1	1.5	1.6	182.8128
07/16/13	0.1	1.4	1.5	171.387
07/23/13	0.1	1.1	1.2	137.1096
07/30/13	0.1	1	1.1	125.6838
08/06/13	0.1	1.3	1.4	159.9612
08/13/13	0.1	1	1.1	125.6838
08/20/13	0.1	1.1	1.2	137.1096
08/27/13	0.1	1	1.1	125.6838
09/03/13	0.1	1.4	1.5	171.387
09/10/13	0.1	2	2.1	239.9418
09/17/13	0.1	1.8	1.9	217.0902
09/24/13	0.1	1.8	1.9	217.0902
10/01/13	0.1	1.2	1.3	148.5354
10/08/13	0.1	1.3	1.4	159.9612

Date	Upstream Total P mg/l
01/03/12	0.299
01/10/12	0.281
01/17/12	0.1
01/24/12	0.105
01/31/12	0.1
02/07/12	0.1
02/14/12	0.1
02/21/12	0.1
02/28/12	0.1
03/06/12	0.1
03/13/12	0.1
03/20/12	0.1
03/27/12	0.1
04/03/12	0.1
04/10/12	0.1
04/17/12	0.1
04/24/12	0.1
05/01/12	0.1
05/08/12	0.107
05/15/12	0.203
05/22/12	0.168
05/29/12	0.213
06/05/12	0.203
06/12/12	0.19
06/19/12	0.146
06/26/12	0.1
07/03/12	0.11
07/10/12	0.1
07/17/12	0.107
07/24/12	0.1
07/31/12	0.1
08/07/12	0.1
08/14/12	0.1
08/21/12	0.15
08/28/12	0.101
09/04/12	0.132
09/11/12	0.1
09/18/12	0.1
09/25/12	0.1
10/02/12	0.1
10/09/12	0.1
10/16/12	0.1
10/23/12	0.1
10/30/12	0.1
11/06/12	0.103
11/13/12	0.1
11/20/12	0.1
11/27/12	0.1
12/04/12	0.1
12/11/12	0.1
12/18/12	0.1
12/25/12	0.154
12/31/12	0.1
01/08/13	0.1
01/15/13	0.118
01/22/13	0.1
01/29/13	0.1
02/05/13	0.1
02/12/13	0.1
02/19/13	0.1
02/26/13	0.1
03/05/13	0.1
03/12/13	0.1
03/19/13	0.1
03/26/13	0.1
04/02/13	0.1
04/09/13	0.1
04/16/13	0.1
04/23/13	0.1
04/30/13	0.1
05/07/13	0.1
05/14/13	0.1
05/21/13	0.1
05/28/13	0.1
06/04/13	0.1
06/11/13	0.137
06/18/13	0.1
06/25/13	0.1
07/02/13	0.103
07/09/13	0.145
07/16/13	0.121
07/23/13	0.315
07/30/13	0.12
08/06/13	0.1
08/13/13	0.612
08/20/13	0.1
08/27/13	0.101
09/03/13	0.101
09/10/13	0.1
09/17/13	0.1
09/24/13	0.1
10/01/13	0.1
10/08/13	0.187

Date	Effluent Total P mg/l	net sink? (upstream > effluent)	If no, gross Effluent Total P mg/L	If no, gross Effluent Total P lbs/day
01/03/12	0.132	Y		
01/10/12	0.106	Y		
01/17/12	0.149	N	0.049	5.598642
01/24/12	0.15	N	0.045	5.14161
01/31/12	0.1	Same		
02/07/12	0.1	Same		
02/14/12	0.114	N	0.014	1.599612
02/21/12	0.145	N	0.045	5.14161
02/28/12	0.1	Same		
03/05/12	0.1	Same		
03/12/12	0.1	Same		
03/19/12	0.1	Same		
03/26/12	0.1	Same		
04/03/12	0.104	N	0.004	0.457032
04/10/12	0.1	Same		
04/17/12	0.1	Same		
04/24/12	0.1	Same		
05/01/12	0.1	Same		
05/08/12	0.112	N	0.005	0.57129
05/15/12	0.1	Y		
05/22/12	0.129	Y		
05/29/12	0.197	Y		
06/05/12	0.105	Y		
06/12/12	0.14	Y		
06/19/12	0.146	Same		
06/26/12	0.103	N	0.003	0.342774
07/03/12	0.1	Y		
07/10/12	0.1	Same		
07/17/12	0.141	N	0.034	3.884772
07/24/12	0.107	N	0.007	0.799806
07/31/12	0.1	Same		
08/07/12	0.125	N	0.025	2.85645
08/14/12	0.105	N	0.005	0.57129
08/21/12	0.1	Y		
08/28/12	0.1	Y		
09/04/12	0.137	N	0.005	0.57129
09/11/12	0.193	N	0.093	10.62599
09/18/12	0.1	Same		
09/25/12	0.1	Same		
10/02/12	0.154	N	0.054	6.169932
10/09/12	0.1	Same		
10/16/12	0.1	Same		
10/23/12	0.1	Same		
10/30/12	0.1	Same		
11/06/12	0.1	Y		
11/13/12	0.1	Same		
11/20/12	0.176	N	0.076	8.683608
11/27/12	0.1	Same		
12/04/12	0.1	Same		
12/11/12	0.132	N	0.032	3.656256
12/18/12	0.133	N	0.033	3.770514
12/25/12	0.111	Y		
01/01/13	0.202	N	0.102	11.65432
01/08/13	0.138	N	0.038	4.341804
01/15/13	0.135	N	0.017	1.942386
01/22/13	0.195	N	0.095	10.85451
01/29/13	0.106	N	0.006	0.685548
02/05/13	0.154	N	0.054	6.169932
02/12/13	0.192	N	0.092	10.51174
02/19/13	0.134	N	0.034	3.884772
02/26/13	0.1	Same		
03/05/13	0.208	N	0.108	12.33986
03/12/13	0.126	N	0.026	2.970708
03/19/13	0.139	N	0.039	4.456062
03/26/13	0.17	N	0.07	7.99806
04/02/13	0.142	N	0.042	4.798836
04/09/13	0.126	N	0.026	2.970708
04/16/13	0.159	N	0.059	6.741222
04/23/13	0.1	Same		
04/30/13	0.135	N	0.035	3.99903
05/07/13	0.1	Same		
05/14/13	0.166	N	0.066	7.541028
05/21/13	0.115	N	0.015	1.71387
05/28/13	0.1	Same		
06/04/13	0.1	Same		
06/11/13	0.1	Y		
06/18/13	0.69	N	0.59	67.41222
06/25/13	0.1	Same		
07/02/13	0.1	Y		
07/09/13	0.139	Y		
07/16/13	0.14	N	0.019	2.170902
07/23/13	0.1	Y		
07/30/13	0.1	Y		
08/06/13	0.108	N	0.008	0.914064
08/13/13	0.12	Y		
08/20/13	0.132	N	0.032	3.656256
08/27/13	0.16	N	0.059	6.741222
09/03/13	0.106	N	0.005	0.57129
09/10/13	0.1	Same		
09/17/13	0.117	N	0.017	1.942386
09/24/13	0.122	N	0.022	2.513676
10/01/13	0.109	N	0.009	1.028322
10/08/13	0.102	Y		

10/15/13	3.2	1	4.2	10/15/13	0.1	1.6	1.7	194.2386	10/15/13	0.122	10/15/13	0.107	Y				
10/22/13	3	1	4	10/22/13	0.1	2	2.1	239.9418	10/22/13	0.1	10/22/13	0.1	Same				
10/29/13	2.7	1	3.7	10/29/13	0.1	1	1.1	125.6838	10/29/13	0.1	10/29/13	0.117	N	0.017	1.942386		
