pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0011851**
Facility Type	**Industrial**	APS ID	**982095**
Major / Minor	**Minor**	Authorization ID	**1253866**

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	Facility Address	3900 Germantown Pike
	Collegeville, PA 19426-3112		Collegeville, PA 19426-3112
Applicant Contact	Riad Hassan	Facility Contact	Riad Hassan
Applicant Phone	(610) 489-5436	Facility Phone	(610) 489-5259
Client ID	80134	Site ID	45779
SIC Code	3317	Municipality	Lower Providence Township
SIC Description	Manufacturing - Steel Pipe And Tubes	County	Montgomery
Date Application Received	November 1, 2018	EPA Waived?	No
Date Application Accepted	December 5, 2018	If No, Reason	Appendix A industrial category
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 November 1, 2018 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 April 30, 2019. 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 reduced from 1/month to 1/quarter, 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. / Environmental Engineering Specialist	July 24, 2019
		Pravin C. Patel, P.E. / Environmental Engineer Manager	

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)	8.07	WQN_116 Average Feb' 14 – Nov' 2018
Temperature (°C)	14.01	WQN_116 Average Feb' 14 – Nov' 2018
Hardness (mg/L)	102.4	WQN_116 Average Feb' 14 – Nov' 2018
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 Streamgage 01473120 is on Skippack Creek, which is a tributary to Perkiomen Creek, downstream of the outfall 008. Per 2002-2003 Water Quality Protection Report, STC maintains a surface water withdrawal allocation which also needs to be accounted to calculate the Q_{7-10} of the receiving stream. The Q_{7-10} of the receiving stream 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.
2. Q_{7-10} at 01473120 is 1.9 cfs. Yield at this gage is 1.9 cfs/53.7 mi^2 or 0.035 cfs/mi^2
3. $\Delta_{drainage\ area}$ = Drainage area at outfall 008 – Drainage area at 01473000
   = 293 mi^2 – 279 mi^2 or 14 mi^2

   Additional flow within this drainage area = 14 mi^2 * 0.035 cfs/mi^2 or **0.49 cfs** (per 2002-2003 WQPR, the underlying geology (Triassic) in lower portion of Perkiomen Creek is similar to Skippack Creek basin, apply the Skippack Creek yield to the basin below Graterford)
4. 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. Additional flow between the outfall 008 to node 2 is (298 mi^2-293 mi^2)*0.035 cfs/mi^2 or **0.175 cfs**

The applicable Q_{7-10}, at Outfall 008, therefore, is 33.9 cfs + 0.49 cfs or **34.39 cfs**. The applicable Q_{7-10} at node 2 is 34.39 cfs + 0.175 cfs or **34.565 cfs.**

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 average values from February 2014 to November 2018 for pH, Total Hardness, and Temperature are found to be 8.07 S.U., 102.4 mg/l, and 14.01 ºC, respectively.

Wastewater Characteristics:
An average pH of 7.57 S.U., summer months average temperature of 80.56^{0}F, and total hardness of 294.67 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.)

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(1) Stuckey, M.H., Roland, M.A., 2011, Selected streamflow statistics for streamgage 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.

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

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

Outfall 108 (IMP):
Wastewater Characteristics:
An average pH of 7.45 S.U., summer months average temperature of 72.14^{0}F, and total hardness of 219 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 located 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.

The IMP 108 is lagoon effluent that contains groundwater pumped from the groundwater remediation system, process wastewater, and non-contact cooling water.

Per the most recent inspection report dated December 13, 2018, 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:	**12/13/18:** 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. **05/17/17:** CEI conducted. No violation noted during the inspection. Field test indicated a pH of 8.01 and temperature of 17.9°C in the pool. No sign of pollution was observed. **12/17/15:** CEI conducted. Recommended to calibrate the effluent flow meter. No sign of pollution was observed.

