Pennsylvania Department of Environmental Protection

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0011851**
Facility Type	**Industrial**	APS ID	**1110534**
Major / Minor	**Minor**	Authorization ID	**1478788**

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

Applicant and Facility Information

Applicant Name	**Superior Tube Co. Inc.**	Facility Name	**Superior Tube Collegeville Facility**
Applicant Address	3900 Germantown Pike Collegeville, PA 19426-3112	Facility Address	3900 Germantown Pike Collegeville, PA 19426-3112
Applicant Contact	Marc VanderWal	Facility Contact	Marc VanderWal
Applicant Phone	(484) 200-1368	Facility Phone	(484) 200-1368
Client ID	80134	Site ID	45779
SIC Code	3317,3356,3451	Municipality	Lower Providence Township
SIC Description	Manufacturing - Nonferrous Rolling And Drawing, Nec, Manufacturing - Screw Machine Products, Manufacturing - Steel Pipe And Tubes	County	Montgomery
Date Application Received	March 21, 2024	EPA Waived?	No
Date Application Accepted		If No, Reason	, DEP Discretion
Purpose of Application	NPDES permit renewal.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received an NPDES permit application from Superior Tube Company, Inc. (STCI/Permittee) on March 21, 2024 for their Collegeville Facility (facility). This is a Minor IW Facility with ELG (MIIW2). The facility discharges into Perkiomen Creek and UNT to Perkiomen Creek in state watershed 3E. The existing permit was expired on September 30, 2024. The terms and conditions were automatically extended since the renewal application was received at least 180 days prior to the permit expiration date. Renewal NPDES permit applications under Clean Water program are not covered by PADEP's PDG, per 021-2100-001.

This fact sheet is developed in accordance with 40 CFR §124.56

Changes in this renewal: Stormwater monitoring parameters are re-evaluated, monitoring frequencies for toxics for Outfall 008 are removed, concentration-based limits for toxics for IMP 108 are re-calculated.

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.

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	October 17, 2024
√		Pravin C. Patel, P.E. / Environmental Engineer Manager /s/	November 6, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 11' 0.75"	Longitude	-75º 26' 27.11"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Stormwater		
Receiving Waters	Stormwater drain to Perkiomen Creek (TSF)	Stream Code	01017
NHD Com ID	25966576	RMI	6.4

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 11' 11.34"	Longitude	-75º 26' 13.53"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Perkiomen Creek (TSF)	Stream Code	01131
NHD Com ID	25966182	RMI	0.581

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 11' 11.18"	Longitude	-75º 26' 14.42"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Perkiomen Creek (TSF)	Stream Code	01131
NHD Com ID	25966182	RMI	0.579

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 11' 11.24"	Longitude	-75º 26' 16.64"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Perkiomen Creek (TSF)	Stream Code	01131
NHD Com ID	25966182	RMI	0.55

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 11' 11.37"	Longitude	-75º 26' 17.49"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary to Perkiomen Creek (TSF)	Stream Code	01131
NHD Com ID	25966182	RMI	0.54

Discharge, Receiving Waters and Water Supply Information

Outfall No.	108 (IMP)	Design Flow (MGD)	0.03
Latitude	40º 11' 4"	Longitude	-75º 26' 20"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Rinse and cleaning water, ground water, vapor-phase-carbon regenerant treated aqueous decant, and boiler blowdown (Internal Monitoring Point)		

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0.1
Latitude	40º 11' 8.58"	Longitude	-75º 26' 53.16"
Quad Name	Collegeville	Quad Code	1742
Wastewater Description:	Rinse and cleaning water, ground water, vapor-phase-carbon regenerant treated aqueous decant, non-contact cooling water, and boiler blowdown		
Receiving Waters	Perkiomen Creek (WWF, MF)	Stream Code	01017
NHD Com ID	25966572	RMI	6.48
Drainage Area	293 mi^2	Yield (cfs/mi^2)	Please see below
Q_{7-10} Flow (cfs)	34.39	Q_{7-10} Basis	Please see below
Elevation (ft)	96.33	Slope (ft/ft)	
Watershed No.	3-E	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PATHOGENS		
Source(s) of Impairment	Other		
TMDL Status	**None**	Name	**N/A**

Background/Ambient Data		Data Source
pH (SU)	8.0	WQN_116 median Jul-Sep 1999-2019
Temperature (°C)	23.35	WQN_116 median Jul-Sep 1999-2019
Hardness (mg/L)	98	WQN_116 median Jul-Sep 1999-2019
Other:		

Discharge, Receiving Waters and Water Supply Information			
Nearest Downstream Public Water Supply Intake	Aqua PA Main Division		
PWS Waters	Perkiomen Creek	Flow at Intake (cfs)	36.63
PWS RMI	0.93	Distance from Outfall (mi)	5.55

Other Comments:

Outfall 008:
Streamflow: Nearest upstream USGS Streamgage is 01473000 on Perkiomen Creek at Graterford, PA. The Q_{7-10}, Q_{1-10}, and Q_{30-10} values at this gage are 33.9 cfs, 28.5 cfs, and 42.5 cfs, respectively for the reporting year 1958-2008, and the drainage area at this gage station is 279 mi^2 (1). The drainage area at the discharge point was found to be 293 mi^2 from USGS StreamStats website (2). The Q_{7-10} at the Outfall 008 is calculated as following:

1. Q_{7-10} at 01473000 is 33.9 cfs. Yield at this gage is 33.7cfs/279 mi^2 or 0.121 cfs/mi^2. Applicable Q_{7-10} at Outfall 008 is 0.121*293 or **35.45** cfs.
2. Node 2 (end of the modeling reach) was selected at the confluence of UNT 01125 with Perkiomen Creek. The drainage area at this point is 298 mi^2. Applicable Q_{7-10} is 0.121*298 or **36.06** cfs.

The Q_{1-10}:Q_{7-10} and Q_{30-10}:Q_{7-10} ratios are 0.64 and 1.36 (default), respectively.

The process flow diagram/water balance sheet indicated that currently no water is withdrawn from the creek. Drinking water is supplied by public water supply. There is an intake structure in the creek that is placed in "stand-by" operational mode based on current facility operating needs/requirements.

PWS Intake:
The nearest downstream PWS is Aqua PA Main Division on Perkiomen Creek at RMI 0.93, which is approximately 5.55 miles downstream of the discharge point. The discharge is expected not to impact the intake because of the distance, dilution, and effluent limits.

Background/Ambient Stream Data:
Water Quality Network Station 21PA_WQX-WQN0116 was considered to analyze background stream data for pH, temperature, and Total Hardness which is located on Arcola Road Bridge near Lower Providence Township, Montgomery County. This is an active nearest WQN station in Perkiomen Creek to the DP. The median values for the months July-September for the reporting years 1999-2019 are 8.0 S.U., 23.35 ºC, and 98 mg/l, respectively.

Wastewater Characteristics:
The 90th percentile pH of 7.1 S.U., summer months average temperature of 68.19^{0}F, and total hardness of 195.33 mg/l from application will be used for modeling.

Anti-Degradation Requirement
Chapter 93.4a(b) of the Department's rules and regulations require that "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The discharge is into Perkiomen Creek which is classified as Warm Water Fishery (WWF), and Migratory Fishes (MF.)

Class A Wild Trout Streams:
No Class A Wild Trout Streams are impacted by this discharge.

303d Listed Streams:
The discharge is in a stream segment of Perkiomen Creek which is attaining its designated use(s.)

(1) Stuckey, M.H., Roland, M.A., 2011, Selected streamflow statistics for stream gauge locations in and near Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-1070, 14p, 26p.

(2) https://streamstats.usgs.gov/ss/, accessed on July 10, 2019

Outfall 108 (IMP):

Wastewater Characteristics:

The 90th percentile pH of 7.7 S.U., summer months average temperature of 69.9^{0}F, and total hardness of 128 mg/l from application will be used for modeling, if needed.

Stormwater Outfalls				
Stormwater outfall number	Drainage area (sft)	% impervious	Description of materials	Applied BMP(s)
002	140,800	95	Oil, if spill occurs during #2 fuel oil delivery	Secondary containment
004	395,200	100	Nitric Acid, oil & grease if spill occurs during materials delivery	Secondary Containment
005	12,800	100	Wood crates	No structural controls, not expected to contain pollutants
006	51,200	100	Oil and grease	No structural controls, not expected to contain pollutants
007	28,800	90	None known	No structural controls, not expected to contain pollutants

Treatment Facility Summary

Treatment Facility Name: Superior Tube Collegeville Facility

WQM Permit No.	Issuance Date
4698201	10/06/1998

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial			No Disinfection	

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
		Not Overloaded		

Changes Since Last Permit Issuance: None

Facility Description: Superior Tube Company, Inc. (STCI) Collegeville facility is a minor industrial waste facility that is covered by federal ELGs. STCI manufactures small-diameter, high-quality, fabricated metal tubing. The manufactured tubing has critical applications and is used in numerous products including life-saving heart stents, nuclear power generating equipment, and advanced military aircraft and naval vessels. STCI Collegeville facility is in Lower Providence Township, Montgomery County.

Wastewater is produced from the facility's boiler blow down water, acid pickling baths, DI baths, and standing rinses. Wastewater flows to the transfer station, which is a wet well that holds about 2,000 gallons. Wastewater is pumped from the transfer tank to a mix tank, which has a lime slurry added to raise the pH to 10.5. The feed rate is adjusted automatically via a pH meter. Alkalized wastewater flows into a flash mixer, which has polymer added. The wastewater then enters a clarifier. The settled sludge from the clarifier is pumped to a non-aerated sludge holding tank and from there is pumped to a plate filter press and dewatered. Clarified effluent flows to neutralization tank which has sulfuric acid added to lower the pH to 7.5. The feed rate is controlled automatically by a pH meter. Final effluent passes through a Parshall flume and discharges at outfall 008 in the Perkiomen Creek.

Discharge from Outfall 008 is comprised of the combined flows from process wastewater, boiler blowdown, noncontact cooling water, and treated groundwater from a waste acid spill. The source water is obtained from on-site wells that are treated by three air strippers and one activated carbon unit for trichloroethylene as a result of a corrective action requirement under Environmental Protection Agency (EPA). Cleanup of the waste acid spill is also under the direction of

EPA. The treated process water, boiler blowdown, and treated groundwater from waste acid spill are monitored at Internal Monitoring Point (IMP) 108. Wastewater from IMP 108 is then mixed with noncontact cooling water prior to discharge from Outfall 008. Outfall 008 discharges directly to Perkiomen Creek.

Discharges from Outfalls 002, 004, 005, 006, and 007 are comprised of stormwater and discharge to two unnamed tributaries to Perkiomen Creek.

Sanitary wastewater is connected to the POTW.

Sludge from the clarifier is pumped to a non-aeration sludge holding tank and then to a plate filter press. Processed sludge is kept in a lined dumpster inside the building until disposed of. Sludge is hauled off by Baro and taken to the Conestoga Landfill.

Per the most recent inspection report dated November 9, 2023, the treatment plant consists of the following treatment units:

1. Two mix tanks
2. One flash mixer
3. One clarifier
4. One neutralization tank
5. One sludge holding tank
6. One plate filter press
7. One inactive sand filter
8. One groundwater remediation system

A process flow diagram with water balance is added in the Appendix.

Compliance History	
Summary of DMRs:	**Please see pages 7-11 of this report.**
Summary of Inspections:	**11/9/2023:** CEI conducted. No violation noted during the inspection. Final effluent through Outfall 008 looked clear. The operations within the facility appeared to be well monitored and maintained. Wastewater operations are contracted out to Cawley Environmental. No issues were noted in the pond or the receiving stream. **06/09/2022:** CEI conducted. No violation noted during the inspection. The treatment plant appeared to be operating properly and well maintained. Operations are contracted out to Cawley Environmental.