11/05/13	2.3	1	3.3	11/05/13	0.1	1	1.1	125.6838	11/05/13	0.135	11/05/13	0.1	Y				
11/12/13	2.6	1	3.6	11/12/13	0.1	1	1.1	125.6838	11/12/13	0.1	11/12/13	0.1	Same				
11/19/13	2.5	1	3.5	11/19/13	0.1	1.4	1.5	171.387	11/19/13	0.1	11/19/13	0.1	Same				
11/26/13	2.2	1	3.2	11/26/13	0.1	2	2.1	239.9418	11/26/13	0.1	11/26/13	0.228	N	0.128	14.62502		
12/03/13	3.4	1	4.4	12/03/13	0.1	1.3	1.4	159.9612	12/03/13	0.1	12/03/13	0.1	Same				
12/10/13	3.8	1	4.8	12/10/13	0.1	1.6	1.7	194.2386	12/10/13	0.119	12/10/13	0.117	Y				
12/17/13	4.4	1	5.4	12/17/13	0.1	1.1	1.2	137.1096	12/17/13	0.1	12/17/13	0.1	Same				
12/23/13	3.8	1	4.8	12/24/13	0.1	1.2	1.3	148.5354	12/23/13	0.1	12/24/13	0.107	N	0.007	0.799806		
12/31/13	4.7	1	5.7	12/31/13	0.1	1	1.1	125.6838	12/31/13	0.1	12/31/13	0.122	N	0.022	2.513676		
01/07/14	3.6	1	4.6	01/07/14	0.1	4.7	4.8	548.4384	01/07/14	0.161	01/07/14	0.238	N	0.077	8.797866		
01/14/14	3.8	1	4.8	01/14/14	0.1	1.2	1.3	148.5354	01/14/14	0.11	01/14/14	0.131	N	0.021	2.399418		
01/21/14	3.6	1	4.6	01/21/14	0.1	1.1	1.2	137.1096	01/21/14	0.1	01/21/14	0.128	N	0.028	3.199224		
01/28/14	3.3	1	4.3	01/28/14	0.1	2.9	3	342.774	01/28/14	0.1	01/28/14	0.2	N	0.1	11.4258		
02/04/14	3.1	1	4.1	02/04/14	0.1	1	1.1	125.6838	02/04/14	0.116	02/04/14	0.114	Y				
02/11/14	3.2	1	4.2	02/11/14	0.1	1.3	1.4	159.9612	02/11/14	0.1	02/11/14	0.112	N	0.012	1.371096		
02/18/14	2.8	1	3.8	02/18/14	0.1	1.2	1.3	148.5354	02/18/14	0.1	02/18/14	0.116	N	0.016	1.828128		
02/25/14	3.5	1	4.5	02/25/14	0.1	1.5	1.6	182.8128	02/25/14	0.1	02/25/14	0.168	N	0.068	7.769544		
03/04/14	3.5	1	4.5	03/04/14	0.1	1.2	1.3	148.5354	03/04/14	0.1	03/04/14	0.126	N	0.026	2.970708		
03/11/14	3.3	1	4.3	03/11/14	0.1	1	1.1	125.6838	03/11/14	0.107	03/11/14	0.165	N	0.058	6.626964		
03/18/14	3.9	1	4.9	03/18/14	0.1	1.6	1.7	194.2386	03/18/14	0.1	03/18/14	0.272	N	0.172	19.65238		
03/25/14	3.4	1	4.4	03/25/14	0.1	1.2	1.3	148.5354	03/25/14	0.1	03/25/14	0.176	N	0.076	8.683608		
04/01/14	3.2	1	4.2	04/01/14	0.1	1.9	2	228.516	04/01/14	0.187	04/01/14	0.145	Y				
04/08/14	2.9	1	3.9	04/08/14	0.1	1.2	1.3	148.5354	04/08/14	0.1	04/08/14	0.139	N	0.039	4.456062		
04/15/14	2.9	1	3.9	04/15/14	0.1	1.5	1.6	182.8128	04/15/14	0.1	04/15/14	0.161	N	0.061	6.969738		
04/22/14	3.1	1	4.1	04/22/14	0.1	1.3	1.4	159.9612	04/22/14	0.1	04/22/14	0.131	N	0.031	3.541998		
04/29/14	3	1	4	04/29/14	0.1	1	1.1	125.6838	04/29/14	0.254	04/29/14	0.111	Y				
05/06/14	3.1	1	4.1	05/06/14	0.1	1	1.1	125.6838	05/06/14	0.1	05/06/14	0.1	Same				
05/13/14	3.1	1	4.1	05/13/14	2	1	3	342.774	05/13/14	0.1	05/13/14	0.12	N	0.02	2.28516		
05/20/14	3.2	1	4.2	05/20/14	1.1	1	2.1	239.9418	05/20/14	0.1	05/20/14	0.1	Same				
06/03/14	3	1	4	05/27/14	0.1	1	1.1	125.6838	05/27/14	0.1	05/27/14	0.1	Same				
06/10/14	3.3	1	4.3	06/03/14	0.1	1	1.1	125.6838	06/03/14	0.1	06/03/14	0.1	Same				
06/17/14	3.1	1	4.1	06/10/14	0.1	1	1.1	125.6838	06/10/14	0.445	06/10/14	0.1	Y				
06/24/14	2.9	1	3.9	06/17/14	0.1	1.1	1.2	137.1096	06/17/14	0.132	06/17/14	0.1	Y				
07/01/14	2.9	1	3.9	06/24/14	0.1	1.2	1.3	148.5354	06/24/14	0.119	06/24/14	0.1	Y				
07/08/14	2.4	1	3.4	07/01/14	0.1	1	1.1	125.6838	07/01/14	0.102	07/01/14	0.1	Y				
07/15/14	2.6	1	3.6	07/08/14	0.1	1	1.1	125.6838	07/08/14	0.1	07/08/14	0.1	Same				
07/22/14	2.4	1	3.4	07/15/14	0.1	1	1.1	125.6838	07/15/14	0.273	07/15/14	0.1	Y				
07/29/14	1.8	1	2.8	07/22/14	0.1	2.5	2.6	297.0708	07/22/14	0.202	07/22/14	0.188	Y				
08/05/14	1.6	1	2.6	07/29/14	0.1	1.7	1.8	205.6644	07/29/14	0.136	07/29/14	0.109	Y				
08/12/14	1.8	1	2.8	08/05/14	0.1	2.9	3	342.774	08/05/14	0.1	08/05/14	0.158	N	0.058	6.626964		
08/19/14	2	1	3	08/12/14	0.1	1.5	1.6	182.8128	08/12/14	0.101	08/12/14	0.138	N	0.037	4.227546		
08/26/14	1.8	1	2.8	08/19/14	0.1	1	1.1	125.6838	08/19/14	0.1	08/19/14	0.1	Same				
09/02/14	1.2	1	2.2	08/26/14	0.1	1.1	1.2	137.1096	08/26/14	0.137	08/26/14	0.1	Y				
09/09/14	1.8	1	2.8	09/02/14	0.1	2.3	2.4	274.2192	09/02/14	0.127	09/02/14	0.1	Y				
09/16/14	1.8	1	2.8	09/09/14	0.1	1	1.1	125.6838	09/09/14	0.131	09/09/14	0.1	Y				
09/23/14	1.9	1	2.9	09/16/14	0.1	1.2	1.3	148.5354	09/16/14	0.111	09/16/14	0.1	Y				
09/30/14	1.6	1	2.6	09/23/14	0.1	1.8	1.9	217.0902	09/23/14	0.164	09/23/14	0.105	Y				
10/07/14	1.8	1	2.8	09/30/14	0.1	1.6	1.7	194.2386	09/30/14	0.102	09/30/14	0.157	N	0.055	6.28419		
10/14/14	2.2	1	3.2	10/07/14	0.1	1.3	1.4	159.9612	10/07/14	0.247	10/07/14	0.1	Y				