Compliance History

DMR Data for Outfall 002, 004, 005, 006, and 007 (from June 1, 2018 to May 31, 2019)

Outfall	002		004		005		006		007	
Parameters	**Dec-18**	**Jun-18**	**Dec-18**	**Jun-18**	**Dec-18**	**Jun-18**	**Dec-18**	**Jun-18**	**Dec-18**	**Jun-18**
Flow (MGD) Daily Maximum	0.050208	0.145218	0.144129	0.41865	0.004668	0.013502	0.018673	0.054007	0.010037	0.029029
pH (S.U.) Daily Maximum	7.08	7.71	7.06	7.48	6.96	7.74	7.00	7.74	7.24	7.40
CBOD5 (mg/L) Daily Maximum	2.8	5.8	7.7	3.0	8.8	5.7	5.9	2.9	3.6	7.1
COD (mg/L) Daily Maximum	< 15	< 15	56	18	52	19	< 15	15	< 15	41
TSS (mg/L) Daily Maximum	< 5	16	28	13	22	14	153	7	42	69
Oil and Grease (mg/L) Daily Maximum	< 1.9	< 1.9	< 1.9	< 2.0	< 1.9	< 1.9	< 2.0	< 1.9	< 2.1	< 1.9
TKN (mg/L) Daily Maximum	< 1.0	< 1.0	1.8	< 1.0	1.7	< 1.0	< 1.0	1.0	8.3	1.7
Total Phosphorus (mg/L) Daily Maximum	< 0.1	0.13	0.82	0.14	0.70	0.14	< 0.1	0.14	0.12	0.76
Total Copper (mg/L) Daily Maximum	0.0065	0.011	0.0078	0.011	0.0074	0.012	0.013	0.011	0.0062	0.0076
Dissolved Iron (mg/L) Daily Maximum	< 0.06	< 0.060	0.093	< 0.060	0.088	< 0.060	< 0.06	< 0.060	< 0.06	0.086
Total Nickel (mg/L) Daily Maximum	< 0.01	< 0.010	< 0.01	< 0.010	< 0.01	< 0.010	< 0.01	< 0.010	< 0.01	< 0.010
Total Zinc (mg/L) Daily Maximum	0.042	0.043	0.014	0.043	0.022	0.040	0.076	0.041	< 0.01	0.016

DMR Data for Outfall 008 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
Flow (MGD) Average Monthly	0.106108	0.106309	0.083816	0.085580	0.091238	0.087575	0.080555	0.086049	0.115670	0.129608	0.125616	0.142643
Flow (MGD) Daily Maximum	0.281533	0.177403	0.13909	0.137196	0.147091	0.128503	0.1244	0.142870	0.236395	0.244131	0.207384	0.230925
pH (S.U.) Instantaneous Minimum	6.9	6.8	7.1	6.7	6.6	6.9	6.9	7.0	6.9	6.5	6.7	6.9

pH (S.U.) Instantaneous Maximum	8.5	8.7	8.8	8.8	8.5	8.7	8.7	8.5	8.1	8.5	8.4	8.4
Temperature (ºF) Instantaneous Maximum	78	75	68	61	58	62	70	79	85	86	89	81
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Dissolved Solids (mg/L) Average Monthly	446	495	411	487	456	466	507	476	495	443	557	506
Total Dissolved Solids (mg/L) Daily Maximum	446	495	411	487	456	466	507	476	495	443	557	506
Oil and Grease (mg/L) Average Monthly	< 3.8	< 3.8	< 3.8	< 3.7	< 1.9	< 1.9	< 1.9	< 1.9	2.1	< 2.0	< 1.9	< 2.0
Total Cadmium (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	0.0015	0.0013	0.0017	< 0.001	< 0.001	< 0.0010	< 0.0010	< 0.001
Total Cadmium (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	0.0015	0.0013	0.0017	< 0.001	< 0.001	< 0.0010	< 0.0010	< 0.001
Total Chromium (mg/L) Average Monthly	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.037	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Total Chromium (mg/L) Daily Maximum	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.037	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025
Total Copper (mg/L) Average Monthly	< 0.005	0.0076	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0066	0.0066	0.0074	< 0.005
Total Copper (mg/L) Daily Maximum	< 0.005	0.0076	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0066	0.0066	0.0074	< 0.005
Total Lead (mg/L) Average Monthly			< 0.003			< 0.003			< 0.003			< 0.0030
Total Lead (mg/L) Daily Maximum			< 0.003			< 0.003			< 0.003			< 0.0030
Total Zinc (mg/L) Average Monthly	< 0.01	< 0.01	< 0.010	0.021	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010	< 0.010	< 0.01
Total Zinc (mg/L) Daily Maximum	< 0.01	< 0.01	< 0.010	0.021	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010	< 0.010	< 0.01
Trichloroethylene (mg/L) Average Monthly	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0010	< 0.0010	< 0.001

