pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0002887**
Facility Type	**Industrial**	APS ID	**367015**
Major / Minor	**Minor**	Authorization ID	**379970**

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

Applicant and Facility Information

Applicant Name	**Union Electric Steel Corporation**	Facility Name	**Carnegie Plant**
Applicant Address	PO Box 465	Facility Address	726 Bell Avenue
	Carnegie, PA 15106-1138		Carnegie, PA 15106-0465
Applicant Contact	James Walker, Plant Manager	Facility Contact	***same as applicant***
Applicant Phone	(412) 429-2481	Facility Phone	***same as applicant***
Applicant Email	JWalker@ampcopgh.com	Facility Email	***same as applicant***
Client ID	82967	Site ID	445432
SIC Code	3547	Municipality	Carnegie Borough
SIC Description	Manufacturing - Rolling Mill Machinery	County	Allegheny
Date Application Received	March 25, 2002	EPA Waived?	Yes
Date Application Accepted	April 11, 2002	If No, Reason	
Purpose of Application	Renewal of an NPDES permit for discharges of industrial waste, cooling water, and storm water from a steel finish facility.		

Summary of Review

On March 25, 2002, Union Electric Steel (UES) submitted an application to renew NPDES Permit PA0002887 for discharges from UES's Carnegie Plant. The NPDES permit currently in effect was issued on June 12, 1997 with an effective date of July 1, 1997 and an expiration date of June 12, 2002. The application was deemed administratively deficient by letter dated April 4, 2002. UES resubmitted the application on April 11, 2002. The application was not timely, but the permit was administratively extended anyway. DEP did not act on the application when it was submitted.

On May 14, 2019, DEP requested UES to submit an updated NPDES permit application owing to the time that had passed since the 2002 application was submitted. After a multi-year period of correspondence relating to 1) whether UES actually discharges process wastewater to Allegheny County Sanitary Authority (ALCOSAN) and not Chartiers Creek; 2) UES's attempts to secure a permit from ALCOSAN for said discharges; and 3) whether the Carnegie Plant was eligible for coverage under DEP's PAG-03 NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity due to UES's presumed discharge to ALCOSAN, UES submitted an updated application on March 29, 2024 with minor addendums through April 19, 2024 for direct discharges to Chartiers Creek and Whiskey Run.

The Carnegie Plant receives rough roll forgings from other UES facilities and processes them into finished rolls. Specific operations performed include machining (turning, polishing, grinding, milling, and boring), heat-treating, and packaging. The rolls are used in a variety of industries, but primarily the metal-producing industry for work and back-up functions in ferrous cold rolling and nonferrous hot rolling. Rolls range in size from 6 to 56.5 inches in diameter and weigh from 100 pounds to more than 40 tons. Hardened steel rolls are machined to customer specifications.

Based on DEP's site visit on October 19, 2023 and subsequent work by UES, including dye testing, the following outfalls were identified in the March 29, 2024 application: Outfall 005 for contact cooling (quench) water, non-contact cooling water (cooling tower blowdown), pumped groundwater, and storm water; Outfall 006 for storm water from roof drains and surface inlets near the maintenance machine shop; Outfalls 007 and 008 for storm water from roof drains; Outfall 009 for storm water from roof

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	May 1, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	May 6, 2024

Summary of Review

drains and equipment storage areas; and Outfall 010 for storm water from roof drains and roadway runoff. In addition, contributions of contact and non-contact cooling water to Outfall 005 will be regulated at separate internal monitoring points (IMPs). Contact cooling water will be regulated at IMP 105 and cooling tower blowdown will be regulated at IMP 205.

In a change from the 1997 permit, effluent limits for contact cooling water discharges will be imposed at IMP 105 based on the Metal Products and Machinery Point Source Category Effluent Limitations Guidelines (40 CFR Part 438), and effluent limits for cooling tower blowdown will be imposed at IMP 205 based on DEP's best professional judgement and comparable limits from the Steam Electric Power Generating Point Source Category Effluent Limitations Guidelines.

Storm water discharges through Outfalls 006, 007, 008, and 010 will be permitted as "no exposure" outfalls without monitoring requirements based on UES's certification that storm water in the drainage areas for those outfalls are not exposed to industrial activities. Storm water discharges through Outfall 009 will be subject to monitoring requirements from Appendix U of DEP's PAG-03 General Permit. UES will be required to implement best management practices to control pollutants in all storm water discharges—whether to maintain "no exposure" conditions or to control pollutants in storm water that is exposed to industrial activities.

For the first time, this permit implements requirements relating to a 2001 Total Maximum Daily Load for PCBs and Chlordane, and 2003 Total Maximum Daily Load for acid mine drainage pollutants in the Chartiers Creek Watershed. Reporting requirements also are imposed at Outfall 005 for four per- and polyfluoroalkyl substances (PFAS) according to permitting policy updates in February 2024 (discussed later in this Fact Sheet).

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0.028 (avg.); 0.11 (max)
Latitude	40° 25' 2.36"	Longitude	-80° 04' 35.54"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Contact cooling (quench) water; non-contact cooling water (cooling tower blowdown); groundwater from subsurface pumps; and storm water runoff		

Receiving Waters	Chartiers Creek (WWF)	Stream Code	36777
NHD Com ID	134396059	RMI	7.2
Drainage Area	266	Yield (cfs/mi^2)	0.029
Q_{7-10} Flow (cfs)	7.76	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	744	Slope (ft/ft)	0.001
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Nearest Downstream Public Water Supply Intake	West View Water Authority – Neville Island		
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Discharge, Receiving Waters and Water Supply Information

Internal Monitoring Point	105	Design Flow (MGD)	0.002 (avg.); 0.003 (max)
Latitude	40° 24' 58.69"	Longitude	-80° 4.0' 34.77"
Wastewater Description:	Quench water, city water, and storm water (recirculating tank discharge)		

Discharge, Receiving Waters and Water Supply Information

Internal Monitoring Point	205	Design Flow (MGD)	0.0012
Latitude	40° 24' 58.49"	Longitude	-80° 04' 35.24"
Wastewater Description:	Cooling tower blowdown (non-contact cooling)		

Changes Since Last Permit Issuance: IMPs 105 and 205 are added to the permit to differentiate effluent sources with different limits.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	Variable
Latitude	40° 25' 0.30"	Longitude	-80° 04' 38.58"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Storm water		
Receiving Waters	Chartiers Creek (WWF)	Stream Code	36777
NHD Com ID	134396059	RMI	7.26
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	West View Water Authority – Neville Island		
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	Variable
Latitude	40° 25' 2.39"	Longitude	-80° 04' 35.33"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Storm water		
Receiving Waters	Chartiers Creek (WWF)	Stream Code	36777
NHD Com ID	134396059	RMI	7.2
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		West View Water Authority – Neville Island	
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: Existing outfall; new to the permit.

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	Variable
Latitude	40° 25' 2.39"	Longitude	-80° 04' 35.33"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Storm water		
Receiving Waters	Chartiers Creek (WWF)	Stream Code	36777
NHD Com ID	134396059	RMI	7.2
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		West View Water Authority – Neville Island	
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: Existing outfall; new to the permit.

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	Variable
Latitude	40° 24' 55.17"	Longitude	-80° 04' 38.71"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Storm water		
Receiving Waters	Whiskey Run (WWF)	Stream Code	36784
NHD Com ID	134396059	RMI	0.11
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		West View Water Authority – Neville Island	
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: Existing outfall; new to the permit.

Other Comments:

Discharge, Receiving Waters and Water Supply Information

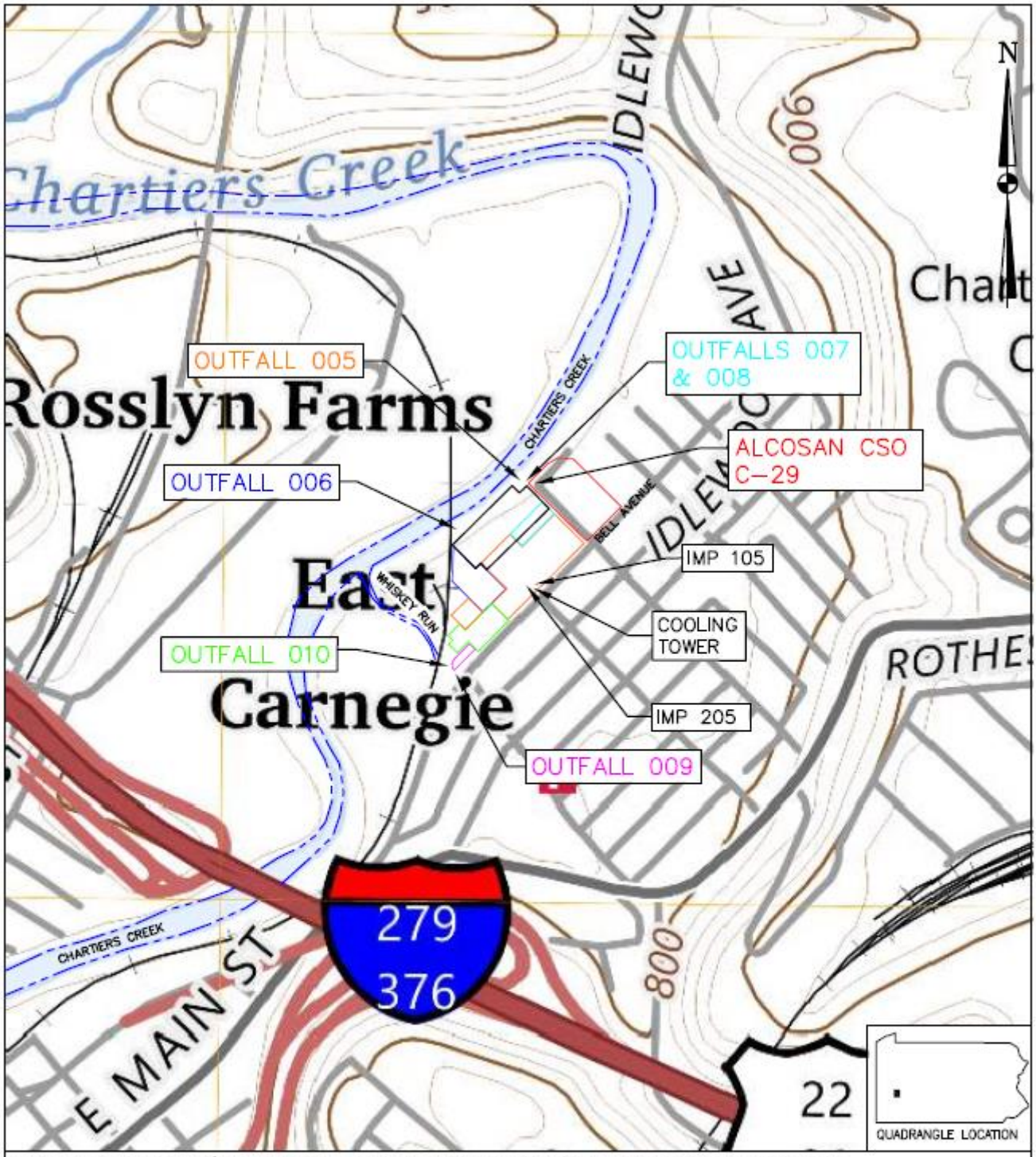
Outfall No.	010	Design Flow (MGD)	Variable
Latitude	40° 24' 55.36"	Longitude	-80° 04' 39.03"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Storm water		
Receiving Waters	Whiskey Run (WWF)	Stream Code	36784
NHD Com ID	134396059	RMI	0.10
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Fish Consumption: Impaired; Aquatic Life: Impaired		
Cause(s) of Impairment	Fish Consumption: PCBs; Aquatic Life: Metals, Siltation, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)		
Source(s) of Impairment	Fish Consumption: Source Unknown; Aquatic Life: Acid Mine Drainage		
TMDL Status	Final (EPA Approved 4/9/2001), Final (EPA Approved 6/3/2003)	Name	Chartiers Creek TMDL, Chartiers Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		West View Water Authority – Neville Island	
PWS ID	5020043	PWS Withdrawal (MGD)	40.0
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI	976.1	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: Existing outfall; new to the permit.

Other Comments:



REFERENCE: USGS 7.5' QUADRANGLE MAP OF: PITTSBURGH WEST, PENNSYLVANIA; DATED 2023.