10/21/14	1.5	1	2.5	10/14/14	0.1	1.4	1.5	171.387	10/14/14	0.1	10/14/14	0.1	Same				
10/28/14	1.4	1	2.4	10/21/14	0.1	1	1.1	125.6838	10/21/14	0.1	10/21/14	0.104	N	0.004	0.457032		
11/04/14	1.7	1	2.7	10/28/14	0.1	1.5	1.6	182.8128	10/28/14	0.1	10/28/14	0.135	N	0.035	3.99903		
11/11/14	1.8	1	2.8	11/04/14	0.17	1.7	1.87	213.6625	11/04/14	0.1	11/04/14	0.107	N	0.007	0.799806		
11/18/14	2.5	1	3.5	11/11/14	0.22	1.9	2.12	242.227	11/11/14	0.1	11/11/14	0.114	N	0.014	1.599612		
11/25/14	2.5	1	3.5	11/18/14	0.14	2.3	2.44	278.7895	11/18/14	0.137	11/18/14	0.15	N	0.013	1.485354		
12/02/14	3	1	4	11/25/14	0.39	1.8	2.19	250.225	11/25/14	0.1	11/25/14	0.176	N	0.076	8.683608		
12/09/14	3.7	1.4	5.1	12/02/14	0.35	1.7	2.05	234.2289	12/02/14	0.1	12/02/14	0.101	N	0.001	0.114258		
12/16/14	4.4			12/09/14	0.22	2.4	2.62	299.356	12/09/14	0.1	12/09/14	0.18	N	0.08	9.14064		
12/23/14	4.7			12/16/14	0.1			#VALUE!	12/16/14	0.1	12/16/14	0.1	Same				
12/30/14	4.7			12/23/14	0.17			#VALUE!	12/23/14	0.1	12/23/14	0.1	Same				
01/06/15	3.9	1	4.9	12/30/14	0.16	1.3	1.46	166.8167	12/30/14	0.475	12/30/14	0.104	Y				
01/13/15	3.1	1	4.1	01/06/15	1.4	1.1	2.5	285.645	01/06/15	0.1	01/06/15	0.1	Same				
01/20/15	4.8	1	5.8	01/13/15	0.13	1.3	1.43	163.3889	01/13/15	0.155	01/13/15	0.263	N	0.108	12.33986		
01/27/15	3.7	1.6	5.3	01/20/15	0.1	1.5	1.6	182.8128	01/20/15	0.1	01/20/15	0.165	N	0.065	7.42677		
02/03/15	4.3	1	5.3	01/27/15	0.1	1.8	1.9	217.0902	01/27/15	0.115	01/27/15	0.255	N	0.14	15.99612		
02/10/15	4.7	1	5.7	02/03/15	0.14	1.4	1.54	175.9573	02/03/15	0.671	02/03/15	0.127	Y				
02/17/15	3.4	1	4.4	02/10/15	0.16	1.3	1.46	166.8167	02/10/15	0.1	02/10/15	0.139	N	0.039	4.456062		
02/24/15	3.5	1	4.5	02/17/15	0.14	1.7	1.84	210.2347	02/17/15	0.1	02/17/15	0.112	N	0.012	1.371096		
03/03/15	3.2	1	4.2	02/24/15	0.1	1.9	2	228.516	02/24/15	0.1	02/24/15	0.142	N	0.042	4.798836		
03/10/15	1.6	2.8	4.4	03/03/15	0.1	2.2	2.3	262.7934	03/03/15	0.117	03/03/15	0.146	N	0.029	3.313482		
03/17/15	3.8	1	4.8	03/10/15	0.1	2.7	2.8	319.9224	03/10/15	0.584	03/10/15	0.213	Y				
03/24/15	4	1	5	03/17/15	0.1	2.5	2.6	297.0708	03/17/15	0.103	03/17/15	0.24	N	0.137	15.65335		
03/31/15	3.7	1	4.7	03/24/15	0.1	1.5	1.6	182.8128	03/24/15	0.1	03/24/15	0.136	N	0.036	4.113288		
04/07/15	3.4	1	4.4	03/31/15	0.1	1.6	1.7	194.2386	03/31/15	0.1	03/31/15	0.164	N	0.064	7.312512		
04/14/15	3.1	2.4	5.5	04/07/15	0.1	2.8	2.9	331.3482	04/07/15	0.1	04/07/15	0.127	N	0.027	3.084966		
04/21/15	2.6	1.1	3.7	04/14/15	0.1	1.3	1.4	159.9612	04/14/15	0.123	04/14/15	0.126	N	0.003	0.342774		
04/28/15	2.9	1	3.9	04/21/15	0.1	1.5	1.6	182.8128	04/21/15	0.111	04/21/15	0.134	N	0.023	2.627934		
05/05/15	2.2	1.5	3.7	04/28/15	0.1	2	2.1	239.9418	04/28/15	0.1	04/28/15	0.114	N	0.014	1.599612		
05/12/15	1.8	2.2	4	05/05/15	0.1	1.4	1.5	171.387	05/05/15	0.1	05/05/15	0.189	N	0.089	10.16896		
05/19/15	3.5	4.8	8.3	05/12/15	0.14	2.8	2.94	335.9185	05/12/15	0.127	05/12/15	0.116	Y				
05/26/15	2.3	1.2	3.5	05/19/15	0.1	4.5	4.6	525.5868	05/19/15	0.354	05/19/15	0.174	Y				
06/02/15	4.5	1.5	6	05/26/15	0.1	1.5	1.6	182.8128	05/26/15	0.214	05/26/15	0.246	N	0.032	3.656256		
06/09/15	2.6	1.6	4.2	06/02/15	0.35	3.1	3.45	394.1901	06/02/15	0.433	06/02/15	0.199	Y				
06/16/15	2.9	1.5	4.4	06/09/15	4.7	1.8	6.5	742.677	06/09/15	0.445	06/09/15	0.33	Y				
06/23/15	3.8	1	4.8	06/16/15	0.15	1.5	1.65	188.5257	06/16/15	0.141	06/16/15	0.306	N	0.165	18.85257		
06/30/15	3.6	1.8	5.4	06/23/15	0.1	1	1.1	125.6838	06/23/15	0.169	06/23/15	0.1	Y				
07/07/15	3.6	1.2	4.8	06/30/15	0.1	1.7	1.8	205.6644	06/30/15	0.111	06/30/15	0.246	N	0.135	15.42483		
07/14/15	2.8	1.3	4.1	07/07/15	0.1	1.9	2	228.516	07/07/15	0.134	07/07/15	0.1	Y				
07/21/15	2.6	2	4.6	07/14/15	0.1	1.8	1.9	217.0902	07/14/15	0.102	07/14/15	0.119	N	0.017	1.942386		
07/28/15	2	2.2	4.2	07/21/15	0.1	1.6	1.7	194.2386	07/21/15	0.1	07/21/15	0.152	N	0.052	5.941416		
08/04/15	2	1.1	3.1	07/28/15	0.1	1.3	1.4	159.9612	07/28/15	0.129	07/28/15	0.114	Y				
08/11/15	2	1.5	3.5	08/04/15	0.1	2.9	3	342.774	08/04/15	0.157	08/04/15	0.127	Y				
08/18/15	1.8	1.9	3.7	08/11/15	0.1	1.4	1.5	171.387	08/11/15	0.112	08/11/15	0.12	N	0.008	0.914064		
08/25/15	1.9	1	2.9	08/18/15	0.1	7.1	7.2	822.6576	08/18/15	0.1	08/18/15	0.1	Same				
09/01/15	1.7	1.4	3.1	08/25/15	0.22	1.2	1.42	162.2464	08/25/15	0.1	08/25/15	0.1	Same				
09/08/15	1.4	1.7	3.1	09/01/15	0.1	2.1	2.2	251.3676	09/01/15	0.102	09/01/15	0.114	N	0.012	1.371096		

09/15/15	1.8	1	2.8	09/08/15	0.1	2.4	2.5	285.645	09/08/15	0.1			09/08/15	0.106	N		0.006	0.685548	
