Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0098612**
Facility Type	**Industrial**	APS ID	**1117167**
Major / Minor	**Minor**	Authorization ID	**1491095**

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

Applicant and Facility Information

Applicant Name	**Ebensburg Power Company**	Facility Name	**Ebensburg Cogeneration Plant**
Applicant Address	2840 New Germany Road Ebensburg, PA 15931-3505	Facility Address	2840 New Germany Road Ebensburg, PA 15931-3505
Applicant Contact	Mark Crawford, Environmental Manager	Facility Contact	Blaise Mucci, Plant Manager
Applicant Phone	(570) 274-0748	Facility Phone	(814) 472-1140
Applicant Email	mark.crawford@resfuel.com	Facility Email	blaise.mucci@ebensburgpower.com
Client ID	52665	Site ID	240082
SIC Code	4911	Municipality	Cambria Township
SIC Description	Trans. & Utilities - Electric Services	County	Cambria
Date Application Received	July 2, 2024	EPA Waived?	Yes
Date Application Accepted	July 5, 2024	If No, Reason	

Purpose of Application: Renewal of an NPDES permit for existing discharge of treated industrial and sanitary wastewaters, cooling waters, and storm water.

Summary of Review

Ebensburg Power Company (EPC) submitted an application dated July 2, 2024 to renew the NPDES permit for discharges of industrial waste and storm water from EPC's Ebensburg Cogeneration Plant in Ebensburg, PA. The NPDES permit for the plant was originally issued on November 29, 1988 and was last renewed on December 19, 2019 with an effective date of January 1, 2020 and an expiration date of December 31, 2024. The permit renewal application was due by July 4, 2024 (180 days before expiration). Since the application was received before July 4, 2024, the renewal application was timely, so the terms and conditions of the current NPDES permit will be administratively extended past December 31, 2024 if the permit is not renewed before that date.

EPC's cogeneration plant is a 50-megawatt, circulating fluidized bed (CFB) combustion power plant that generates electricity and steam using waste coal recovered from past mining operations as its main source of fuel. The plant was constructed in 1990 and currently consumes around 350 to 400 thousand tons of waste coal per year. EPC injects pulverized limestone directly into the fluidized bed to facilitate reductions in sulfur and nitrogen oxide emissions during combustion. A baghouse is employed to capture the ash and limestone solids from the flue gas. A portion of the cooling tower blowdown is used to "condition" the ash for handling prior to disposal and/or beneficial reuse. Waste coal ash and limestone are disposed/beneficially reused at various offsite locations (typically at the same waste coal sites that were re-mined to supply the plant with fuel) to neutralize acid mine drainage.

Wastewater generated at the facility consists of treated low volume wastewaters, cooling tower blowdown, coal pile runoff, and storm water runoff. Wastewater treatment consists of a sedimentation pond which collects demineralizer wastewater, boiler blowdown, building floor drains, miscellaneous wash waters, and runoff from a six-acre, coal pile storage area that stores a fifteen-day supply of waste coal. During summer months, the sedimentation pond also receives cooling tower blowdown to allow extra cooling of that heated wastewater. The sedimentation pond discharges to a neutralization tank for pH neutralization and then through a passive dechlorination tablet feeder using sodium sulfite tablets to the first of two polishing ponds (Polishing Pond A). During winter months, cooling tower blowdown discharges through a similar passive dechlorination system directly

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	October 22, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	October 29, 2024

Summary of Review
to Polishing Pond B. Polishing Pond A discharges to Polishing Pond B, which discharges via a pipeline to South Branch Blacklick Creek via Outfall 001. Effluent limits from 40 CFR part 423 – Steam Electric Power Generating Point Source Category Effluent Limitations Guidelines that apply to low volume waste sources and coal pile runoff are imposed at Internal Monitoring Point 101 and limits on cooling tower blowdown are imposed at Outfall 001. Storm water runoff from roads and buildings around the main coal handling areas of the plant is routed to Outfall 002 and discharges to an unnamed tributary of Howells Run. For this permit there are minor changes to temperature limits at Outfall 001 (made less stringent) based on an updated $Q_{7\text{-}10}$ flow for South Branch Blacklick Creek, and new monitoring requirements for four perfluoroalkyl substances at Outfall 001. <u>Public Participation</u> 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.	001 (Polishing Pond B)	Design Flow (MGD)	0.197 (avg.); 0.370 (max)
Latitude	40° 26' 55.44"	Longitude	-78° 44' 58.44"
Quad Name	Nanty Glo	Quad Code	1515
Wastewater Description:	Treated wastewater and storm water from IMP 101; treated cooling tower blowdown (typically during winter months)		

Receiving Waters	South Branch Blacklick Creek	Stream Code	44618
NHD Com ID	123720861	RMI	11.1
Drainage Area	19	Yield (cfs/mi²)	0.09368
Q_{7-10} Flow (cfs)	2.74 (1.78 + 54% error)	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,772	Slope (ft/ft)	0.00766
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	Metals, pH, Siltation, Suspended Solids		
Source(s) of Impairment	Abandoned mine drainage; Erosion		
TMDL Status	Final; Tentative	Name	Kiskiminetas-Conemaugh River Watersheds TMDL; South Branch Blacklick Creek Watershed

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

Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority – Freeport		
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,390
PWS RMI	29.4	Distance from Outfall (mi)	108

Discharge, Receiving Waters and Water Supply Information

Internal Monitoring Point	101	Design Flow (MGD)	0.077 (avg.); 0.340 (max)
Wastewater Description:	Treated wastewater from coal pile runoff and low volume waste sources including demineralizer wastewater, building floor drains, and boiler blowdown. Includes cooling tower blowdown (typically during summer months).		

Changes Since Last Permit Issuance: Updated Q_{7-10}.