Trichloroethylene (mg/L) Daily Maximum	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0010	< 0.0010	< 0.001
n-Propyl Bromide (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.0011	< 0.001	< 0.001	0.0018	0.0015	< 0.001
n-Propyl Bromide (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.0011	< 0.001	< 0.001	0.0018	0.0015	< 0.001

DMR Data for Outfall 108 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
Flow (MGD) Average Monthly	0.034050	0.038459	0.036630	0.034471	0.037249	0.035215	0.035364	0.034923	0.033571	0.034312	0.029365	0.034992
Flow (MGD) Daily Maximum	0.050856	0.051912	0.048328	0.042536	0.054232	0.051880	0.043360	0.049160	0.043328	0.043192	0.044970	0.043400
pH (S.U.) Instantaneous Minimum	6.1	6.5	6.7	6.4	6.4	6.6	6.0	6.7	6.4	6.5	6.1	6.6
pH (S.U.) Instantaneous Maximum	8.9	8.5	8.3	8.8	8.2	8.2	8.5	8.0	8.1	7.8	8.5	8.1
TSS (lbs/day) Average Monthly	< 1.61	< 0.97	< 1.64	< 1.58	< 1.55	< 0.87	< 1.53	< 1.73	< 0.76	< 1.41	< 3.90	< 1.44
TSS (lbs/day) Daily Maximum	< 1.74	< 1.69	< 1.68	< 1.71	< 1.87	< 1.45	< 1.63	< 1.73	< 1.20	< 1.41	6.57	< 1.51
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 3.0	< 5.0	< 5.0	< 3.0	< 5.0	< 12.5	< 5.0
TSS (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	20.0	< 5.0
Oil and Grease (lbs/day) Average Monthly	< 1.2	< 0.7	< 1.2	< 1.2	< 0.6	< 0.6	< 0.6	< 0.7	< 0.5	< 0.5	< 0.6	< 0.6
Oil and Grease (lbs/day) Daily Maximum	< 1.3	< 1.2	< 1.2	< 1.3	< 0.7	< 0.6	< 0.6	< 0.7	< 0.6	< 0.5	< 0.7	< 0.6
Oil and Grease (mg/L) Average Monthly	< 3.7	< 3.7	< 3.7	< 3.7	< 2.0	< 1.9	< 1.9	< 1.9	< 2.0	< 1.9	< 1.9	< 2.0
Oil and Grease (mg/L) Daily Maximum	< 3.7	< 3.7	< 3.7	< 3.7	< 2.0	< 1.9	< 1.9	< 1.9	< 2.0	< 1.9	< 2.0	< 2.0
Ammonia (lbs/day) Average Monthly	< 0.109	< 0.021	0.116	0.077	0.079	< 0.033	< 0.031	< 0.035	0.068	0.056	0.095	< 0.122

