pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0013862**
Facility Type	**Industrial**	APS ID	**579021**
Major / Minor	**Minor**	Authorization ID	**1019975**

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

Applicant and Facility Information

Applicant Name	**Corixa Corporation, dba GlaxoSmithKline Vaccines**	Facility Name	**Corixa Corporation, dba GlaxoSmithKline Vaccines**
Applicant Address	325 N Bridge Street Marietta, PA 17547-1134	Facility Address	325 N Bridge Street Marietta, PA 17547-1134
Applicant Contact	Michael Szymanski	Facility Contact	Michael Szymanski
Applicant Phone	(717) 426-6566	Facility Phone	(717) 426-6566
Client ID	247130	Site ID	240709
SIC Code	2836	Municipality	East Donegal Township
SIC Description	Biological Products, Except Diagnostic	County	Lancaster
Date Application Received	March 26, 2014	EPA Waived?	Yes
Date Application Accepted	April 10, 2014	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

GlaxoSmithKline Vaccines (GSK) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit was issued on September 14, 2009, and became effective October 1, 2009. The permit authorized discharge of treated industrial wastewater from the existing wastewater treatment plant (WWTP) located in East Donegal Township, Lancaster County, into the Susquehanna River. GSK submitted a major permit amendment on December 14, 2012 to incorporate the Federal Effluent Limitation Guidelines (ELGs) for the Pharmaceutical Manufacturing Point Source Category from 40 CFR 439.45(a) for new sources. The facility was also re-classified as a minor facility covered by an ELG. The amendment was issued on June 14, 2013 and became effective on July 1, 2013. The existing permit expiration date was September 30, 2014, and the permit has been administratively extended since that time.

Per the permit application, GSK operates a vaccine production facility. The facility was purchased from Wyeth-Ayerst in 2005. The site has been renovated and expanded, including new process equipment, packaging lines, filling, and freeze-drying technology. The site does not have Research and Development, but does have quality control laboratories. The wastewater generated includes organic and inorganic waste streams. The organic wastewater is generated from vaccine manufacturing, domestic contributions from offices, cafeteria, restrooms, and locker rooms. The inorganic wastewater is from boiler blowdown, non-contact cooling water (NCCW), electrodialysis reversal (EDR) reject, water softener regeneration water, and water for injection (WFI). The process wastewater generated during manufacturing is thermally deactivated before it enters the WWTP. GSK has a General Permit for Processing/Disinfection of Regulated Medical and Chemotherapeutic Waste (WMGI005SC001). Due to a change in DEP's definition of infectious waste, GSK no longer needs to thermally deactivate its waste. The revised definition from 25 Pa Code 271.1 excepts "Wastes, mixtures of wastes or cell lines from facilities engaged in the production or research and development of vaccines or other biologics and classified under the

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	November 20, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review

NAICS as Code 325414 – Biological Product (except Diagnostic) Manufacturing or Code 541711 – Research and Development in Biotechnology, where no agent in the waste is classified as Biosafety Levels 2-4 as determined by the protocols established in the most recent edition of the CDC's BMBL existing at the time the waste is generated." The revised definition results in the waste stream from GSK being reclassified as a municipal waste. Correspondence received from GSK on October 24, 2019 provided their intent to discontinue operation of the thermal deactivation process. GSK stated that the characteristics of the wastewater entering the WWTP and the effluent from the WWTP will be unchanged. A Part C Condition regarding the elimination of the thermal deactivation process has been included in the NPDES Permit.

Changes in this renewal: A UV Transmittance monitoring requirement, and Total Dissolved Solids, Bromide, Chloride, and Sulfate monitoring requirements were added to the permit for Outfall 004. Fecal coliform instantaneous maximum (IMAX) limits were added to the permit for Outfall 100. Revised stormwater monitoring requirements were included for Outfall 002, 003, 005, 006, 007 and 008.

Public Participation

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.