Ebensburg Power Company - Basin Delineation for Outfall 001

Region ID: PA
Workspace ID: PA20241004133342482000
Clicked Point (Latitude, Longitude): 40.46570, -78.78273
Time: 2024-10-04 09:34:06 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19	square miles
ELEV	Mean Basin Elevation	2100	feet
PRECIP	Mean Annual Precipitation	48	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19	square miles	2.33	1720
ELEV	Mean Basin Elevation	2100	feet	898	2700
PRECIP	Mean Annual Precipitation	48	inches	38.7	47.9

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	3.29	ft^3/s
30 Day 2 Year Low Flow	4.68	ft^3/s
7 Day 10 Year Low Flow	1.78	ft^3/s
30 Day 10 Year Low Flow	2.26	ft^3/s
90 Day 10 Year Low Flow	3.2	ft^3/s

Low-Flow Statistics Citations

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

South Branch Blacklick Creek-123720861

Assessment Unit ID: PA-SCR-123720861

Waterbody Condition: Good

Existing Plans for Restoration: No

303(d) Listed: No

Year Reported: 2024

Other Years Reported: 2016, 2018, 2020, 2022 (opens new browser tab)

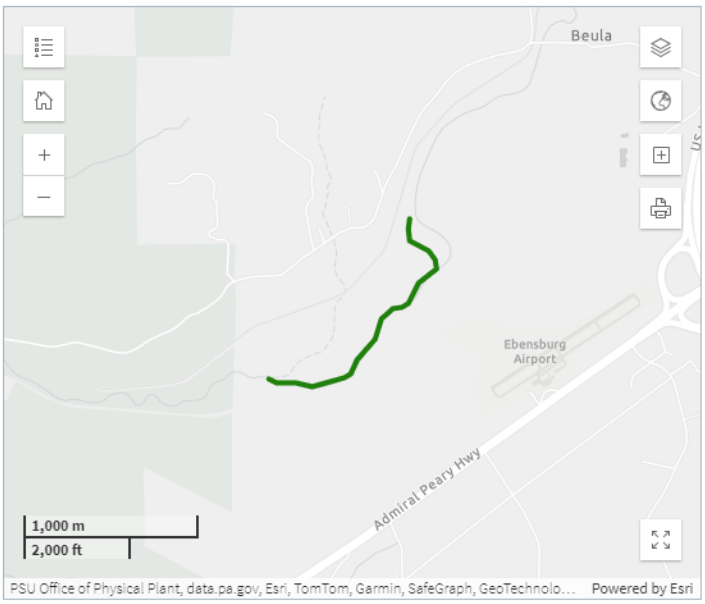
Organization Name (ID): Pennsylvania (21PA)

What type of water is this?

Stream/creek/river (1.0309 Miles)

Where is this water located?

BLACKLICK TWP, 15943 (county: Cambria)



Assessment Information from 2024

State or Tribal Nation specific designated uses:

Information on Water Quality Standards — Expand All

Cold Water Fishes — Good

Identified Issues for Use

No impairments evaluated for this use.

Other Water Quality Parameters Evaluated

No other parameters evaluated for this use.

Probable sources contributing to impairment from 2024:

No probable sources of impairment identified for this waterbody.

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Kiskiminetas-Conemaugh River Watersheds Tmdl	Metals, pH, Siltation	TMDL	2010-01-26
South Branch Blacklick Creek Watershed	Metals, pH	TMDL	2005-01-04

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Variable
Latitude	40° 26' 19.985"	Longitude	-78° 44' 42.19"
Quad Name	Ebensburg	Quad Code	1516
Wastewater Description:	Storm water runoff from facility roads and buildings		

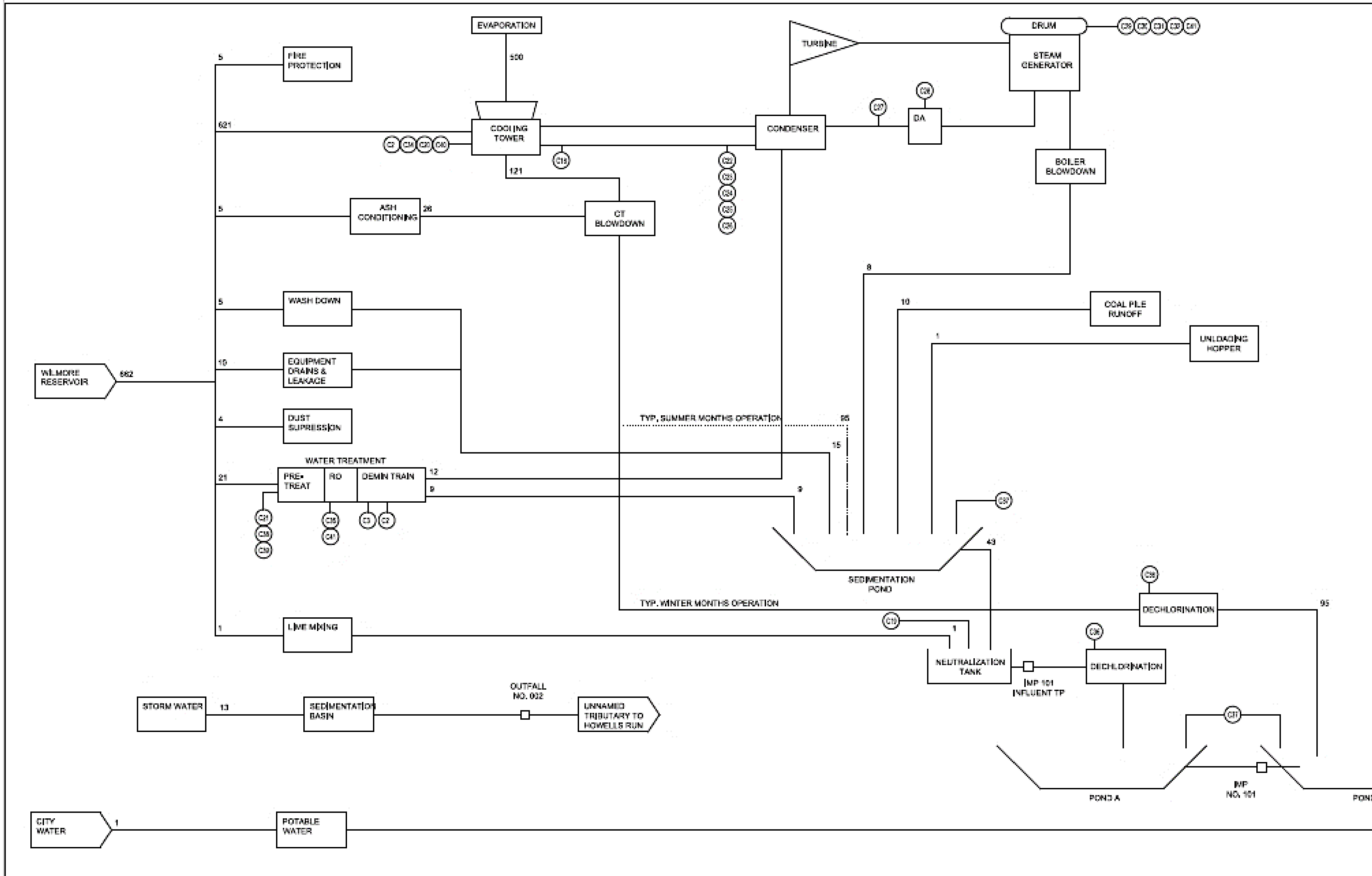
Receiving Waters	Unnamed Tributary of Howells Run	Stream Code	46006
NHD Com ID	123718311	RMI	0.66
Drainage Area	0.0551	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.00371	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	2,140	Slope (ft/ft)	
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