DRAWN BY	DJF
DATE	3/14/2024
CHECKED BY	GL
SET JOB NO.	223006
SET DWG FILE	CARNEGIE PLANT SW DRAINAGE AREAS SITE LOC MAPm01.dwg
DRAWING SCALE	1"=500'

SE TECHNOLOGIES
Responsive Reliable Results

UNION ELECTRIC STEEL CORPORATION
725 BELL AVENUE
CARNEGIE, ALLEGHENY COUNTY, PENNSYLVANIA
STORMWATER DRAINAGE AREAS
USGS TOPOGRAPHIC SITE MAP

DRAWING NO.	REV.
FIGURE 1	0

Plot: env045 03/15/2024 09:01 G:\union electric\223006\FIGURE 1 CARNEGIE PLANT SW DRAINAGE AREAS USGS TOPO SITE MAPm01.dwg

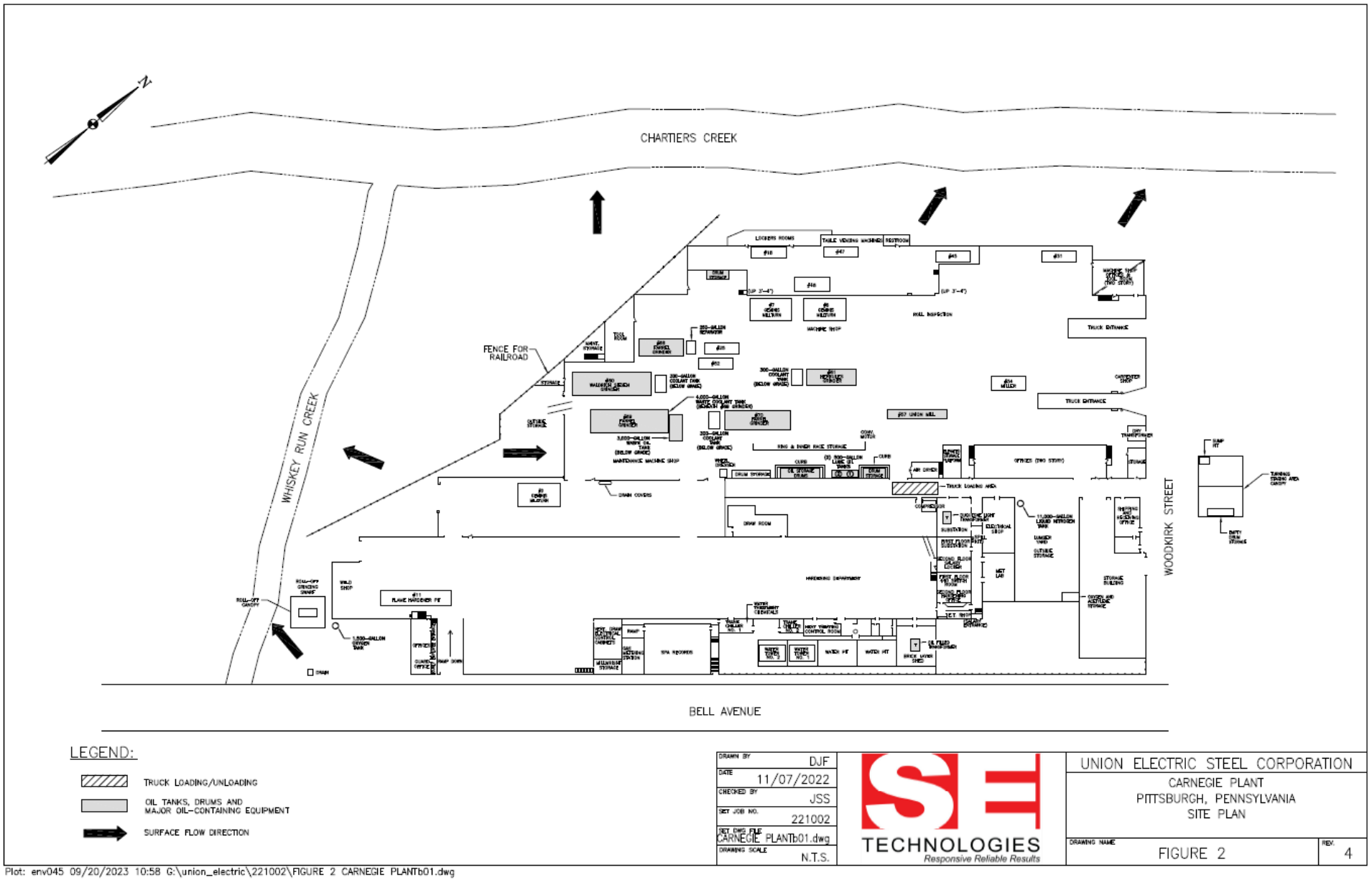
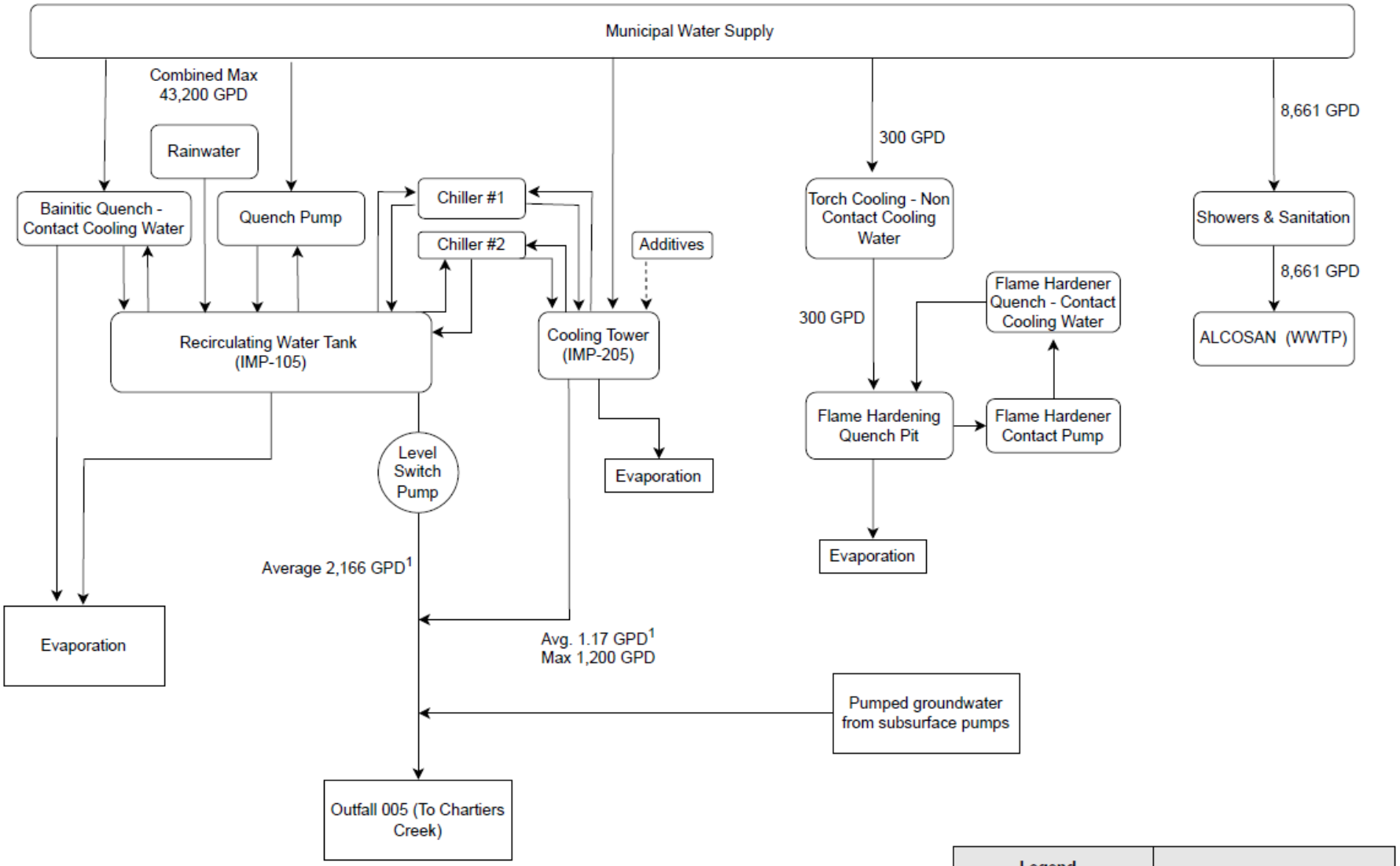

CHARTIERS CREEK
WHISKEY RUN CREEK
FENCE FOR RAILROAD
WOODKIRK STREET
BELL AVENUE
LEGEND:
TRUCK LOADING/UNLOADING
OIL TANKS, DRUMS AND MAJOR OIL-CONTAINING EQUIPMENT
SURFACE FLOW DIRECTION
DRAWN BY DJF
DATE 11/07/2022
CHECKED BY JSS
SET JOB NO. 221002
SET DWG FILE CARNEGIE PLANTb01.dwg
DRAWING SCALE N.T.S.
TECHNOLOGIES
Responsive Reliable Results
UNION ELECTRIC STEEL CORPORATION
CARNEGIE PLANT
PITTSBURGH, PENNSYLVANIA
SITE PLAN
DRAWING NAME FIGURE 2
REV. 4
Plot: env045 09/20/2023 10:58 G:\union_electric\221002\FIGURE 2 CARNEGIE PLANTb01.dwg

Figure 3 - Facility Process Flow Diagram



Notes:
[1]This flow data was obtained from a 45-day period from February through mid-March of 2024. It is expected that flow volume may vary due to seasonal temperature, rainfall, and production variations.


OUTFALL 005
OUTFALLS 007 & 008
ALCOSAN CSO C-29
CHARTIERS CREEK
OUTFALL 005 SAMPLING POINT
OUTFALL 006
Whiskey Run
WHISKEY RUN
CHARTIERS CREEK
IMP 105 – QUENCH PIT/RECIRCULATING TANK (SAMPLE PULLED FROM TANK)
COOLING TOWER
IMP 205 –COOLING TOWER BLOWDOWN (SAMPLE PULLED FROM DISCHARGE LINE IN OLD CHILLER ROOM)
BELL AVENUE
OUTFALL 010
OUTFALL 009
Moffat St
Ade Way
Woodkirk St
N
STORMWATER DRAINAGE AREA OUTFALL 005
STORMWATER DRAINAGE AREA OUTFALL 006
STORMWATER DRAINAGE AREA OUTFALLS 007 & 008
STORMWATER DRAINAGE AREA OUTFALL 009
STORMWATER DRAINAGE AREA OUTFALL 010
STORMWATER DRAINAGE AREA TO ALCOSAN CSO C-29
FLOW DIRECTION
DRAWN BY DJF
DATE 3/13/2024
CHECKED BY GL
SET JOB NO. 223006
SET DWG FILE CARNEGIE PLANT SW DRAINAGE MAPb01.dwg
DRAWING SCALE AS SHOWN
TECHNOLOGIES
Responsive Reliable Results
UNION ELECTRIC STEEL CORPORATION
725 BELL AVENUE
CARNEGIE, ALLEGHENY COUNTY, PENNSYLVANIA
STORMWATER DRAINAGE MAP
DRAWING NAME FIGURE 4
REV. 0
Plot: env045 03/15/2024 09:23 G:\union_electric\223006\ FIGURE 4 CARNEGIE PLANT SW DRAINAGE MAPb01.dwg

Treatment Facility Summary					
Treatment Facility: None					
WQM Permit No.	**Issuance Date**	**Purpose**			
—	—	—			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**	
—	—		N/A	—	
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**	
—	—	N/A	N/A	N/A	

Changes Since Last Permit Issuance:

Other Comments:

Compliance History

DMR Data for Outfall 005 (from March 1, 2023 to February 29, 2024)

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Flow (MGD) Average Monthly	0.0466	0.0485	0.0481	0.0416	1.4692	0.0396	0.0372	0.037	0.0425	0.001	0.0005	0.0004
Flow (MGD) Daily Maximum	0.101	0.195	0.101	0.101	0.097	0.110	0.102	0.095	0.10	0.093	0.101	0.102
pH (S.U.) Minimum	7.85	7.70	8.13	6.92	7.39	8.11	7.25	7.69	7.46	8.26	7.83	7.54
pH (S.U.) Maximum	8.17	8.35	8.30	8.28	8.85	8.38	7.88	8.64	8.47	8.57	7.97	7.98
TSS (mg/L) Average Monthly	< 5.0	< 7.8	7.0	< 5.0	< 5.8	< 6.0	< 5.0	< 5.0	6.25	< 6.0	10.25	< 6.75
TSS (mg/L) Daily Maximum	< 5.0	10.5	9.0	< 5.0	6.5	< 7.0	< 5.0	< 5.0	6.5	7.0	13.5	< 5.5
Oil and Grease (mg/L) Average Monthly	< 5.0	< 4.9	2.15	2.5	2.7	3.45	3.3	< 1.5	4.4	3.5	5.2	3.0
Total Cadmium (mg/L) Average Monthly	< 0.0002	< 0.0002	< 0.0002	< 0.003	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Cadmium (mg/L) Daily Maximum	< 0.0002	< 0.0002	< 0.00024	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Chromium (mg/L) Average Monthly	0.002	0.004	0.0027	0.006	0.003	0.003	0.0025	0.002	0.006	0.004	0.004	0.002
Total Chromium (mg/L) Daily Maximum	0.002	0.006	0.003	0.009	0.003	0.004	0.003	0.003	0.01	0.005	0.004	0.003
Total Copper (mg/L) Average Monthly	0.094	0.111	0.0867	0.1045	0.082	0.107	0.112	0.084	0.12	0.137	0.161	0.113
Total Copper (mg/L) Daily Maximum	0.115	0.166	0.126	0.105	0.096	0.111	0.114	0.096	0.18	0.149	0.185	0.121
Total Cyanide (mg/L) Average Monthly	0.009	< 0.005	0.0125	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.015
Total Cyanide (mg/L) Daily Maximum	0.009	< 0.005	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.016
Total Lead (mg/L) Average Monthly	< 0.001	0.001	< 0.001	< 0.004	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Total Lead (mg/L) Daily Maximum	< 0.001	0.001	< 0.001	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Total Nickel (mg/L) Average Monthly	0.005	0.004	0.005	0.006	0.006	0.006	0.006	0.005	0.008	0.007	0.006	0.006
Total Nickel (mg/L) Daily Maximum	0.00675	0.005	0.005	0.007	0.006	0.007	0.006	0.006	0.01	0.007	0.007	0.006

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Total Silver (mg/L) Average Monthly	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.001	< 0.0009	< 0.009	< 0.001	< 0.0009
Total Silver (mg/L) Daily Maximum	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.001	< 0.0009	< 0.009	0.001	0.009
Total Zinc (mg/L) Average Monthly	0.109	0.149	0.161	0.160	0.419	0.332	0.171	0.148	0.16	0.294	0.240	0.131
Total Zinc (mg/L) Daily Maximum	0.124	0.195	0.275	0.194	0.448	0.477	1.55	0.151	0.18	0.409	0.344	0.141
Total Toxic Organics (mg/L) Daily Maximum			< 0.025						< 0.025			

Development of Effluent Limitations

IMP No.	105	**Design Flow (MGD)**	0.002 (avg.); 0.003 (max)
Latitude	40° 24' 58.69"	**Longitude**	-80° 04' 34.77"

Wastewater Description: Quench water, city water, and storm water (recirculating tank discharge)

Internal Waste Streams

For this permit renewal, DEP is separating the regulation of UES's contact cooling water and cooling tower blowdown. Those wastewaters currently combine with groundwater and storm water and discharge through Outfall 005 to Chartiers Creek. Outfall 005 is the only location subject to effluent limits and monitoring requirements in UES's current NPDES permit.