Supplemental information for this fact sheet is included in an attachment located below:

GlaxoSmithKline Vaccines - Corixa Co

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	.321
Latitude	40º 3' 10"	Longitude	76º 33' 53"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	IW Process Effluent with ELG: Process wastewater from Outfall 100, boiler blowdown, noncontact cooling water (NCCW), electrodialysis reversal reject, softener regeneration water, water for injection blowdown		

Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A

Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: A drainage area of 25,900 mi^2 and a Q_{7-10} flow of 3,263 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576000 on the Susquehanna River. The Q_{7-10} and drainage area at the gage are 3,270 cfs and 25,990 mi^2, respectively. These values are taken from the USGS document “Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania”. The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (3,270 cfs)/ 25,990 mi^2 = 0.126 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 25,900 mi^2
The Q_{7-10} at the discharge point = 25,900 mi^2 x 0.126 cfs/mi^2 = 3,263 cfs

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	100	Design Flow (MGD)	0.20
Latitude	40º 3' 29.82"	Longitude	76º 33' 52.92"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Process wastewater from manufacturing of vaccines and quality control operations		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: The industrial wastewater treatment process consists of: Grinder/Bar Screen – Two (2) Equalization Basins – Rapid Mix Tank – Reactor/Clarifier – Continuously Backwashed Filter – UV Disinfection System – Overflow Vault (Commingles with inorganic waste stream) – Outfall 004 to Susquehanna River. The liquid sludge generated is held in a sludge storage tank and disposed offsite.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 29"	Longitude	76º 33' 46"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 28"	Longitude	76º 33' 54"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 38"	Longitude	76º 34' 02"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 38"	Longitude	76º 33' 53"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 39"	Longitude	76º 33' 46"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	Variable (stormwater)
Latitude	40º 3' 38"	Longitude	76º 33' 36"
Quad Name	Columbia West	Quad Code	1833
Wastewater Description:	Stormwater		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	06685
NHD Com ID	57464933	RMI	31.7
Drainage Area	25,900 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,263	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	234	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	pH, Polychlorinated Biphenyls (PCBs)		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.1	Distance from Outfall (mi)	3.6

Changes Since Last Permit Issuance: None

Other Comments: None

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	5/4/2013: A routine inspection was conducted by Bob Haines, DEP Water Quality Specialist. The effluent was clear. Samples were collected at Outfall 100, and the results were good. The plant appeared to be well maintained. Outfall 004 was inspected at the Susquehanna River, and no issues were noted. 6/4/2014: A routine inspection was conducted by Andrew Hall, DEP Water Quality Specialist. A visual inspection of the plant was conducted. The clarifiers looked good. There was light foaming on the surface of the sand filter tank; the effluent was clear. Samples were taken from Outfall 100 and 004, no violations were noted. Stormwater BMPs and outfalls were inspected, no water quality concerns were noted. The discharge into the Susquehanna River was clear, and the river was clear upstream and downstream from the discharge. 2/10/2015: A routine inspection was conducted by Andrew Hall. All treatment units were online, and operations looked good. The clarifier effluent was clear. The facility was in the process of installing a new UV disinfection system in place of ozone treatment. The discharge from Outfall 100 was clear. Field tests were conducted, and all parameters were within permitted limits. A stormwater inspection was conducted, no issues were noted. On 1/29/15, GSK notified DEP of an unpermitted discharge of “Cal-Brite” product to Outfall 002. At the time of the inspection on 2/10/15, the discharge was clear, and no water quality impacts were noted in the swale or downstream in the river. 7/19/2016: A routine inspection was conducted by Sheena Ripple, DEP Water Quality Specialist. Field tests were conducted, and all parameters were within permitted limits. Outfall 004 was inspected at the Susquehanna River, and the effluent was clear. 12/10/2018: A routine inspection was conducted by Tracy Tomtishen, DEP Water Quality Specialist. It was noted that algae growth was visible on the clarifier weirs and in the trough. A small amount of pin floc was evident. The UV disinfection system was in operation at the time of inspection. Field tests were conducted, and all parameters were within permitted limits. The stormwater outfalls were inspected, and no water quality concerns were noted.

Other Comments: There are currently no open violations for this permittee or facility.