09/22/15	1.8	4.2	6	09/15/15	0.1	1.9	2	228.516	09/15/15	0.105			09/15/15	0.247	N		0.142	16.22464	
09/29/15	1.7	2.9	4.6	09/22/15	0.1	1	1.1	125.6838	09/22/15	0.124			09/22/15	0.179	N		0.055	6.28419	
10/06/15	2.5	1	3.5	09/29/15	0.1	1.2	1.3	148.5354	09/29/15	0.183			09/29/15	0.218	N		0.035	3.99903	
10/13/15	2.4	5.4	7.8	10/06/15	0.1	1.6	1.7	194.2386	10/06/15	0.1			10/06/15	0.1	Same				
10/27/15	1.8	1	2.8	10/13/15	0.1	3	3.1	354.1998	10/13/15	0.1			10/13/15	0.1	Same				
11/03/15	3.1	1	4.1	10/20/15	0.1	1.3	1.4	159.9612	10/20/15	0.1			10/20/15	0.1	Same				
11/10/15	2.4	1	3.4	10/27/15	0.1	1.2	1.3	148.5354	10/27/15	0.1			10/27/15	0.1	Same				
11/17/15	2.5	1	3.5	11/03/15	0.1	1.2	1.3	148.5354	11/03/15	0.1			11/03/15	0.108	N		0.008	0.914064	
11/24/15	2.4	1	3.4	11/10/15	0.49	1.5	1.99	227.3734	11/10/15	0.1			11/10/15	0.107	N		0.007	0.799806	
12/01/15	2.3	1	3.3	11/17/15	0.1	2.3	2.4	274.2192	11/17/15	0.1			11/17/15	0.149	N		0.049	5.598642	
12/08/15	3.3	1	4.3	11/24/15	0.1	1.8	1.9	217.0902	11/24/15	0.1			11/24/15	0.127	N		0.027	3.084966	
12/15/15	2.7	1	3.7	12/01/15	0.1	1.4	1.5	171.387	12/01/15	0.1			12/01/15	0.1	Same				
12/22/15	2.9	1	3.9	12/08/15	0.1	1.5	1.6	182.8128	12/08/15	0.1			12/08/15	0.1	Same				
12/29/15	2.7	1.9	4.6	12/15/15	0.31	3.4	3.71	423.8972	12/15/15	0.1			12/15/15	0.13	N		0.03	3.42774	
01/05/16	4.5	1.7	6.2	12/22/15	0.1	1.5	1.6	182.8128	12/22/15	0.1			12/22/15	0.106	N		0.006	0.685548	
01/12/16	4	1	5	12/29/15	0.1	3.4	3.5	399.903	12/29/15	0.333			12/29/15	0.116	Y				
01/19/16	4.4	1	5.4	01/05/16	0.1	1	1.1	125.6838	01/05/16	0.1			01/05/16	0.123	N		0.023	2.627934	
01/26/16	3.6	1	4.6	01/12/16	0.1	1.6	1.7	194.2386	01/12/16	0.105			01/12/16	0.148	N		0.043	4.913094	
02/02/16	2.9	1	3.9	01/19/16	0.1	1.1	1.2	137.1096	01/19/16	0.1			01/19/16	0.166	N		0.066	7.541028	
02/09/16	3.1	1	4.1	01/26/16	0.1	2.6	2.7	308.4966	01/26/16	0.1			01/26/16	0.109	N		0.009	1.028322	
02/16/16	3.1	1	4.1	02/02/16	0.1	1.4	1.5	171.387	02/02/16	0.1			02/02/16	0.12	N		0.02	2.28516	
02/23/16	2.9	1	3.9	02/09/16	0.1	2.1	2.2	251.3676	02/09/16	0.1			02/09/16	0.178	N		0.078	8.912124	
03/01/16	3.2	1	4.2	02/16/16	0.1	1.6	1.7	194.2386	02/16/16	0.1			02/16/16	0.179	N		0.079	9.026382	
03/08/16	2.7	1	3.7	02/23/16	0.1	1	1.1	125.6838	02/23/16	0.1			02/23/16	0.11	N		0.01	1.14258	
03/15/16	2.5	1	3.5	03/01/16	0.1	1.1	1.2	137.1096	03/01/16	0.1									
03/22/16	3	1.2	4.2	03/08/16	0.1	1	1.1	125.6838	03/08/16	0.1									
03/29/16	2.2	1	3.2	03/15/16	0.1	2.5	2.6	297.0708	03/15/16	0.1									
04/05/16	3.1	1	4.1	03/22/16	0.1	1.5	1.6	182.8128	03/22/16	0.1									
04/12/16	3	1	4	03/29/16	0.1	1	1.1	125.6838	03/29/16	0.1									
04/19/16	2.6	1	3.6	04/05/16	0.1	2.1	2.2	251.3676	04/05/16	0.1			04/05/16	0.145	N		0.045	5.14161	
04/26/16	2.7	1	3.7	04/12/16	0.11	1	1.11	126.8264	04/12/16	0.1			04/12/16	0.128	N		0.028	3.199224	
05/03/16	2.8	1.4	4.2	04/19/16	0.1	2.3	2.4	274.2192	04/19/16	0.1			04/19/16	0.1	Same				
05/10/16	2.7	1.2	3.9	04/26/16	0.1	1	1.1	125.6838	04/26/16	0.1			04/26/16	0.1	Same				
05/17/16	2.3	1.6	3.9	05/03/16	0.1	1	1.1	125.6838	05/03/16	0.469			05/03/16	0.122	Y				
05/24/16	2.9	1	3.9	05/10/16	0.1	2	2.1	239.9418	05/10/16	0.1			05/10/16	0.1	Same				
05/31/16	3.4	1.7	5.1	05/17/16	0.1	1.9	2	228.516	05/17/16	0.1			05/17/16	0.104	N		0.004	0.457032	
06/07/16	2.3	1.1	3.4	05/24/16	0.1	1.3	1.4	159.9612	05/24/16	0.1			05/24/16	0.111	N		0.011	1.256838	
06/14/16	2.1	1	3.1	05/31/16	0.1	1.5	1.6	182.8128	05/31/16	0.24			05/31/16	0.104	Y				
06/21/16	0.41	1	1.41	06/07/16	5.1	1.4	6.5	742.677	06/07/16	0.1			06/07/16	0.149	N		0.049	5.598642	
06/28/16	2.1	1	3.1	06/14/16	0.1	1.4	1.5	171.387	06/14/16	0.101			06/14/16	0.119	N		0.018	2.056644	
07/05/16	2.2	1	3.2	06/21/16	0.1	1.1	1.2	137.1096	06/21/16	0.1			06/21/16	0.135	N		0.035	3.99903	
07/12/16	1.9	1	2.9	06/28/16	0.1	1	1.1	125.6838	06/28/16	0.125			06/28/16	0.153	N		0.028	3.199224	
07/19/16	2.3	1	3.3	07/05/16	0.1	1.2	1.3	148.5354	07/05/16	0.128			07/05/16	0.144	N		0.016	1.828128	
07/26/16	1.5	1	2.5	07/12/16	0.1	1.1	1.2	137.1096	07/12/16	0.1			07/12/16	0.1	Same				
08/02/16	10.6	1.2	11.8	07/19/16	0.1	4	4.1	468.4578	07/19/16	0.317			07/19/16	0.141	Y				
08/09/16	1.5	1	2.5	07/26/16	0.1	1	1.1	125.6838	07/26/16	0.109			07/26/16	0.148	N		0.039	4.456062	
08/16/16	1.3	1	2.3	08/02/16	1.5	1	2.5	285.645	08/02/16	0.124			08/02/16	0.163	N		0.039	4.456062	