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

Nearest Downstream Public Water Supply Intake		Buffalo Township Municipal Authority – Freeport	
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,390
PWS RMI	29.4	Distance from Outfall (mi)	101.58

Changes Since Last Permit Issuance: None

Other Comments:



ID	CHEMICAL	USE
C2	SULFURIC ACID	DEMIN CATION VESSEL REGEN AND CT pH CONTROL
C3	SODIUM HYDROXIDE	DEMIN ANION VESSEL REGEN
C18	CHLORINE GAS	CHLORINE GAS INJECTED INTO CONDENSER CIRC. WATER SYS.
C19	SULFURIC ACID	WASTE WATER pH CONTROL
C20	CLEARAL BD-408	USED DURING COOLING TOWER FILL CLEANING
C21	CHEMCHLOR 160/SODIUM HYPO	CONTROLS TOC IN RAW WATER, PRETREATMENT
C22	CHEMSTREAM CWT-311	DISPARANT, COOLING TOWER
C23	CHEMSTREAM CWT-328	DISPARANT, USED WHEN CWT-311 NOT AVAIBILE, CT
C24	CHEMSTREAM CWT-317	MILD STEEL CORROSION INHIBITOR, COOLING TOWER
C25	CHEMSTREAM CWT-310	SCALE INHIBITOR, COOLING TOWER
C26	CHEMSTREAM CWT-303	COPPER CORROSION INHIBITOR, COOLING TOWER
C27	CHEMSTREAM NA-3000	NEUTRALIZING AMINE pH CONTROL, BOILER CONDENSATE
C28	CARBOHYDRAZIDE/CS OS-208	O2 SCAVENGER, TO BOILER DEAERATOR
C29	BWT-212	TRISODIUM PHOSPHATE - ADDED TO BOILER STEAM pH CONTROL
C30	BWT-217	DISODIUM PHOSPHATE - ADDED TO BOILER STEAM pH CONTROL
C31	WTSBLR-218	MONOSODIUM PHOSPHATE - ADDED TO BOILER STEAM pH CONTROL
C32	WTSBLR-215	DISPERSANT FOR IRON CONTROL - ADDED TO BOILER AFTER OUTAGE
C33	CHEMSTREAM OS2000	O2 SCAVENGER USED IN AUX BOILER DEAERATOR
C35	CHEMSTREAM RO-901	ANTI-SCALANT FOR RO, PHOSPHONATE AND DISPERSANTS BLEND
C36	SODIUM SULFITE	DECHLORINATE WASTEWATER
C37	COPPER SULFATE	ALGE TREATMENT IN WASTEWATER PONDS
C38	POWDERFLOC 595AP	PRETRATMENT FOR THE CLAIRIFIER
C39	SODIUM BICARBONATE	PRETRATMENT FOR THE CLAIRIFIER
C40	CHEMSTREAM AF-920E	USED DURING COOLING TOWER FILL CLEANING
C41	CAUSTIC SODA FLAKE	MAIN AND AUX BOILER DRUM pH CONTROL ON START-UP & RO CLEANING

NOTES:
1. VALUES SHOWN ARE MAX GPM VALUES
2. IMP - INTERNAL MONITORING POINT

6				
5	06/18/2024	ADDED CHEM. INJ. POINTS	TJD	
4	05/30/2024	RED LINE FOR CT BD ALTRNT 4 NPDES	TJD	
3	11/17/2022	ADDED THE DECHLORIN PER NPDES	TJD	
2	7/15/19	UPDATED WATER BALANCE	TJD	
1	3/14/90	ISSUED FOR CONSTRUCTION		
0	2/23/89	PRELIMINARY		
REV	DATE	ISSED DESCRIPTION	DR.	APPR.