Compliance History

DMR Data for Outfall 004 (from July 1, 2018 to June 30, 2019)

Parameter	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19	FEB-19	MAR-19	APR-19	MAY-19	JUN-19
Flow (MGD) Average Monthly	0.072	0.073	0.070	0.088	0.066	0.063	0.059	0.060	0.062	0.068	0.074	0.073
Flow (MGD) Daily Maximum	0.104	0.095	0.123	0.149	0.089	0.079	0.097	0.072	0.094	0.087	0.096	0.100
pH (S.U.) Minimum	7.7	7.6	7.8	7.7	7.6	7.8	7.6	7.7	7.6	7.7	7.7	7.4
pH (S.U.) Instantaneous Maximum	8.1	8.2	8.2	8.2	8.4	8.4	8.4	8.4	8.2	8.2	8.1	8.2
DO (mg/L) Minimum	6.7	6.0	5.8	6.1	5.8	6.5	5.8	6.4	6.6	6.8	6.4	6.7
TRC (mg/L) Average Monthly	0.08	0.09	0.06	0.06	0.09	0.06	0.06	0.06	0.07	0.11	0.08	0.08
CBOD5 (lbs/day) Average Monthly	3.08	3.94	1.72	4.61	1.48	2.40	1.65	2.58	1.85	1.83	1.33	5.69
CBOD5 (lbs/day) Daily Maximum	6.05	6.74	2.80	12.81	2.73	5.77	2.72	4.49	2.63	4.24	1.42	19.62
CBOD5 (mg/L) Average Monthly	4.28	6.80	3.05	5.58	2.83	4.23	3.80	4.70	3.50	3.28	2.28	7.40
CBOD5 (mg/L) Daily Maximum	7.60	11.00	4.90	10.90	4.70	10.10	6.00	7.60	4.50	7.60	3.00	23.60
TSS (lbs/day) Average Monthly	7.22	6.87	6.64	9.43	5.38	6.24	3.39	7.09	4.39	5.78	8.30	7.58
TSS (lbs/day) Daily Maximum	11.95	7.47	9.73	18.80	6.56	6.62	4.28	8.89	6.44	8.94	11.19	11.64
TSS (mg/L) Average Monthly	10.40	12.00	11.75	12.40	10.75	11.0	8.00	13	8.25	10.4	14.00	12.50
TSS (mg/L) Daily Maximum	15.00	14.00	17.00	16.00	15.00	12.0	10.00	17	11.00	16.0	19.00	18.00
Total Phosphorus (lbs/day) Average Monthly	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2
Total Phosphorus (lbs/day) Daily Maximum	0.3	0.2	0.1	0.4	0.2	0.2	0.1	0.4	0.1	0.2	0.2	0.20
Total Phosphorus (mg/L) Average Monthly	0.3	0.3	0.2	0.3	0.3	0.3	0.1	0.3	0.2	0.2	0.2	0.20
Total Phosphorus (mg/L) Daily Maximum	0.5	0.4	0.3	0.3	0.4	0.4	0.2	0.7	0.3	0.3	0.3	0.30

DMR Data for Outfall 100 (from July 1, 2018 to June 30, 2019)

Parameter	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19	FEB-19	MAR-19	APR-19	MAY-19	JUN-19
Flow (MGD) Average Monthly	0.056	0.063	0.055	0.073	0.049	0.051	0.041	0.043	0.045	0.054	0.063	0.061
Flow (MGD) Daily Maximum	0.086	0.083	0.105	0.133	0.074	0.067	0.127	0.057	0.079	0.071	0.089	0.085
BOD5 (lbs/day) Average Monthly	4	4	2	5	2	3	1	3	4	2	2	2
BOD5 (lbs/day) Daily Maximum	5	6	3	11	5	5	1	4	6	2	3	3
BOD5 (mg/L) Average Monthly	7	8	5	7	5	6	4	7	11	4	5	5
BOD5 (mg/L) Daily Maximum	11	11	7	10	11	11	5	9	14	5	5	8
COD (lbs/day) Average Monthly	10	7	7	10	7	8	4	8	8	8	8	8
COD (lbs/day) Daily Maximum	12	8	7	15	8	11	5	16	12	9	9	10
COD (mg/L) Average Monthly	18	15	15	17	18	18	15	20	20	17	16	18
COD (mg/L) Daily Maximum	22	16	15	23	26	25	15	34	29	21	16	27
TSS (lbs/day) Average Monthly	5	4	3	5	3	4	2	4	2	3	4	4
TSS (lbs/day) Daily Maximum	8	5	3	8	4	6	2	5	3	4	5	7
TSS (mg/L) Average Monthly	10	8	6	8	9	9	6	10	6	6	8	7
TSS (mg/L) Daily Maximum	17	11	7	12	11	14	7	13	7	9	10	10
Fecal Coliform (CFU/100 ml) Geometric Mean	8	5	7	4	5	5	1	2	7	3	4	4