08/23/16	1.2	1	2.2	08/09/16	0.1	1.4	1.5	171.387	08/09/16	0.1			08/09/16	0.154	N		0.054	6.169932	
08/30/16	1.4	1	2.4	08/16/16	0.1	1.1	1.2	137.1096	08/16/16	0.1			08/16/16	0.222	N		0.122	13.93948	
09/06/16	1.2	1	2.2	08/23/16	0.1	1.4	1.5	171.387	08/23/16	0.1			08/23/16	0.146	N		0.046	5.255868	
09/13/16	0.97	1	1.97	08/30/16	0.1	1.6	1.7	194.2386	08/30/16	0.112			08/30/16	0.185	N		0.073	8.340834	
09/20/16	1.3	1.1	2.4	09/06/16	0.1	1.1	1.2	137.1096	09/06/16	0.102			09/06/16	0.158	N		0.056	6.398448	
09/27/16	1.4	1	2.4	09/13/16	0.1	1.4	1.5	171.387					09/13/16	0.13	N				
10/04/16	1.6	1	2.6	09/20/16	0.1	1.5	1.6	182.8128					09/20/16	0.16	N				
10/11/16	1.3	1	2.3	09/27/16	0.1	1.4	1.5	171.387					09/27/16	0.1	N				
10/18/16	1.3	1	2.3	10/04/16	0.1	1	1.1	125.6838	10/04/16	0.114			10/04/16	0.129	N		0.015	1.71387	
10/25/16	1	1	2	10/11/16	0.1	1	1.1	125.6838	10/11/16	0.1			10/11/16	0.107	N		0.007	0.799806	
11/01/16	1.1	2.2	3.3	10/18/16	0.1	1.7	1.8	205.6644	10/18/16	0.1			10/18/16	0.135	N		0.035	3.99903	
11/08/16	18.5	1	19.5	10/25/16	0.1	1.6	1.7	194.2386	10/25/16	0.1			10/25/16	0.1	Same				
11/15/16	1.3	3.4	4.7	11/01/16	0.1	1.2	1.3	148.5354	11/01/16	0.1			11/01/16	0.104	N		0.004	0.457032	
11/22/16	1.3	1	2.3	11/08/16	7.3	NA	7.3	834.0834	11/08/16	0.1			11/08/16	0.1	Same				
11/29/16	1.3	1	2.3	11/15/16	0.1	1.3	1.4	159.9612	11/15/16	0.1			11/15/16	0.15	N		0.05	5.7129	
12/06/16	2.4	1	3.4	11/22/16	0.1	2.6	2.7	308.4966	11/22/16	0.1			11/22/16	0.477	N		0.377	43.07527	
12/13/16	2.4	1	3.4	11/29/16	0.1	1.7	1.8	205.6644	11/29/16	0.1			11/29/16	0.133	N		0.033	3.770514	
12/20/16	2.7	1	3.7	12/06/16	0.1	1.3	1.4	159.9612	12/06/16	0.1			12/06/16	0.162	N		0.062	7.083996	
12/27/16	11.3	1	12.3	12/13/16	0.1	1.7	1.8	205.6644	12/13/16	0.1			12/13/16	0.177	N		0.077	8.797866	
01/03/17	3	1	4	12/20/16	0.1	1.4	1.5	171.387	12/20/16	0.1			12/20/16	0.158	N		0.058	6.626964	
01/10/17	3.2	1	4.2	12/27/16	0.1	2.7	2.8	319.9224	12/27/16	0.1			12/27/16	0.231	N		0.131	14.9678	
01/17/17	3.3	1	4.3	01/03/17	0.1	1.4	1.5	171.387	01/03/17	0.1			01/03/17	0.106	N		0.006	0.685548	
01/24/17	3.5	1.2	4.7	01/10/17	0.1	2.1	2.2	251.3676	01/10/17	0.1			01/10/17	0.116	N		0.016	1.828128	
01/31/17	4.5	1.3	5.8	01/17/17	0.1	1.8	1.9	217.0902	01/17/17	0.1			01/17/17	0.148	N		0.048	5.484384	
02/07/17	3.9	1	4.9	01/24/17	0.1	1.4	1.5	171.387	01/24/17	0.294			01/24/17	0.103	Y				
02/14/17	4	1	5	01/31/17	0.1	1	1.1	125.6838	01/31/17	0.1			01/31/17	0.17	N		0.07	7.99806	
02/21/17	3.2	1	4.2	02/07/17	0.1	3.3	3.4	388.4772	02/07/17	0.1			02/07/17	0.155	N		0.055	6.28419	
02/28/17	3.4	1	4.4	02/14/17	0.1	1.6	1.7	194.2386	02/14/17	0.1			02/14/17	0.114	N		0.014	1.599612	
03/07/17	3.5	1	4.5	02/21/17	0.1	1.9	2	228.516	02/21/17	0.1			02/21/17	0.103	N		0.003	0.342774	
03/13/17	3	1	4	02/28/17	0.1	2.7	2.8	319.9224	02/28/17	0.1			02/28/17	0.1	Same				
03/21/17	4.5	1.2	5.7	03/07/17	0.1	1.6	1.7	194.2386	03/07/17	0.1			03/07/17	0.175	N		0.075	8.56935	
03/28/17	4.1	1	5.1	03/14/17	0.1	2	2.1	239.9418	03/13/17	0.1			03/14/17	0.235	N		0.135	15.42483	
04/04/17	4.3	1	5.3	03/21/17	0.1	2	2.1	239.9418	03/21/17	0.1			03/21/17	0.133	N		0.033	3.770514	
04/11/17	4.4	1	5.4	03/28/17	0.1	1.8	1.9	217.0902	03/28/17	0.1			03/28/17	0.127	N		0.027	3.084966	
04/18/17	3.7	1	4.7	04/04/17	0.1	2.7	2.8	319.9224	04/04/17	0.1			04/04/17	0.201	N		0.101	11.54006	
04/25/17	3.5	1	4.5	04/11/17	0.1	1.2	1.3	148.5354	04/11/17	0.1			04/11/17	0.1	Same				
05/02/17	3	1	4	04/18/17	0.1	2.5	2.6	297.0708	04/18/17	0.1			04/18/17	0.1	Same				
05/09/17	4.3	1	5.3	04/25/17	0.1	1.5	1.6	182.8128	04/25/17	0.1			04/25/17	0.1	Same				
05/16/17	4.3	1	5.3	05/02/17	0.1	2.2	2.3	262.7934	05/02/17	0.1			05/02/17	0.133	N		0.033	3.770514	
05/23/17	3.4	1.4	4.8	05/10/17	0.1	2.3	2.4	274.2192	05/09/17	0.1			05/10/17	0.1	Same				
05/30/17	3	1	4	05/17/17	0.1	1	1.1	125.6838	05/16/17	0.1			05/17/17	0.116	N		0.016	1.828128	
06/06/17	2.4	1.1	3.5	05/24/17	0.1	2.3	2.4	274.2192	05/23/17	0.104			05/24/17	0.1	Y				
06/13/17	1.8	1	2.8	05/31/17	0.1	1.8	1.9	217.0902	06/06/17	0.1			06/06/17	0.1	Same				
06/20/17	2	1	3	06/07/17	0.97	3.6	4.57	522.1591	06/13/17	0.12			06/13/17	0.15	N		0.03	3.42774	
06/27/17	1.8	1	2.8	06/14/17	0.1	1	1.1	125.6838	06/20/17	0.17			06/21/17	0.1	Y				
07/03/17	1.3	3.5	4.8	06/21/17	0.1	1.3	1.4	159.9612	06/27/17	0.1			06/27/17	0.16	N		0.06	6.85548	
07/10/17	1.5	1	2.5	06/28/17	0.1	1.4	1.5	171.387	07/03/17	0.1			07/04/17	0.1	Same				
07/18/17	2	1.2	3.2	07/05/17	0.1	1.7	1.8	205.6644	07/10/17	0.1			07/11/17	0.125	N		0.025	2.85645	