Compliance History

DMR Data for Outfall 002 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Daily Maximum			0.021628						0.0687			
pH (S.U.) Daily Maximum			6.5						7.72			
COD (mg/L) Daily Maximum			44.3						48.6			
TSS (mg/L) Daily Maximum			71.0						112			
Oil and Grease (mg/L) Daily Maximum			< 4.9						< 4.9			
Nitrate-Nitrite (mg/L) Daily Maximum			0.54						2.22			
Total Aluminum (mg/L) Daily Maximum			1.46						3.62			
Total Copper (mg/L) Daily Maximum			< 0.020						< 0.020			
Total Iron (mg/L) Daily Maximum			1.72						3.54			
Total Lead (mg/L) Daily Maximum			< 0.020						< 0.020			
Total Zinc (mg/L) Daily Maximum			< 0.200						< 0.020			

DMR Data for Outfall 004 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Daily Maximum			0.062086						0.1973			
pH (S.U.) Daily Maximum			6.5						6.93			
COD (mg/L) Daily Maximum			127						45.9			
TSS (mg/L) Daily Maximum			< 4.0						29.3			
Oil and Grease (mg/L) Daily Maximum			< 5.0						< 5.3			

Nitrate-Nitrite (mg/L) Daily Maximum			0.5						3.28			
Total Aluminum (mg/L) Daily Maximum			0.122						1.06			
Total Copper (mg/L) Daily Maximum			< 0.010						0.031			
Total Iron (mg/L) Daily Maximum			0.125						1.76			
Total Lead (mg/L) Daily Maximum			< 0.010						< 0.020			
Total Zinc (mg/L) Daily Maximum			< 0.100						0.282			

DMR Data for Outfall 005 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Daily Maximum			0.002011						0.0064			
pH (S.U.) Daily Maximum			6.3						7.79			
COD (mg/L) Daily Maximum			147						53.7			
TSS (mg/L) Daily Maximum			65.5						11.0			
Oil and Grease (mg/L) Daily Maximum			< 4.8						< 5.2			
Nitrate-Nitrite (mg/L) Daily Maximum			0.57						1.81			
Total Aluminum (mg/L) Daily Maximum			1.58						0.858			
Total Copper (mg/L) Daily Maximum			0.013						0.105			
Total Iron (mg/L) Daily Maximum			1.53						0.317			
Total Lead (mg/L) Daily Maximum			< 0.010						< 0.010			
Total Zinc (mg/L) Daily Maximum			< 0.100						0.157			

DMR Data for Outfall 006 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Daily Maximum			0.008044						0.0256			
pH (S.U.) Daily Maximum			7.1						7.70			
COD (mg/L) Daily Maximum			131						25.1			
TSS (mg/L) Daily Maximum			13.6						31.6			
Oil and Grease (mg/L) Daily Maximum			< 4.7						< 4.8			
Nitrate-Nitrite (mg/L) Daily Maximum			2.8						0.77			
Total Aluminum (mg/L) Daily Maximum			0.731						2.66			
Total Copper (mg/L) Daily Maximum			0.071						< 0.020			
Total Iron (mg/L) Daily Maximum			0.652						2.3			
Total Lead (mg/L) Daily Maximum			< 0.010						< 0.020			
Total Zinc (mg/L) Daily Maximum			0.162						< 0.020			

DMR Data for Outfall 007 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Daily Maximum			0.004323						0.0137			
pH (S.U.) Daily Maximum			6.3						7.04			
COD (mg/L) Daily Maximum			35.9						37.0			
TSS (mg/L) Daily Maximum			17						20.5			
Oil and Grease (mg/L) Daily Maximum			< 4.8						< 5.0			
Nitrate-Nitrite (mg/L) Daily Maximum			0.26						0.64			

Total Aluminum (mg/L) Daily Maximum			1.15						0.299			
Total Copper (mg/L) Daily Maximum			0.017						0.011			
Total Iron (mg/L) Daily Maximum			1.33						0.481			
Total Lead (mg/L) Daily Maximum			< 0.010						< 0.010			
Total Zinc (mg/L) Daily Maximum			< 0.100						< 0.100			

DMR Data for Outfall 008 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly	0.070857	0.066154	0.062213	0.047378	0.038905	0.030612	0.039712	0.033085	0.050803	0.045983	0.033720	0.032266
Flow (MGD) Daily Maximum	0.121770	0.117283	0.106120	0.090650	0.069554	0.069170	0.065100	0.100886	0.098860	0.082012	0.054442	0.061850
pH (S.U.) IMIN	6.7	6.8	7.2	6.5	6.2	7.0	7.0	6.7	6.4	6.4	6.8	6.7
pH (S.U.) IMAX	9.0	8.8	8.7	8.7	8.6	8.6	8.7	8.7	8.6	9.4	8.8	9.3
Temperature (ºF) Daily Maximum	87	86	85	83	82	72	71	71	75	79	82	99
TSS (mg/L) Average Monthly	4.0	6.2	6.6	4.0	4.4	< 4.0	< 4.0	< 4.4	< 4.0	< 4.0	5.6	< 4.0
TSS (mg/L) Daily Maximum	4.0	6.2	6.6	4.0	4.4	< 4.0	< 4.0	< 4.4	< 4.0	< 4.0	5.6	< 4.0
Total Dissolved Solids (mg/L) Average Monthly	570	490	574	574	518	580	611	< 484	521	523	570	487
Total Dissolved Solids (mg/L) Daily Maximum	570	490	574	574	518	580	611	< 484	521	523	570	487
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.2	< 4.9	< 5.1	< 5.0	< 4.9	< 4.8	< 5.0	< 5.1	< 4.9	< 4.9
Total Cadmium (mg/L) Average Quarterly			< 0.001			< 0.001			< 0.001			< 0.001
Total Cadmium (mg/L) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.001
Total Chromium (mg/L) Average Quarterly			< 0.010			< 0.010			< 0.010			< 0.010

Total Chromium (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			< 0.010
Total Copper (mg/L) Average Quarterly			< 0.010			0.045			< 0.010			< 0.010
Total Copper (mg/L) Daily Maximum			< 0.010			0.045			< 0.010			< 0.010
Total Lead (mg/L) Average Quarterly			< 0.010			< 0.010			< 0.010			< 0.010
Total Lead (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			< 0.010
Total Zinc (mg/L) Average Quarterly			< 0.100			0.119			< 0.100			< 0.100
Total Zinc (mg/L) Daily Maximum			< 0.100			0.119			< 0.100			< 0.100
Trichloroethylene (mg/L) Average Quarterly			< 0.001			< 0.001			< 0.0005			< 0.0005
Trichloroethylene (mg/L) Daily Maximum			< 0.001			< 0.001			< 0.0005			< 0.0005
n-Propyl Bromide (mg/L) Average Quarterly			0.001			< 0.001			0.001			0.001
n-Propyl Bromide (mg/L) Daily Maximum			0.001			< 0.001			0.001			0.001

DMR Data for Outfall 108 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly	0.019708	0.020781	0.019245	0.013317	0.013707	0.013580	0.012976	0.013604	0.018751	0.019809	0.020260	0.019389
Flow (MGD) Daily Maximum	0.027144	0.028952	0.029744	0.018560	0.019680	0.019640	0.022608	0.022386	0.025544	0.027504	0.028456	0.026856
pH (S.U.) IMIN	6.1	6.2	6.2	6.1	6.2	6.3	6.1	6.6	6.1	3.5	6.0	5.7
pH (S.U.) IMAX	8.9	8.8	8.8	8.7	8.8	8.8	8.7	8.7	8.7	10.8	8.7	8.8
TSS (lbs/day) Average Monthly	< 0.77	< 0.94	< 0.34	< 0.47	< 0.57	< 0.58	< 0.65	< 0.51	< 0.45	< 0.75	1.13	< 0.84
TSS (lbs/day) Daily Maximum	< 0.90	< 0.97	< 0.42	< 0.56	0.65	< 0.63	< 0.94	< 0.69	< 0.70	< 0.77	1.86	< 0.86
TSS (mg/L) Average Monthly	< 4.0	< 4.0	< 4.0	< 4.0	< 4.4	< 4.0	< 4.5	< 4.0	< 4.0	< 4.0	6.8	< 4.0

TSS (mg/L) Daily Maximum	< 4.0	< 4.0	< 4.0	< 4.0	4.8	< 4.0	< 5.0	< 4.0	< 4.0	< 4.0	9.6	< 4.0
Oil and Grease (lbs/day) Average Monthly	< 0.995	< 1.17	< 0.42	< 0.60	< 0.63	< 0.75	< 0.71	< 0.64	< 0.55	< 0.91	< 0.74	< 1.07
Oil and Grease (lbs/day) Daily Maximum	< 1.18	< 1.18	< 0.51	< 0.72	< 0.65	< 0.85	< 0.98	< 0.84	< 0.85	< 0.94	< 0.97	< 1.14
Oil and Grease (mg/L) Average Monthly	< 5.15	< 5.00	< 5.00	< 5.10	< 4.95	< 5.15	< 5.05	< 5.10	< 4.90	< 4.90	< 5.10	< 5.10
Oil and Grease (mg/L) Daily Maximum	< 5.2	< 5.1	< 5.1	< 5.1	< 5.1	< 5.4	< 5.2	< 5.3	< 4.9	< 4.9	< 5.10	< 5.3
Ammonia (lbs/day) Average Monthly	< 0.022	< 0.023	< 0.026	< 0.012	< 0.013	< 0.018	0.073	0.092	< 0.022	< 0.023	< 0.022	< 0.026
Ammonia (lbs/day) Daily Maximum	0.023	< 0.024	0.041	< 0.014	< 0.014	< 0.021	0.089	0.134	< 0.038	< 0.028	< 0.035	< 0.030
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.4	< 0.1	< 0.1	< 0.1	0.6	0.7	< 0.2	< 0.1	< 0.1	< 0.1
Ammonia (mg/L) Daily Maximum	0.1	< 0.1	0.7	< 0.1	< 0.1	< 0.2	0.7	0.8	< 0.2	< 0.2	< 0.18	< 0.2
Total Cadmium (lbs/day) 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
Total Cadmium (lbs/day) 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
Total Cadmium (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
Total Cadmium (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
Total Chromium (lbs/day) Average Quarterly			< 0.001			0.002			< 0.001			< 0.002
Total Chromium (lbs/day) Daily Maximum			< 0.001			0.002			< 0.001			< 0.002
Total Chromium (mg/L) Average Quarterly			< 0.010			0.017			< 0.010			< 0.010
Total Chromium (mg/L) Daily Maximum			< 0.010			0.017			< 0.010			< 0.010
Total Copper (lbs/day) Average Quarterly			< 0.001			0.001			< 0.001			< 0.002

Total Copper (lbs/day) Daily Maximum			< 0.001			0.001			< 0.001			< 0.002
Total Copper (mg/L) Average Quarterly			< 0.010			0.015			< 0.010			< 0.010
Total Copper (mg/L) Daily Maximum			< 0.010			0.015			< 0.010			< 0.010
Total Cyanide (lbs/day) Average Quarterly			< 0.001			< 0.001			< 0.001			0.003
Total Cyanide (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			0.003
Total Cyanide (mg/L) Average Quarterly			< 0.005			< 0.005			< 0.005			0.015
Total Cyanide (mg/L) Daily Maximum			< 0.1			< 0.1			< 0.005			< 0.1
Fluoride (mg/L) Average Monthly	2.7	0.7	1.0	0.6	0.5	1.9	2.6	1.5	1.2	2.3	1.3	1.2
Total Lead (lbs/day) Average Quarterly			< 0.001			< 0.001			< 0.001			< 0.002
Total Lead (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.002
Total Lead (mg/L) Average Quarterly			< 0.010			< 0.010			< 0.010			< 0.010
Total Lead (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			< 0.010
Total Nickel (lbs/day) Average Quarterly			< 0.001			< 0.001			< 0.001			< 0.002
Total Nickel (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.002
Total Nickel (mg/L) Average Quarterly			< 0.010			< 0.010			< 0.010			< 0.010
Total Nickel (mg/L) Daily Maximum			< 0.01			< 0.01			< 0.010			< 0.01
Total Silver (lbs/day) Average Quarterly			< 0.01			< 0.01			< 0.001			< 0.01
Total Silver (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.002
Total Silver (mg/L) Average Quarterly			< 0.01			< 0.01			< 0.01			< 0.01
Total Silver (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			< 0.010
Total Zinc (lbs/day) Average Monthly	< 0.016	< 0.024	< 0.006	< 0.009	< 0.014	< 0.013	< 0.009	< 0.017	< 0.017	< 0.018	< 0.010	< 0.020

Total Zinc (lbs/day) Daily Maximum	< 0.016	< 0.024	< 0.006	< 0.009	< 0.014	< 0.013	< 0.009	< 0.017	< 0.017	< 0.018	< 0.010	< 0.020
Total Zinc (mg/L) Average Monthly	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.010	< 0.100
Total Zinc (mg/L) Daily Maximum	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.010	< 0.100
Total Toxic Organics (mg/L) Semi-Annual Average			< 0.01						< 0.01			

Compliance History

Effluent Violations for Outfall 008, from: October 1, 2023 To: August 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	11/30/23	IMAX	9.4	S.U.	9.0	S.U.