Existing Effluent Limitations and Monitoring Requirements

Outfall 004

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	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Phosphorus	5.4	10.7	XXX	2.0	4.0	5.0	1/week	8-Hr Composite

Compliance Sampling Location: After mix with inorganic waste stream

Outfall 100

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
BOD5	Report	Report	XXX	18	35	45	1/week	8-Hr Composite
TSS	Report	Report	XXX	31	58	77	1/week	8-Hr Composite
COD	Report	Report	XXX	86	228	285	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	XXX	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/week	Grab

Compliance Sampling Location: At discharge from treatment facility

Outfalls 002, 003, 005, 006, 007 and 008

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Daily Maximum	Maximum	Instant. Maximum		
CBOD5	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	.321
Latitude	40º 3' 10"	**Longitude**	76º 33' 53"

Wastewater Description: Process wastewater from Outfall 100, boiler blowdown, noncontact cooling water (NCCW), electrodialysis reversal reject, softener regeneration water, water for injection blowdown

Technology-Based Limitations

This facility is regulated by an ELG from 40 CFR §439.45(a) Pharmaceutical Manufacturing Point Source Category, Subpart D – Mixing/Compounding & Formulation. Subpart D applies since the process wastewater results from the production of vaccines. 40 CFR §439.45(a) states that the discharge must achieve the same standards as specified in §439.25(a). The limits from §439.25(a) must be included in the permit unless water quality based effluent limits (WQBELs) are more stringent. In the existing permit, the numerical limits for BOD_5, TSS and COD were included for Outfall 100. The process wastewater from vaccine manufacturing is conveyed to the on-site wastewater treatment plant (WWTP), which discharges to an overflow vault via Outfall 100 where it is combined with the inorganic wastewater. These limits will remain in the permit for Outfall 100. Reporting requirements for $CBOD_5$ and TSS were included in the existing permit for Outfall 004, and will remain in the permit renewal.

Water Quality-Based Limitations

$CBOD_5$ / NH_3-N

DEP's SOP No. BPNPSM-PMT-032 states that the WQM 7.0 Model should be run if the maximum BOD_5 concentration exceeds 30 mg/l in the permit application or DMRs. The maximum BOD_5 concentration form the application is 4.05 mg/l, therefore it will not be necessary to run the WQM 7.0 Model. There is an existing $CBOD_5$ monitoring requirement, which will remain in the permit.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Screening Analysis worksheet and PENTOXSD to develop appropriate permit requirements for toxic pollutants of concern. Based on effluent sample results reported on the application, there were several candidates for PENTOXSD modeling, as these pollutants are discharged at a level that has the reasonable potential to cause excursions above the state water quality criteria. These parameters are listed in the table below.

Parameter	Max. Concentration in Application or DMRs (µg/l)	Most Stringent WQBEL (µg/l)	Screening Recommendation
Total Cobalt	100	31230.55	No Limits/Monitoring
Acrolein	5	3160.661	No Limits/Monitoring
Acrylonitrile	10	224.649	No Limits/Monitoring
Carbon Tetrachloride	<1	1013.121	No Limits/Monitoring
Chlorodibromomethane	1.67	1761.949	No Limits/Monitoring
Dichlorobromomethane	3.66	2422.68	No Limits/Monitoring
1,2-Dichloroethane	<1	1673.852	No Limits/Monitoring
1,3-Dichloropropylene	<1	1497.657	No Limits/Monitoring
1,1,2,2-Tetrachloroethane	<1	748.828	No Limits/Monitoring
Tetrachloroethylene	<1	3039.363	No Limits/Monitoring
1,1,2-Trichloroethane	<1	2598.875	No Limits/Monitoring
Vinyl Chloride	<1	110.122	No Limits/Monitoring
Butyl Benzyl Phthalate	43.1	57529.96	No Limits/Monitoring
Hexachlorobutadiene	<5	1938.144	No Limits/Monitoring
Phenanthrene	<5	1643.713	No Limits/Monitoring

A stream hardness of 118.5 mg/l and stream pH of 8.4 were used in modeling, taken from WQN Station ID 201 from January 1999 to December 2018. A discharge hardness of 633.33 mg/l and discharge pH of 8.11 were used in modeling. The resulting WQBELs from PENTOXSD were included in the previous table. When the WQBELs produced from PENTOXSD were entered into the Toxics Screening Analysis, the worksheet recommended that no limits or monitoring were necessary for any of these parameters. This data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BPNPSM-PMT-033. PENTOXSD Model Results are attached to this fact sheet. The Toxics Screening Analysis uses the following logic:

a. Establish average monthly and instantaneous maximum (IMAX) limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL.
b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10%-50% of the WQBEL.