07/25/17	1.2	1	2.2	07/12/17	0.1	1.8	1.9	217.0902	07/18/17	0.28			07/18/17	0.178	Y				
08/01/17	3.4	1	4.4	07/19/17	0.1	1.2	1.3	148.5354	07/25/17	0.109			07/25/17	0.175	N		0.066	7.541028	
08/08/17	2.5	1.3	3.8	07/26/17	0.1	1.6	1.7	194.2386	08/01/17	0.1			08/01/17	0.1	Same				

08/15/17	2.5	1	3.5
08/22/17	1.8	1	2.8
08/29/17	1.8	1	2.8
09/05/17	1.4	1	2.4
09/12/17	2.4	1	3.4
09/19/17	2	1.8	3.8
09/26/17	1.6	1	2.6
10/03/17	1.4	1	2.4
10/10/17	1.4	1	2.4
10/17/17	1.4	1	2.4
10/23/17	1.4	1	2.4
10/31/17	2.5	1	3.5
11/07/17	2.1	1	3.1
11/14/17	2.9	1	3.9
11/21/17	2.6	1	3.6
11/28/17	2.7	1	3.7

08/01/17	0.1	1.7	1.8	205.6644
08/08/17	0.1	1.4	1.5	171.387
08/15/17	0.1	1	1.1	125.6838
08/22/17	0.1	1.4	1.5	171.387
08/30/17	0.1	1.5	1.6	182.8128
09/06/17	0.1	1	1.1	125.6838
09/13/17	0.1	1	1.1	125.6838
09/20/17	0.1	1.8	1.9	217.0902
09/27/17	0.1	1.1	1.2	137.1096
10/03/17	0.1	1.4	1.5	171.387
10/10/17	0.1	1.3	1.4	159.9612
10/17/17	0.1	2.4	2.5	285.645
10/24/17	0.1	1.5	1.6	182.8128
10/31/17	0.1	1.6	1.7	194.2386
11/07/17	0.1	1.1	1.2	137.1096
11/14/17	0.1	1.2	1.3	148.5354
11/20/17	0.1	1.7	1.8	205.6644
11/28/17	0.1	1.8	1.9	217.0902

08/08/17	0.114	08/08/17	0.1	Y		
08/15/17	0.108	08/15/17	0.1	Y		
08/22/17	0.1	08/22/17	0.1	Same		
08/29/17	0.1	08/30/17	0.154	N	0.054	6.169932
09/05/17	0.1	09/05/17	0.1	Same		
09/12/17	0.108	09/12/17	0.108	Same		
09/19/17	0.1	09/19/17	0.1	Same		
09/26/17	0.1	09/26/17	0.1	Same		
10/03/17	0.1	10/03/17	0.1	Same		
10/10/17	0.1	10/10/17	0.1	Same		
10/17/17	0.1	10/17/17	0.1	Same		
10/23/17	0.1	10/24/17	0.1	Same		
10/31/17	0.165	10/31/17	0.1	Y		
11/07/17	0.1	11/07/17	0.1	Same		
11/14/17	0.1	11/14/17	0.137	N	0.037	4.227546
11/21/17	0.1	11/21/17	0.1	Same		
11/28/17	0.1	11/28/17	0.1	Same		

Stormwater Outfalls DMR Data		Outfall 011		Outfall 026		Outfall 027		Outfall 036		Outfall 047		Outfall 050	
		Annaul Average	Daily Max	Annaul Average	Daily Max	Annaul Average	Daily Max	Annaul Average	Daily Max	Annaul Average	Daily Max	Annaul Average	Daily Max
Jul-11	Biochemical Oxygen Demand (BOD5)	17	17	15.4	15.4	6.8	6.8	4.5	4.5	8.2	8.2	90.7	90.7
Jul-12	Biochemical Oxygen Demand (BOD5)	25.4	25.4	24.3	24.3	3.4	3.4	37.1	37.1	21.8	21.8	14.7	14.7
Jul-13	Biochemical Oxygen Demand (BOD5)	12.9	12.9	6.9	6.9	4.2	4.2	3.3	3.3	5.1	5.1	< 2	< 2
Jul-14	Biochemical Oxygen Demand (BOD5)	3.8	3.8	4.8	4.8	5.6	5.6	7.1	7.1	4.1	4.1	9.7	9.7
Jan-15	Biochemical Oxygen Demand (BOD5)	3.8	3.8	4.8	4.8	5.6	5.6	7.1	7.1	4.1	4.1	9.7	9.7
Jan-16	Biochemical Oxygen Demand (BOD5)	6.3	6.3	3.9	3.9	4.3	4.3	4.5	4.5	9.6	9.6	5.3	5.3
Jan-17	Biochemical Oxygen Demand (BOD5)	2.8	2.8	2.6	2.6	< 2.0	< 2.0	8.1	8.1	5.7	5.7	< 2.0	< 2.0
Jan-18	Biochemical Oxygen Demand (BOD5)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	3	3	2	2	2.4	2.4
Jan-19	Biochemical Oxygen Demand (BOD5)	3.7	3.7	7.7	7.7	5	5	9.3	9.3	10.1	10.1	6.9	6.9
Jan-20	Biochemical Oxygen Demand (BOD5)	5.7	5.7	< 2.0	< 2.0	< 2.0	< 2.0	2.5	2.5	< 2.0	< 2.0	< 2.0	< 2.0
Jul-11	Chemical Oxygen Demand (COD)	83	83	54	54	41	41	21	21	41	41	426	426
Jul-12	Chemical Oxygen Demand (COD)	202	202	79	79	15	15	106	106	109	109	64	64
Jul-13	Chemical Oxygen Demand (COD)	144	144	48	48	26	26	20	20	22	22	21	21
Jul-14	Chemical Oxygen Demand (COD)	18	18	31	31	26	26	42	42	34	34	61	61
Jan-15	Chemical Oxygen Demand (COD)	18	18	31	31	26	26	42	42	34	34	61	61
Jan-16	Chemical Oxygen Demand (COD)	86	86	141	141	33	33	33	33	48	48	41	41
Jan-17	Chemical Oxygen Demand (COD)	74	74	21	21	26	26	29	29	26	26	17	17
Jan-18	Chemical Oxygen Demand (COD)	< 15	< 15	155	155	29	29	27	27	215	215	27	27
Jan-19	Chemical Oxygen Demand (COD)	47	47	118	118	46	46	233	233	116	116	27	27
Jan-20	Chemical Oxygen Demand (COD)	150	150	< 15	< 15	< 15	< 15	25	25	< 15	< 15	23	23
Jul-11	Iron, Total	0.28	0.28	5.8	5.8	0.16	0.16	1.5	1.5	0.66	0.66	6	6
Jul-12	Iron, Total	0.16	0.16	4.9	4.9	0.1	0.1	0.97	0.97	4	4	5.5	5.5
Jul-13	Iron, Total	0.53	0.53	14.4	14.4	0.26	0.26	0.99	0.99	3.2	3.2	3.5	3.5
Jul-14	Iron, Total	0.059	0.059	28.5	28.5	0.15	0.15	1.3	1.3	22.2	22.2	28.1	28.1
Jan-15	Iron, Total	0.059	0.059	28.5	28.5	0.15	0.15	1.3	1.3	22.2	22.2	28.1	28.1
Jan-16	Iron, Total	0.88	0.88	7.4	7.4	0.29	0.29	1.3	1.3	0.24	0.24	3.9	3.9
Jan-17	Iron, Total	0.078	0.078	3	3	0.097	0.097	0.57	0.57	2.2	2.2	0.15	0.15
Jan-18	Iron, Total	< 0.030	< 0.030	11.9	11.9	0.1	0.1	0.74	0.74	14.2	14.2	0.98	0.98
Jan-19	Iron, Total	0.034	0.034	8.5	8.5	0.071	0.071	17.2	17.2	5.8	5.8	0.61	0.61