PROCESS FLOW DIAGRAM

WATER BALANCE

EBENSBURG POWER COMPANY

ORDER NO.	SCALE		DRAWING NO.	REV.
	N/A		06-01-01-005	5

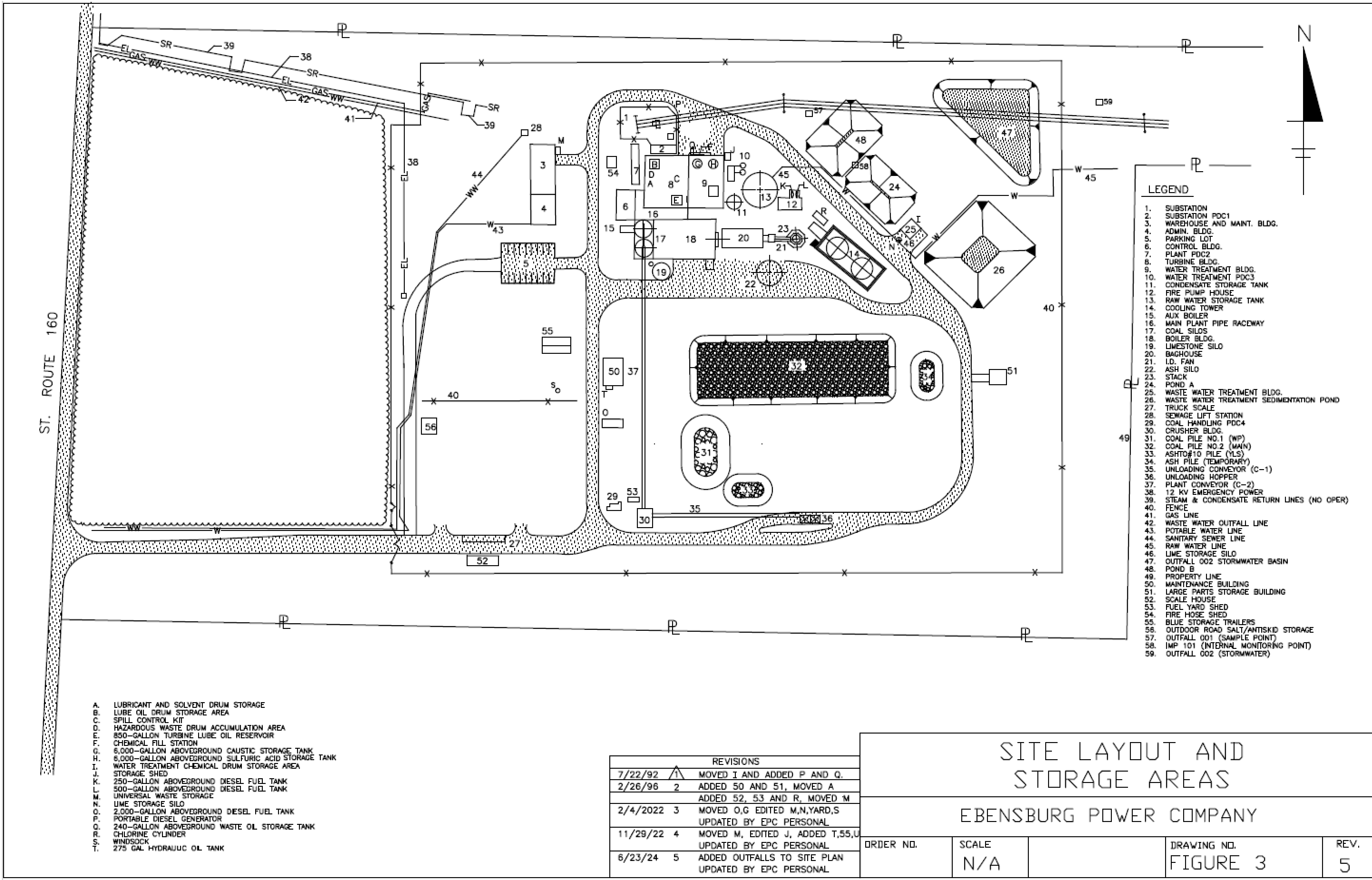

ST. ROUTE 160
N
LEGEND
1. SUBSTATION
2. SUBSTATION PDC1
3. WAREHOUSE AND MAINT. BLDG.
4. ADMIN. BLDG.
5. PARKING LOT
6. CONTROL BLDG.
7. PLANT PDC2
8. TURBINE BLDG.
9. WATER TREATMENT BLDG.
10. WATER TREATMENT PDC3
11. CONDENSATE STORAGE TANK
12. FIRE PUMP HOUSE
13. RAW WATER STORAGE TANK
14. COOLING TOWER
15. AUX BOILER
16. MAIN PLANT PIPE RACEWAY
17. COAL SILOS
18. BOILER BLDG.
19. LIMESTONE SILO
20. BAGHOUSE
21. I.D. FAN
22. ASH SILO
23. STACK
24. POND A
25. WASTE WATER TREATMENT BLDG.
26. WASTE WATER TREATMENT SEDIMENTATION POND
27. TRUCK SCALE
28. SEWAGE LIFT STATION
29. COAL HANDLING PDC4
30. CRUSHER BLDG.
31. COAL PILE NO.1 (WP)
32. COAL PILE NO.2 (MAIN)
33. ASHTO#10 PILE (YLS)
34. ASH PILE (TEMPORARY)
35. UNLOADING CONVEYOR (C-1)
36. UNLOADING HOPPER
37. PLANT CONVEYOR (C-2)
38. 12 KV EMERGENCY POWER
39. STEAM & CONDENSATE RETURN LINES (NO OPER)
40. FENCE
41. GAS LINE
42. WASTE WATER OUTFALL LINE
43. POTABLE WATER LINE
44. SANITARY SEWER LINE
45. RAW WATER LINE
46. LIME STORAGE SILO
47. OUTFALL 002 STORMWATER BASIN
48. POND B
49. PROPERTY LINE
50. MAINTENANCE BUILDING
51. LARGE PARTS STORAGE BUILDING
52. SCALE HOUSE
53. FUEL YARD SHED
54. FIRE HOSE SHED
55. BLUE STORAGE TRAILERS
56. OUTDOOR ROAD SALT/ANTISKID STORAGE
57. OUTFALL 001 (SAMPLE POINT)
58. IMP 101 (INTERNAL MONITORING POINT)
59. OUTFALL 002 (STORMWATER)
A. LUBRICANT AND SOLVENT DRUM STORAGE
B. LUBE OIL DRUM STORAGE AREA
C. SPILL CONTROL KIT
D. HAZARDOUS WASTE DRUM ACCUMULATION AREA
E. 850-GALLON TURBINE LUBE OIL RESERVOIR
F. CHEMICAL FILL STATION
G. 6,000-GALLON ABOVEGROUND CAUSTIC STORAGE TANK
H. 6,000-GALLON ABOVEGROUND SULFURIC ACID STORAGE TANK
I. WATER TREATMENT CHEMICAL DRUM STORAGE AREA
J. STORAGE SHED
K. 250-GALLON ABOVEGROUND DIESEL FUEL TANK
L. 500-GALLON ABOVEGROUND DIESEL FUEL TANK
M. UNIVERSAL WASTE STORAGE
N. LIME STORAGE SILO
O. 2,000-GALLON ABOVEGROUND DIESEL FUEL TANK
P. PORTABLE DIESEL GENERATOR
Q. 240-GALLON ABOVEGROUND WASTE OIL STORAGE TANK
R. CHLORINE CYLINDER
S. WINDSOCK
T. 275 GAL HYDRAULIC OIL TANK
REVISIONS
7/22/92 1 MOVED I AND ADDED P AND Q.
2/26/96 2 ADDED 50 AND 51, MOVED A
ADDED 52, 53 AND R, MOVED M
2/4/2022 3 MOVED O,G EDITED M,N,YARD,S
UPDATED BY EPC PERSONAL
11/29/22 4 MOVED M, EDITED J, ADDED T,55,U
UPDATED BY EPC PERSONAL
6/23/24 5 ADDED OUTFALLS TO SITE PLAN
UPDATED BY EPC PERSONAL
SITE LAYOUT AND STORAGE AREAS
EBENSBURG POWER COMPANY
ORDER NO.
SCALE N/A
DRAWING NO. FIGURE 3
REV. 5