Ammonia (lbs/day) Daily Maximum	0.184	0.037	0.118	0.092	0.112	0.084	< 0.033	< 0.035	0.095	0.061	0.121	0.214
Ammonia (mg/L) Average Monthly	< 0.36	< 0.11	0.35	0.24	0.24	< 0.11	< 0.10	< 0.10	0.24	0.20	0.35	< 0.44
Ammonia (mg/L) Daily Maximum	0.63	0.11	0.35	0.27	0.30	0.13	< 0.10	< 0.10	0.31	0.22	0.49	0.78
Total Cadmium (lbs/day) Average Monthly	< 0.001	0.001	< 0.0003	< 0.0003	0.0003	0.0003	< 0.0003	< 0.0003	< 0.0002	< 0.001	< 0.0002	< 0.0003
Total Cadmium (lbs/day) Daily Maximum	< 0.001	0.001	< 0.0003	< 0.0003	0.0003	0.0003	< 0.0003	< 0.0003	< 0.0002	< 0.001	< 0.0002	< 0.0003
Total Cadmium (mg/L) Average Monthly	< 0.002	0.002	< 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	< 0.002	0.002	< 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 Monthly			< 0.001			< 0.001			< 0.001			< 0.001
Total Chromium (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.001
Total Chromium (mg/L) Average Monthly			< 0.003			< 0.003			< 0.003			< 0.003
Total Chromium (mg/L) Daily Maximum			< 0.003			< 0.003			< 0.003			< 0.003
Total Copper (lbs/day) Average Monthly			< 0.001			< 0.002			< 0.001			< 0.001
Total Copper (lbs/day) Daily Maximum			< 0.001			< 0.002			< 0.001			< 0.001
Total Copper (mg/L) Average Monthly			< 0.005			< 0.005			< 0.005			< 0.005
Total Copper (mg/L) Daily Maximum			< 0.005			< 0.005			< 0.005			< 0.005
Total Cyanide (lbs/day) Average Monthly			< 0.001			< 0.001			< 0.001			< 0.001
Total Cyanide (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.001			< 0.001
Total Cyanide (mg/L) Average Monthly			< 0.002			< 0.002			< 0.005			< 0.005

Total Cyanide (mg/L) Daily Maximum			< 0.002			< 0.002			< 0.005			< 0.005
Fluoride (mg/L) Average Monthly	< 0.2	0.5	< 0.2	< 0.3	0.9	0.3	0.4	0.2	< 0.3	0.2	< 0.6	0.5
Total Lead (lbs/day) Average Monthly			< 0.001			0.002			< 0.001			< 0.001
Total Lead (lbs/day) Daily Maximum			< 0.001			0.002			< 0.001			< 0.001
Total Lead (mg/L) Average Monthly			< 0.003			0.006			< 0.003			< 0.003
Total Lead (mg/L) Daily Maximum			< 0.003			0.006			< 0.003			< 0.003
Total Nickel (lbs/day) Average Monthly			< 0.002			< 0.003			< 0.002			< 0.003
Total Nickel (lbs/day) Daily Maximum			< 0.002			< 0.003			< 0.002			< 0.003
Total Nickel (mg/L) Average Monthly			< 0.010			< 0.010			< 0.010			< 0.010
Total Nickel (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			< 0.010
Total Silver (lbs/day) Average Monthly			< 0.001			< 0.01			< 0.0005			< 0.001
Total Silver (lbs/day) Daily Maximum			< 0.001			< 0.001			< 0.0005			< 0.001
Total Silver (mg/L) Average Monthly			< 0.002			< 0.002			< 0.002			< 0.002
Total Silver (mg/L) Daily Maximum			< 0.002			< 0.002			< 0.002			< 0.002
Total Zinc (lbs/day) Average Monthly	< 0.006	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.002	< 0.003
Total Zinc (lbs/day) Daily Maximum	< 0.006	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.002	< 0.003
Total Zinc (mg/L) Average Monthly	< 0.020	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Zinc (mg/L) Daily Maximum	< 0.020	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Toxic Organics (mg/L) Average Monthly						< 0.01						< 0.01

Compliance History

Effluent Violations for Outfall 108, from: July 1, 2018 To: May 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	07/31/18	Avg Mo	< 3.90	lbs/day	2.72	lbs/day
TSS	07/31/18	Daily Max	6.57	lbs/day	5.32	lbs/day

Comment on DMR non-compliance: The buildup in pipes and clarifier caused the DMR non-compliance. Both were cleaned by pressure washing.

Existing Effluent Limitations and Monitoring Requirements

For outfall 002, 004, 005, 006, and 007 (from May 1, 2014 to April 30, 2019)

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

For Outfall 008 (From May 1, 2014 to April 30, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	XXX	110	1/day	I-S
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	75.0	1/month	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1,000	2,000	2500	1/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30.0	1/month	Grab
Total Cadmium	XXX	XXX	XXX	Report	Report	Report	1/month	24-Hr Composite
Total Chromium	XXX	XXX	XXX	Report	Report	Report	1/month	24-Hr Composite
Total Copper	XXX	XXX	XXX	Report	Report	Report	1/month	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report	Report	Report	1/quarter	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	Report	Report	1/month	24-Hr Composite
Trichloroethylene	XXX	XXX	XXX	Report	Report	Report	1/month	Grab
n-Propyl Bromide	XXX	XXX	XXX	Report	Report	Report	1/month	Grab