Contact cooling water will be regulated at IMP 105 and cooling tower blowdown will be regulated at IMP 205. Effluent limits will be imposed at IMPs 105 because 40 CFR § 125.3(f) prohibits compliance with technology-based treatment requirements using "non-treatment" techniques such as flow augmentation (*i.e.*, dilution). Since the wastewaters monitored at IMP 105 combine with other wastewaters before the next downstream monitoring location (Outfall 005), IMP 105 is the only point at which compliance with applicable effluent limits may be determined without the interference of other wastewaters. This rationale is consistent with 40 CFR § 122.45(h)[1], which allows for the imposition of effluent limitations on internal waste streams in these circumstances. This rationale also applies to IMP 205.

105.A. Technology-Based Effluent Limitations (TBELs)

DEP previously determined that UES is subject to Federal Effluent Limitations Guidelines (ELGs) promulgated under 40 CFR Part 433 – Metal Finishing Point Source Category. That determination was based on the applicability description given in 40 CFR § 433.10(a), which states:

> Except as noted in paragraphs (b) and (c), of this section, the provisions of this subpart apply to plants which perform any of the following six metal finishing operations on any basis material: Electroplating, Electroless Plating, Anodizing, Coating (chromating, phosphating, and coloring), Chemical Etching and Milling, and Printed Circuit Board Manufacture. If any of those six operations are present, then this part applies to discharges from those operations and also to discharges from any of the following 40 process operations: Cleaning, Machining, Grinding, Polishing, Tumbling, Burnishing, Impact Deformation, Pressure Deformation, Shearing, Heat Treating, Thermal Cutting, Welding, Brazing, Soldering, Flame Spraying, Sand Blasting, Other Abrasive Jet Machining, Electric Discharge Machining, Electrochemical Machining, Electron Beam Machining, Laser Beam Machining, Plasma Arc Machining, Ultrasonic Machining, Sintering, Laminating, Hot Dip Coating, Sputtering, Vapor Plating, Thermal Infusion, Salt Bath Descaling, Solvent Degreasing, Paint Stripping, Painting, Electrostatic Painting, Electropainting, Vacuum Metalizing, Assembly, Calibration, Testing, and Mechanical Plating.

UES receives rough roll forgings and processes the rolls into finished rolls using machining operations including turning, polishing, grinding, milling, and boring. Rolls also are heat treated and then quenched, which is the source of the facility's contact cooling water. UES does not perform any of the six metal finishing operations (Electroplating, Electroless Plating, Anodizing, Coating, Chemical Etching and Milling, and Printed Circuit Board Manufacture). DEP's interpretation of the portion of the applicability description that states, "If any of those six operations are present, then this part applies to discharges from those operations and also to discharges from any of the following 40 process operations…" is that wastewaters from any of the forty process operations are only subject to the Metal Finishing ELGs under Part 433 if those operations are conducted in conjunction with one of the six metal finishing operations. Since UES does not perform any of the six metal finishing operations, UES is not subject to Part 433.

In 2003, EPA promulgated ELGs for the Metal Products and Machinery (MP&M) Point Source Category under 40 CFR Part 438. The MP&M ELGs regulate discharges from certain industrial sectors' process operations such as those listed in the § 433.10(a) excerpt above that are not conducted in conjunction with another activity that is subject to another existing ELG (*e.g.*, standalone heat treating that is not conducted in conjunction with one of the six metal finishing operations).

Effluent Limitations Guidelines for the MP&M Point Source Category

The general applicability description for the MP&M ELGs under 40 CFR § 438.1(a) states:

[1] 40 CFR § 122.45(h)(1): "When permit effluent limitations or standards imposed at the point of discharge are impractical or infeasible, effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams."

> As defined more specifically in subpart A, except as provided in paragraphs (b) through (e) of this section, this part applies to process wastewater discharges from oily operations (as defined at §438.2(f) and appendix B of this part) to surface waters from existing or new industrial facilities (including facilities owned and operated by Federal, State, or local governments) engaged in manufacturing, rebuilding, or maintenance of metal parts, products, or machines for use in the Metal Product & Machinery (MP&M) industrial sectors listed in this section. The MP&M industrial sectors consist of the following:
>
> Aerospace; Aircraft; Bus and Truck; Electronic Equipment; Hardware; Household Equipment; Instruments; Miscellaneous Metal Products; Mobile Industrial Equipment; Motor Vehicle; Office Machine; Ordnance; Precious Metals and Jewelry; Railroad; Ships and Boats; or Stationary Industrial Equipment.

The 16 industrial sectors regulated by the MP&M ELGs include facilities that manufacture, maintain, and rebuild metal products under more than 200 different Standard Industrial Classification (SIC) codes. The NAICS/SIC Codes for UES's industrial activities is 333519 – Rolling Mill and Other Metalworking Machinery Manufacturing and SIC 3547 – Rolling Mill Machinery Manufacturing. Pursuant to Appendix A of EPA's "Development Document For the Final Effluent Limitations Guidelines and Standards for the Metal Products and Machinery Point Source Category", UES's NAICS/SIC Codes are covered under the Stationary Industrial Equipment MP&M industrial sector (see **Attachment A** to this Fact Sheet for the relevant pages from Appendix A of the Development Document).[2]

As described in § 438.1, the MP&M ELGs apply to process wastewater discharges from "oily operations" conducted at facilities operating in one of the 16 MP&M industrial sectors. "Oily operations" is defined in § 438.2(f):

> *Oily operations* means one or more of the following: abrasive blasting; adhesive bonding; alkaline cleaning for oil removal; alkaline treatment without cyanide; aqueous degreasing; assembly/disassembly; burnishing; calibration; corrosion preventive coating (as defined in paragraph (c) of this section); electrical discharge machining; floor cleaning (in process area); grinding; heat treating; impact deformation; iron phosphate conversion coating; machining; painting-spray or brush (including water curtains); polishing; pressure deformation; solvent degreasing; steam cleaning; testing (e.g., hydrostatic, dye penetrant, ultrasonic, magnetic flux); thermal cutting; tumbling/barrel finishing/mass finishing/vibratory finishing; washing (finished products); welding; wet air pollution control for organic constituents; and numerous sub-operations within those listed in this paragraph. In addition, process wastewater also results from associated rinses that remove materials that the preceding processes deposit on the surface of the workpiece. These oily operations are defined in appendix B of this part.

As explained above, UES turns, polishes, grinds, mills, bores, and heat-treats rough roll forgings to process those rolls into finished rolls. Those activities are "oily operations" subject to the limitations under Subpart A of 40 CFR Part 438. Section 438.12 imposes the following Best Practicable Control Technology (BPT) effluent limitations on process wastewaters from oily operations:

Table 1. BPT/BCT Effluent Limits for Oily Wastes

Parameter	Maximum Daily (mg/L)
Total Suspended Solids	62
O&G (as HEM) [1]	46
pH	within the range of 6 to 9

[1] Total recoverable oil and grease measured as n-hexane extractable material

Effluent limits for the Best Control Technology for Conventional Pollutants (BCT) under § 438.13 are equivalent to those specified in § 438.12. There are no Best Available Technology (BAT) limits because Part 438 only controls conventional pollutants and conventional pollutants are not regulated by the BAT level of control.

UES discharges contact cooling water to a recirculating water tank (RWT) that functions as both a water supply reservoir used to supply water for quenching and a wastewater equalization/holding tank that stores wastewater from quenching. Water is added intentionally to the RWT from the municipal water supply. Storm water is added incidentally by inflow into the tank (the tank is sheltered, but not completely enclosed). A centrifugal pump with a level-activated switch periodically discharges water from the RWT to Outfall 005.

[2] UES listed SIC Code 3547 and NAICS Code 333519 on its updated permit application. However, Appendix A of the MP&M Development Document pairs SIC Code 3547 with NAICS Code 333516. Even though NAICS 333519 is not listed in Appendix A of the MP&M Development Document, UES is still subject to Part 438. The MP&M Development Document dates to 2003 when an earlier version of NAICS categorized Rolling Mill Machinery and Equipment under NAICS 333516. As shown in **Attachment A**, the 2012 version of NAICS changed the NAICS Code for Rolling Mill Machinery and Equipment from 333516 to 333519.

For the purpose of implementing Part 438, the TBELs apply to the full flow of wastewater pumped from the RWT to Outfall 005. Cooling tower blowdown is not wastewater from "oily operations", which is why IMPs 105 and 205 were created for this permit renewal. Even though municipal water and storm water added to the RWT are expected to dilute quench water, UES is not practicing flow augmentation, which is prohibited by 40 CFR § 125.3(f) as a way to comply with technology-based treatment requirements. Municipal water and storm water are added as makeup water to make up for evaporative losses during quenching (*i.e.*, flow replacement). While the mixing of process water and storm water generally is not preferred, UES's use of storm water associated with industrial activities as a makeup water source for quenching is beneficial because water used for quenching does not need to be treated to potable water standards; alternative makeup water sources reduce UES's municipal water demand and allows potable water to be used for potable needs.

Existing TBELs

Currently, UES's contact cooling water is subject to TBELs at Outfall 005 based on 40 CFR Part 433—including more stringent WQBELs developed for some of the parameters regulated by Part 433. To the extent that backsliding from Part 433's TBELs (and WQBELs) at Outfall 005 is warranted based on DEP's evaluation of ELG applicability for this renewal, refer to Section 005.A of this Fact Sheet. Also, the expression of some of Part 433's TBELs as concentration limits at Outfall 005 allows dilution to factor into UES's compliance with those limits due to the mixing of cooling tower blowdown, groundwater, and storm water with contact cooling water (*i.e.*, Part 433's TBELs are imposed on all of Outfall 005's wastewaters, not only contact cooling waters), so modification or removal of those limits may be warranted to ensure compliance with 40 CFR § 125.3(f) apart from revised ELG applicability and backsliding considerations. [3]

Thermal TBELs for Heated Discharges

No TBELs are developed to control thermal pollution. However, a maximum daily temperature limit of 110°F will be imposed at Outfall 005 if thermal WQBELs do not apply at Outfall 005 due to residual heat from contact and non-contact cooling water (refer to Section 005.B, below). The 110°F temperature limit is imposed to protect human health caused by exposure resulting from water contact pursuant to the recommendations of DEP's "Implementation Guidance for Temperature Criteria", and as an implementation of general water quality criteria under 25 Pa. Code § 93.6(a), which states that "[w]ater may not contain substances attributable to point or nonpoint source discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life."

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1). Effluent standards for pH are imposed on industrial wastes by 25 Pa. Code §§ 92a.48(a)(2) and 95.2(1), but those limits will apply at Outfall 005, which receives other industrial wastes (cooling tower blowdown) that also are subject to those effluent standards.

Oil-bearing industrial wastewaters are subject to effluent standards for Oil and Grease of 15.0 mg/L average and 30.0 mg/L maximum under 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2(2). Those Oil and Grease limits are currently imposed at Outfall 005 but, unlike pH, do not apply to the other, non-oil-bearing wastewaters discharging at that location. Therefore, the Oil and Grease limits from § 95.2(2) are imposed at IMP 105. The § 95.2(2) Oil and Grease limits are more stringent than, and thus supersede, Part 438's Oil and Grease limit pursuant to 25 Pa. Code § 92a.12(a).