Effluent Violations for Outfall 108, from: October 1, 2023 To: August 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fluoride	08/31/24	Avg Mo	2.7	mg/L	2.5	mg/L
Fluoride	02/29/24	Avg Mo	2.6	mg/L	2.5	mg/L

Existing Effluent Limitations and Monitoring Requirements

For outfall 002, 004, 005, 006, and 007 (from October 1, 2019 to September 30, 2024)

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 (MGD)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/6 months	Metered
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

For Outfall 008 (from October 1, 2019 to September 30, 2024)

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 Quarterly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Temperature (deg F) (ºF)	XXX	XXX	XXX	XXX	110	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	Average Weekly	Minimum	Average Quarterly	Daily Maximum	Instant. Maximum		
Total Suspended Solids	XXX	XXX	XXX	30.0 Avg Mo	60.0	75	1/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000 Avg Mo	2000	2500	1/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0 Avg Mo	XXX	30	1/month	Grab
Cadmium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Chromium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Copper, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Lead, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Zinc, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Trichloroethylene	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
n-Propyl Bromide	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab

For IMP 108 (from October 1, 2019 to September 30, 2024)

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	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report Avg Mo	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	1/day	Grab
Total Suspended Solids	2.69 Avg Mo	5.24	XXX	10.7	20.9	26.9	2/month	24-Hr Composite
Oil and Grease	2.21 Avg Mo	4.44	XXX	8.84	17.7	22.11	2/month	Grab
Ammonia-Nitrogen	0.226 Avg Mo	0.226	XXX	0.9	0.9	0.904	2/month	24-Hr Composite

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	Average Monthly	Daily Maximum	Instant. Maximum		
Cadmium, Total	0.021 Avg Mo	0.057	XXX	0.086	0.229	0.229	1/month	24-Hr Composite
Chromium, Total	0.143	0.231	XXX	0.573 Avg Qrtly	0.924	1.43	1/quarter	24-Hr Composite
Copper, Total	0.172	0.282	XXX	0.689 Avg Qrtly	1.125	1.72	1/quarter	24-Hr Composite
Cyanide, Total	0.054	0.100	XXX	0.216 Avg Qrtly	0.4	0.54	1/quarter	24-Hr Composite
Fluoride, Total	XXX	XXX	XXX	2.5	XXX	5	2/month	Grab
Lead, Total	0.036	0.058	XXX	0.143 Avg Qrtly	0.229	0.357	1/quarter	24-Hr Composite
Nickel, Total	0.199	0.334	XXX	0.795 Avg Qrtly	1.33	1.98	1/quarter	24-Hr Composite
Silver, Total	0.02	0.036	XXX	0.08 Avg Qrtly	0.143	0.2	1/quarter	24-Hr Composite
Zinc, Total	0.123 Avg Mo	0.218	XXX	0.492	0.879	1.23	1/month	24-Hr Composite
Total Toxic Organics	XXX	XXX	XXX	1.06 SEMI AVG	XXX	XXX	1/6 months	Grab

Development of Effluent Limitations

Outfall No. IMP 108 **Design Flow (MGD)** 0.03
Latitude 40º 11' 4.0" **Longitude** -75º 26' 20.0"
Wastewater Description: Rinse and cleaning water, ground water, vapor-phase-carbon regenerant treated aqueous decant, and boiler blowdown

Technology-Based Limitations:

Technology based effluent limitations were developed considering the following industrial categories and subcategories:

Category	ELG	Subcategory	ELG
Iron and Steel Manufacturing Point Source Category	40 CFR Part 420	Combination Acid Pickling-Pipe, Tube, and other products	Subpart *I (c)(5)*
Nonferrous Metals Forming and Metal Powders Point Source Category	40 CFR Part 471	Nickel-Cobalt Forming – surface treatment rinse	Subpart *(C)(t)*
		Titanium Forming – surface treatment rinse	Subpart *F(n)*
		Zirconium-Hafnium Forming – surface treatment rinse	Subpart *I(i)*
Metal Finishing	40 CFR Part 433	Metal Finishing Chemical Etching	Subpart *A*

Technology based effluent limits for IMP 108 were developed based on the data supplied by STCI in their NPDES permit application and appropriate ELGs. For each parameter listed in the ELGs, the sum of the limits for all of the waste stream was added and applied at IMP 108. The monthly average discharge rate from IMP 108 was reported at 0.03 MGD. Based on the above ELGs, the technology based effluent limits applied at IMP 108 are calculated as follows:

A. Industrial Category and Subcategory: Iron and Steel Manufacturing Point Source Category, Subpart I, Combination Acid Pickling (Pipe, Tube, and other products)

1. Applicable ELG: 40 CFR Part 420.93(c)(5) BAT and 420.92(c)(5) BPT
2. Production rate used and basis for selection: 104,119 off-pounds/year (average for next five years) or 0.299 X 10^3 off-lbs./day for 12 months of operation, 29 days of operation per month.

ELG Information				Limitations			
				Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Average 30 days	Maximum for any 1 day	Units	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Chromium	0.00129	0.00322	Lbs./1000 lbs. BAT/BPT	0.00038571	0.000963		
Nickel	0.000964	0.00289	Lbs./1000 lbs. BAT/BPT	0.000288236	0.000864		
TSS	0.0964	0.225	Lbs./1000 lbs. BPT	0.0288236	0.067275		
Oil & Grease	0.0322	0.0964	Lbs./1000 lbs. BPT	0.0096278	0.028824		
pH	6.0 - 9.0		Std. Units BPT				

B. Industrial Category and Subcategory: Nonferrous Metal Forming and Metal Powders Point Source Category, Subpart C, Nickel-Cobalt forming surface treatment rinse

1. Applicable ELG: 40 CFR 471.32(t) BAT and 471.31(t) BPT
2. Production rate used and basis for selection: 3,507 off pounds/year (average for next five years) or 0.000010 X 10^6 off-pounds/day for 12 months of operation, 29 days per month.

ELG Information				Limitations			
				Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Average 30 days	Maximum for any 1 day	Units	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Chromium	0.354	0.873	Lbs./10^6 lbs. BAT	0.00000354	0.00000873		
Nickel	0.873	1.3	Lbs./10^6 lbs. BAT	0.00000873	0.000013		
Fluoride	62.3	141	Lbs./10^6 lbs. BAT	0.000623	0.00141		
Oil & Grease	283	472	Lbs./10^6 lbs. BPT	0.00283	0.00472		
TSS	460	968	Lbs./10^6 lbs. BPT	0.0046	0.00968		
pH	7.5 – 10.0		Std. Unit BPT				

C. Industrial Category and Subcategory: Nonferrous Metal Forming and Metal Powders Point Source Category, Subpart F, Titanium Forming – surface treatment rinse

1. Applicable ELG: 40 CFR 471.62(n) BAT and 471.61(n) BPT
2. Production rate used and basis for selection: 21.66 off pounds/year (average for next five years) or 0.0000000622 X 10^6 off-pounds/day for 12 months of operation, 29 days per month.

ELG Information				Limitations			
				Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Average 30 days	Maximum for any 1 day	Units	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Cyanide	0.351	0.847	Lbs./10^6 lbs. BAT	0.0000000218322	0.0000000526834		
Lead	0.584	1.23	Lbs./10^6 lbs. BAT	0.0000000363248	0.000000076506		
Zinc	1.78	4.27	Lbs./10^6 lbs. BAT	0.000000110716	0.000000265594		
Ammonia	171	389	Lbs./10^6 lbs. BAT	0.0000106362	0.0000241958		
Fluoride	77.1	174	Lbs./10^6 lbs. BAT	0.00000479562	0.0000108228		
Oil & Grease	351	584	Lbs./10^6 lbs. BPT	0.0000218322	0.0000363248		
TSS	570	1200	Lbs./10^6 lbs. BPT	0.000035454	0.00007464		
pH	7.5 – 10.0		Std. units BPT				

D. Industrial Category and Subcategory: Nonferrous Metal Forming and Metal Powders Point Source Category, Subpart I, Zirconium-Hafnium Forming – surface treatment rinse

1. Applicable ELG: 40 CFR 471.92(i) BAT and 471.91(i) BPT
2. Production rate used and basis for selection: 1.131 off pounds/year (average for next five years) or 0.00000325 X 10^6 off-pounds/day for 12 months of operation, 29 days per month.

ELG Information				Limitations			
				Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Average 30 days	Maximum for any 1 day	Units	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Chromium	0.160	0.391	Lbs./10^6 lbs. BAT	0.00000052	0.00000127075		
Cyanide	0.107	0.258	Lbs./10^6 lbs. BAT	0.00000034775	0.0000008385		
Nickel	1.13	1.71	Lbs./10^6 lbs. BAT	0.0000036725	0.0000055575		
Ammonia	52.1	119	Lbs./10^6 lbs. BAT	0.000169325	0.00038675		
Fluoride	23.5	52.9	Lbs./10^6 lbs. BAT	0.000076375	0.000171925		
Oil & Grease	107	178	Lbs./10^6 lbs. BPT	0.00034775	0.0005785		
TSS	173	364	Lbs./10^6 lbs. BPT	0.00056225	0.001183		
pH	7.5 – 10.0		Std. Units BPT				

E. Industrial Category and Subcategory: Metal Finishing Point Source Category, Subpart A, Metal Finishing Subcategory

1. Applicable ELG: 40 CFR 433.14(a) BAT and 433.13(a) BPT
2. Production rate used and basis for selection: 0.00999 MGD (per 2014 WQPR)

ELG Information				Limitations			
				Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Average 30 days	Maximum for any 1 day	Units	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Total Cadmium	0.26	0.69	Mg/l BAT/BPT	0.021662316	0.057488454		
Total Chromium	1.71	2.77	Mg/l BAT/BPT	0.142471386	0.230786982		
Total Copper	2.07	3.38	Mg/l BAT/BPT	0.172465362	0.281610108		
Total Lead	0.43	0.69	Mg/l BAT/BPT	0.035826138	0.057488454		
Total Nickel	2.38	3.98	Mg/l BAT/BPT	0.198293508	0.331600068		
Total Silver	0.24	0.43	Mg/l BAT/BPT	0.019995984	0.035826138		
Total Zinc	1.48	2.61	Mg/l BAT/BPT	0.123308568	0.217456326		
Total Cyanide	0.65	1.2	Mg/l BAT/BPT	0.05415579	0.09997992		
TTO		2.13	Mg/l BAT/BPT		0.177464358		
Oil & Grease	26	52	Mg/l BPT	2.1662316	4.3324632		
TSS	31	60	Mg/l BPT	2.5828146	4.998996		
pH	6.0 – 9.0		Mg/l BPT				

Per the application, the long-term average flow during production/operation at IMP 108 is 0.03 MGD. This flow will be used to calculate the allowable concentration-based limitations. The mass-based limitations are calculated as sum of applicable all ELGs. The table in next page summarizes all ELG based parameters for IMP 108:

ELG Information	Limitations			
	Allowable Mass Loadings (lbs./day)		Allowable Concentrations (mg/l)	
Parameter	Avg. Monthly	Max Daily	Avg. Monthly	Max Daily
Cadmium	0.021662316	0.057488454	0.086580000	0.22977000
Chromium	0.142861156	0.2317597627500	0.570987834	0.92629801
Copper	0.172465362	0.281610108	0.689310000	1.12554000
Cyanide	0.05415615958220	0.0999808111834	0.216451477	0.39960356
Lead	0.03582617432480	0.0574885305060	0.143190145	0.22977031
Nickel	0.1985941465000	0.3324827355000	0.793741593	1.32886785
Silver	0.019995984	0.035826138	0.079920000	0.14319000
Zinc	0.12330867871600	0.2174565915940	0.492840443	0.86913106
Fluoride	0.00070417062000	0.0015927478000	2.50 (1)	5.00 (1)
TTO		0.177464358	1.06 (2)	2.13
Oil & Grease	2.17905898220000	4.3666216248000	8.709268514	17.45252448
Ammonia	0.2261799612 (3)	0.2264109458 (3)	0.903996647	0.90491985
TSS	2.61683590400000	5.0772086400000	10.458976435	20.29260048
pH	6.0 – 10.0 Std. Units			

Footnotes:

1. The ELG limitation for Fluoride was 0.005 lbs./day or 0.02 mg/l as average monthly. However, IMP 108 also receives treated groundwater from a pump-and-treat system that was installed as a result of a waste acid spill of fluoride. Previous permits provided for a Best Professional Judgement (BPJ) limit of 2.5 mg/l that was considered achievable based on influent levels and removal efficiency of the system. Recommend continuation of the existing Fluoride limit of 2.5 mg/l at IMP 108.
2. Current permit has average monthly concentration-based limit of 1.06 mg/l which was calculated from dividing the daily maximum ELG limit by a factor of 2. Existing limit will be carried over in this renewal.
3. As required by an amendment dated June 1, 2011, STCI submitted a report evaluating their system and conducting additional sampling for NH_3-N. The study concluded that estimated NH_3-N contributions from boiler operations and polymer addition were 0.2 lbs./day and 0.026 lbs./day, respectively, for a total of 0.226 lbs./day from those two non-process sources. The previous permit added this load to the ELG calculation for IMP 108.