For IMP 108 (from May 1, 2014 to April 30, 2019)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	Report	XXX	XXX	Report	1/day	Grab
Total Suspended Solids	2.72	5.32	XXX	16.3	31.9	40.8	2/month	24-Hr Composite
Oil and Grease	2.5	5.0	XXX	14.7	26.8	36.8	2/month	Grab
Ammonia-Nitrogen	0.232	0.239	XXX	1.39	1.81	1.85	2/month	24-Hr Composite
Total Cadmium	0.022	0.057	XXX	0.130	0.345	0.345	1/month	24-Hr Composite
Total Chromium	0.143	0.233	XXX	0.860	1.399	2.15	1/quarter	24-Hr Composite
Total Copper	0.172	0.282	XXX	1.034	1.688	2.585	1/quarter	24-Hr Composite
Total Cyanide	0.054	0.100	XXX	0.325	0.600	0.813	1/quarter	24-Hr Composite
Fluoride	XXX	XXX	XXX	2.5	XXX	5.0	2/month	Grab
Total Lead	0.036	0.058	XXX	0.215	0.345	0.538	1/quarter	24-Hr Composite
Total Nickel	0.199	0.334	XXX	1.194	2.002	2.985	1/quarter	24-Hr Composite
Total Silver	0.02	0.036	XXX	0.120	0.215	0.300	1/quarter	24-Hr Composite
Total Zinc	0.123	0.218	XXX	0.740	1.304	1.85	1/month	24-Hr Composite
Total Toxic Organics	XXX	XXX	XXX	1.06	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: 263,572 off-pounds/year (average for next five years) or 0.757 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	0.00097653	0.00243754		
Nickel	0.000964	0.00289	Lbs./1000 lbs. BAT/BPT	0.000729748	0.00218773		
TSS	0.0964	0.225	Lbs./1000 lbs. BPT	0.0729748	0.170325		
Oil & Grease	0.0322	0.0964	Lbs./1000 lbs. BPT	0.0243754	0.0729748		
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: 27,563 off pounds/year (average for next five years) or 0.000079 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	0.000027966	0.000068967		
Nickel	0.873	1.3	Lbs./10^6 lbs. BAT	0.000068967	0.0001027		
Fluoride	62.3	141	Lbs./10^6 lbs. BAT	0.0049217	0.011139		
Oil & Grease	283	472	Lbs./10^6 lbs. BPT	0.022357	0.037288		
TSS	460	968	Lbs./10^6 lbs. BPT	0.03634	0.076472		
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: 210 off pounds/year (average for next five years) or 0.000000603 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	0.000000212	0.000000511		
Lead	0.584	1.23	Lbs./10^6 lbs. BAT	0.000000352	0.000000742		
Zinc	1.78	4.27	Lbs./10^6 lbs. BAT	0.000001073	0.000002575		
Ammonia	171	389	Lbs./10^6 lbs. BAT	0.000103113	0.000234567		
Fluoride	77.1	174	Lbs./10^6 lbs. BAT	0.000046491	0.000104922		
Oil & Grease	351	584	Lbs./10^6 lbs. BPT	0.000211653	0.000352152		
TSS	570	1200	Lbs./10^6 lbs. BPT	0.00034371	0.0007236		
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: 264 off pounds/year (average for next five years) or 0.000000759 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	0.000000121	0.000000297		
Cyanide	0.107	0.258	Lbs./10^6 lbs. BAT	0.000000081	0.000000196		
Nickel	1.13	1.71	Lbs./10^6 lbs. BAT	0.000000858	0.000001298		
Ammonia	52.1	119	Lbs./10^6 lbs. BAT	0.000039544	0.000090321		
Fluoride	23.5	52.9	Lbs./10^6 lbs. BAT	0.000017837	0.000040151		
Oil & Grease	107	178	Lbs./10^6 lbs. BPT	0.000081213	0.000135102		
TSS	173	364	Lbs./10^6 lbs. BPT	0.000131307	0.000276276		
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	0.02146716	0.057488454		
Total Chromium	1.71	2.77	Mg/l BAT/BPT	0.142471386	0.22870782		
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	0.219955824		
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	0.02146716	0.057488454	0.085800000	0.22977000
Chromium	0.143476	0.231285	0.573445244	0.92440048
Copper	0.172465362	0.281610108	0.689310000	1.12554000
Cyanide	0.054156083	0.009998699	0.216451171	0.03996283
Lead	0.03582649	0.057489196	0.143191407	0.22977297
Nickel	0.199093081	0.333891796	0.795735735	1.33449958
Silver	0.019995984	0.035826138	0.079920000	0.14319000
Zinc	0.123309641	0.219958399	0.492844289	0.87913029
Fluoride	0.004986028	0.011284073	2.5[1]	5.0[1]
TTO		0.177464358	1.06[2]	2.13
Oil & Grease	2.213256866	4.443213254	8.845950703	17.75864610
Ammonia	0.226142657[3]	0.226324888[3]	0.903847550	0.90457589
TSS	2.692604417	5.246792876	10.761808221	20.97039519
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, 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 (http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/WMS/WMS_Chem_Add_Approv_ext). BFW-35 and OS-15 are approved under existing permit. PENTOXSD model was utilized to calculate the maximum safe usage rate of the additives.