105.B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality limits will be evaluated at Outfall 005 where IMP 105's wastewaters and other internal wastewater streams combine and discharge to waters of the Commonwealth.

105.C. Effluent Limitations and Monitoring Requirements for IMP 105

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at IMP 105 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions

[3] Part 438 did not exist when UES's current permit was issued, so if DEP had determined that Part 433 did not apply at that time, then DEP would have developed case-by-case TBELs based on DEP's Best Professional Judgement (BPJ) under 40 CFR § 125.3. In that case, DEP could have adopted Part 433's TBELs as the TBELs for UES's contact cooling water discharges if there was justification to do so in DEP's judgement (*e.g.*, similarity of UES's activities or wastewaters to those regulated by Part 433).

to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table below.

Table 2. Effluent Limits and Monitoring Requirements for IMP 105

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	—	62.0	—	40 CFR § 438.12
Oil and Grease	—	—	15.0	—	30.0	25 Pa. Code §§ 92a.48(a)(2) & 95.2(2)

Monitoring frequencies and sample types are imposed in accordance with Chapter 6, Table 6-4 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations" (“Permit Writer's Manual”), DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications" ("IW NPDES SOP"), and the previous permit.

Flow must be measured 1/week and TSS and Oil and Grease must be analyzed 1/week using grab samples. Table 6-4 of DEP’s Permit Writer’s Manual recommends 24-hour composite sampling for most toxic and conventional pollutants, but UES’s contact cooling water discharges are intermittent discharges controlled by a pump with a level-activated switch. The circumstances in which contact cooling water is discharged do not allow for compositing.

Development of Effluent Limitations

IMP No.	205	**Design Flow (MGD)**	0.0012
Latitude	40° 24' 58.49"	**Longitude**	-80° 4.0' 35.24"

Wastewater Description: Cooling tower blowdown (non-contact cooling)

205.A. Technology-Based Effluent Limitations (TBELs)

Effluent Limitations Guidelines

Cooling tower blowdown is not regulated by 40 CFR Part 438. However, cooling tower blowdown is regulated by 40 CFR Part 423 – Steam Electric Power Generating Point Source Category. Even though UES is not a steam electric power generating facility, the cooling tower blowdown limits under Part 423 reasonably inform DEP's permitting of UES's cooling tower blowdown pursuant to Sections 304(b)(2)(B), 304(b)(4)(B), and 402(a)(1) of the Clean Water Act and implementing regulations under 40 CFR § 125.3 (incorporated by reference at 25 Pa. Code § 92a.48(a)(3)), which allow for the establishment of effluent limits on a case-by-case basis using Best Professional Judgment (BPJ).

Section 423.11(j) defines blowdown as "the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practices." This definition does not include language specific to the steam electric power generating industry, so the performance standards applicable to "blowdown" under the Steam Electric Power Generating Point Source Category and the rationale given by EPA for those limits in documentation supporting the Steam Electric Power Generating ELGs are appropriate for blowdown discharged elsewhere.

Based on DEP's BPJ, cooling tower blowdown monitored at IMP 205 will be subject to the most stringent TBELs and narrative limitations from § 423.12(b) paragraphs (1) and (7) for Best Practicable Control Technology Currently Available (BPT) and § 423.13 paragraphs (d)(1) - (d)(3) for Best Available Technology Economically Achievable (BAT). TBELs based on the use of Best Conventional Pollutant Control Technology (BCT) are reserved under § 423.14, so BPT limits will control conventional pollutants in the facility's blowdown. DEP will not impose the chromium and zinc limits from 40 CFR § 423.13(d)(1). Based on the Development Document for the Steam Electric ELGs, chromium and zinc were included as pollutants of concern for discharges of cooling tower blowdown due to the widespread use of chromium and zinc-based corrosion inhibitors when the Steam Electric ELGs were developed and promulgated. Based on the list of chemical additives provided in UES's NPDES permit amendment application, no chromium or zinc-based additives are used at the facility, so DEP will forgo the chromium and zinc limits at this time. The applicable TBELs are summarized in Tables 3 and 4.

Table 3. 40 CFR Part 423 – Steam Electric BPT Effluent Limitations for IMP 205

Pollutant	Average Concentration (mg/L)	Maximum Concentration (mg/L)	Basis
Free Available Chlorine	0.2	0.5	40 CFR § 423.12(b)(7)
pH	within the range of 6.0 to 9.0		40 CFR § 423.12(b)(1)

Table 4. 40 CFR Part 423 – Steam Electric BAT Effluent Limitations for IMP 205

Pollutant	Average Concentration (mg/L)	Maximum Concentration (mg/L)	Basis
Free Available Chlorine	0.2	0.5	40 CFR § 423.13(d)(1)
The 126 priority pollutants contained in chemicals added for cooling tower maintenance	No detectable amount	No detectable amount	40 CFR § 423.13(d)(1)
Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.			40 CFR § 423.13(d)(2)

Pollutant	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)	Basis
At the permitting authority's discretion, instead of the monitoring specified in 40 CFR 122.11(b) compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.			40 CFR § 423.13(d)(3)

The most stringent TBELs from the BPT and BAT levels of control include the pH limits from Table 3 and all the limits from Table 4.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring will be required in accordance with 25 Pa. Code § 92a.61(b). Effluent standards for pH are imposed on industrial wastes by 25 Pa. Code § 95.2(1). The § 95.2(1) pH limits are the same as those imposed based on BPJ (see Table 3). Since cooling tower blowdown mixes with contact cooling water at Outfall 005 and the pH limits from Chapter 95 apply to both, the pH limits will be imposed at Outfall 005 instead of IMPs 105 and 205.

Thermal TBELs for Heated Discharges

No TBELs are developed to control thermal pollution. However, a maximum daily temperature limit of 110°F will be imposed at Outfall 005 if thermal WQBELs do not apply at Outfall 005.

205.B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality limits will be evaluated at Outfall 005 where IMP 205's wastewaters and other internal wastewater streams combine and discharge to waters of the Commonwealth.

205.C. Effluent Limitations and Monitoring Requirements for IMP 205

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at IMP 205 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table below.

Table 5. Effluent Limits and Monitoring Requirements for IMP 205

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Free Available Chlorine	—	—	0.2	0.5	—	BPJ TBELs: 40 CFR §§ 423.12(b)(7) and 423.13(d)(1)
A narrative limit requiring there to be no net addition of pollutants resulting from the use of cooling tower maintenance chemicals (see Table 4) will be imposed as a condition in Part C of the amended permit.						

Based on DEP's Permit Writers' Manual, flow must be measured 2/month and free available chlorine will require 2/month grab samples.

Development of Effluent Limitations

Outfall No. 005 **Design Flow (MGD)** 0.028 (avg.); 0.11 (max)
Latitude 40° 25' 2.36" **Longitude** -80° 4.0' 35.54"
Wastewater Description: Contact cooling (quench) water; non-contact cooling water (cooling tower blowdown); groundwater from subsurface pumps; and storm water runoff

Discharges monitored at Outfall 005 are currently subject to the following effluent limits and monitoring requirements.

Table 6. Outfall 005 – Current Effluent Limits and Monitoring Requirements

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Limit Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Flow (MGD)	Report	Report	—	—	—	1/day	Metered	§ 92.61(d)(1)
pH	—	—	6.0 (Minimum)	—	9.0	2/month	Grab	40 CFR § 433.13(a)
TSS	—	—	31.0	60.0	—	2/month	8-Hr Comp.	40 CFR § 433.13(a)
Oil and Grease	—	—	15.0	—	30.0	2/month	Grab	25 Pa. Code Chapter 95
Cadmium, Total	—	—	0.19	0.38	0.47	2/month	8-Hr Comp.	WQBELs
Chromium, Total	—	—	1.71	2.77	—	2/month	8-Hr Comp.	40 CFR § 433.14(a)
Copper, Total	—	—	1.18	2.36	2.95	2/month	8-Hr Comp.	WQBELs
Cyanide, Total	—	—	0.65	1.20	—	2/month	8-Hr Comp.	40 CFR § 433.14(a)
Lead, Total	—	—	0.43	0.69	—	2/month	8-Hr Comp.	40 CFR § 433.14(a)
Nickel, Total	—	—	0.21	0.42	0.52	2/month	8-Hr Comp.	WQBELs
Silver, Total	—	—	0.009	0.018	0.022	2/month	8-Hr Comp.	WQBELs
Zinc, Total	—	—	0.77	1.55	1.92	2/month	8-Hr Comp.	WQBELs
Total Toxic Organics	—	—	—	2.13	—	1/6 months	Grab	40 CFR § 433.14(a)

The effluent limits and monitoring requirements in Table 6 will remain in effect at Outfall 005 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).[4]

005.A. Technology-Based Effluent Limitations (TBELs)

Backsliding

With respect to backsliding, 40 CFR § 122.44(l)(2) states:

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions—A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if—

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B)

[4] *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)

(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or

(2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) ***Limitations.*** In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

Currently, Outfall 005 is subject to TBELs based on 40 CFR Part 433, including more stringent WQBELs developed for some of the parameters regulated by Part 433 (Cadmium, Copper, Nickel, Silver, and Zinc). Continuing from the ELG applicability evaluation in Section 105.A of this Fact Sheet, DEP's understanding is that UES was not performing any of the six metal finishing operations listed in Part 433 when UES's current NPDES permit was issued in 1997. DEP and UES may have interpreted Part 433 to apply to all metal finishing operations and affiliated process operations irrespective of whether a facility performed one of the six primary metal finishing operations. Based on DEP's determination for this permit renewal that Part 433 does not apply to UES's contact cooling water discharges, and the fact that there have been no substantial changes to UES's operations since the last permit renewal, backsliding from Part 433's limits at Outfall 005 is justified according to 40 CFR § 122.44(l)(2)(i)(B)*(2)* regarding technical mistakes or mistaken interpretations of law.

Consistent with the § 122.44(l)(2)(i)(B)*(2)* exception to anti-backsliding, TBELs for Chromium, Cyanide, Lead, and Total Toxic Organics will be removed from Outfall 005. In addition, to the extent that WQBELs for Cadmium, Copper, Nickel, Silver, and Zinc no longer apply (see Section 005.B, below), the TBELs for those parameters from Part 433 will not be imposed at Outfall 005.

Notwithstanding DEP's determination that Part 433 does not apply, and that backsliding is allowed, 2/month monitoring and reporting will be required for TSS, Oil and Grease, Free Available Chlorine, Copper, and Zinc at Outfall 005 pursuant to 25 Pa. Code § 92a.61(b). TSS, Oil and Grease, and Free Available Chlorine are regulated at either IMP 105 or IMP 205 and monitoring those parameters at Outfall 005 will help to determine the extent to which there is co-dilution of dissimilar wastes (*e.g.*, cooling tower blowdown that does not contain significant concentrations of TSS diluting TSS concentrations in contact cooling water). Also, unlike the other Part 433 parameters, Copper and Zinc are regularly detected in Outfall 005's effluent, so those parameters will continue to be monitored at Outfall 005.

Total Residual Chlorine (TRC)

Effluent limits for TRC are imposed at Outfall 005 pursuant DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032, February 5, 2024, Version 1.7] and DEP's Best Professional Judgement. Even though limits for Free Available Chlorine will be imposed at IMP 205, TRC limits are imposed at Outfall 005 based on 25 Pa. Code 92a.48(b)(1) and (b)(2). Section 92a.48(b) states:

(b) For facilities or activities using chlorination, the following apply:
(1) If the EPA adopts a National categorical ELG promulgating limits for Total Residual Chlorine (TRC) or free available chlorine for a specific industry or activity under section 301 or 304(b) of the Federal Act (33 U.S.C.A. §§ 1311 and 1314(b)), that ELG constitutes BAT for the industry or activity. If the EPA has not promulgated a National ELG for TRC or free available chlorine for an industry or activity, the Department may develop a facility-

specific BAT effluent limitation for TRC. Factors, which will be considered in developing a facility-specific BAT effluent limitation, include the following:

(i) The age of equipment and facilities involved.
(ii) The engineering aspects of the application of various types of control techniques and alternatives to the use of chlorine or reductions in the volume of chlorine used during the disinfection process.
(iii) The cost of achieving the effluent reduction.
(iv) Non-water quality environmental impacts (including energy requirements).
(v) Other factors the Department deems appropriate.

(2) For facilities where the EPA has not promulgated a National ELG setting forth limits for TRC or free available chlorine for an industry or activity, and the Department has not developed a facility-specific BAT effluent limitation for TRC under the factors in paragraph (1), an effluent limitation for TRC of 0.5 milligrams per liter (30-day average) constitutes BAT.

TRC is present in Outfall 005's effluent (0.17 mg/L average and 0.34 mg/L maximum as reported from three grab samples collected for the updated permit application). TRC in Outfall 005's effluent may originate from residual chlorine added to the potable water by the municipal water supplier. EPA has promulgated limits for Free Available Chlorine in cooling tower blowdown in 40 CFR Part 423 and, as explained in Section 205.A of this Fact Sheet, those Free Available Chlorine limits will be imposed at IMP 205 based on DEP's BPJ. However, no chlorine limits are imposed on contact cooling water from IMP 105, which is composed partially of municipal makeup water that contains residual chlorine.