Jan-20	Iron, Total	0.094	0.094	0.42	0.42	< 0.030	< 0.030	0.38	0.38	0.29	0.29	0.17	0.17
Jul-11	Manganese, Total	0.035	0.035	0.34	0.34	0.014	0.014	0.18	0.18	0.096	0.096	1.5	1.5
Jul-12	Manganese, Total	0.041	0.041	0.2	0.2	0.0065	0.0065	0.11	0.11	0.25	0.25	0.47	0.47
Jul-13	Manganese, Total	0.053	0.053	0.84	0.84	0.017	0.017	0.28	0.28	0.16	0.16	0.41	0.41
Jul-14	Manganese, Total	0.0051	0.0051	1.6	1.6	0.014	0.014	0.23	0.23	1.3	1.3	0.98	0.98
Jan-15	Manganese, Total	0.0051	0.0051	1.6	1.6	0.014	0.014	0.23	0.23	1.3	1.3	0.98	0.98
Jan-16	Manganese, Total	0.046	0.046	1.1	1.1	0.016	0.016	0.13	0.13	0.022	0.022	0.36	0.36
Jan-17	Manganese, Total	0.0054	0.0054	0.23	0.23	0.0076	0.0076	0.087	0.087	0.14	0.14	0.016	0.016
Jan-18	Manganese, Total	< 0.0025	< 0.0025	0.6	0.6	0.0068	0.0068	0.096	0.096	0.66	0.66	0.14	0.14
Jan-19	Manganese, Total	0.0062	0.0062	0.47	0.47	0.0057	0.0057	0.57	0.57	0.38	0.38	0.092	0.092
Jan-20	Manganese, Total	0.026	0.026	0.035	0.035	< 0.0025	< 0.0025	0.044	0.044	0.027	0.027	0.023	0.023
Jul-11	Oil and Grease		< 2.1		< 2.1		< 2.1		< 2		< 2.1		< 2.1
Jul-12	Oil and Grease		< 2.1		< 2.1		< 2.1		< 2.1		< 2.1		< 2.1
Jul-13	Oil and Grease		28		5		< 2		22.1		< 2.1		< 2.1
Jul-14	Oil and Grease		< 2.1		< 2.1		< 2		< 2.1		< 2.1		< 2.1
Jan-15	Oil and Grease		< 2.1		< 2.1		< 2.0		< 2.1		< 2.1		< 2.1
Jan-16	Oil and Grease		2.5		< 2.0		< 2.0		< 2.0		< 2.1		< 2.1
Jan-17	Oil and Grease		< 2.0		< 1.9		< 2.0		< 1.9		< 1.9		< 1.9
Jan-18	Oil and Grease		< 2.0		< 2.0		< 1.9		< 2.0		< 1.9		< 2.0
Jan-19	Oil and Grease		< 4.0		< 3.7		< 3.7		< 3.8		< 4.1		< 3.8
Jan-20	Oil and Grease		< 3.8		< 3.9		< 3.7		< 3.7		< 3.9		< 3.8
Jul-11	pH		6.96		7.77		5.88		8.05		7.52		7.84
Jul-12	pH		7.09		7.65		7.2		7.27		7.19		8.12
Jul-13	pH		6.78		8.2		7.05		7.9		7.94		8.24
Jul-14	pH		6.84		8.47		7.01		7.62		8.64		7.85
Jan-15	pH		6.84		8.47		7.01		7.62		8.64		7.85
Jan-16	pH		7.12		8.64		7.56		7.83		7.38		7.72
Jan-17	pH		7.55		8.08		7.08		7.74		7.87		7.86
Jan-18	pH		7.42		8.09		6.76		7.58		8		7.89
Jan-19	pH		6.48		7.96		6.49		7.76		7.9		7.88
Jan-20	pH		7.35		8.04		7.4		7.64		8.12		7.98
Jul-11	Total Kjeldahl Nitrogen	3.5	3.5	3.5	3.5	2	2	1.4	1.4	2.2	2.2	10.4	10.4
Jul-12	Total Kjeldahl Nitrogen	4.4	4.4	3.9	3.9	< 1	< 1	3.2	3.2	5.4	5.4	3.4	3.4
Jul-13	Total Kjeldahl Nitrogen	4.3	4.3	< 4	< 4	1.4	1.4	< 1	< 1	1.5	1.5	1.3	1.3
Jul-14	Total Kjeldahl Nitrogen	< 1	< 1	2	2	< 1	< 1	1.2	1.2	< 1	< 1	1.8	1.8
Jan-15	Total Kjeldahl Nitrogen	< 1.0	< 1.0	2	2	< 1.0	< 1.0	1.2	1.2	< 1.0	< 1.0	1.8	1.8
Jan-16	Total Kjeldahl Nitrogen	1.8	1.8	2.4	2.4	1.2	1.2	< 1.0	< 1.0	1.3	1.3	1.7	1.7
Jan-17	Total Kjeldahl Nitrogen	1.3	1.3	1.5	1.5	< 1.0	< 1.0	1.5	1.5	1.2	1.2	< 1.0	< 1.0
Jan-18	Total Kjeldahl Nitrogen	1.1	1.1	1.1	1.1	1.2	1.2	1.6	1.6	1.3	1.3	1.8	1.8
Jan-19	Total Kjeldahl Nitrogen	2.3	2.3	2.5	2.5	1.9	1.9	5.7	5.7	2.5	2.5	1.8	1.8
Jan-20	Total Kjeldahl Nitrogen	2.3	2.3	< 1.0	< 1.0	< 1.0	< 1.0	1.2	1.2	< 1.0	< 1.0	1.7	1.7
Jul-11	Total Phosphorus	0.15	0.15	0.36	0.36	< 0.1	< 0.1	0.17	0.17	0.24	0.24	2.3	2.3
Jul-12	Total Phosphorus	0.13	0.13	0.35	0.35	< 0.1	< 0.1	0.38	0.38	0.58	0.58	0.64	0.64
Jul-13	Total Phosphorus	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.19	0.19	< 0.1	< 0.1
Jul-14	Total Phosphorus	< 0.1	< 0.1	0.99	0.99	< 0.1	< 0.1	0.44	0.44	0.91	0.91	0.78	0.78
Jan-15	Total Phosphorus	< 0.10	< 0.10	0.99	0.99	< 0.10	< 0.10	0.44	0.44	0.91	0.91	0.78	0.78

		Outfall 020	
		Annaul Average	Daily Max
Jul-11	Biochemical Oxygen Demand (BOD5)	7.9	7.9
Jul-12	Biochemical Oxygen Demand (BOD5)	21.8	21.8
Jul-14	Biochemical Oxygen Demand (BOD5)	4	4
Jan-15	Biochemical Oxygen Demand (BOD5)	4	4
Jul-11	Chemical Oxygen Demand (COD)	63	63
Jul-12	Chemical Oxygen Demand (COD)	198	198
Jul-14	Chemical Oxygen Demand (COD)	15	15
Jan-15	Chemical Oxygen Demand (COD)	15	15
Jul-11	Iron, Total	0.13	0.13
Jul-12	Iron, Total	5	5
Jul-14	Iron, Total	0.1	0.1
Jan-15	Iron, Total	0.1	0.1
Jul-11	Manganese, Total	0.013	0.013
Jul-12	Manganese, Total	0.29	0.29
Jul-14	Manganese, Total	0.0082	0.0082
Jan-15	Manganese, Total	0.0082	0.0082
Jul-11	Oil and Grease		< 2.2
Jul-12	Oil and Grease		< 2
Jul-14	Oil and Grease		< 2.1
Jan-15	Oil and Grease		< 2.1
Jul-11	pH		6.66
Jul-12	pH		7.72
Jul-14	pH		7.11
Jan-15	pH		7.11
Jul-11	Total Kjeldahl Nitrogen	3.4	3.4
Jul-12	Total Kjeldahl Nitrogen	5.9	5.9
Jul-14	Total Kjeldahl Nitrogen	< 1	< 1
Jan-15	Total Kjeldahl Nitrogen	< 1.0	< 1.0
Jul-11	Total Phosphorus	0.14	0.14
Jul-12	Total Phosphorus	0.37	0.37