Chemical Additives:

Per the Chemical Additives section of the submitted application, there's no change in the chemical additives usage, compared to previous permit. The previous permit application had the following chemical additives: the following chemical additives are introduced to the waste stream:

Additive name	Outfall/IMP	Purpose	Proposed usage frequency	Proposed Max usage rate (lbs./day)
BFW-35	008/108	Corrosion and scale inhibitor	Daily	377
BFW-32	008/108	Corrosion and scale inhibitor	Daily	TBD
OS-15	008/108	Oxygen Scavenger	Daily	TBD
RLT-241	008/108	Steam Condensate Corrosion Inhibitor	Daily	158

All of the chemical additives are on DEP's Approved Chemical Additives List (WMS_Chem_Add_Approv_ext - Report Viewer). The Department didn't receive Chemical Additives Notification Forms for BFW-32 and OS-15 yet. The permittee can't use these two additives until the Notification forms are received and reviewed, a maximum safe usage rate is established, and the rate is compared with the proposed maximum usage rate.

Development of Effluent Limitations

Outfall No. 008 **Design Flow (MGD)** 0.1
Latitude 40º 11' 8.58" **Longitude** -75º 26' 53.16"
Wastewater Description: Rinse and cleaning water, ground water, vapor-phase-carbon regenerant treated aqueous decant, non-contact cooling water, and boiler blowdown

Effluent limitations/monitoring requirements for this outfall will be based on WQBEL and BPJ.

Water Quality-Based Limitations

WQM 7.0

$CBOD_5$ and NH_3-N are not pollutants of concern for this outfall as evident from the sample results submitted with the application. The long-term average BOD_5 and NH3-N discharge concentrations are 3.03 mg/l and <0.34 mg/l, respectively. Therefore, WQM 7.0 modeling is not necessary and permit requirements for these pollutants are not necessary.

Toxics Management Spreadsheet:

TMS was utilized to model pollutants from groups 2 through 7. The model didn't recommend monitoring or limits requirements for any of the pollutants at their highest discharge concentration. TMS modeling data will be included with this fact sheet.

Temperature:

The attached *Thermal Limits Spreadsheet V.1.0, April 2024* indicated a year-round discharge temperature of 110°F as Daily Maximum. This is also in support of DRBC requirement. Existing limits will be continued.

Total Suspended Solids

Existing permit has Average monthly, Daily maximum, and Instantaneous maximum limits of 30 mg/l, 60 mg/l, and 75 mg/l, respectively. The average monthly limit is consistent with DRBC requirement (3.10.4.D.1.a). The Daily maximum and Instantaneous maximum values were obtained by multiplying average monthly value with a factor of 2.0 and 2.5, respectively. The existing limits will be carried over in this renewal.

Total Dissolved Solids

Existing permit has Average monthly, Daily maximum, and Instantaneous maximum limits of 1,000 mg/l, 2,000 mg/l, and 2,500 mg/l, respectively. The average monthly limit is consistent with DRBC requirement (3.10.4.D.2). The Daily maximum and Instantaneous maximum values were obtained by multiplying average monthly value with a factor of 2.0 and 2.5, respectively. The existing limits will be carried over in this renewal.

Oil and Grease

Existing permit has Average monthly and Instantaneous maximum limit of 15.0 mg/l and 30.0 mg/l, respectively. These limits are consistent with Pa Code 25 §95.2(2)(ii). The existing limits will be carried over in this renewal.

Fluoride

The Fluoride criteria applies at the nearest downstream surface potable water supply intake. The nearest downstream PWS intake is PA American Water Norristown District on Schuylkill River at RMI 25.07, which is 14.46 miles downstream of the Outfall 008. The $Q_{7\text{-}10}$ at the intake is estimated to be 36.63 cfs. A mass balance for Fluoride is shown below:

36.63 cfs * 0 mg/l + 0.1547 cfs * X = 36.78 cfs * 2 mg/l (assuming 0 mg/l background and 2 mg/l at intake)

X = 475.5 mg/l (maximum discharge concentration at Outfall 008)

The maximum reported Fluoride concentration at Outfall 008 in the application is 1.92 mg/l which is much smaller compared to maximum allowable 475.5 mg/l. Therefore, there is no reasonable potential for Fluoride at Outfall 008.

PFOA, PFOS, PFBS, and HFPO-DA:

The permittee provided three sample results for PFOA, PFOS, PFBS, and HFPO-DA. The maximum reported concentrations for these compounds are 4.63 ng/l, 4.46 ng/l, 13.40 ng/l, and <8.11 ng/l. Since some of the compounds were detected, per SOP BCW-PMT-001 (revised February 5, 2024), Part C of the permit will have PFAS Reduction special condition along with quarterly monitoring requirements (per BCW-PMT-032, revised February 5, 2024). The permit will also include an option for the permittee to discontinue sampling when the sample results show non-detect values for four consecutive monitoring periods for each of these PFAS parameter, at or below DEP's TQL. The following language will be included in the Part A of the permit:

"The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs."

Total Cadmium, Chromium, Copper, Lead, Zinc, Trichloroethylene, and n-Propyl Bromide:

Current permit has quarterly monitoring requirements for these parameters. There's no RP demonstrated for them, based on TMS model output. It is recommended that the monitoring requirements will be discontinued. This relaxation is consistent with the Anti-Degradation Prohibition Exception, as stated in CWA § 402(o)(2)(B)(i).

Development of Effluent Limitations

For Stormwater Outfalls 002, 004, 005, 006, and 007

The existing permit has the following limitations/monitoring requirements for stormwater outfalls 002, 004, 005, 006, and 007:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	1/6 months	Metered
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
CBOD5	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Dissolved Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

The activities under this permit meet the definition of “Storm water discharge associated with industrial activity” per 40 CFR §122.26(b)(14), hence must be covered under an NPDES permit. The SIC codes for this facility are covered under 40 CFR §122.26(b)(i) and §122.26(b)(xi) and the appropriate appendices are Appendix B (Primary Metals for SIC codes 3317 and 3356) and Appendix U (Fabricated Metal Products for SIC code 3451). The respective limitations are provided below:

Appendix B Primary Metals			
Parameter	Monitoring requirements		Benchmark Values
	Minimum measurement frequency	Sample type	
Total Nitrogen (mg/l)	1/6 months	Grab	XXX
Total Phosphorus (mg/l)	1/6 months	Grab	XXX
TSS (mg/l)	1/6 months	Grab	100
Total Aluminum (mg/l)	1/6 months	Grab	XXX
Oil & Grease	1/6 months	Grab	30
Total Zinc (mg/l)	1/6 months	Grab	XXX
Total Copper (mg/l)	1/6 months	Grab	XXX
Total Iron (mg/l)	1/6 months	Grab	XXX
Total Lead (mg/l)	1/6 months	Grab	XXX

Appendix U Fabricated Metal Products			
Parameter	Monitoring requirements		Benchmark Values
	Minimum measurement frequency	Sample type	
Total Nitrogen (mg/l)	1/6 months	Grab	XXX
Total Phosphorus (mg/l)	1/6 months	Grab	XXX
pH (S.U.)	1/6 months	Grab	9.0
TSS (mg/l)	1/6 months	Grab	100
Oil & Grease	1/6 months	Grab	30
Nitrate+Nitrite-Nitrogen (mg/l)	1/6 months	Grab	3.0
Total Aluminum (mg/l)	1/6 months	Grab	XXX
Total Iron (mg/l)	1/6 months	Grab	XXX
Total Zinc (mg/l)	1/6 months	Grab	XXX

Combining both the appendices, the following limits table is proposed for all stormwater outfalls:

Parameter	Monitoring requirements		Benchmark Values
	Minimum measurement frequency	Sample type	
Total Nitrogen (mg/l)	1/6 months	Grab	XXX
Total Phosphorus (mg/l)	1/6 months	Grab	XXX
pH (S.U.)	1/6 months	Grab	9.0
TSS (mg/l)	1/6 months	Grab	100
Oil & Grease	1/6 months	Grab	30
Nitrate+Nitrite-Nitrogen (mg/l)	1/6 months	Grab	3.0
Total Aluminum (mg/l)	1/6 months	Grab	XXX
Total Iron (mg/l)	1/6 months	Grab	XXX
Total Zinc (mg/l)	1/6 months	Grab	XXX
Total Copper (mg/l)	1/6 months	Grab	XXX
Total Lead (mg/l)	1/6 months	Grab	XXX

These pollutants will be applied to all stormwater outfalls and will replace the existing pollutants for the same outfalls.

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, 004, 005, 006, and 007, 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	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: At outfalls 002, 004, 006, and 007.

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 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	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Temperature (deg F) (ºF)	XXX	XXX	XXX	XXX	110	XXX	1/day	I-S
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	75	1/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000	2000	2500	1/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30	1/month	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location: At Outfall 008

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.

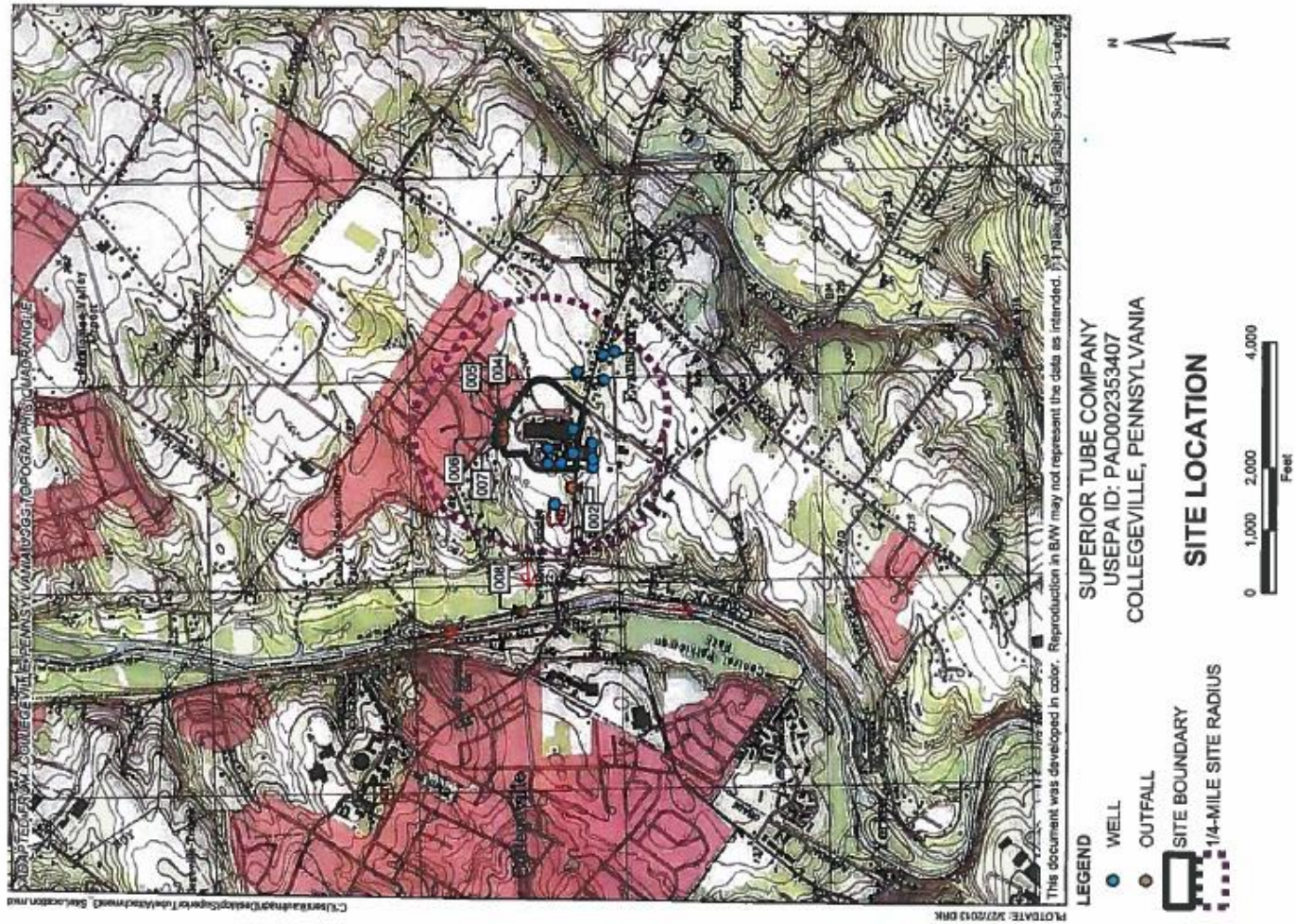
Outfall 108, Effective Period: Permit Effective Date through Permit Expiration Date.