Image Source and Date: Google Earth Pro; March 11, 2024. Annotations by DEP.

Image Source and Date: Google Earth Pro; March 11, 2024. Annotations by DEP.

Treatment Facility Summary

Treatment Facility: Industrial Waste Treatment Facility

WQM Permit No.	Issuance Date	Purpose
1189201	April 3, 1989	Permit issued to Ebensburg Power Company by the Pennsylvania Department of Environmental Resources for the construction and operation of industrial wastewater treatment facilities consisting of a sedimentation pond, a neutralization tank, a polishing pond, and ancillary equipment.
1189201 A-1	December 2, 2022	Permit issued to Ebensburg Power Company by the Pennsylvania Department of Environmental Protection for the installation of two (2) passive dechlorination sodium sulfite tablet feeders. Tablet Feeder #1 was installed in the Fire Pumphouse and Tablet Feeder #2 was installed in the Water Treatment Building adjacent to the lime silo.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Sedimentation; neutralization; polishing; dechlorination	N/A	0.22

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

Compliance History

DMR Data for Outfall 001 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Flow (MGD) Average Monthly	0.081	0.116	0.179	0.09	0.09	0.104	0.071	0.081	0.07	0.07	0.097	0.09
Flow (MGD) Daily Maximum	0.320	0.361	0.350	0.320	0.31	0.432	0.32	0.354	0.355	0.26	0.360	0.361
pH (S.U.) Instantaneous Minimum	7.26	7.2	6.1	7.51	6.04	6.21	6.31	6.08	6.54	7.34	7.18	7.19
pH (S.U.) Instantaneous Maximum	8.27	8.0	7.21	7.87	6.50	6.57	6.56	7.98	8.07	8.1	7.75	7.41
TRC (mg/L) Average Monthly	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.010	0.010	0.010	0.010	0.010
TRC (mg/L) Instantaneous Maximum	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	< 0.010	0.010	0.010	0.010	0.010	0.010	0.010
Free Available Chlorine (mg/L) Average Monthly	< 0.10	0.01	< 0.010	< 0.01	< 0.02	< 0.01	0.02	0.010	< 0.010	0.010	0.01	0.010
Free Available Chlorine (mg/L) Daily Maximum	< 0.10	0.10	< 0.010	< 0.01	< 0.02	< 0.01	0.03	0.010	< 0.010	0.010	0.01	0.010
Temperature (Day 1 thru 15) (ºF) Daily Maximum	78.6	82.0	75.6					55.2	58.8	68.3	74.9	
Temperature (Day 16 thru End of Month) (ºF) Daily Maximum	76.2	74.7	70.4					56.6	71.9	78.6	76.0	
Temperature (ºF) Daily Maximum				63.7	59.6	55.5	53.1					79.7
TSS (mg/L) Average Monthly	15.0	13.0	14.0	10.0	10.0	7.0	4.0	5.0	5.0	5.0	9.0	7.0
TSS (mg/L) Daily Maximum	22.0	9.5	17.0	12.0	17.5	10.0	11.0	11.6	9.0	6.5	14.7	13.0
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 6.0	< 5.0
Oil and Grease (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.15	< 5.0	< 5.0	< 5.0	< 6.0	< 5.1
Total Aluminum (mg/L) Average Monthly	0.577	0.588	0.883	0.451	0.408	0.501	0.225	0.247	0.125	0.266	0.292	0.189

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Total Aluminum (mg/L) Daily Maximum	0.648	0.648	1.04	0.619	0.697	0.666	0.271	0.361	0.128	0.288	0.381	0.230
Total Antimony (mg/L) Average Monthly	< 0.0052	< 0.005	< 0.005	< 0.0054	< 0.02	< 0.005	< 0.0057	< 0.0054	< 0.0054	< 0.0054	< 0.005	< 0.0054
Total Antimony (mg/L) Daily Maximum	< 0.0054	< 0.005	< 0.005	< 0.0054	< 0.02	< 0.005	0.0060	< 0.0054	< 0.0054	< 0.0054	< 0.005	< 0.0054
Total Chromium (mg/L) Average Monthly	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Chromium (mg/L) Daily Maximum	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dissolved Iron (mg/L) Average Monthly	< 0.20	< 0.02	< 0.20	< 0.20	< 0.20	< 0.02	< 0.02	< 0.20	0.20	< 0.14	< 0.02	< 0.02
Dissolved Iron (mg/L) Daily Maximum	< 0.20	< 0.02	< 0.20	< 0.20	< 0.20	< 0.02	0.02	< 0.20	0.20	0.26	< 0.02	< 0.02
Total Iron (mg/L) Average Monthly	0.463	0.591	1.29	0.647	< 0.573	0.695	< 0.20	< 0.243	< 0.202	< 0.14	0.18	< 0.02
Total Iron (mg/L) Daily Maximum	0.665	0.665	1.53	0.892	0.945	0.853	< 0.20	0.285	0.203	< 0.26	0.339	< 0.02
Total Manganese (mg/L) Average Monthly	0.165	0.16	0.106	0.075	0.08	0.087	< 0.02	0.0563	0.101	0.257	0.083	0.106
Total Manganese (mg/L) Daily Maximum	0.201	0.201	0.126	0.093	0.13	0.105	< 0.02	0.0922	0.130	0.301	0.109	0.114
Total Zinc (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.10	< 0.10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Zinc (mg/L) Daily Maximum	< 0.02	< 0.02	< 0.026	< 0.02	< 0.02	< 0.20	< 0.20	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