Since the reported maximum concentrations were less than 10% of their respective WQBEL, per DEP's SOP No. BPNPSM-PMT-033, no limits or monitoring are necessary. Based on the results of the Toxics Screening Analysis, no toxic parameters will be added to the permit.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. This facility is classified as a non-significant discharger. From the Phase 2 Supplement, for non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. Additionally, DEP's SOP No. BPNPSM-PMT-001 states that non-significant IW dischargers should receive monitoring requirements in permits if there is any possibility of a net increase in nutrients as a results of facility processes. Due to the domestic wastewater contributions to this facility, TN and TP monitoring will be required. There is an existing TP limit, which will remain in the permit. TN monitoring will be added at a frequency of 1/year.

Total Phosphorus

For Total Phosphorus (TP), the current NPDES permit requires the permittee to comply with average monthly and IMAX limits of 2.0 mg/L and 4.0 mg/L, respectively. The TP limitations were established in the previous fact sheet, and were based on the Department's Implementation Guidance for Section 95.9 Phosphorus Dischargers to Free Flowing Stream (Document No. 391-2000-018). The calculated TP loading was based on an influent phosphorus concentration of 28 mg/l (8.34 x 28 mg/l x 0.321 MGD = 75 lbs/day). Using the equation that was documented in EPA's Chesapeake Bay Management Report, TP @ $Y = TP \times 0.99^{Y}$, where Y = stream miles to PA-MD line, the actual loading to the critical part of the Susquehanna River would be 54.9 lbs/day at an estimated distance of 31 miles. This loading represents 1.4% of the TP loading of all discharges in the Lower Suquehanna River Basin (54.9 lbs/day / 3,814 lbs/day). According to the above phosphorus guidance, phosphorus removal will be required in this percentage is > 0.25%. Therefore, phosphorus limitations were required. These existing limits will remain unchanged in the permit to protect the local watershed. The most recent year of DMR data indicate an average phosphorus concentration of 0.24 mg/l, which is below the average monthly limit.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 mgd, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 mgd or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

GSK reported a maximum effluent concentration of 12,200 mg/l for TDS, and 1.14 mg/l for Bromide. Based upon the data provided in the application, monitoring of TDS, Bromide, Chloride, and Sulfate will be required. A monitoring frequency of 1/month and 8-hour composite sample type will be used for these parameters.

Total Suspended Solids

DEP's SOP No. BPNPSM-PMT-032 states that Best Professional Judgment (BPJ) Technology-Based Effluent Limits (TBELs) should be developed for TSS if the concentration exceeds 100 mg/l in the permit application or DMRs. The maximum TSS concentration from the application is 9 mg/l, therefore it is not necessary to develop a limit. However, the existing permit has a monitoring requirement for TSS, which will remain in the permit. (30 mg/l LIMIT)

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

pH

PA Code §§ 95.2(1) requires effluent pH limits of 6.0 to 9.0 standard units (S.U.) at all times in effluent. The permit will continue to require pH limit of 6.0 to 9.0 S.U.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns. It is recommended that a TRC limit of 0.5 mg/l monthly average and 1.6 mg/l instantaneous maximum be applied this permit cycle, the same as the existing limit.

UV Monitoring

On October 27, 2015, a new ultraviolet (UV) disinfection system was placed into operation as the primary means of disinfection, and the previous ozone disinfection system was removed and demolished. DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This approach has been assigned to other facilities equipped with similar technology. Accordingly, a parameter for UV Transmittance will be included in the permit.