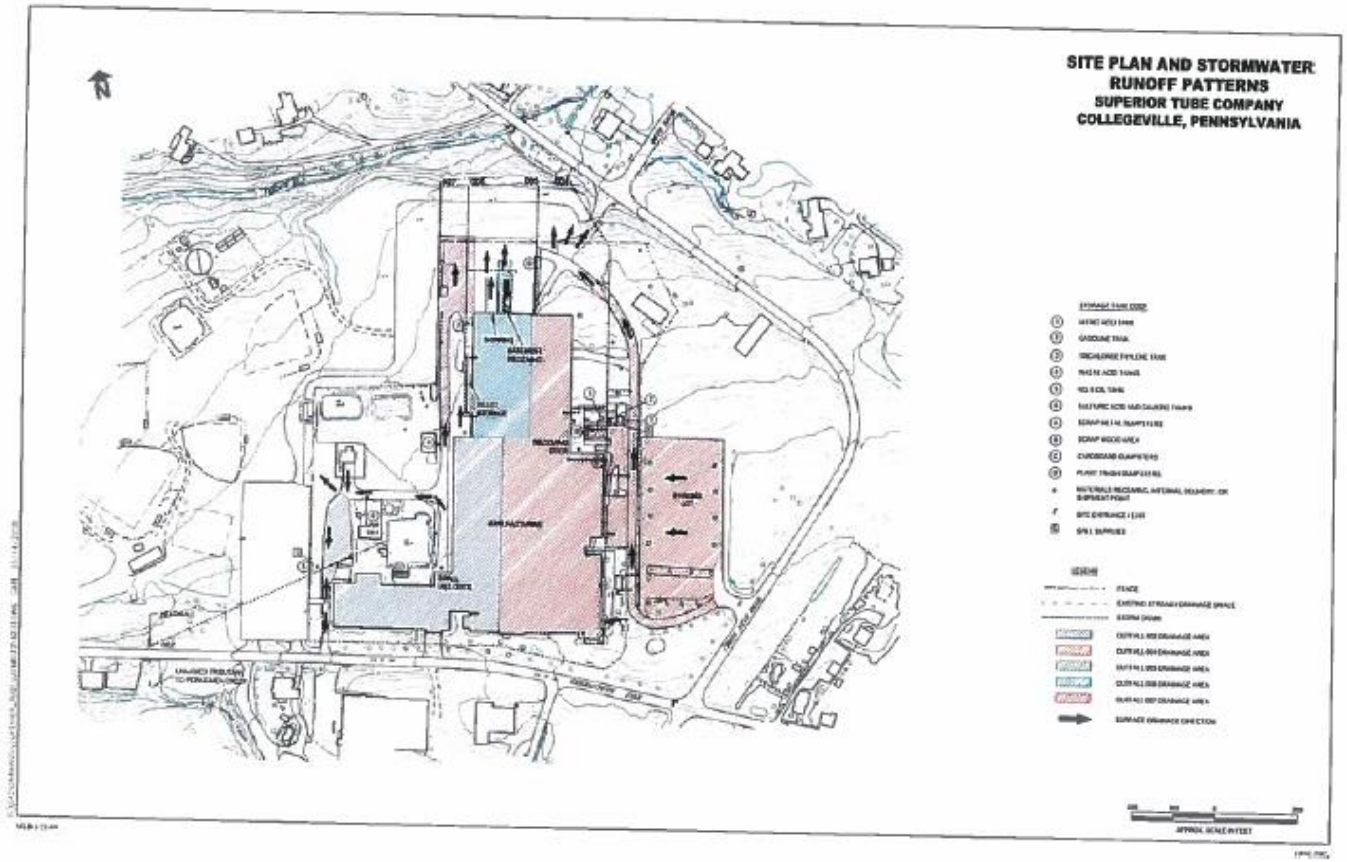
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Quarterly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report Avg Mo	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	1/day	Grab
Total Suspended Solids	2.69 Avg Mo	5.24	XXX	10.7	20.9	26.9	2/month	24-Hr Composite
Oil and Grease	2.21 Avg Mo	4.44	XXX	8.84	17.7	22.11	2/month	Grab
Ammonia-Nitrogen	0.226 Avg Mo	0.226	XXX	0.9	0.9	0.904	2/month	24-Hr Composite
Cadmium, Total	0.021 Avg Mo	0.057	XXX	0.086	0.229	0.229	1/month	24-Hr Composite
Chromium, Total	0.143	0.231	XXX	0.573 Avg Qrtly	0.924	1.43	1/quarter	24-Hr Composite
Copper, Total	0.172	0.282	XXX	0.689 Avg Qrtly	1.125	1.72	1/quarter	24-Hr Composite
Cyanide, Total	0.054	0.100	XXX	0.216 Avg Qrtly	0.4	0.54	1/quarter	24-Hr Composite
Fluoride, Total	XXX	XXX	XXX	2.5	XXX	5	2/month	Grab
Lead, Total	0.036	0.058	XXX	0.143 Avg Qrtly	0.229	0.357	1/quarter	24-Hr Composite
Nickel, Total	0.199	0.334	XXX	0.795 Avg Qrtly	1.33	1.98	1/quarter	24-Hr Composite
Silver, Total	0.02	0.036	XXX	0.08 Avg Qrtly	0.143	0.2	1/quarter	24-Hr Composite
Zinc, Total	0.123 Avg Mo	0.218	XXX	0.492	0.879	1.23	1/month	24-Hr Composite
Total Toxic Organics	XXX	XXX	XXX	1.06 SEMI AVG	XXX	XXX	1/6 months	Grab

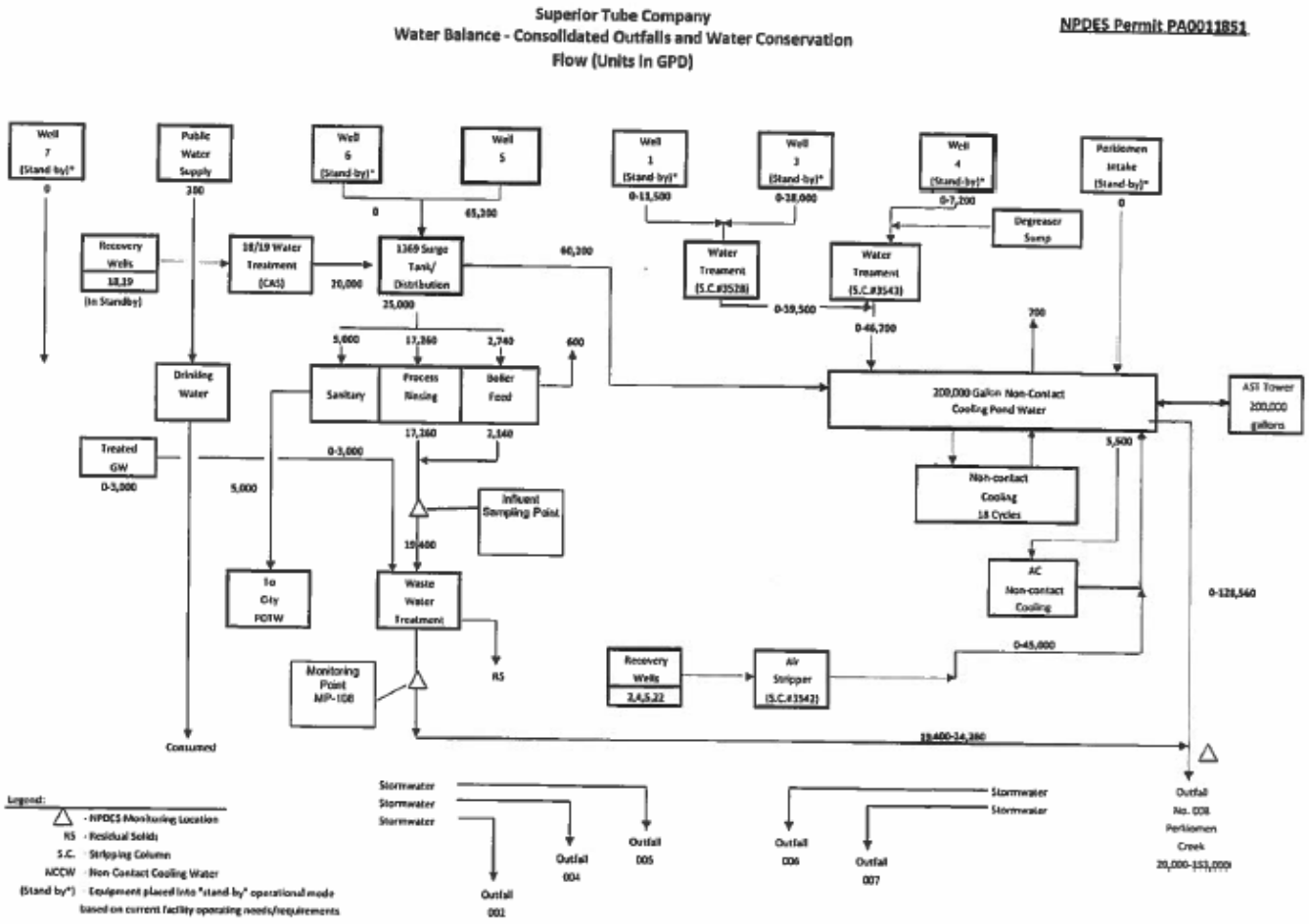
Compliance Sampling Location: At IMP 108

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☒	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Appendix A
Locational Map, Water Balance, and Flow Diagrams


SITE LOCATION
SUPERIOR TUBE COMPANY
USEPA ID: PAD002353407
COLLEGEVILLE, PENNSYLVANIA
LEGEND
WELL
OUTFALL
SITE BOUNDARY
1/4-MILE SITE RADIUS
0
1,000
2,000
4,000
Feet
N
This document was developed in color. Reproduction in B/W may not represent the data as intended.
PLOTDATE: 3/27/2013 DRK
005
004
006
007
003
008

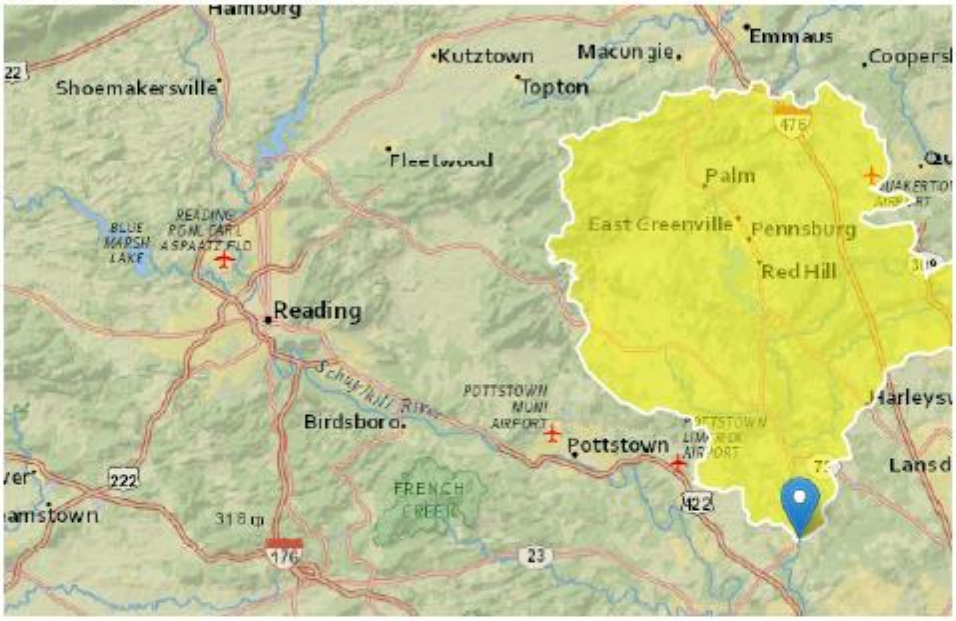

SITE PLAN AND STORMWATER
RUNOFF PATTERNS
SUPERIOR TUBE COMPANY
COLLEGEVILLE, PENNSYLVANIA


Superior Tube Company
Water Balance - Consolidated Outfalls and Water Conservation
Flow (Units in GPD)
NPDES Permit PA0011851
Well 7 (Stand-by)* 0
Public Water Supply 390
Well 6 (Stand-by)* 0
Well 5 65,200
Well 1 (Stand-by)* 0-11,500
Well 3 (Stand-by)* 0-38,000
Well 4 (Stand-by)* 0-7,200
Perkiomen Intake (Stand-by)* 0
Degreaser Sump
Recovery Wells 18,19 (In Standby)
18/19 Water Treatment (CAS) 20,000
1369 Surge Tank/ Distribution 25,000
66,200
Water Treatment (S.C.#3528)
0-39,500
Water Treatment (S.C.#3543)
0-46,700
700
5,000
17,360
2,740
600
Drinking Water
Sanitary
Process Rinsing
Boiler Feed
17,360
2,340
200,000 Gallon Non-Contact Cooling Pond Water
AST Tower 200,000 gallons
Treated GW 0-3,000
0-3,000
5,000
Non-contact Cooling 18 Cycles
5,600
Influent Sampling Point
19,400
To City POTW
Waste Water Treatment
AC Non-contact Cooling
0-128,560
0-45,000
RS
Monitoring Point MP-108
Recovery Wells 2,4,5,22
Air Stripper (S.C.#3542)
19,400-34,360
Consumed
Legend:
- NPDES Monitoring Location
RS - Residual Solids
S.C. - Stripping Column
NCCW - Non Contact Cooling Water
(Stand by*) - Equipment placed into "stand by" operational mode based on current facility operating needs/requirements
Stormwater
Stormwater
Stormwater
Outfall 001
Outfall 004
Outfall 005
Outfall 006
Outfall 007
Stormwater
Stormwater
Outfall No. 008 Perkiomen Creek 20,000-153,000