DMR Data for Outfall 002 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
pH (S.U.) Daily Maximum	7.51						7.14					
TSS (mg/L) Daily Maximum	5.60						11.2					
Oil and Grease (mg/L) Daily Maximum	< 4.70						< 5.0					
Total Iron (mg/L) Daily Maximum	3.44						1.36					

DMR Data for IMP 101 (from July 1, 2023 to June 30, 2024)

Parameter	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23
Flow (MGD) Average Monthly	0.055	0.059	0.100	0.056	0.03	0.016	0.004	0.033	0.033	0.031	0.052	1.952
Flow (MGD) Daily Maximum	0.343	0.343	0.278	0.311	0.28	0.311	0.112	0.343	0.343	0.355	0.343	0.343
pH (S.U.) Instantaneous Minimum	7.13	7.34	6.10	7.5	6.07	6.21	6.33	6.15	6.54	7.48	7.19	7.19
pH (S.U.) Instantaneous Maximum	7.57	7.76	7.32	7.7	6.57	6.83	6.92	8.04	8.01	7.74	7.48	7.48
TSS (mg/L) Average Monthly	15.0	22.0	12.0	9.0	< 11.0	12.0	< 7.0	< 3.0	6.0	5.0	8.0	8.0
TSS (mg/L) Daily Maximum	25.2	45.0	14.4	14.0	16.0	18.0	18.0	5.6	11.0	9.0	14.0	14.0
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 4.95	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Oil and Grease (mg/L) Daily Maximum	< 5.0	< 5.0	< 5.1	< 5.0	< 5.0	< 5.25	< 5.0	< 5.3	< 5.0	< 5.0	< 5.0	< 6.0

Development of Effluent Limitations

Outfall No.	101	**Design Flow (MGD)**	0.077 (avg.); 0.340 (max)
Latitude	N/A	**Longitude**	N/A
Wastewater Description:	Treated wastewater from coal pile runoff and low volume waste sources including demineralizer wastewater, building floor drains, and boiler blowdown. Includes cooling tower blowdown (typically during summer months).		

IMP 101 is the monitoring point for treated demineralizer wastewater, boiler blowdown, building floor drains, miscellaneous wash waters, and runoff from a six-acre, coal pile storage area that stores a fifteen-day supply of waste coal. The commingled wastewaters are collected in the Water Treatment System Sedimentation Pond (WTSSP) for settling and then pumped to the onsite Lime Neutralization Tank and wastewater treatment plant prior to discharging into Polishing Pond A. Discharges from Polishing Pond A are monitored for compliance with applicable TBELs (at IMP 101) and are then conveyed to Polishing Pond B, which discharges through a pipeline to Outfall 001 on the South Branch of Blacklick Creek.

Effluent limits are imposed at IMP 101 rather than another monitoring location 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 101 combine with other sources before discharging through Outfall 001, IMP 101 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.

Discharges monitored at IMP 101 are currently subject to the following effluent limits and monitoring requirements.

Table 1. Current Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Basis
	Avg. Mo.	Max Daily	Minimum	Avg. Mo.	IMAX			
Flow (MGD)	Report	Report	—	—	—	Continuous	Measured	25. Pa. Code § 92.61(b)
pH (S.U.)	—	—	6.0	—	9.0	1/week	Grab	40 CFR § 423.15(a)
TSS	—	—	—	30.0	50.0	1/week	Grab	40 CFR § 423.15(c) & 423.15(k)
Oil and Grease	—	—	—	15.0	20.0	1/week	Grab	40 CFR § 423.15(c)
There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.								40 CFR § 423.15(b)

The effluent limits and monitoring requirements in Table 1 will remain in effect at IMP 101 pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act (33 U.S.C. § 1342(o)) and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) [2], 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).

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

Federal Effluent Limitations Guidelines (ELGs)

Pursuant to the applicability descriptions and specialized definitions given by 40 CFR §§ 423.10 and 423.11, EPC's process wastewaters are subject to Federal ELGs under 40 CFR Part 423 – Steam Electric Power Generating Point Source Category.

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[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."

[2] *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.)

Based on definitions given in 40 CFR §§ 122.2 and 122.29, the Ebensburg Cogeneration Plant is a "new source". Classification of the facility as a "new source" is based on 40 CFR § 122.29(b), which states the following:

> (b) Criteria for new source determination.
>
> (1) Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets the definition of "new source" in §122.2, and
>
> (i) It is constructed at a site at which no other source is located; or
>
> (ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or
>
> (iii) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.
>
> (2) A source meeting the requirements of paragraphs (b)(1) (i), (ii), or (iii) of this section is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger. See §122.2."

As § 122.29(b)(1) states, a source is a new source if it meets the definition of "new source" in § 122.2 and is described by any of the subsections of § 122.29(b)(1) reproduced above. Section 122.2 defines "new source" as:

> *New source* means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:
>
> (a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or
>
> (b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Construction of the Ebensburg Cogeneration Plant commenced in 1991 after promulgation of standards of performance that apply to discharges from the facility—those being the 1982 New Source Performance Standards (1982 NSPS) under 40 CFR § 423.15. Also, pursuant to § 122.2(b)(1), the facility was constructed at a site where no other source was located.