Temperature

Approximately 33,000 gpd of non-contact cooling water (NCCW) is discharged through Outfall 004. The NCCW is mixed with the remaining process and non-process wastewater effluent before discharging. A reasonable potential (RP) analysis was performed for temperature. Effluent limitations for temperature were calculated using the Case 2 Thermal Worksheet with a wastewater flow of 0.321 mgd. A stream Q_{7-10} flow of 3,263 cfs was used in the temperature worksheet. The worksheet recommended permit limits for a discharge to WWF of 110°F, which is the cap for limits generated by the worksheet. This recommendation is based on the total discharge flow of 321,000 gpd, not just the 33,000 gpd of NCCW. Additionally, the NCCW must flow about 1,500' underground before reaching Outfall 004. Due to the travel time and the fact that the NCCW is only a small portion of the total effluent, it is not recommended to include temperature monitoring for this permit cycle. A printout of the worksheet is attached.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.61.

Chemical Additives

The following chemical additives are currently used at the plant and are expected to be present in the effluent:

Chemical Additive	Purpose	Maximum Usage (lb/day)	Usage Frequency
Chemtex B-2374	Boiler Treatment	72	Automatic Feed
Chemtex B-297	Boiler Treatment	78.3	Automatic Feed
Chemtex B-862	Boiler Treatment	4.2	Automatic Feed
Chemtex CST-4252	Corrosion Inhibitor and dispersant	804	Automatic and flow-proportioned
AP Tech Group Durobrom	Microbiological control	3.4	Automatic and flow-proportioned
AP Tech Group Durocide C100-G	Microbiological control	3.9	Automatic and flow-proportioned

These chemicals are included on DEP's Approved List of Chemical Additives. The permit will include Part C conditions for chemical additive usage and reporting requirements.

Mass Loading Limitation

All mass loading effluent limitations recommended in the draft permit are concentration-based, calculated using a formula: design flow (MGD) x concentration limit (mg/l) x conversion factor of 8.34.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 and Table 6-4 of DEP's Technical Guidance No. 362-0400-001.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB from an unknown source, and an aquatic life impairment due to pH from an unknown source.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No. 100 **Design Flow (MGD)** 0.20
Latitude 40º 3' 29.82" **Longitude** 76º 33' 52.92"
Wastewater Description: Process wastewater from manufacturing of vaccines and quality control operations

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
BOD_5	18	Average Monthly	439.45(a)	-
BOD_5	35	Maximum Daily	439.45(a)	-
TSS	31	Average Monthly	439.45(a)	-
TSS	58	Maximum Daily	439.45(a)	-
COD	86	Average Monthly	439.45(a)	-
COD	228	Maximum Daily	439.45(a)	-

This facility is regulated by an ELG from 40 CFR §439.45(a) Pharmaceutical Manufacturing Point Source Category, Subpart D – Mixing/Compounding & Formulation. Subpart D applies since the process wastewater results from the production of vaccines. 40 CFR §439.45(a) states that the discharge must achieve the same standards as specified in §439.25(a). The limits from §439.25(a) must be included in the permit unless water quality based effluent limits (WQBELs) are more stringent.

EPA Guidance 821-F-05-006 Pharmaceutical Manufacturing Point Source Category Section 8.2.1 discusses how to implement the limits from the ELG. This guidance states that the EPA developed the final effluent limitation guidelines and standards from data gathered at plants which had less than 25% non-process wastewater in the total plant discharge that is subject to the regulations. Therefore, permit writers should allow for up to 25% non-process wastewater when developing end-of-pipe effluent limitations. If the non-process wastewater contributed more than 25% of the total flow, an evaluation would be needed on a case-by-case basis to determine if mass allowances are appropriate. The previous fact sheet and application reported that the non-process wastewater to Outfall 100 was 6,000 gpd, while the process wastewater was 74,000 gpd. At this outfall, the non-process wastewater only accounts for 7.5% of the total wastewater, so the limits from §439.25(a) can be applied without any adjustments.

The existing permit established limits for BOD_5, TSS, and COD based on the limits from §439.25(a). From Chapter 2 of the "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" (Guidance No. 362-0400-001), the instantaneous maximum (IMAX) multiplier of 2.5 was used to determine the IMAX limit for BOD_5 and TSS. The COD IMAX was established using a multiplier of 1.25 times the maximum daily limit. These existing limits will remain in the renewal permit.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. The instantaneous maximum fecal coliform limits have been included in the permit.