UES is responsible for TRC present in discharges containing chlorine irrespective of the source. Therefore, pursuant to § 92a.48(b)(2), a monthly average TRC limit of 0.5 mg/L and an instantaneous maximum TRC limit of 1.6 mg/L are imposed at Outfall 005 to regulate TRC in the combined effluent. The IMAX value is calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 386-0400-001].

Storm Water Associated with Industrial Activities

Outfall 005 receives storm water runoff from outdoor equipment storage areas northeast of the main plant buildings (*i.e.,* runoff from industrial areas). Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity normally are imposed on storm water discharges associated with industrial activities authorized by individual NPDES permits.[5] However, industrial storm water that discharges through Outfall 005 is not sampled separately from other process and non-process wastewater sources discharging through Outfall 005. Also, some of the storm water parameters regulated by the appropriate PAG-03 appendix (Appendix U) are already regulated at Outfall 005 for different reasons. While discharges of contact cooling water, cooling tower blowdown, and pumped groundwater are intermittent/batch discharges that would theoretically allow storm water to be sampled separately when those other sources are not discharging, timing the sampling of only storm water may be unnecessary to ensure BMPs are implemented within the Outfall 005 drainage area, which is the goal of the storm water monitoring.

To simplify the permitting of industrial storm water at Outfall 005, parameters listed in PAG-03 Appendix U that are not already monitored at Outfall 005 for other reasons will be added to the parameter list at Outfall 005 including Total Nitrogen, Total Phosphorus, and Nitrate+Nitrite Nitrogen. A footnote will be added to those parameters directing UES to collect samples to analyze for those parameters when storm water is discharging. Other parameters can be sampled at any time whether storm water is present or not since they may be present in storm water or UES's other wastewaters.

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR

[5] Standard Operating Procedure (SOP) for Clean Water Program, Establishing Effluent Limitations for Individual Industrial Permits, Section III.C. (SOP No. BCW-PMT-032, October 1, 2020, Version 1.6): "The applicable appendix of the PAG-03 General Permit should be considered the minimum standards for limits, benchmarks and monitoring requirements for individual industrial stormwater permits. The application manager may include other limits, benchmarks and monitoring requirements as justified in the fact sheet."

also reported that exposure to certain PFAS can lead to adverse human health impacts.[6] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: 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.

UES began resampling for its updated permit application before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA's guidance, UES does not operate in one of the industries EPA expects to be a source for PFAS.[7] Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.b of SOP BCW-PMT-032. Even though UES did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if UES did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject UES to the annual monitoring requirements described in Section II.I.b of the SOP.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results in UES's case), then the monitoring may be discontinued.

005.B. <u>Water Quality-Based Effluent Limitations (WQBELs)</u>

<u>Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential</u>

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions.

[6] ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

[7] UES was regulated by the Metal Finishing ELGs. EPA suspects facilities operating in the Metal Finishing industry to be sources for PFAS, but the renewed NPDES permit will regulate UES under ELGs for the Metal Products & Machinery industry, which is not an expected or suspected PFAS source industry.

Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling. If warranted, ammonia-nitrogen, CBOD-5, and dissolved oxygen are analyzed separately using DEP's WQM 7.0 model.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring requirements.

Reasonable Potential Analysis and WQBEL Development for Outfall 005

Table 8. TMS Inputs for 005

Parameter	Value
River Mile Index	7.2
Discharge Flow (MGD)	0.028
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (mi^2)	266
Q_{7-10} (cfs)	7.76
Low-flow yield (cfs/mi^2)	0.029
Elevation (ft)	744
Slope	0.001

Discharges from Outfall 005 are evaluated based on the maximum concentrations reported on the permit renewal application or on DMRs. The TMS model is run for Outfall 005 with the modeled discharge and receiving stream characteristics shown in Table 8. Pollutants for which water quality criteria have not been promulgated (e.g., TSS, Oil and Grease, etc.) are excluded from the modeling.

Output from the TMS model is included in **Attachment B** to this Fact Sheet. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. The results of the modeling indicate that the water quality-based reporting requirements in Table 9 are needed for Outfall 005.

Table 9. Water Quality-Based Effluent Limits for Outfall 005

Parameter	Permit Limits					Discharge Conc. (µg/L) †	Target QL (µg/L)	Governing WQBEL Basis‡
	Avg Mo. (lb/day)	Max Daily (lb/day)	Avg Mo. (µg/L)	Max Daily (µg/L)	IMAX (µg/L)			
Copper, Total	—	—	Report	Report	—	880	4.0	AFC

† As reported in UES's October 2022 Discharge Monitoring Report
‡ AFC = Acute Fish Criterion

Thermal Limits

Thermal WQBELs are evaluated using a DEP program called "Thermal Limits Spreadsheet" created with Microsoft Excel® for Windows. The program calculates temperature wasteload allocations (WLAs) through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream upstream of the discharge location. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is made based on the input data which include the receiving stream flow rate (Q_{7-10}), the stream intake flow rate, external source intake flow rates, consumptive flow rates, and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

DEP's "Implementation Guidance for Temperature Criteria" [Doc. No. 386-2000-001] directs permit writers to assume instantaneous complete mixing of the discharge with the receiving stream when calculating thermal effluent limits unless adverse factors exist. Chartiers Creek is a medium-sized waterway, so the assumption of instantaneous complete mixing is appropriate.

The results of the thermal discharge analysis using the Thermal Limits Spreadsheet (*see* **Attachment C**) indicate that WQBELs for temperature are not required. Therefore, a maximum daily temperature limit of 110°F will be imposed.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing TRC, a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC waste load allocations through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the TRC_CALC program include flow rates and chlorine demands for the receiving stream and the discharge (default chlorine demands of 0.3 and 0.0, respectively), the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates waste load allocations for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limits is imposed in the permit.

The stream flow and discharge flow entered in the TRC_CALC spreadsheet are 7.76 cfs and 0.028 MGD, respectively. An acute partial mix factor of 0.206 and a chronic partial mix factor of 1.0 are input based on values calculated from TMS modeling (see **Attachment B**). The results of the analysis, included in **Attachment D**, indicate that no WQBELs are required for TRC.

Chartiers Creek TMDLs

There are two final TMDLs for Chartiers Creek. The first TMDL for Chartiers Creek was finalized on April 9, 2001 for fish consumption use impairment caused by PCBs and chlordane. The second TMDL for the Chartiers Creek Watershed was finalized on April 9, 2003 for aquatic life use impairment caused by acid mine drainage metals (iron, aluminum, and manganese), pH, and suspended solids.

UES was not assigned waste load allocations (WLAs) by either of the Chartiers Creek TMDLs. PCBs and chlordane regulated by the 2001 TMDL are not pollutants of concern at UES, so no effluent limits or monitoring requirements are imposed at Outfall 005 based on the 2001 TMDL. However, to ensure the permit reflects the requirements of the 2001 TMDL with its 'zero' WLAs for PCBs and chlordane, the following narrative limitation will be included as a condition in Part C of the permit: "There shall be no point source discharges of Polychlorinated Biphenyls (PCBs) or Chlordane to Chartiers Creek or Whiskey Run."

Iron, aluminum, and manganese are present in Outfall 005's discharges and contribute loading to Chartiers Creek. 40 CFR § 122.44(d)(1)(vii)(B) requires that, when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

Discharges that contain TMDL-regulated pollutants but do not have TMDL WLAs can be accommodated by either 1) permitting the discharges at criteria levels because a discharge with pollutant concentrations at or below water quality criteria will not contribute to a stream's impairment; or 2) revising the TMDL to assign WLAs. In the case of the latter option, it is likely that a discharge's WLAs would be equivalent to water quality criteria because load that would have been available to allocate to UES was already allocated to other point and non-point sources, and there would be no way to allow load at levels above water quality criteria that would not contribute to the impairment. Since TMDL revisions are a lengthy process and Option 1 is equivalent to what a TMDL revision would likely entail, TMDL WQBELs are based on water quality criteria.

The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. In addition, DEP's *Water Quality Toxics Management Strategy* [Doc. No. 361-2000-003] addresses design conditions in detail (Table 1 in that document), including the appropriate durations to assign to water quality criteria. The design duration for Criteria Maximum Concentration (CMC) criteria is 1 hour (acute). The design duration for Criteria Continuous Concentration (CCC) criteria is

4 days (chronic). The design duration for Threshold Human Health (THH) criteria is 30 days (chronic). The design duration for Cancer Risk Level (CRL) criteria is 70 years (chronic).

The 750 µg/L aluminum criterion in 25 Pa. Code § 93.8c is a CMC (acute) criterion. Therefore, 750 µg/L is imposed as a maximum daily effluent limit. There is no CCC criterion for aluminum necessitating the imposition of a more stringent average monthly limit. Imposing 750 µg/L as both a maximum daily and average monthly limit is protective of water quality uses.

The 1.5 mg/L iron criterion is given as a 30-day average in 25 Pa. Code § 93.7(a). Therefore, 1.5 mg/L is imposed as an average monthly limit and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit based on DEP's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits*.

The 1 mg/L potable water supply criterion for manganese in 25 Pa. Code § 93.7(a) is a human health criterion (chronic). Per Table 1 of the *Water Quality Toxics Management Strategy*, the duration for a THH criterion is 30 days. Therefore, an average monthly effluent limit of 1 mg/L is imposed, and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit consistent with the technical guidance cited above.

The TMDL WQBELs for Outfall 005 are summarized in Table 10.

Table 10. TMDL WQBELs for Outfall 005

Parameter	Average Monthly (mg/L)	Maximum Daily (mg/L)	Instant. Maximum (mg/L)
Aluminum, Total	0.75	0.75	0.75
Iron, Total	1.5	3.0	3.75
Manganese, Total	1.0	2.0	2.5

IMAX limits are calculated using an average monthly limit multiplier of 2.5 per Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 386-0400-001].

Only aluminum, iron, and manganese WQBELs are imposed because the TMDL does not directly limit sediment and pH. The TMDL used a surrogate approach for both of those constituents by which reductions of in-stream concentrations of aluminum, iron, and manganese will result in acceptable reductions of sediment and mitigation of acidic pH. Nevertheless, effluent standards for pH are imposed under a separate regulation as discussed in Section 005.A of this Fact Sheet.

The concentrations of aluminum, iron, and manganese reported on UES's updated permit application based on three samples are summarized in Table 11. Results for TSS and pH (parameters targeted for control by the TMDL, but not explicitly controlled by TMDL WLAs) also are summarized based on application results for TSS and DMR results for pH.

Table 11. TMDL Parameter Effluent Concentrations at Outfall 005

Parameter	Average (mg/L)	Maximum (mg/L)
Aluminum, Total	0.079	0.140
Iron, Total	0.477	1.0
Manganese, Total	0.017	0.022
Total Suspended Solids	2.33	2.5
pH (S.U.)	7.355 (minimum, median)	7.785 (maximum, median)

† Concentrations reported on updated permit renewal application based on three samples.
†† Concentrations reported on DMRs (January 2018 – February 2024)

Based on the results summarized in Table 11, UES will comply with the new TMDL WQBELs on the permit renewal effective date, so there will be no schedule of compliance for the TMDL WQBELs. The results also show that solids and pH will not contribute to the impairment of Chartiers Creek.

005.C. Effluent Limitations and Monitoring Requirements for Outfall 005

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 005 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal, as applicable; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Numerical effluent limits and monitoring requirements are summarized in the table below.

Table 12. Effluent Limits and Monitoring Requirements for Outfall 005

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1) & 40 CFR & 122.44(l)
pH (S.U.)	—	—	6.0 (IMIN)	—	9.0	25 Pa. Code § 95.2(1)
Total Residual Chlorine	—	—	0.5	—	1.6	25 Pa. Code § 92a.48(b)
Free Available Chlorine	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Temperature (°F)	—	—	—	110.0	—	25 Pa. Code § 93.6(a)
Total Suspended Solids	—	—	31.0	60.0	—	40 CFR § 122.44(l)
Oil and Grease	—	—	15.0	—	30.0	40 CFR § 122.44(l)
Nitrate-Nitrite as N	—	—	—	Report	—	25 Pa. Code § 92a.61(h)
Nitrogen, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(h)
Phosphorus, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(h)
Aluminum, Total	—	—	0.75	0.75	0.75	TMDL WQBELs; 25 Pa. Code § 92a.12
Copper, Total	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Iron, Total	—	—	1.5	3.0	3.75	TMDL WQBELs; 25 Pa. Code § 92a.12
Manganese, Total	—	—	1.0	2.0	2.5	TMDL WQBELs; 25 Pa. Code § 92a.12
Zinc, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanoic acid (PFOA) (ng/L)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanesulfonic acid (PFOS) (ng/L)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorobutanesulfonic acid (PFBS) (ng/L)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ng/L)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)

Monitoring frequencies and sample types are imposed in accordance with Chapter 6, Table 6-4 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations" ("Permit Writer's Manual"), DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications" ("IW NPDES SOP"), and the previous permit. Flow must be measured 1/day using a flow meter. TSS, Oil and Grease, Free Available Chlorine, Total Residual Chlorine, Aluminum, Copper, Iron, Manganese, and Zinc must be analyzed 2/month using 8-Hour Composite samples. Nitrate+Nitrite as N, Total Nitrogen, and Total Phosphorus must be analyzed 1/month using 8-Hour Composite samples. Temperature must be measured 1/day using immersion stabilization sampling and pH must be measured 1/day using grab samples. Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) will require grab sampling 1/year.