1. **BFW-35:** Maximum safe use rate: 781.554 mg/l * 8.34 * 0.1 MGD = 651.816 lbs./day
   The application data indicated a proposed maximum usage rate of 377 lbs./day, which is lower than maximum safe usage rage, this additive can be used at the proposed rate.

2. **BFW-32:** Maximum safe use rate: 3270.00 mg/l * 8.34 * 0.1 MGD = 2727.18 lbs./day
   Since the proposed maximum use rate is yet to determine, STCI is advised to limit the use by 2727.18 lbs./day, contingent upon STCI's submission of chemical additives notification form to the Department.

3. **OS-15:** Maximum safe use rate: 144.564 mg/l * 8.34 * 0.1 MGD = 120.566 lbs./day

Since the proposed maximum use rate is yet to determine, STCI is advised to limit the use by 120.566 lbs./day, contingent upon STCI's submission of chemical additives notification form to the Department.

4. **RLT-241:** 317.418 mg/l * 8.34 * 0.1 MGD = 264.73 lbs./day
   The application data indicated a proposed maximum usage rate of 158 lbs./day, which is lower than maximum safe usage rage, this additive can be used at the proposed 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 $CBOD_5$ and NH3-N discharge concentrations are <2.1 mg/l and <0.19 mg/l, respectively. Therefore, WQM 7.0 modeling is not necessary and permit requirements for these pollutants are not necessary.

Toxics

Total Cadmium, Total Chromium, Total Copper, Total Lead, Total Zinc, Trichloroethylene, and n-Propyl Bromide are toxics with monitoring requirements in the existing permit. A Reasonable Potential (RP) analysis was performed for all pollutants listed in Group 2- Group 7 in the application. The maximum reported values (if less than 10 samples) or Average Monthly Effluent Concentration (AMEC) values (for parameters with more than 10 samples) of all the pollutants were entered into DEP's Toxics Screening Analysis worksheet to evaluate the pollutants of concern. The following pollutants were identified as candidate for PENTOXSD modeling:

Parameter	Effluent Limits (µg/l)	Governing Criterion	Max Daily Limits (µg/l)	Most Stringent	
				WQBEL (µg/l)	WQBEL Criterion
1,1,2,2-Tetrachloroethane	179.97	CRL	280.782	179.97	CRL
1,1,2-TRICHLOROETHANE	624.601	CRL	974.478	624.601	CRL
1,2-DICHLOROETHANE	402.285	CRL	627.63	402.285	CRL
1,3-DICHLOROPROPYLENE	359.94	CRL	561.564	359.94	CRL
ACROLEIN	71.923	AFC	112.211	71.923	AFC
CADMIUM	55.064	AFC	85.909	55.064	AFC
CARBON TETRACHLORIDE	243.489	CRL	379.881	243.489	CRL
CHLORODIBROMOMETHANE	423.458	CRL	660.663	423.458	CRL
COPPER	359.41	AFC	560.738	359.41	AFC
DICHLOROBROMOMETHANE	582.255	CRL	908.412	582.255	CRL
HEXACHLOROBUTA-DIENE	239.742	AFC	374.036	239.742	AFC
PHENOLICS (PWS)	100000	INPUT	156016.1	NA	NA
TETRACHLOROETHYLENE	730.466	CRL	1139.644	730.466	CRL
THALLIUM	53.592	THH	83.613	53.592	THH
TRICHLOROETHYLENE	2646.615	CRL	4129.144	2646.615	CRL
VINYL CHLORIDE	26.466	CRL	41.291	26.466	CRL