Jul-14	Total Phosphorus	< 0.1	< 0.1
Jan-15	Total Phosphorus	< 0.10	< 0.10
Jul-11	Total Suspended Solids	17	17
Jul-12	Total Suspended Solids	395	395
Jul-14	Total Suspended Solids	< 5	< 5
Jan-15	Total Suspended Solids	< 5	< 5

	Aluminum		Boron
	Daily Max		Daily Max
5/1/2012	0.26	5/1/2012	0.05
6/1/2012	0.387	6/1/2012	< 0.05
7/1/2012	0.344	7/1/2012	0.064
8/1/2012	0.286	8/1/2012	0.068
9/1/2012	0.385	9/1/2012	0.062
10/1/2012	0.385	10/1/2012	0.063
11/1/2012	0.494	11/1/2012	< 0.05
12/1/2012	0.35	12/1/2012	0.051
1/1/2013	0.5	1/1/2013	0.054
2/1/2013	0.35	2/1/2013	0.051
3/1/2013	0.387	3/1/2013	0.065
4/1/2013	0.48	4/1/2013	0.075
5/1/2013	0.327	5/1/2013	0.057
6/1/2013	0.318	6/1/2013	0.051
7/1/2013	0.346	7/1/2013	0.051
8/1/2013	0.346	8/1/2013	0.051
9/1/2013	0.328	9/1/2013	< 0.05
10/1/2013	0.59	10/1/2013	0.082
11/1/2013	0.464	11/1/2013	0.24
12/1/2013	0.546	12/1/2013	0.077
1/1/2014	0.501	1/1/2014	< 0.05
2/1/2014	0.398	2/1/2014	< 0.05
3/1/2014	0.498	3/1/2014	0.053
4/1/2014	0.484	4/1/2014	< 0.05
5/1/2014	0.703	5/1/2014	0.064
5/1/2014	0.703	5/1/2014	0.064
6/1/2014	0.703	6/1/2014	0.064
7/1/2014	0.432	7/1/2014	< 0.05
8/1/2014	0.414	8/1/2014	< 0.05
9/1/2014	0.27	9/1/2014	< 0.05
10/1/2014	0.45	10/1/2014	< 0.05
11/1/2014	0.56	11/1/2014	< 0.05
12/1/2014	0.507	12/1/2014	< 0.05
1/1/2015	1.8	1/1/2015	< 0.05
2/1/2015	0.757	2/1/2015	< 0.05
3/1/2015	0.598	3/1/2015	0.056
4/1/2015	0.48	4/1/2015	0.059
5/1/2015	0.48	5/1/2015	0.059
6/1/2015	1.84	6/1/2015	0.391
7/1/2015	0.431	7/1/2015	0.071
8/1/2015	0.428	8/1/2015	0.088
9/1/2015	0.444	9/1/2015	0.122
10/1/2015	0.539	10/1/2015	0.054
11/1/2015	0.502	11/1/2015	0.056
12/1/2015	0.46	12/1/2015	< 0.05

1/1/2016	0.55	1/1/2016	< 0.05
2/1/2016	0.529	2/1/2016	0.054
3/1/2016	0.404	3/1/2016	< 0.050
4/1/2016	0.518	4/1/2016	< 0.05
5/1/2016	0.564	5/1/2016	< 0.050
6/1/2016	0.551	6/1/2016	< 0.050
7/1/2016	0.874	7/1/2016	< 0.050
8/1/2016	0.467	8/1/2016	< 0.050
9/1/2016	0.617	9/1/2016	< 0.050
10/1/2016	0.518	10/1/2016	< 0.050
11/1/2016	0.445	11/1/2016	< 0.050
12/1/2016	0.677	12/1/2016	< 0.050
1/1/2017	0.488	1/1/2017	< 0.050
2/1/2017	0.415	2/1/2017	< 0.050
3/1/2017	0.482	3/1/2017	< 0.050
4/1/2017	0.564	4/1/2017	< 0.050
5/1/2017	0.564	5/1/2017	< 0.050
6/1/2017	0.564	6/1/2017	< 0.050
7/1/2017	0.564	7/1/2017	< 0.050
8/1/2017	0.329	8/1/2017	< 0.050
9/1/2017	0.603	9/1/2017	0.0511
10/01/2017	0.603	10/01/2017	0.051
11/01/2017	0.603	11/01/2017	0.0511
12/01/2017	0.603	12/01/2017	0.0511
01/01/2018	0.542	01/01/2018	< 0.050
02/01/2018	0.324	02/01/2018	< 0.050
03/01/2018	0.264	03/01/2018	< 0.050
04/01/2018	0.435	04/01/2018	< 0.050
05/01/2018	0.346	05/01/2018	< 0.050
06/01/2018	0.346	06/01/2018	< 0.050
07/01/2018	0.346	07/01/2018	< 0.050
08/01/2018	0.334	08/01/2018	< 0.050
09/01/2018	0.303	09/01/2018	< 0.0500
10/01/2018	0.303	10/01/2018	< 0.050
11/01/2018	0.38	11/01/2018	< 0.050
12/01/2018	0.351	12/01/2018	< 0.050
01/01/2019	0.496	01/01/2019	< 0.050
02/01/2019	0.414	02/01/2019	< 0.050
03/01/2019	0.414	03/01/2019	< 0.050
04/01/2019	0.414	04/01/2019	< 0.050
05/01/2019	0.414	05/01/2019	< 0.050
06/01/2019	1.32	06/01/2019	0.19
07/01/2019	0.35	07/01/2019	0.057
08/01/2019	0.415	08/01/2019	0.057
09/01/2019	0.305	09/01/2019	0.066
10/01/2019	0.439	10/01/2019	0.058
11/01/2019	0.697	11/01/2019	0.053

12/01/2019	0.478	12/01/2019	0.054
01/01/2020	0.62	01/01/2020	< 0.050
02/01/2020	0.709	02/01/2020	< 0.050
03/01/2020	0.522	03/01/2020	< 0.050
04/01/2020	0.522	04/01/2020	< 0.0500
05/01/2020	0.745	05/01/2020	< 0.050
06/01/2020	0.345	06/01/2020	< 0.050
07/01/2020	0.352	07/01/2020	< 0.050
08/01/2020	0.7	08/01/2020	< 0.050
09/01/2020	0.51	09/01/2020	< 0.050
10/01/2020	0.575	10/01/2020	< 0.050
11/01/2020	0.468	11/01/2020	< 0.050
12/01/2020	1.18	12/01/2020	< 0.050
01/01/2021	0.596	01/01/2021	< 0.050
02/01/2021	0.708	02/01/2021	< 0.050
03/01/2021	0.597	03/01/2021	< 0.050
04/01/2021	0.33	04/01/2021	< 0.050
05/01/2021	0.482	05/01/2021	< 0.050
06/01/2021	0.613	06/01/2021	< 0.050
07/01/2021	0.523	07/01/2021	< 0.050
08/01/2021	0.503	08/01/2021	< 0.050
09/01/2021	0.474	09/01/2021	< 0.050
10/01/2021	0.646	10/01/2021	< 0.050
11/01/2021	0.108	11/01/2021	< 0.050
12/01/2021	0.749	12/01/2021	< 0.050
01/01/2022	1.28	01/01/2022	< 0.050
02/01/2022	1.07	02/01/2022	< 0.050
03/01/2022	1.27	03/01/2022	0.054
04/01/2022	1.18	04/01/2022	0.0622
05/01/2022	0.672	05/01/2022	0.0853
06/01/2022	0.672	06/01/2022	0.0853
07/01/2022	3.61	07/01/2022	0.215