Development of Effluent Limitations

Outfall No.	002, 003, 005, 006, 007, 008	**Design Flow (MGD)**	Variable (stormwater)
	40º 3' 29" (002)		76º 33' 46" (002)
	40º 3' 28" (003)		76º 33' 54" (003)
	40º 3' 38" (005)		76º 34' 02" (005)
	40º 3' 38" (006)		76º 33' 53" (006)
	40º 3' 39" (007)		76º 33' 46" (007)
Latitude	40º 3' 38" (008)	**Longitude**	76º 33' 36" (008)

Wastewater Description: Stormwater

Stormwater Limitations

The application lists six (6) stormwater outfalls for this facility. Outfall 002 receives stormwater from 9.81 acres from the eastern part of the facility, and Outfall 003 receives stormwater from 8.75 acres from the central and western part of the facility. Both of these outfalls discharge into storm sewers which discharge to the Susquehanna River. Outfall 005 receives stormwater from 10.37 acres from the northwest corner of the property. Outfall 006 receives stormwater from 3.34 acres from the northcentral portion of the property. Outfall 007 receives stormwater from 12.88 acres from the northwestern portion of the property along Route 441. Outfall 008 also receives stormwater from 12.88 acres from the northwestern portion of the property along Route 441. These 4 outfalls all discharge into retention basins prior to discharge to the Susquehanna River.

The existing permit requires annual monitoring of pH, $CBOD_5$, COD, TSS, Oil and Grease, TKN, Total Phosphorus, and Dissolved Iron at Outfalls 002, 003, 005, 006, 007, and 008. This monitoring requirements was derived from Appendix J of the NPDES PAG-03 General Permit. This facility falls under SIC code 2836. According to DEP's current NPDES PAG-03 General Permit, SIC Code 2836 is subject to Appendix F permitting requirements. This appendix requires semi-annual monitoring for the parameters listed in the table below. These parameters will replace existing parameters in the permit renewal.

Stormwater will be monitored and managed using best management practices. The permittee shall monitor and report analytical results for the parameters listed below on Discharge Monitoring Reports (DMRs) for Outfall 002, 003, 005, 006, 007, and 008. The benchmark values listed on the table are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a corrective action plan within 90 days of the end of the monitoring period triggering the plan.

Parameter	Minimum Measurement Frequency	Sample Type (mg/l)	Benchmark Values
pH (S.U.)	1 / 6months	Grab	XXX
COD	1 / 6months	Grab	120
TSS	1 / 6months	Grab	100
Nitrate-Nitrite as N	1 / 6months	Grab	XXX
Total Phosphorus	1 / 6months	Grab	XXX
Total Lead	1 / 6months	Grab	XXX
Total Zinc	1 / 6months	Grab	XXX
Total Iron	1 / 6months	Grab	XXX
Total Aluminum	1 / 6months	Grab	XXX

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), SOPs and/or BPJ.

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

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	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
UV Transmittance	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
CBOD5	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Phosphorus	5.4	10.7	XXX	2.0	4.0	5.0	1/week	8-Hr Composite
TDS	XXX	XXX	XXX	XXX	Report	XXX	1/month	8-Hr Composite
Bromide	XXX	XXX	XXX	XXX	Report	XXX	1/month	8-Hr Composite
Chloride	XXX	XXX	XXX	XXX	Report	XXX	1/month	8-Hr Composite
Sulfate	XXX	XXX	XXX	XXX	Report	XXX	1/month	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/year	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/year	8-Hr Composite

Compliance Sampling Location: After mixing with inorganic waste stream

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), SOPs and/or BPJ.

Outfall 100, Effective Period: Permit Effective Date through Permit Expiration Date.

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) Internal Monitoring Point	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
BOD5 Internal Monitoring Point	Report	Report	XXX	18	35	45	1/week	8-Hr Composite
COD Internal Monitoring Point	Report	Report	XXX	86	228	285	1/week	8-Hr Composite
TSS Internal Monitoring Point	Report	Report	XXX	31	58	77	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Internal Monitoring Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) Internal Monitoring May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab

Compliance Sampling Location: At discharge from treatment facility

Other Comments: None

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), SOPs and/or BPJ.

Outfall 002, 003, 005, 006, 007, 008 Effective Period: Permit Effective Date through Permit Expiration Date.

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	Daily Maximum	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
COD	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Total Lead	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Total Zinc	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab
Total Aluminum	XXX	XXX	XXX	Report	XXX	XXX	1/ 6 months	Grab

Compliance Sampling Location: Outfalls 002, 003, 005, 006, 007, 008

Other Comments: None

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.
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