CRL: Cancer Risk Level; AFC: Acute Fish Criteria; THH: Threshold Human Health; NA: Not Applicable

The most stringent WQBELs were again entered into Toxics Screening Analysis spreadsheet. The spreadsheet suggested no monitoring/report requirements for all of the parameters. The existing permit has monitoring requirements for Total Cadmium, Total Chromium, Total Copper, Total Lead, Total Zinc, Trichloroethylene, and n-Propyl Bromide with a monitoring frequency of 1/month except for Total Lead (1/quarter). It is recommended that the monitoring frequency be reduced to 1/quarter for all these parameters.

Temperature:

The attached *Thermal Discharge Limit Calc V.1.0* indicated a year-round discharge temperature of 110°F as Daily Maximum. This is also in support of DRBC requirement. Current permit has 110°F as IMAX, which is recommended to change to Daily Maximum.

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_{7-10} 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 0.32 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.

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 meets 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 (1)	Sample type	
TSS (mg/l)	1/6 months	Grab	100
Total Aluminum (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 Iron (mg/l)	1/6 months	Grab	XXX
Total Lead (mg/l)	1/6 months	Grab	XXX

Footnote

(1) This is the minimum number of sampling events required. Permittees are encouraged to perform more than the minimum number of sampling events.

Appendix U Fabricated Metal Products			
Parameter	Monitoring requirements		Benchmark Values
	Minimum measurement frequency (1)	Sample type	
pH (S.U.)	1/6 months	Grab	XXX
TSS (mg/l)	1/6 months	Grab	100
Nitrate+Nitrite-Nitrogen (mg/l)	1/6 months	Grab	XXX
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

Footnote

(1) This is the minimum number of sampling events required. Permittees are encouraged to perform more than the minimum number of sampling events.

A review of the submitted eDMR was conducted for stormwater sample results for all outfalls for reporting period July 2016 to July 2019. The average concentrations from all outfalls for CBOD5, COD, Total Nickel, TKN, and TP are 3.29 mg/l, 39.04 mg/l, 0.0332 mg/l, 0.852 mg/l, and 0.21 mg/l, respectively. The average concentration of COD appeared high, therefore, monitoring requirement for COD will be carried over in this renewal. The other parameters may be removed from this renewal and should be re-evaluated during the next permit review.

Combining both appendices and comparing with the existing permit and eDMR, the following limits/monitoring requirements are proposed for this renewal:

Parameter	Monitoring requirements		Benchmark Values
	Minimum measurement frequency	Sample type	
Flow	1/6 months	Metered	XXX
pH (S.U.)	1/6 months	Grab	XXX
TSS (mg/l)	1/6 months	Grab	100
Oil and Grease (mg/l)	1/6 months	Grab	XXX
Nitrate+Nitrite-Nitrogen (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 Aluminum (mg/l)	1/6 months	Grab	XXX
Total Zinc (mg/l)	1/6 months	Grab	XXX
Total Lead (mg/l)	1/6 months	Grab	XXX
COD (mg/l)	1/6 months	Grab	XXX

Appendix

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		
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

Compliance Sampling Location: At Stormwater outfalls 002, 004, 005, 006, and 007

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 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 (ºF)	XXX	XXX	XXX	XXX	XXX	110	1/day	I-S
TSS	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
Total Cadmium	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Chromium	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Copper	XXX	XXX	XXX	Report	Report	XXX	1/quarter	24-Hr Composite
Total Lead	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Total Zinc	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

Compliance Sampling Location: At Outfall 008

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

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