Appendix B
USGS PA StreamStats

PA0011851 at Outfall 008

Region ID: PA
Workspace ID: PA20190710120536135000
Clicked Point (Latitude, Longitude): 40.18551, -75.44811
Time: 2019-07-10 08:06:11 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	293	square miles
BSLOPD	Mean basin slope measured in degrees	3.7	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	7	percent

Low-Flow Statistics Parameters[100 Percent (292 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	293	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.7	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	7	percent	0	89

Low-Flow Statistics Flow Report[100 Percent (292 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	40.5	ft^3/s	46	46
30 Day 2 Year Low Flow	55.4	ft^3/s	38	38
7 Day 10 Year Low Flow	19.8	ft^3/s	51	51
30 Day 10 Year Low Flow	27.2	ft^3/s	46	46
90 Day 10 Year Low Flow	45.8	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/)

Node 2 w/confl 01125

Region ID: PA
Workspace ID: PA20190711121644139000
Clicked Point (Latitude, Longitude): 40.17018, -75.46213
Time: 2019-07-11 08:17:08 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	298	square miles
BSLOPD	Mean basin slope measured in degrees	3.7	degrees
ROCKDEP	Depth to rock	4.5	feet
URBAN	Percentage of basin with urban development	7	percent

Low-Flow Statistics Parameters[100 Percent (298 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	298	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.7	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.5	feet	4.13	5.21
URBAN	Percent Urban	7	percent	0	89

Low-Flow Statistics Flow Report[100 Percent (298 square miles) Low Flow Region 1]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	41.2	ft^3/s	46	46
30 Day 2 Year Low Flow	56.3	ft^3/s	38	38
7 Day 10 Year Low Flow	20.2	ft^3/s	51	51
30 Day 10 Year Low Flow	27.7	ft^3/s	46	46
90 Day 10 Year Low Flow	46.6	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/)

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01614000	Back Creek near Jones Springs, W.Va.	39.512	-78.037	235	N
01614090	Conococheague Creek near Fayetteville, Pa.	39.930	-77.439	5.05	N
01614500	Conococheague Creek at Fairview, Md.	39.716	-77.825	494	N
01616500	Opequon Creek near Martinsburg, W.Va.	39.424	-77.939	273	N
01617000	Tuscarora Creek above Martinsburg, W.Va.	39.470	-77.971	11.3	N
01617800	Marsh Run at Grimes, Md.	39.515	-77.777	18.9	N
01618000	Potomac River at Shepherdstown, W.Va.	39.435	-77.801	5,939	N
01619000	Antietam Creek near Waynesboro, Pa.	39.716	-77.607	93.5	N
01619500	Antietam Creek near Sharpsburg, Md.	39.450	-77.730	281	LF
01637500	Catoctin Creek near Middletown, Md.	39.427	-77.556	66.9	N
01639000	Monocacy River at Bridgeport, Md.	39.679	-77.235	173	N
01639140	Piney Creek near Taneytown, Md.	39.661	-77.221	31.3	N
01639500	Big Pipe Creek at Bruceville, Md.	39.612	-77.237	102	N
01640500	Owens Creek at Lantz, Md.	39.677	-77.464	5.93	N
01640965	Hunting Creek near Foxville, Md.	39.620	-77.466	2.14	N
01640970	Hunting Creek Tributary near Foxville, Md.	39.628	-77.462	4.01	N
01641000	Hunting Creek at Jimtown, Md.	39.594	-77.397	18.4	LF
01641500	Fishing Creek near Lewistown, Md.	39.527	-77.467	7.29	N
01642500	Linganore Creek near Frederick, Md.	39.415	-77.333	82.3	LF
01643000	Monocacy River at Jug Bridge near Frederick, Md.	39.403	-77.366	817	N
01643500	Bennett Creek at Park Mills, Md.	39.294	-77.407	62.8	N
03007800	Allegheny River at Port Allegany, Pa.	41.819	-78.293	248	N
03008000	Newell Creek near Port Allegany, Pa.	41.895	-78.349	7.79	N
03009680	Potato Creek at Smethport, Pa.	41.810	-78.430	160	N
03010500	Allegheny River at Eldred, Pa.	41.963	-78.386	550	N
03010655	Oswayo Creek at Shinglehouse, Pa.	41.962	-78.198	98.7	N
03011020	Allegheny River at Salamanca, N.Y.	42.156	-78.715	1,608	N
03011800	Kinzua Creek near Guffey, Pa.	41.766	-78.719	38.8	N
03012550	Allegheny River at Kinzua Dam, Pa.	41.841	-79.012	2,180	Y
03013000	Conewango Creek at Waterboro, N.Y.	42.171	-79.069	290	N
03014500	Chadakoin River at Falconer, N.Y.	42.113	-79.204	194	Y
03015000	Conewango Creek at Russell, Pa.	41.938	-79.133	816	Y
03015280	Jackson Run near North Warren, Pa.	41.903	-79.238	12.8	N
03015500	Brokenstraw Creek at Youngsville, Pa.	41.853	-79.317	321	N
03016000	Allegheny River at West Hickory, Pa.	41.571	-79.408	3,660	Y
03017500	Tionesta Creek at Lynch, Pa.	41.602	-79.050	233	N
03020000	Tionesta Creek at Tionesta Creek Dam, Pa.	41.478	-79.444	479	Y
03020500	Oil Creek at Rouseville, Pa.	41.482	-79.695	283	N
03021350	French Creek near Wattsburg, Pa.	42.015	-79.783	92.0	N
03021410	West Branch French Creek near Lowville, Pa.	42.082	-79.850	52.3	N
03021500	French Creek at Carters Corners, Pa.	41.956	-79.877	208	N
03021520	French Creek near Union City, Pa.	41.908	-79.897	221	Y
03022540	Woodcock Creek at Blooming Valley, Pa.	41.691	-80.048	31.1	N
03022554	Woodcock Creek at Woodcock Creek Dam, Pa.	41.696	-80.108	45.6	Y
03023100	French Creek at Meadville, Pa.	41.633	-80.160	788	Y

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
[3]01611500	1926–2008	83	37.2	39.3	56.4	45.6	65.6	56.0
[4]01613000	1934–2008	75	270	286	446	335	534	453
01613050	1967–2008	40	0	0	.1	<.1	.4	.2
[3]01614000	1930–2008	41	3.2	3.8	8.2	5.4	11.4	8.1
01614090	1962–1981	19	.2	.3	.8	.4	1.0	.7
[4]01614500	1930–2008	79	48.1	55.0	91.9	65.3	105	81.4
[3]01616500	1949–2008	60	34.4	36.7	54.4	41.0	61.9	48.7
01617000	1950–2008	24	.8	1.1	2.3	1.3	2.7	1.5
[4]01617800	1966–2008	43	.2	.5	3.0	.9	3.4	1.4
01618000	1930–2004	68	333	424	708	516	869	680
01619000	1950–2008	19	22.5	23.4	37.5	25.9	41.8	32.9
[4]01619500	1901–2008	82	57.9	65.2	93.1	72.4	103	82.5
[4]01637500	1949–2008	60	.6	.9	3.2	1.7	5.4	4.2
[4]01639000	1944–2008	65	.6	.8	4.7	2.9	8.2	6.6
[4]01639140	1992–2001	10	0	.1	.9	.3	1.5	.8
[4]01639500	1949–2008	60	—	7.1	23.9	10.4	26.6	17.2
[4]01640500	1933–1984	52	.1	.2	.6	.3	.8	.6
[4]01640965	1983–1994	12	<.1	<.1	.1	.1	.1	.1
[4]01640970	1983–1991	9	0.1	0.1	0.3	0.2	0.5	0.4
[4]01641000	[3]1951–1968	18	.9	1.1	1.9	1.5	2.5	1.9
[4]01641000	[2]1970–1991	22	2.1	2.4	3.6	3.2	4.6	4.2
[4]01641500	1949–1984	36	.8	.9	1.5	1.1	1.8	1.4
[4]01642500	[3]1933–1970	35	6.0	6.8	15.3	9.0	18.5	13.4
[4]01642500	[2]1972–1982	11	7.2	8.6	18.1	12.2	23.9	19.9
[4]01643000	1931–2008	78	45.1	49.2	105	63.9	128	93.1
[4]01643500	1950–2008	50	3.2	3.8	11.0	5.9	13.0	10.2
03007800	1976–2008	33	13.2	15.4	35.2	20.9	47.8	35.5
03008000	1968–1979	12	0	0	.2	<.1	.6	<.1
03009680	1976–1995	20	11.2	13.5	26.9	17.2	38.8	29.5
03010500	1941–2008	68	27.6	31.0	65.0	42.8	91.5	63.0
03010655	1976–2008	33	4.9	5.7	11.8	7.4	15.6	10.6
03011020	1905–2008	104	117	127	218	159	291	217
03011800	1967–2008	42	4.2	4.9	8.8	6.2	12.1	9.0
03012550	[2]1967–1991	25	—	414	681	542	944	828
03012550	[3]1937–1965	29	168	176	260	212	319	267
03013000	1940–1993	54	28.2	31.0	48.3	35.1	58.7	41.5
03014500	1936–2008	73	7.4	10.8	28.6	15.3	41.0	24.1
03015000	[2]1951–2008	58	76.4	81.7	143	95.1	180	115
03015000	[3]1941–1949	9	69.6	71.6	122	86.5	141	131
03015280	1964–1978	15	.7	.9	1.9	1.3	2.7	2.0
03015500	1911–2008	98	32.2	34.4	54.8	40.7	70.1	51.4
03016000	[2]1967–2008	44	527	579	1,230	708	1,630	906
03016000	[3]1943–1965	23	292	312	466	368	560	486
03017500	1939–1979	41	14.6	16.3	30.0	22.1	42.2	35.4
03020000	1942–1991	50	7.5	14.8	72.6	40.7	86.2	67.9

Appendix C
TMS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Superior Tube Collegeville Facility** NPDES Permit No.: **PA0011851** Outfall No.: **008**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated IW**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.1	195.33	7.1						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L	<	80									
	Total Antimony	µg/L		0.8									
	Total Arsenic	µg/L		1									
	Total Barium	µg/L		300									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L		18									
	Total Cadmium	µg/L	<	0.89									
	Total Chromium (III)	µg/L	<	11.23									
	Hexavalent Chromium	µg/L		13.5									
	Total Cobalt	µg/L		14									
	Total Copper	µg/L	<	12.82									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	9									
	Dissolved Iron	µg/L	<	12									
	Total Iron	µg/L		152									
	Total Lead	µg/L	<	7.63									
	Total Manganese	µg/L	<	5									
	Total Mercury	µg/L	<	0.09									
	Total Nickel	µg/L		5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.202									
	Total Selenium	µg/L	<	0.8									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.05									
	Total Zinc	µg/L	<	7.67									
	Total Molybdenum	µg/L		2									
	Acrolein	µg/L	<	0.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.3									
	Benzene	µg/L	<	0.4									
	Bromoform	µg/L	<	0.4									
	Carbon Tetrachloride	µg/L		41.9									