Development of Effluent Limitations

Outfall No. 009 **Design Flow (MGD)** Variable
Latitude 40° 24' 55.17" **Longitude** -80° 04' 38.71"
Wastewater Description: Storm water

009.A. Technology-Based Effluent Limitations (TBELs)

There are no Federal Effluent Limitations Guidelines (ELGs) that apply to Outfall 009's storm water discharges. Therefore, if warranted, TBELs are developed based on Best Professional Judgment.

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity are applied to the Carnegie Plant's storm water discharges. Based on the Carnegie Plant's SIC Code of 3357, the facility would be classified under Appendix U – "Fabricated Metal Products" of the PAG-03 General Permit.[8] To ensure that there is consistency across the state for all fabricated metal products facilities that discharge storm water associated with their industrial activities, the monitoring requirements and sector-specific Best Management Practices (BMPs) of Appendix U of the PAG-03 are imposed at this outfall. The monitoring requirements of Appendix U are shown in Table 13. Monitoring for additional pollutants is considered if baseline monitoring requirements from Appendix U do not capture the range of analytes present in Outfall 009's discharges.

Table 13. PAG-03 Appendix U – Minimum Monitoring Requirements

Discharge Parameter	Units	Sample Type	Minimum Measurement Frequency	Benchmark Values
Total Nitrogen †	mg/L	1 Grab	1/6 months	XXX
Total Phosphorus	mg/L	1 Grab	1/6 months	XXX
pH	S.U.	1 Grab	1/6 months	9.0
Total Suspended Solids	mg/L	1 Grab	1/6 months	100
Oil and Grease	mg/L	1 Grab	1/6 months	30
Nitrate + Nitrite-Nitrogen	mg/L	1 Grab	1/6 months	3.0
Aluminum, Total	mg/L	1 Grab	1/6 months	XXX
Iron, Total	mg/L	1 Grab	1/6 months	XXX
Zinc, Total	mg/L	1 Grab	1/6 months	XXX

† Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

To the extent that effluent limits are necessary to ensure that storm water Best Management Practices (BMPs) are adequately implemented, effluent limits are developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). BPJ of BAT typically involves the evaluation of end-of-pipe wastewater treatment technologies, but DEP considers the use of BMPs to be BAT for storm water outfalls unless effluent concentrations indicate that BMPs provide inadequate pollution control. Table 14 summarizes the effluent data reported for the general chemistry pollutants listed on Module 1 of the updated NPDES permit application.

Table 14. Effluent Concentrations Reported for Outfall 009

Parameter	Outfall 009 Result	No Expos. Threshold	Benchmark Value		Parameter	Outfall 009 Result	No Expos. Threshold	Benchmark Value
Oil and Grease	<4.9	≤5.0	30		Nitrogen, Total	<1.86	≤2	—
BOD_5	<4	≤10	—		Phosphorus, Total	0.033	≤1	—
COD	18.5	≤30	—		pH (S.U.)	6.89	6.0 to 9.0	9.0
TSS	35.5	≤30	100		Iron, Total	0.328	1.5	—

Based on the results in Table 14, no effluent limits are imposed at Outfall 009. Pollutants generally are present in low concentrations. However, TBELs may be warranted in the future if concentrations in storm water consistently exceed the benchmark values shown in Table 14. DEP uses benchmark monitoring in the PAG-03 as an indicator of the effectiveness of a facility's BMPs. The benchmark values are not effluent limitations and exceedances do not constitute permit violations. However, if sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, then UES

[8] The determination of which of the PAG-03 General Permit's appendices applies to a facility is based on a facility's SIC Code.

must submit a Corrective Action Plan within 90 days of the end of the monitoring period triggering the plan. The Corrective Action Plan requirement and the benchmark values will be specified in a condition in Part C of the permit. Continued exceedances of the benchmark values will require a graduated response.

Consistent with the PAG-03, the benchmark values for Outfall 009's discharges will be set at 9.0 standard units for pH, 100 mg/L for TSS, 30 mg/L for Oil and Grease, and 3.0 mg/L for Nitrate+Nitrite Nitrogen. The Corrective Action Plan requirement and the benchmark values will be specified in a condition in Part C of the permit.

Estimates of the storm water discharge flow rates will be required pursuant to 25 Pa. Code § 92a.61(h).

009.B. Water Quality-Based Effluent Limitations (WQBELs)

Generally, DEP does not develop numerical WQBELs for storm water discharges. Pursuant to 25 Pa. Code § 96.4(g), mathematical modeling used to develop WQBELs must be performed at Q_{7-10} low-flow conditions. Storm water discharges generally do not occur at Q_{7-10} conditions because the precipitation that causes a storm water discharge also will increase the receiving stream's flow (or, in this case, generate a non-zero flow in the drainage swale) and that increased stream flow will provide additional assimilative capacity during a storm event. However, that does not preclude the imposition of numerical or narrative WQBELs based on a TMDL where there is a known impairment related to high flow conditions (*e.g.,* mine drainage that discharges in response to rainfall).

Even though no mathematical modeling is performed, the permit will ensure compliance with water quality standards through a combination of best management practices including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

Chartiers Creek Impairments

As explained in Section 005.A of this Fact Sheet, there are two final TMDLs for Chartiers Creek—a 2001 TMDL for PCBs and Chlordane, and a 2003 TMDL for acid mine drainage pollutants. Neither of those TMDLs assigned WLAs to UES's discharges. With respect to the 2001 TMDL, the narrative prohibition on discharges of PCBs and Chlordane discussed in Section 005.A of this Fact Sheet will control for all UES discharges. With respect to the 2003 TMDL, the following reporting requirements and benchmark values will apply to Outfall 009.

Table 15. TMDL Requirements for Outfall 009

Parameter	Maximum Daily	Benchmark Value
Aluminum, Total	Report	0.75
Iron, Total	Report	3.75
Manganese, Total	Report	2.5

The benchmark values in Table 15 are based on the translation of water quality criteria into instantaneous maximum limits (see Table 10) because storm water discharges have short durations and sampling would be conducted as grab samples.

009.C. Effluent Limitations and Monitoring Requirements for Outfall 009

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 009 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the table below.

Table 16. Effluent Limits and Monitoring Requirements for Outfall 009

Parameter	Mass (pounds)		Concentration (µg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(h)
pH (S.U.)	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U
Total Suspended Solids	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U
Oil and Grease	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U

Table 16 (continued). Effluent Limits and Monitoring Requirements for Outfall 009

Parameter	Mass (pounds)		Concentration (µg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Nitrogen, Total	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U
Phosphorus, Total	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U
Aluminum, Total	—	—	—	Report	—	§ 92a.61(h); TMDL; PAG-03, Appendix U
Iron, Total	—	—	—	Report	—	§ 92a.61(h); TMDL; PAG-03, Appendix U
Manganese, Total	—	—	—	Report	—	§ 92a.61(h); TMDL
Zinc, Total	—	—	—	Report	—	§ 92a.61(h); PAG-03, Appendix U

The sampling frequency for all parameters will be 1/6 months based on the sampling frequency in Appendix U of the PAG-03 General Permit. Grab sampling is required for all parameters except Total Nitrogen, which must be calculated as the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample. Flow should be estimated at the time of sampling.

Development of Effluent Limitations

Outfall Nos. 006, 007, 008, and 010 **Design Flow (MGD)** Variable
Wastewater Description: Storm water

SWO.A. Technology-Based Effluent Limitations (TBELs)

Outfalls 006, 007, 008, and 010 are existing outfalls that are new to the permit. DEP and UES identified those outfalls as existing, unpermitted outfalls during a site inspection on October 19, 2023.

UES contends that storm water discharges from Outfalls 006, 007, 008, and 010 are not exposed to industrial activities consistent with EPA's conditional exclusion for "no exposure" under 40 CFR § 122.26(g) (incorporated by reference at 25 Pa. Code § 92a.32(a)) and DEP's requirements under 25 Pa. Code § 92a.32(b). Pursuant to 40 CFR § 122.26(g)(3)(ii), the conditional exclusion from the requirement for an NPDES permit is only available on a facility-wide basis but § 122.26(g)(3)(ii) acknowledges that if a facility has some discharges of storm water that would otherwise be "no exposure" discharges, then the requirements of an individual permit can be adjusted accordingly.

To qualify for the "no exposure" exemption, the regulations require facility operators to submit a signed certification stating that there are no discharges of storm water contaminated by exposure to industrial materials and activities. The "No Exposure?" checkbox on Module 1 of DEP's permit application functions as that certification. DEP also requires applicants to submit corroborating analytical results for each "no exposure" outfall.

UES did not check the "No Exposure?" box on Module 1 for Outfalls 006, 007, 008, and 010, but DEP confirmed with UES after the application update was submitted that UES certifies that storm water in the drainage areas of those outfalls meets the certification requirements of 40 CFR § 122.26(g)(4)(iii). That regulation states:

(iii) The certification must indicate that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:

(A) Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;

(B) Materials or residuals on the ground or in storm water inlets from spills/leaks;

(C) Materials or products from past industrial activity;

(D) Material handling equipment (except adequately maintained vehicles);

(E) Materials or products during loading/unloading or transporting activities;

(F) Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

(G) Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

(H) Materials or products handled/stored on roads or railways owned or maintained by the discharger;

(I) Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

(J) Application or disposal of process wastewater (unless otherwise permitted); and

(K) Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

Representative storm water effluent data from Outfall 006 are summarized in Table 17 along with no exposure thresholds and benchmark values. UES considers Outfall 006's discharges to be representative of Outfalls 007, 008, and 010.

Table 17. Effluent Concentrations Reported for Outfall 006

Parameter	Outfall 006 Results	No Exposure Threshold	Permit Benchmark
Oil and Grease	<4.9	≤5.0	30
BOD_5	9.1	≤10	30

Table 17 (cont'd). Effluent Concentrations Reported for Outfall 006

Parameter	Outfall 006 Results	No Exposure Threshold	Permit Benchmark
COD	21.5	≤30	120
TSS	38.5	≤30	100
Nitrogen, Total	<1.71	≤2	—
Phosphorus, Total	0.05	≤1	—
pH (S.U.)	6.48	6.0 to 9.0.	9.0
Iron, Total	1.27	1.5	3.0

Based on UES's certification and the reported effluent data, Outfalls 006, 007, 008, and 010 qualify for "no exposure" certification. Consistent with the outfalls' "no exposure" statuses, the standard monitoring requirements for this industry from Appendix U of DEP's PAG-03 General Permit are not imposed at Outfalls 006, 007, 008, and 010. Even though the PAG-03's monitoring requirements are not imposed, UES must ensure that "no exposure" conditions are maintained within the drainage area of the outfalls. If there is any change to the status of the effluent sources discharging through Outfalls 006, 007, 008, and 010, then those changes must be reported to DEP.

SWO.B. Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling is performed for discharges from Outfalls 006, 007, 008, and 010. Based on UES's "no exposure" certification for those outfalls and the representative analytical results summarized in Table 17, storm water discharges from those outfalls do not have a reasonable potential to cause or contribute to excursions above water quality standards.

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

As explained in Section 005.A of this Fact Sheet, there are two final TMDLs for Chartiers Creek—a 2001 TMDL for PCBs and Chlordane and a 2003 TMDL for acid mine drainage pollutants. Neither of those TMDLs assigned WLAs to UES's discharges. With respect to the 2001 TMDL, the narrative prohibition on discharges of PCBs and Chlordane discussed in Section 005.A of this Fact Sheet will control for all UES discharges. With respect to the 2003 TMDL, UES's maintenance of "no exposure" conditions will ensure that discharges do not cause or contribute to the impairment of Chartiers Creek. "No exposure" also is consistent with the TMDL despite the lack of WLAs for UES's discharges. The following condition will be included in the permit based on the "no exposure" certification list in 40 CFR § 122.26(g)(4). The condition will apply to all "no exposure" storm water outfalls.

No Exposure Conditions for Outfalls 006, 007, 008, and 010

The permittee shall implement BMPs, as necessary, to ensure that none of the following materials or activities are, or will be in the forseeable future, exposed to precipitation:

- Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;
- Materials or residuals on the ground or in storm water inlets from spills/leaks;
- Materials or products from past industrial activity;
- Material handling equipment (except adequately maintained vehicles);
- Materials or products during loading/unloading or transporting activities;
- Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
- Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- Materials or products handled/stored on roads or railways owned or maintained by the discharger;
- Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
- Application or disposal of process wastewater (unless otherwise permitted); and
- Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

The permittee shall report any change in the status of material or activity exposure on the Stormwater Annual Report.

No TMDL-based monitoring requirements are imposed at Outfalls 006, 007, 008, and 010.

SWO.C. Effluent Limits and Monitoring Requirements for Outfalls 006, 007, 008, and 010

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l) (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits at Outfalls 006, 007, 008, and 010 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal. Applicable effluent limits are summarized in the table below.