The plant's demineralizer wastewater, boiler blowdown, building floor drains, and wash waters are classified as low volume waste sources—defined in § 423.11(b) as:

> [W]astewater from all sources except those for which specific limitations or standards are otherwise established in this part. Low volume waste sources include, but are not limited to, the following: Wastewaters from ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, recirculating house service water systems, and wet scrubber air pollution control systems whose primary purpose is particulate removal. Sanitary wastes, air conditioning wastes, and wastewater from carbon capture or sequestration systems are not included in this definition.

The term "coal pile runoff" means the rainfall runoff from or through any coal storage pile.

Based on the applicability description in 40 CFR § 423.15(a), low volume waste sources regulated at IMP 101 are subject to 1982 NSPS under § 423.15(a) paragraphs (1), (2), and (3) and coal pile runoff is subject to 1982 NSPS under § 423.15(a)(11).

Table 2. 40 CFR Part 423 – New Source Performance Standards for Low Volume Waste Sources

Pollutant	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)	Basis
Total Suspended Solids	30.0	100.0	40 CFR § 423.15(a)(3)
Oil and Grease	15.0	20.0	40 CFR § 423.15(a)(3)
pH	within the range of 6.0 to 9.0		40 CFR § 423.15(a)(1)
There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.			40 CFR § 423.15(a)(2)

Table 3. 40 CFR Part 423 – New Source Performance Standards for Coal Pile Runoff

Pollutant	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)	Basis
Total Suspended Solids	—	50.0	40 CFR § 423.15(a)(11)

Due to the commingling of ELG-regulated wastewaters at IMP 101, the most stringent effluent limitations from Tables 2 and 3 were imposed at IMP 101. DEP imposed all the limits from Table 2 with the 50 mg/L maximum daily TSS limit for coal pile runoff replacing the 100 mg/L maximum daily TSS limit for low volume waste sources. As a result, the maximum daily TSS concentrations of EPC's low volume waste sources are limited to a lower concentration than what is required by the ELG (*i.e.*, there is no limit flow weighting, which would be complicated by the storm-induced nature of coal pile runoff). Since there have been no changes to the plant, the existing limits will be maintained in renewed permit pursuant to anti-backsliding.

40 CFR § 423.15(a)(13) allows limits to be expressed as concentration-based limits instead of mass-based limits at the discretion of the permitting authority. DEP previously imposed limits on IMP 101's wastewaters solely as concentration limits due to the variability associated with storm-induced discharges from the coal storage pile and the commingling of that runoff with EPC's low volume waste sources. Those circumstances have not changed, so no mass limits are imposed.

40 CFR § 423.12(l) exempts untreated overflows from facilities designed, constructed, and operated to treat the volume of coal pile runoff which is associated with a 10-year, 24-hour rainfall event from the 50 mg/L TSS limit of 40 CFR § 423.15(a)(11). The coal pile runoff ponds at EPC are designed to handle the volume of runoff from a 10-year, 24-hour storm event, so overflows from the coal pile runoff ponds that discharge through IMP 101 are not subject to the 50 mg/L TSS limit. EPC should notify the Department of each overflow occurrence when applicable.

The PCB discharge prohibition of 40 CFR § 423.15(a)(2) will be included as a narrative condition in Part C of the permit. The prohibition applies to all federally regulated wastewaters discharged by EPC.

<u>Regulatory Effluent Standards and Monitoring Requirements</u>

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

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

WQBELs will not be evaluated at this internal monitoring point. WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water and IMP 101 is not a final stream discharge location. Therefore, water quality limits will be evaluated at Outfall 001 where the combination of IMP 101's wastewaters and cooling tower blowdown discharge to waters of the Commonwealth.

101.C. <u>Effluent Limitations and Monitoring Requirements for IMP 101</u>

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 IMP 101 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 in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table below.

Table 4. Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(b)
pH (standard units)	—	—	6.0 (IMIN)	—	9.0	40 CFR § 423.15(a)(1)
Total Suspended Solids	—	—	30.0	—	50.0	40 CFR § 423.15(a)(3)
Oil and Grease	—	—	15.0	—	20.0	40 CFR § 423.15(a)(3)

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 recorded continuously and pH, TSS, and Oil and Grease must be sampled 1/week using grab samples.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.197 (avg.); 0.370 (max)
Latitude 40° 26' 55.44" **Longitude** -78° 44' 58.44"
Wastewater Description: Treated wastewater and storm water from IMP 101; treated cooling tower blowdown (typically during winter months)

Discharges monitored at Outfall 001 are currently subject to the following effluent limits and monitoring requirements.

Table 5. Current Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Flow (MGD)	Report	Report	—	—	—	Continuous	Recorded	25. Pa. Code § 92.61(d)(1)
pH (S.U.)	—	—	6.0 (Inst. Min)	—	9.0	1/week	Grab	40 CFR § 423.15(a)(1)
Total Residual Chlorine (TRC)	—	—	0.011	—	0.026	2/month	Grab	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Free Available Chlorine	—	—	0.2	0.5	—	2/month	Grab	40 CFR § 423.15(a)(10)(i)
Temperature (°F) Jan 1 – Apr 30	—	—	—	110	—	2/month	I-S	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temperature (°F) May 1 – 15	—	—	—	91.2	—	Continuous	I-S	
Temperature (°F) May 16 – 31	—	—	—	110	—	Continuous	I-S	
Temperature (°F) Jun 1 – 15	—	—	—	84.9	—	Continuous	I-S	
Temperature (°F) Jun 16 – 30	—	—	—	99.0	—	Continuous	I-S	
Temperature (°F) Jul 1 – 31	—	—	—	86.8	—	Continuous	I-S	
Temperature (°F) Aug 1 – 15	—	—	—	77.7	—	Continuous	I-S	
Temperature (°F) Aug 16 – 31	—	—	—	97.8	—	Continuous	I-S	
Temperature (°F) Sep 1 – 15	—	—	—	81.6	—	Continuous	I-S	
Temperature (°F) Sep 16 – 30	—	—	—	92.4	—	Continuous	I-S	
Temperature (°F) Oct 1 – 15	—	—	—	86.9	—	Continuous	I-S	
Temperature (°F) Oct 16 – 31	—	—	—	91.3	—	Continuous	I-S	
Temperature (°F) Nov 1 – 15	—	—	—	76.0	—	Continuous	I-S	
Temperature (°F) Nov 16 – 30	—	—	—	91.3	—	Continuous	I-S	
Temperature (°F) Dec 1 – 31	—	—	—	110	—	Continuous	I-S	
TSS	—	—	30.0	100.0	—	1/week	Grab	40 CFR § 423.15(a)(10)(i)
Oil and Grease	—	—	15.0	30.0	—	1/week	Grab	BPJ TBELs; 25 Pa. Code §§ 92a.48(a)(2) & 95.5(2)(ii)
Aluminum, Total	—	—	1.8	2.9	—	2/month	Grab	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Antimony, Total	—	—	Report	Report	—	2/month	Grab	25. Pa. Code § 92.61(b)
Chromium, Total	—	—	0.2	0.2	—	2/month	Grab	40 CFR § 423.15(a)(10)(i)
Iron, Dissolved	—	—	1.8	2.8	—	2/month	Grab	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Iron, Total	—	—	Report	Report	—	2/month	Grab	25. Pa. Code § 92.61(b)
Manganese, Total	—	—	Report	Report	—	2/month	Grab	25. Pa. Code § 92.61(b)
Zinc, Total	—	—	1.0	1.0	—	2/month	Grab	40 CFR § 423.15(a)(10)(i)