Group 3	Chlorobenzene	µg/L		0.5										
	Chlorodibromomethane	µg/L	<	0.4										
	Chloroethane	µg/L	<	0.06										
	2-Chloroethyl Vinyl Ether	µg/L	<	0.3										
	Chloroform	µg/L	<	0.3										
	Dichlorobromomethane	µg/L	<	0.4										
	1,1-Dichloroethane	µg/L	<	0.4										
	1,2-Dichloroethane	µg/L	<	0.3										
	1,1-Dichloroethylene	µg/L	<	0.2										
	1,2-Dichloropropane	µg/L	<	0.3										
	1,3-Dichloropropylene	µg/L	<	0.5										
	1,4-Dioxane	µg/L		0.17										
	Ethylbenzene	µg/L	<	0.2										
	Methyl Bromide	µg/L	<	0.4										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L	<	0.4										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.3										
	Toluene	µg/L	<	0.3										
	1,2-trans-Dichloroethylene	µg/L	<	0.4										
	1,1,1-Trichloroethane	µg/L	<	0.3										
	1,1,2-Trichloroethane	µg/L	<	0.3										
	Trichloroethylene	µg/L	<	0.15										
	Vinyl Chloride	µg/L	<	0.3										
Group 4	2-Chlorophenol	µg/L	<	0.181										
	2,4-Dichlorophenol	µg/L	<	0.225										
	2,4-Dimethylphenol	µg/L	<	0.38										
	4,6-Dinitro-o-Cresol	µg/L	<	1.22										
	2,4-Dinitrophenol	µg/L	<	1.9										
	2-Nitrophenol	µg/L	<	0.232										
	4-Nitrophenol	µg/L	<	1.43										
	p-Chloro-m-Cresol	µg/L	<	0.327										
	Pentachlorophenol	µg/L	<	0.504										
	Phenol	µg/L	<	0.202										
	2,4,6-Trichlorophenol	µg/L	<	0.229										
Group 5	Acenaphthene	µg/L	<	0.355										
	Acenaphthylene	µg/L	<	0.353										
	Anthracene	µg/L	<	0.331										
	Benzidine	µg/L	<	0.617										
	Benzo(a)Anthracene	µg/L	<	0.274										
	Benzo(a)Pyrene	µg/L	<	0.252										
	3,4-Benzofluoranthene	µg/L	<	0.274										
	Benzo(ghi)Perylene	µg/L	<	0.416										
	Benzo(k)Fluoranthene	µg/L	<	0.338										
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.237										
	Bis(2-Chloroethyl)Ether	µg/L	<	0.273										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.273										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3.37										
	4-Bromophenyl Phenyl Ether	µg/L	<	0.399										
	Butyl Benzyl Phthalate	µg/L	<	1.05										
	2-Chloronaphthalene	µg/L	<	0.345										
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.345										
	Chrysene	µg/L	<	0.516										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.418										
	1,2-Dichlorobenzene	µg/L	<	0.09										
	1,3-Dichlorobenzene	µg/L	<	0.418										
	1,4-Dichlorobenzene	µg/L	<	0.457										
	3,3-Dichlorobenzidine	µg/L	<	0.753										
	Diethyl Phthalate	µg/L	<	0.859										
	Dimethyl Phthalate	µg/L	<	0.517										
	Di-n-Butyl Phthalate	µg/L	<	2.84										
	2,4-Dinitrotoluene	µg/L	<	1.84										
	2,6-Dinitrotoluene	µg/L	<	0.453										
	Di-n-Octyl Phthalate	µg/L	<	0.372										

	1,2-Diphenylhydrazine	µg/L	<	0.533										
	Fluoranthene	µg/L	<	0.634										
	Fluorene	µg/L	<	0.314										
	Hexachlorobenzene	µg/L	<	0.422										
	Hexachlorobutadiene	µg/L	<	0.268										
	Hexachlorocyclopentadiene	µg/L	<	0.407										
	Hexachloroethane	µg/L	<	0.464										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.396										
	Isophorone	µg/L	<	0.251										
	Naphthalene	µg/L	<	0.259										
	Nitrobenzene	µg/L	<	0.245										
	n-Nitrosodimethylamine	µg/L	<	0.242										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.426										
	n-Nitrosodiphenylamine	µg/L	<	0.374										
	Phenanthrene	µg/L	<	0.425										
	Pyrene	µg/L	<	0.596										
	1,2,4-Trichlorobenzene	µg/L	<	0.267										
Group 6	Aldrin	µg/L	<	0.003										
	alpha-BHC	µg/L	<	0.0006										
	beta-BHC	µg/L	<	0.002										
	gamma-BHC	µg/L	<	0.0007										
	delta BHC	µg/L	<	0.001										
	Chlordane	µg/L	<	0.28										
	4,4-DDT	µg/L	<	0.002										
	4,4-DDE	µg/L	<	0.002										
	4,4-DDD	µg/L	<	0.005										
	Dieldrin	µg/L	<	0.007										
	alpha-Endosulfan	µg/L	<	0.005										
	beta-Endosulfan	µg/L	<	0.0005										
	Endosulfan Sulfate	µg/L	<	0.006										
	Endrin	µg/L	<	0.001										
	Endrin Aldehyde	µg/L	<	0.006										
	Heptachlor	µg/L	<	0.004										
	Heptachlor Epoxide	µg/L	<	0.006										
	PCB-1016	µg/L	<	0.07										
	PCB-1221	µg/L	<	0.09										
	PCB-1232	µg/L	<	0.09										
	PCB-1242	µg/L	<	0.09										
	PCB-1248	µg/L	<	0.09										
	PCB-1254	µg/L	<	0.09										
	PCB-1260	µg/L	<	0.06										
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<	0.23										
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

Stream / Surface Water Information

Superior Tube Collegeville Facility, NPDES Permit No. PA0011851, Outfall 008

Instructions | Discharge | Stream

Receiving Surface Water Name: Perkiomen Creek

No. Reaches to Model: 1

- (•) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	001017	6.48	96.33	293			Yes
End of Reach 1	001017	5.1	91.97	298			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	6.48	0.121										98	8		
End of Reach 1	5.1	0.121										98	8		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	6.48														
End of Reach 1	5.1														

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.162 Analysis Hardness (mg/l): 100.55 Analysis pH: 7.93

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	28,607	
Total Antimony	0	0		0	1,100	1,100	41,957	
Total Arsenic	0	0		0	340	340	12,969	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	800,996	
Total Boron	0	0		0	8,100	8,100	308,956	
Total Cadmium	0	0		0	2.025	2.15	81.8	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	572.337	1,811	69,084	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	621	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	3,624	
Total Copper	0	0		0	13.509	14.1	537	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.969	82.2	3,136	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	62.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	470.420	471	17,979	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.247	3.82	146	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	2,479	
Total Zinc	0	0		0	117.728	120	4,591	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	114	
Acrylonitrile	0	0		0	650	650	24,793	
Benzene	0	0		0	640	640	24,411	
Bromoform	0	0		0	1,800	1,800	68,657	
Carbon Tetrachloride	0	0		0	2,800	2,800	106,799	
Chlorobenzene	0	0		0	1,200	1,200	45,771	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	686,568	
Chloroform	0	0		0	1,900	1,900	72,471	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	572,140	
1,1-Dichloroethylene	0	0		0	7,500	7,500	286,070	
1,2-Dichloropropane	0	0		0	11,000	11,000	419,569	
1,3-Dichloropropylene	0	0		0	310	310	11,824	
Ethylbenzene	0	0		0	2,900	2,900	110,614	
Methyl Bromide	0	0		0	550	550	20,978	
Methyl Chloride	0	0		0	28,000	28,000	1,067,994	
Methylene Chloride	0	0		0	12,000	12,000	457,712	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	38,143	
Tetrachloroethylene	0	0		0	700	700	26,700	
Toluene	0	0		0	1,700	1,700	64,843	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	259,370	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	114,428	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	129,685	
Trichloroethylene	0	0		0	2,300	2,300	87,728	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	21,360	
2,4-Dichlorophenol	0	0		0	1,700	1,700	64,843	
2,4-Dimethylphenol	0	0		0	660	660	25,174	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	3,051	
2,4-Dinitrophenol	0	0		0	660	660	25,174	
2-Nitrophenol	0	0		0	8,000	8,000	305,141	
4-Nitrophenol	0	0		0	2,300	2,300	87,728	
p-Chloro-m-Cresol	0	0		0	160	160	6,103	
Pentachlorophenol	0	0		0	22.154	22.2	845	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	17,546	
Acenaphthene	0	0		0	83	83.0	3,166	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	11,443	
Benzo(a)Anthracene	0	0		0	0.5	0.5	19.1	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	1,144,280	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	171,642	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	10,299	
Butyl Benzyl Phthalate	0	0		0	140	140	5,340	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	31,277	
1,3-Dichlorobenzene	0	0		0	350	350	13,350	

1,4-Dichlorobenzene	0	0		0	730	730	27,844	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	152,571	
Dimethyl Phthalate	0	0		0	2,500	2,500	95,357	
Di-n-Butyl Phthalate	0	0		0	110	110	4,196	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	61,028	
2,6-Dinitrotoluene	0	0		0	990	990	37,761	
1,2-Diphenylhydrazine	0	0		0	15	15.0	572	
Fluoranthene	0	0		0	200	200	7,629	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	381	
Hexachlorocyclopentadiene	0	0		0	5	5.0	191	
Hexachloroethane	0	0		0	60	60.0	2,289	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	381,427	
Naphthalene	0	0		0	140	140	5,340	
Nitrobenzene	0	0		0	4,000	4,000	152,571	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	648,425	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	11,443	
Phenanthrene	0	0		0	5	5.0	191	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	4,959	
Aldrin	0	0		0	3	3.0	114	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	36.2	
Chlordane	0	0		0	2.4	2.4	91.5	
4,4-DDT	0	0		0	1.1	1.1	42.0	
4,4-DDE	0	0		0	1.1	1.1	42.0	
4,4-DDD	0	0		0	1.1	1.1	42.0	
Dieldrin	0	0		0	0.24	0.24	9.15	
alpha-Endosulfan	0	0		0	0.22	0.22	8.39	
beta-Endosulfan	0	0		0	0.22	0.22	8.39	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	3.28	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	19.8	
Heptachlor Epoxide	0	0		0	0.5	0.5	19.1	
Toxaphene	0	0		0	0.73	0.73	27.8	

☑ *CFC* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 98.423 Analysis pH: 7.99

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	50,638	

Total Arsenic	0	0		0	150	150	34,526	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	943,708	
Total Boron	0	0		0	1,600	1,600	368,276	
Total Cadmium	0	0		0	0.243	0.27	61.6	Chem Translator of 0.91 applied
Total Chromium (III)	0	0		0	73.156	85.1	19,580	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	2,393	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	4,373	
Total Copper	0	0		0	8.835	9.2	2,118	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	345,259	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.473	3.12	718	Chem Translator of 0.793 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	209	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.312	51.5	11,846	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	1,148	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	2,992	
Total Zinc	0	0		0	116.558	118	27,209	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	691	
Acrylonitrile	0	0		0	130	130	29,922	
Benzene	0	0		0	130	130	29,922	
Bromoform	0	0		0	370	370	85,164	
Carbon Tetrachloride	0	0		0	560	560	128,897	
Chlorobenzene	0	0		0	240	240	55,241	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	805,604	
Chloroform	0	0		0	390	390	89,767	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	713,535	
1,1-Dichloroethylene	0	0		0	1,500	1,500	345,259	
1,2-Dichloropropane	0	0		0	2,200	2,200	506,380	
1,3-Dichloropropylene	0	0		0	61	61.0	14,041	
Ethylbenzene	0	0		0	580	580	133,500	
Methyl Bromide	0	0		0	110	110	25,319	
Methyl Chloride	0	0		0	5,500	5,500	1,265,949	
Methylene Chloride	0	0		0	2,400	2,400	552,414	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	48,336	
Tetrachloroethylene	0	0		0	140	140	32,224	
Toluene	0	0		0	330	330	75,957	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	322,242	
1,1,1-Trichloroethane	0	0		0	610	610	140,405	
1,1,2-Trichloroethane	0	0		0	680	680	156,517	
Trichloroethylene	0	0		0	450	450	103,578	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	25,319	