Table 18. Effluent Limits for Outfalls 006, 007, 008, and 010

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Storm water discharges shall not be exposed to industrial activities.						

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment B)
☒	TRC Model Spreadsheet (see Attachment D)
☒	Thermal Limits Spreadsheet (see Attachment C)
☐	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: Standard Operating Procedure for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, SOP No. BCW-PMT-001, February 5, 2024, Version 1.7.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Industrial Permits, SOP No. BCW-PMT-032, February 5, 2024, Version 1.7.
☐	Other:

ATTACHMENT A

SIC Codes Covered by MP&M Effluent Limitations Guidelines

Table A-1 (Continued)

Example NAICS and SIC Codes for the MP&M Industrial Sectors		
NAICS Code	**SIC Code**	**Standard Industrial Classification Groups**
	Ships and Boats (Continued)	
48321220 48721010	4489	Water Passenger Transportation, N.E.C.
48831010	4491	Marine Cargo Handling
48321120	4492	Towing and Tugboat Service
71393000	4493	Marinas
48831020 48833020 48833030 48839010 53241110	4499	Water Transportation Services, N.E.C.
	Stationary Industrial Equipment	
33361100	3511	Steam, Gas, Hydraulic Turbines, Generating Units
33639910	3519	Internal Combustion Engines, N.E.C.
33313200	3533	Oil Field Machinery and Equipment
33392100	3534	Elevators and Moving Stairways
33392220	3535	Conveyors and Conveying Equipment
33299700	3543	Industrial Patterns
33351600	3547	Rolling Mill Machinery and Equipment
33399210	3548	Electric and Gas Welding and Soldering
33351800	3549	Metal Working Machinery, N.E.C.
33329210	3552	Textile Machinery
33321000	3553	Woodworking Machinery
33329100	3554	Paper Industries Machinery
33329310	3555	Printing Trades Machinery and Equipment
33329400	3556	Food Products Machinery
33329810	3559	Special Industry Machinery, N.E.C.
33391110	3561	Pumps and Pumping Equipment
33299100	3562	Ball and Roller Bearings
33391200	3563	Air and Gas Compressors

2007 NAICS	2012 NAICS	2017 NAICS	2022 NAICS	Index Entries for 333519
333518	333519	333519	333519	Assembly machines (i.e., wire making equipment) manufacturing
333516	333519	333519	333519	Bar mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Billet mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Blooming and slabbing mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Coil winding and cutting machinery, metalworking, manufacturing
333516	333519	333519	333519	Cold rolling mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Cradle assembly machinery (i.e., wire making equipment) manufacturing
333518	333519	333519	333519	Draw bench machines manufacturing
333516	333519	333519	333519	Galvanizing machinery manufacturing
333516	333519	333519	333519	Hot strip mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Hot-rolling mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Marking machines, metal, manufacturing
333516	333519	333519	333519	Picklers and pickling machinery, metalworking, manufacturing
333516	333519	333519	333519	Pipe and tube rolling mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Plate rolling mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Propeller straightening presses manufacturing
333516	333519	333519	333519	Rod rolling mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Rolling mill machinery and equipment, metalworking, manufacturing
333516	333519	333519	333519	Rolling mill roll machines, metalworking, manufacturing
333516	333519	333519	333519	Scarfing units, rolling mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Screwdowns and boxes machinery, metal, manufacturing
333518	333519	333519	333519	Screwdriving machines manufacturing
333516	333519	333519	333519	Structural rolling mill machinery, metalworking, manufacturing
333516	333519	333519	333519	Tube rolling mill machinery, metalworking, manufacturing
333518	333519	333519	333519	Wire drawing and fabricating machinery and equipment (except dies) manufacturing

ATTACHMENT B

Toxics Management Spreadsheet Results for Outfall 005

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Union Electric Steel - Carnegie Plant NPDES Permit No.: PA0002887 Outfall No.: 005

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Contact cooling water

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
0.028	95	7						

					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		210									
	Chloride (PWS)	mg/L		48									
	Bromide	mg/L		0.48									
	Sulfate (PWS)	mg/L		52									
	Fluoride (PWS)	mg/L		0.69									
Group 2	Total Aluminum	µg/L		140									
	Total Antimony	µg/L	<	0.68									
	Total Arsenic	µg/L		0.68									
	Total Barium	µg/L		31									
	Total Beryllium	µg/L	<	0.25									
	Total Boron	µg/L		63									
	Total Cadmium	µg/L		3									
	Total Chromium (III)	µg/L		439									
	Hexavalent Chromium	µg/L		0.68									
	Total Cobalt	µg/L		0.41									
	Total Copper	µg/L		880									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		75									
	Dissolved Iron	µg/L		41									
	Total Iron	µg/L		1000									
	Total Lead	µg/L		15									
	Total Manganese	µg/L		22									
	Total Mercury	µg/L	<	0.13									
	Total Nickel	µg/L		31									
	Total Phenols (Phenolics) (PWS)	µg/L		13									
	Total Selenium	µg/L		0.7									
	Total Silver	µg/L		9									
	Total Thallium	µg/L	<	0.38									
	Total Zinc	µg/L		1550									
	Total Molybdenum	µg/L		5.7									
	Acrolein	µg/L	<	16									
	Acrylamide	µg/L	<	11									
	Acrylonitrile	µg/L	<	7.8									
	Benzene	µg/L	<	0.6									
	Bromoform	µg/L	<	0.98									

Group 3	Carbon Tetrachloride	µg/L	<	0.88										
	Chlorobenzene	µg/L	<	0.5										
	Chlorodibromomethane	µg/L	<	0.84										
	Chloroethane	µg/L	<	0.9										
	2-Chloroethyl Vinyl Ether	µg/L	<	1.7										
	Chloroform	µg/L		11										
	Dichlorobromomethane	µg/L		1.8										
	1,1-Dichloroethane	µg/L	<	0.63										
	1,2-Dichloroethane	µg/L	<	0.57										
	1,1-Dichloroethylene	µg/L	<	0.55										
	1,2-Dichloropropane	µg/L	<	0.66										
	1,3-Dichloropropylene	µg/L	<	0.59										
	1,4-Dioxane	µg/L	<	43										
	Ethylbenzene	µg/L	<	0.51										
	Methyl Bromide	µg/L	<	0.89										
	Methyl Chloride	µg/L	<	0.9										
	Methylene Chloride	µg/L	<	0.89										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.6										
	Tetrachloroethylene	µg/L	<	0.47										
	Toluene	µg/L	<	0.46										
	1,2-trans-Dichloroethylene	µg/L	<	0.67										
	1,1,1-Trichloroethane	µg/L	<	0.6										
	1,1,2-Trichloroethane	µg/L	<	0.45										
	Trichloroethylene	µg/L	<	0.69										
	Vinyl Chloride	µg/L	<	0.41										
Group 4	2-Chlorophenol	µg/L	<	0.13										
	2,4-Dichlorophenol	µg/L	<	0.05										
	2,4-Dimethylphenol	µg/L	<	0.17										
	4,6-Dinitro-o-Cresol	µg/L	<	1.5										
	2,4-Dinitrophenol	µg/L	<	1.6										
	2-Nitrophenol	µg/L	<	0.19										
	4-Nitrophenol	µg/L	<	0.98										
	p-Chloro-m-Cresol	µg/L	<	0.29										
	Pentachlorophenol	µg/L	<	0.88										
	Phenol	µg/L	<	0.51										
	2,4,6-Trichlorophenol	µg/L	<	0.23										
Group 5	Acenaphthene	µg/L	<	0.068										
	Acenaphthylene	µg/L	<	0.068										
	Anthracene	µg/L	<	0.051										
	Benzidine	µg/L	<	9.5										
	Benzo(a)Anthracene	µg/L	<	0.078										
	Benzo(a)Pyrene	µg/L	<	0.055										
	3,4-Benzofluoranthene	µg/L	<	0.1										
	Benzo(ghi)Perylene	µg/L	<	0.072										
	Benzo(k)Fluoranthene	µg/L	<	0.092										
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.16										
	Bis(2-Chloroethyl)Ether	µg/L	<	0.042										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.06										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	6.5										
	4-Bromophenyl Phenyl Ether	µg/L	<	0.33										
	Butyl Benzyl Phthalate	µg/L	<	0.48										
	2-Chloronaphthalene	µg/L	<	0.061										
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.23										
	Chrysene	µg/L	<	0.084										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.075										
	1,2-Dichlorobenzene	µg/L	<	0.099										
	1,3-Dichlorobenzene	µg/L	<	0.1										
	1,4-Dichlorobenzene	µg/L	<	0.064										
	3,3-Dichlorobenzidine	µg/L	<	0.61										
	Diethyl Phthalate	µg/L	<	0.59										
	Dimethyl Phthalate	µg/L	<	0.21										
	Di-n-Butyl Phthalate	µg/L	<	0.77										
	2,4-Dinitrotoluene	µg/L	<	0.37										

	2,6-Dinitrotoluene	µg/L	<	0.18										
	Di-n-Octyl Phthalate	µg/L	<	0.71										
	1,2-Diphenylhydrazine	µg/L	<	0.2										
	Fluoranthene	µg/L	<	0.063										
	Fluorene	µg/L	<	0.072										
	Hexachlorobenzene	µg/L	<	0.058										
	Hexachlorobutadiene	µg/L	<	0.072										
	Hexachlorocyclopentadiene	µg/L	<	0.52										
	Hexachloroethane	µg/L	<	0.14										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.089										
	Isophorone	µg/L	<	0.2										
	Naphthalene	µg/L	<	0.061										
	Nitrobenzene	µg/L	<	0.52										
	n-Nitrosodimethylamine	µg/L	<	0.07										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.074										
	n-Nitrosodiphenylamine	µg/L	<	0.12										
	Phenanthrene	µg/L	<	0.057										
	Pyrene	µg/L	<	0.056										
	1,2,4-Trichlorobenzene	µg/L	<	0.14										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	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												

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Union Electric Steel - Carnegie Plant, NPDES Permit No. PA0002887, Outfall 005

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Chartiers 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	036777	7.2	744	266	0.001		Yes
End of Reach 1	036777	6.2	737.5	268	0.001		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	7.2	0.1										354	7		
End of Reach 1	6.2	0.1													

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	7.2														
End of Reach 1	6.2														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Union Electric Steel - Carnegie Plant, NPDES Permit No. PA0002887, Outfall 005

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.206 Analysis Hardness (mg/l): 351.97 Analysis pH: 7.00

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	95,479	
Total Antimony	0	0		0	1,100	1,100	140,036	
Total Arsenic	0	0		0	340	340	43,284	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	2,673,417	
Total Boron	0	0		0	8,100	8,100	1,031,175	
Total Cadmium	0	0		0	6.834	7.67	976	Chem Translator of 0.891 applied
Total Chromium (III)	0	0		0	1596.902	5,053	643,337	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	2,074	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	12,094	
Total Copper	0	0		0	43.983	45.8	5,833	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	246.192	405	51,579	Chem Translator of 0.608 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	210	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1357.700	1,360	173,189	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	28.016	33.0	4,196	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	8,275	
Total Zinc	0	0		0	340.334	348	44,301	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	382	

Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	82,749	
Benzene	0	0		0	640	640	81,476	
Bromoform	0	0		0	1,800	1,800	229,150	
Carbon Tetrachloride	0	0		0	2,800	2,800	356,456	
Chlorobenzene	0	0		0	1,200	1,200	152,767	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	2,291,500	
Chloroform	0	0		0	1,900	1,900	241,881	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	1,909,584	
1,1-Dichloroethylene	0	0		0	7,500	7,500	954,792	
1,2-Dichloropropane	0	0		0	11,000	11,000	1,400,361	
1,3-Dichloropropylene	0	0		0	310	310	39,465	
Ethylbenzene	0	0		0	2,900	2,900	369,186	
Methyl Bromide	0	0		0	550	550	70,018	
Methyl Chloride	0	0		0	28,000	28,000	3,564,556	
Methylene Chloride	0	0		0	12,000	12,000	1,527,667	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	127,306	
Tetrachloroethylene	0	0		0	700	700	89,114	
Toluene	0	0		0	1,700	1,700	216,419	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	865,678	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	381,917	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	432,839	
Trichloroethylene	0	0		0	2,300	2,300	292,803	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	71,291	
2,4-Dichlorophenol	0	0		0	1,700	1,700	216,419	
2,4-Dimethylphenol	0	0		0	660	660	84,022	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	10,184	
2,4-Dinitrophenol	0	0		0	660	660	84,022	
2-Nitrophenol	0	0		0	8,000	8,000	1,018,445	
4-Nitrophenol	0	0		0	2,300	2,300	292,803	
p-Chloro-m-Cresol	0	0		0	160	160	20,369	
Pentachlorophenol	0	0		0	8.723	8.72	1,111	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	58,561	
Acenaphthene	0	0		0	83	83.0	10,566	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	38,192	
Benzo(a)Anthracene	0	0		0	0.5	0.5	63.7	
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	3,819,167	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	572,875	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	34,373	

Butyl Benzyl Phthalate	0	0		0	140	140	17,823	
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	104,391	
1,3-Dichlorobenzene	0	0		0	350	350	44,557	
1,4-Dichlorobenzene	0	0		0	730	730	92,933	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	509,222	
Dimethyl Phthalate	0	0		0	2,500	2,500	318,264	
Di-n-Butyl Phthalate	0	0		0	110	110	14,004	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	203,689	
2,6-Dinitrotoluene	0	0		0	990	990	126,033	
1,2-Diphenylhydrazine	0	0		0	15	15.0	1,910	
Fluoranthene	0	0		0	200	200	25,461	
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	1,273	
Hexachlorocyclopentadiene	0	0		0	5	5.0	637	
Hexachloroethane	0	0		0	60	60.0	7,638	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	1,273,056	
Naphthalene	0	0		0	140	140	17,823	
Nitrobenzene	0	0		0	4,000	4,000	509,222	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	2,164,195	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	38,192	
Phenanthrene	0	0		0	5	5.0	637	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	16,550	

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 353.58 Analysis pH: 7.00

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	135,320	
Total Arsenic	0	0		0	150	150	92,264	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	2,521,876	
Total Boron	0	0		0	1,600	1,600	984,147	
Total Cadmium	0	0		0	0.591	0.69	424	Chem Translator of 0.856 applied
Total Chromium (III)	0	0		0	208.504	242	149,127	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	6,394	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	11,687	
Total Copper	0	0		0	26.350	27.4	16,883	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	922,638	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	9.639	15.9	9,768	Chem Translator of 0.607 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	557	Chem Translator of 0.85 applied
Total Nickel	0	0		0	151.383	152	93,395	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	3,069	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	7,996	
Total Zinc	0	0		0	344.450	349	214,876	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	1,845	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	79,962	
Benzene	0	0		0	130	130	79,962	
Bromoform	0	0		0	370	370	227,584	
Carbon Tetrachloride	0	0		0	560	560	344,451	
Chlorobenzene	0	0		0	240	240	147,622	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	2,152,821	
Chloroform	0	0		0	390	390	239,886	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	1,906,785	
1,1-Dichloroethylene	0	0		0	1,500	1,500	922,638	
1,2-Dichloropropane	0	0		0	2,200	2,200	1,353,202	
1,3-Dichloropropylene	0	0		0	61	61.0	37,521	
Ethylbenzene	0	0		0	580	580	356,753	
Methyl Bromide	0	0		0	110	110	67,660	
Methyl Chloride	0	0		0	5,500	5,500	3,383,005	
Methylene Chloride	0	0		0	2,400	2,400	1,476,220	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	129,169	
Tetrachloroethylene	0	0		0	140	140	86,113	
Toluene	0	0		0	330	330	202,980	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	861,129	
1,1,1-Trichloroethane	0	0		0	610	610	375,206	
1,1,2-Trichloroethane	0	0		0	680	680	418,262	
Trichloroethylene	0	0		0	450	450	276,791	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	67,660	
2,4-Dichlorophenol	0	0		0	340	340	209,131	
2,4-Dimethylphenol	0	0		0	130	130	79,962	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	9,841	
2,4-Dinitrophenol	0	0		0	130	130	79,962	

2-Nitrophenol	0	0		0	1,600	1,600	984,147	
4-Nitrophenol	0	0		0	470	470	289,093	
p-Chloro-m-Cresol	0	0		0	500	500	307,546	
Pentachlorophenol	0	0		0	6.693	6.69	4,117	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	55,973	
Acenaphthene	0	0		0	17	17.0	10,457	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	36,290	
Benzo(a)Anthracene	0	0		0	0.1	0.1	61.5	
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	3,690,551	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	559,734	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	33,215	
Butyl Benzyl Phthalate	0	0		0	35	35.0	21,528	
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	98,415	
1,3-Dichlorobenzene	0	0		0	69	69.0	42,441	
1,4-Dichlorobenzene	0	0		0	150	150	92,264	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	492,073	
Dimethyl Phthalate	0	0		0	500	500	307,546	
Di-n-Butyl Phthalate	0	0		0	21	21.0	12,917	
2,4-Dinitrotoluene	0	0		0	320	320	196,829	
2,6-Dinitrotoluene	0	0		0	200	200	123,018	
1,2-Diphenylhydrazine	0	0		0	3	3.0	1,845	
Fluoranthene	0	0		0	40	40.0	24,604	
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	1,230	
Hexachlorocyclopentadiene	0	0		0	1	1.0	615	
Hexachloroethane	0	0		0	12	12.0	7,381	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	1,291,693	
Naphthalene	0	0		0	43	43.0	26,449	
Nitrobenzene	0	0		0	810	810	498,224	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	2,091,312	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	36,290	
Phenanthrene	0	0		0	1	1.0	615	

Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	15,992	

☑ ***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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	3,445	
Total Arsenic	0	0		0	10	10.0	6,151	
Total Barium	0	0		0	2,400	2,400	1,476,220	
Total Boron	0	0		0	3,100	3,100	1,906,785	
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	184,528	
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	615,092	
Total Mercury	0	0		0	0.050	0.05	30.8	
Total Nickel	0	0		0	610	610	375,206	
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	148	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	1,845	
Acrylamide	0	0		0	N/A	N/A	N/A	
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	61,509	
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	3,506	
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	20,298	

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	41,826	
Methyl Bromide	0	0		0	100	100.0	61,509	
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	35,060	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	61,509	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	6,150,918	
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	18,453	
2,4-Dichlorophenol	0	0		0	10	10.0	6,151	
2,4-Dimethylphenol	0	0		0	100	100.0	61,509	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	1,230	
2,4-Dinitrophenol	0	0		0	10	10.0	6,151	
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	2,460,367	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	43,056	
Anthracene	0	0		0	300	300	184,528	
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	123,018	
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	61.5	
2-Chloronaphthalene	0	0		0	800	800	492,073	
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	615,092	
1,3-Dichlorobenzene	0	0		0	7	7.0	4,306	
1,4-Dichlorobenzene	0	0		0	300	300	184,528	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	369,055	

Dimethyl Phthalate	0	0		0	2,000	2,000	1,230,184	
Di-n-Butyl Phthalate	0	0		0	20	20.0	12,302	
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	12,302	
Fluorene	0	0		0	50	50.0	30,755	
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	2,460	
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	20,913	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	6,151	
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	12,302	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	43.1	

☑ ***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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
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	
Acrylamide	0	0		0	0.07	0.07	211	
Acrylonitrile	0	0		0	0.06	0.06	181	
Benzene	0	0		0	0.58	0.58	1,751	
Bromoform	0	0		0	7	7.0	21,131	
Carbon Tetrachloride	0	0		0	0.4	0.4	1,208	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2,415	
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	2,868	
1,2-Dichloroethane	0	0		0	9.9	9.9	29,886	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	2,717	
1,3-Dichloropropylene	0	0		0	0.27	0.27	815	
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	60,376	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	604	
Tetrachloroethylene	0	0		0	10	10.0	30,188	
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	1,660	
Trichloroethylene	0	0		0	0.6	0.6	1,811	
Vinyl Chloride	0	0		0	0.02	0.02	60.4	
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	90.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	4,528	
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	0.3	
Benzo(a)Anthracene	0	0		0	0.001	0.001	3.02	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.3	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	3.02	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	30.2	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	90.6	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	966	
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	362	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.3	
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	151	
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	151	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	151	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	90.6	
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	0.24	
Hexachlorobutadiene	0	0		0	0.01	0.01	30.2	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	302	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	3.02	
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	2.11	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	15.1	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	9,962	
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	

☑ ***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
Total Copper	Report	Report	Report	Report	Report	µg/L	3,738	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***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 discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	61,198	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	6,151	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	1,476,220	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	660,942	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	424	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	149,127	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	1,329	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	7,752	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	184,528	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	922,638	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	9,768	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	615,092	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	30.8	µg/L	Discharge Conc < TQL
Total Nickel	93,395	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	3,069	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	2,689	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	148	µg/L	Discharge Conc < TQL
Total Zinc	28,395	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	245	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylamide	211	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	181	µg/L	Discharge Conc ≤ 25% WQBEL
Benzene	1,751	µg/L	Discharge Conc ≤ 25% WQBEL

Bromoform	21,131	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	1,208	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	61,509	µg/L	Discharge Conc < TQL
Chlorodibromomethane	2,415	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	1,468,759	µg/L	Discharge Conc < TQL
Chloroform	3,506	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	2,868	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	29,886	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	20,298	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	2,717	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	815	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	41,826	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	44,879	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	2,284,737	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	60,376	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	604	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	30,188	µg/L	Discharge Conc < TQL
Toluene	35,060	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	61,509	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	244,793	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	1,660	µg/L	Discharge Conc < TQL
Trichloroethylene	1,811	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	60.4	µg/L	Discharge Conc < TQL
2-Chlorophenol	18,453	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	6,151	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	53,855	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	1,230	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	6,151	µg/L	Discharge Conc < TQL
2-Nitrophenol	652,782	µg/L	Discharge Conc < TQL
4-Nitrophenol	187,675	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	13,056	µg/L	Discharge Conc < TQL
Pentachlorophenol	90.6	µg/L	Discharge Conc < TQL
Phenol	2,460,367	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	4,528	µg/L	Discharge Conc < TQL
Acenaphthene	6,773	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	184,528	µg/L	Discharge Conc < TQL
Benzidine	0.3	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	3.02	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.3	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	3.02	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS

Benzo(k)Fluoranthene	30.2	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	90.6	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	123,018	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	966	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	22,031	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	61.5	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	492,073	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	362	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.3	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	66,910	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	4,306	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	59,566	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	151	µg/L	Discharge Conc < TQL
Diethyl Phthalate	326,391	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	203,994	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	8,976	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	151	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	151	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	90.6	µg/L	Discharge Conc < TQL
Fluoranthene	12,302	µg/L	Discharge Conc < TQL
Fluorene	30,755	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.24	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	30.2	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	408	µg/L	Discharge Conc < TQL
Hexachloroethane	302	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	3.02	µg/L	Discharge Conc < TQL
Isophorone	20,913	µg/L	Discharge Conc < TQL
Naphthalene	11,424	µg/L	Discharge Conc < TQL
Nitrobenzene	6,151	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	2.11	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	15.1	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	9,962	µg/L	Discharge Conc < TQL
Phenanthrene	408	µg/L	Discharge Conc < TQL
Pyrene	12,302	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	43.1	µg/L	Discharge Conc < TQL

ATTACHMENT C

Temperature Modeling Results for Outfall 005

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *Inputs*

Facility: **Union Electric Steel - Carnegie Plant**

Permit No.: **PA0002887**

Stream Name: **Chartiers Creek**

Analyst/Engineer: **Ryan Decker**

Stream Q7-10 (cfs)*: **7.8**

Outfall No.: **005**

Analysis Type*: **WWF**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.0432	0.041034	0.002166
Feb 1-29		0.0432	0.041034	0.002166
Mar 1-31		0.0432	0.041034	0.002166
Apr 1-15		0.0432	0.041034	0.002166
Apr 16-30		0.0432	0.041034	0.002166
May 1-15		0.0432	0.041034	0.002166
May 16-31		0.0432	0.041034	0.002166
Jun 1-15		0.0432	0.041034	0.002166
Jun 16-30		0.0432	0.041034	0.002166
Jul 1-31		0.0432	0.041034	0.002166
Aug 1-15		0.0432	0.041034	0.002166
Aug 16-31		0.0432	0.041034	0.002166
Sep 1-15		0.0432	0.041034	0.002166
Sep 16-30		0.0432	0.041034	0.002166
Oct 1-15		0.0432	0.041034	0.002166
Oct 16-31		0.0432	0.041034	0.002166
Nov 1-15		0.0432	0.041034	0.002166
Nov 16-30		0.0432	0.041034	0.002166
Dec 1-31		0.0432	0.041034	0.002166

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	24.83	24.84
3.5	1.00	27.16	27.16
7	1.00	54.32	54.32
9.3	1.00	72.17	72.17
9.3	1.00	72.17	72.17
5.1	1.00	39.58	39.58
5.1	1.00	39.58	39.58
3	1.00	23.28	23.28
3	1.00	23.28	23.28
1.7	1.00	13.19	13.20
1.4	1.00	10.86	10.87
1.4	1.00	10.86	10.87
1.1	1.00	8.54	8.54
1.1	1.00	8.54	8.54
1.2	1.00	9.31	9.32
1.2	1.00	9.31	9.32
1.6	1.00	12.42	12.42
1.6	1.00	12.42	12.42
2.4	1.00	18.62	18.63

Temperature

Ambient Stream Temperature (°F)*

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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. (ºF)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (ºF)
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

ATTACHMENT D

TRC Modeling Results

TRC EVALUATION – Outfall 005

7.76	= Q stream (cfs)	0.5	= CV Daily
0.028	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.206	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	11.792	**1.3.2.iii**	WLA cfc =	55.726
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	4.394	**5.1d**	LTA_cfc =	32.397

Source	Reference	Effluent Limit Calculations		
PENTOXSD TRG	**5.1f**	AML MULT =	1.720	
PENTOXSD TRG	**5.1g**	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.170	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc)) + Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc)) + Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**