2,4-Dichlorophenol	0	0		0	340	340	78,259	
2,4-Dimethylphenol	0	0		0	130	130	29,922	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	3,683	
2,4-Dinitrophenol	0	0		0	130	130	29,922	
2-Nitrophenol	0	0		0	1,600	1,600	368,276	
4-Nitrophenol	0	0		0	470	470	108,181	
p-Chloro-m-Cresol	0	0		0	500	500	115,086	
Pentachlorophenol	0	0		0	16.996	17.0	3,912	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	20,946	
Acenaphthene	0	0		0	17	17.0	3,913	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	13,580	
Benzo(a)Anthracene	0	0		0	0.1	0.1	23.0	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	1,381,036	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	209,457	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	12,429	
Butyl Benzyl Phthalate	0	0		0	35	35.0	8,056	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	36,828	
1,3-Dichlorobenzene	0	0		0	69	69.0	15,882	
1,4-Dichlorobenzene	0	0		0	150	150	34,526	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	184,138	
Dimethyl Phthalate	0	0		0	500	500	115,086	
Di-n-Butyl Phthalate	0	0		0	21	21.0	4,834	
2,4-Dinitrotoluene	0	0		0	320	320	73,655	
2,6-Dinitrotoluene	0	0		0	200	200	46,035	
1,2-Diphenylhydrazine	0	0		0	3	3.0	691	
Fluoranthene	0	0		0	40	40.0	9,207	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	460	
Hexachlorocyclopentadiene	0	0		0	1	1.0	230	
Hexachloroethane	0	0		0	12	12.0	2,762	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	483,362	
Naphthalene	0	0		0	43	43.0	9,897	
Nitrobenzene	0	0		0	810	810	186,440	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	782,587	

n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	13,580	
Phenanthrene	0	0		0	1	1.0	230	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	5,984	
Aldrin	0	0		0	0.1	0.1	23.0	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.99	
4,4-DDT	0	0		0	0.001	0.001	0.23	
4,4-DDE	0	0		0	0.001	0.001	0.23	
4,4-DDD	0	0		0	0.001	0.001	0.23	
Dieldrin	0	0		0	0.056	0.056	12.9	
alpha-Endosulfan	0	0		0	0.056	0.056	12.9	
beta-Endosulfan	0	0		0	0.056	0.056	12.9	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	8.29	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.87	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.87	
Toxaphene	0	0		0	0.0002	0.0002	0.046	

☑ ***THH*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	1,289	
Total Arsenic	0	0		0	10	10.0	2,302	
Total Barium	0	0		0	2,400	2,400	552,414	
Total Boron	0	0		0	3,100	3,100	713,535	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	69,052	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	230,173	
Total Mercury	0	0		0	0.050	0.05	11.5	
Total Nickel	0	0		0	610	610	140,405	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	

Total Thallium	0	0		0	0.24	0.24	55.2	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	691	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	23,017	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	1,312	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	7,596	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	15,652	
Methyl Bromide	0	0		0	100	100.0	23,017	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	13,120	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	23,017	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	2,301,726	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	6,905	
2,4-Dichlorophenol	0	0		0	10	10.0	2,302	
2,4-Dimethylphenol	0	0		0	100	100.0	23,017	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	460	
2,4-Dinitrophenol	0	0		0	10	10.0	2,302	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	920,690	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	16,112	
Anthracene	0	0		0	300	300	69,052	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	

Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	46,035	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	23.0	
2-Chloronaphthalene	0	0		0	800	800	184,138	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	230,173	
1,3-Dichlorobenzene	0	0		0	7	7.0	1,611	
1,4-Dichlorobenzene	0	0		0	300	300	69,052	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	138,104	
Dimethyl Phthalate	0	0		0	2,000	2,000	460,345	
Di-n-Butyl Phthalate	0	0		0	20	20.0	4,603	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	4,603	
Fluorene	0	0		0	50	50.0	11,509	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	921	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	7,826	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	2,302	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	4,603	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	16.1	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	967	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	4,603	
beta-Endosulfan	0	0		0	20	20.0	4,603	
Endosulfan Sulfate	0	0		0	20	20.0	4,603	

Endrin	0	0		0	0.03	0.03	6.91	
Endrin Aldehyde	0	0		0	1	1.0	230	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	65.2	
Benzene	0	0		0	0.58	0.58	631	
Bromoform	0	0		0	7	7.0	7,610	
Carbon Tetrachloride	0	0		0	0.4	0.4	435	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	870	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1,033	
1,2-Dichloroethane	0	0		0	9.9	9.9	10,763	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	978	
1,3-Dichloropropylene	0	0		0	0.27	0.27	294	
Ethylbenzene	0	0		0	N/A	N/A	N/A	

Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	21,743	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	217	
Tetrachloroethylene	0	0		0	10	10.0	10,872	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	598	
Trichloroethylene	0	0		0	0.6	0.6	652	
Vinyl Chloride	0	0		0	0.02	0.02	21.7	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	32.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	1,631	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.11	
Benzo(a)Anthracene	0	0		0	0.001	0.001	1.09	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.11	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	1.09	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	10.9	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	32.6	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	348	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	130	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.11	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	54.4	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	54.4	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	54.4	

1,2-Diphenylhydrazine	0	0		0	0.03	0.03	32.6	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.087	
Hexachlorobutadiene	0	0		0	0.01	0.01	10.9	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	109	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	1.09	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.76	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	5.44	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	3,588	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.0009	
alpha-BHC	0	0		0	0.0004	0.0004	0.43	
beta-BHC	0	0		0	0.008	0.008	8.7	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.33	
4,4-DDT	0	0		0	0.00003	0.00003	0.033	
4,4-DDE	0	0		0	0.00002	0.00002	0.022	
4,4-DDD	0	0		0	0.0001	0.0001	0.11	
Dieldrin	0	0		0	0.000001	0.000001	0.001	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.007	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.033	
Toxaphene	0	0		0	0.0007	0.0007	0.76	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	18,336	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	1,289	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	2,302	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	513,406	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	198,028	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	52.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	19,580	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	398	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	2,323	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	344	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	69,052	µg/L	Discharge Conc < TQL
Total Iron	345,259	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	718	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	230,173	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	11.5	µg/L	Discharge Conc < TQL
Total Nickel	11,524	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	1,148	µg/L	Discharge Conc < TQL
Total Silver	93.4	µg/L	Discharge Conc < TQL
Total Thallium	55.2	µg/L	Discharge Conc < TQL
Total Zinc	2,943	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	73.3	µg/L	Discharge Conc < TQL
Acrylonitrile	65.2	µg/L	Discharge Conc < TQL
Benzene	631	µg/L	Discharge Conc < TQL
Bromoform	7,610	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	435	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	23,017	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	870	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	440,062	µg/L	Discharge Conc < TQL
Chloroform	1,312	µg/L	Discharge Conc < TQL
Dichlorobromomethane	1,033	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	10,763	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	7,596	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	978	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	294	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	15,652	µg/L	Discharge Conc < TQL

Model Results 11/5/2024

Methyl Bromide	13,446	µg/L	Discharge Conc < TQL
Methyl Chloride	684,541	µg/L	Discharge Conc < TQL
Methylene Chloride	21,743	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	217	µg/L	Discharge Conc < TQL
Tetrachloroethylene	10,872	µg/L	Discharge Conc < TQL
Toluene	13,120	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	23,017	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	73,344	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	598	µg/L	Discharge Conc < TQL
Trichloroethylene	652	µg/L	Discharge Conc < TQL
Vinyl Chloride	21.7	µg/L	Discharge Conc < TQL
2-Chlorophenol	6,905	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	2,302	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	16,136	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	460	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	2,302	µg/L	Discharge Conc < TQL
2-Nitrophenol	195,583	µg/L	Discharge Conc < TQL
4-Nitrophenol	56,230	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	3,912	µg/L	Discharge Conc < TQL
Pentachlorophenol	32.6	µg/L	Discharge Conc < TQL
Phenol	920,690	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	1,631	µg/L	Discharge Conc < TQL
Acenaphthene	2,029	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	69,052	µg/L	Discharge Conc < TQL
Benzidine	0.11	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	1.09	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.11	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	1.09	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	10.9	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	32.6	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	46,035	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	348	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	6,601	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	23.0	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	184,138	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	130	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.11	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	20,047	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	1,611	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	17,847	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	54.4	µg/L	Discharge Conc < TQL
Diethyl Phthalate	97,792	µg/L	Discharge Conc < TQL

Model Results 11/5/2024

Dimethyl Phthalate	61,120	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	2,689	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	54.4	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	54.4	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	32.6	µg/L	Discharge Conc < TQL
Fluoranthene	4,603	µg/L	Discharge Conc < TQL
Fluorene	11,509	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.087	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	10.9	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	122	µg/L	Discharge Conc < TQL
Hexachloroethane	109	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	1.09	µg/L	Discharge Conc < TQL
Isophorone	7,826	µg/L	Discharge Conc < TQL
Naphthalene	3,423	µg/L	Discharge Conc < TQL
Nitrobenzene	2,302	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.76	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	5.44	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	3,588	µg/L	Discharge Conc < TQL
Phenanthrene	122	µg/L	Discharge Conc < TQL
Pyrene	4,603	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	16.1	µg/L	Discharge Conc < TQL
Aldrin	0.0009	µg/L	Discharge Conc < TQL
alpha-BHC	0.43	µg/L	Discharge Conc < TQL
beta-BHC	8.7	µg/L	Discharge Conc < TQL
gamma-BHC	23.2	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.33	µg/L	Discharge Conc < TQL
4,4-DDT	0.033	µg/L	Discharge Conc < TQL
4,4-DDE	0.022	µg/L	Discharge Conc < TQL
4,4-DDD	0.11	µg/L	Discharge Conc < TQL
Dieldrin	0.001	µg/L	Discharge Conc < TQL
alpha-Endosulfan	5.38	µg/L	Discharge Conc < TQL
beta-Endosulfan	5.38	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	4,603	µg/L	Discharge Conc < TQL
Endrin	2.1	µg/L	Discharge Conc < TQL
Endrin Aldehyde	230	µg/L	Discharge Conc < TQL
Heptachlor	0.007	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.033	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS

Model Results 11/5/2024

Toxaphene	0.046	µg/L	Discharge Conc < TQL

Appendix D
Thermal_Limits_Spreadsheet

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Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *Inputs*

Facility: Superior Tube Collegeville Facility
Permit No.: PA0011851
Stream Name: Perkiomen Creek
Analyst/Engineer: Reza H Chowdhury
Stream Q7-10 (cfs)*: 34.5
Outfall No.: 008
Analysis Type*: WWF

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.1		0.1
Feb 1-29		0.1		0.1
Mar 1-31		0.1		0.1
Apr 1-15		0.1		0.1
Apr 16-30		0.1		0.1
May 1-15		0.1		0.1
May 16-31		0.1		0.1
Jun 1-15		0.1		0.1
Jun 16-30		0.1		0.1
Jul 1-31		0.1		0.1
Aug 1-15		0.1		0.1
Aug 16-31		0.1		0.1
Sep 1-15		0.1		0.1
Sep 16-30		0.1		0.1
Oct 1-15		0.1		0.1
Oct 16-31		0.1		0.1
Nov 1-15		0.1		0.1
Nov 16-30		0.1		0.1
Dec 1-31		0.1		0.1

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	110.24	110.39
3.5	1.00	120.58	120.73
7	1.00	241.15	241.30
9.3	1.00	320.39	320.54
9.3	1.00	320.39	320.54
5.1	1.00	175.70	175.85
5.1	1.00	175.70	175.85
3	1.00	103.35	103.50
3	1.00	103.35	103.50
1.7	1.00	58.57	58.72
1.4	1.00	48.23	48.38
1.4	1.00	48.23	48.38
1.1	1.00	37.90	38.05
1.1	1.00	37.90	38.05
1.2	1.00	41.34	41.49
1.2	1.00	41.34	41.49
1.6	1.00	55.12	55.27
1.6	1.00	55.12	55.27
2.4	1.00	82.68	82.83

Temperature

Ambient Stream Temperature (°F)*

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Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *WWF Results*

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	WWF Target Maximum Stream Temp. (°F)	Case 1 Daily WLA (Million BTUs/day)	Case 2 Daily WLA (°F)
Jan 1-31	40	N/A -- Case 2	110.0
Feb 1-29	40	N/A -- Case 2	110.0
Mar 1-31	46	N/A -- Case 2	110.0
Apr 1-15	52	N/A -- Case 2	110.0
Apr 16-30	58	N/A -- Case 2	110.0
May 1-15	64	N/A -- Case 2	110.0
May 16-31	72	N/A -- Case 2	110.0
Jun 1-15	80	N/A -- Case 2	110.0
Jun 16-30	84	N/A -- Case 2	110.0
Jul 1-31	87	N/A -- Case 2	110.0
Aug 1-15	87	N/A -- Case 2	110.0
Aug 16-31	87	N/A -- Case 2	110.0
Sep 1-15	84	N/A -- Case 2	110.0
Sep 16-30	78	N/A -- Case 2	110.0
Oct 1-15	72	N/A -- Case 2	110.0
Oct 16-31	66	N/A -- Case 2	110.0
Nov 1-15	58	N/A -- Case 2	110.0
Nov 16-30	50	N/A -- Case 2	110.0
Dec 1-31	42	N/A -- Case 2	110.0