The effluent limits and monitoring requirements in Table 5 will remain in effect pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act (33 U.S.C. § 1342(o)) and/or 40 CFR § 122.44(l), 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).

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

Federal Effluent Limitations Guidelines (ELGs)

Discharges from Polishing Pond A are monitored for compliance with Federal ELGs at IMP 101 prior to conveyance into Polishing Pond B which discharges via a pipeline to Outfall 001 on South Branch Blacklick Creek. Cooling tower blowdown is discharged into Polishing Pond B, so the combined effluent was previously subject to TBELs from 40 CFR 423.15(a) (1982 NSPS from the Steam Electric Power Generating Point Source Category ELGs).

Table 6. 40 CFR Part 423 – New Source Performance Standards for Outfall 001

Pollutant	Average Concentration (mg/L)	Maximum Concentration (mg/L)	Basis
Free Available Chlorine	0.2	0.5	40 CFR § 423.15(a)(10)(i)
pH	within the range of 6.0 to 9.0		40 CFR § 423.15(a)(1)
Pollutant	**Average of daily values for 30 consecutive days (mg/L)**	**Maximum for any 1 day (mg/L)**	**Basis**
Chromium, Total	0.2	0.2	40 CFR § 423.15(a)(10)(i)
Zinc, Total	1.0	1.0	40 CFR § 423.15(a)(10)(i)
The 126 priority pollutants contained in chemicals added for cooling tower maintenance	No detectable amount	No detectable amount	40 CFR § 423.15(a)(10)(i)
There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.			40 CFR § 423.15(a)(2)
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 § 423.15(a)(10)(ii)

† EPC previously demonstrated that it is unable to operate its closed-loop recirculating cooling system without maintaining a continuous blowdown and a 1 ppm residual chlorine concentration to control scaling by dissolved solids such as calcium carbonate. Therefore, the two-hour limitation on chlorine discharges will not be imposed in the permit.

Notwithstanding the mixing of low volume waste sources and cooling tower blowdown in Polishing Pond B and the potential for co-dilution of those wastewaters to enable compliance with TBELs on cooling tower blowdown, DEP will not modify the existing effluent limit arrangement. EPC maintains dechlorination systems for both IMP 101's wastewaters and cooling tower blowdown, so EPC is not circumventing the requirements for treatment of Free Available Chlorine. Chromium and zinc are regulated by the Steam Electric ELGs due to widespread use of chromium and zinc-based corrosion inhibitors when the Steam Electric ELGs were developed and promulgated, but EPC does not use chromium or zinc-based corrosion inhibitors, so no co-dilution of dissimilar wastes is expected for those parameters.

Other TBELs

DEP imposed TSS limits of 30.0 mg/L average monthly and 100.0 mg/L maximum daily based on DEP's Best Professional Judgement (25 Pa. Code § 92a.48(a)(3) and 40 CFR § 423.15(a)(10)(i)); and Oil and Grease limits of 15.0 mg/L average monthly and 30.0 mg/L maximum daily based on 25 Pa. Code §§ 92a.48(a)(2) and 95.2(2)(ii) regarding effluent standards for oil-bearing industrial wastewaters. Cooling tower blowdown is not subject to TSS limits under 40 CFR Part 423, but DEP adopted the TSS limits for low volume waste sources for the combined discharge of treated low volume waste sources, coal pile runoff, and cooling tower blowdown based on the expected performance of the polishing ponds as sedimentation ponds. Similarly, cooling tower blowdown is not subject to Oil and Grease limits under 40 CFR Part 423, but DEP imposed the Oil and Grease effluent standards from 25 Pa. Code § 95.2(2)(ii) that apply to oil-bearing wastewaters on the combined effluent. Those limits will be maintained based on anti-backsliding.

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 worldwide. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts.[3] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as 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.

EPC reported results for PFOA, PFOS, HFPO-DA, and PFBS in its permit renewal application. The results are summarized in Table 7. EPC's detections for the four PFAS parameters are less than DEP's Quantitation Limits identified in the SOP, but DEP cannot ignore detected values.

Table 7. Analytical Results for PFAS at Outfall 001

Parameter	Concentration (ng/L)	Reporting Limit (ng/L)	Permit Quantitation Limit (ng/L)
Perfluorooooctanoic acid (PFOA)	2.56	1.99	4.0
Prefluorooctanesulfonic acid (PFOS)	2.37	1.85	3.7
Perfluorobutanesulfoni acid (PFBS)	1.96	1.72	3.5
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<1.99	1.99	6.4

Consistent with Section II.I.a of SOP No. BCW-PMT-032, the detections for PFOA, PFOS, PFBS, and HFPO-DA mean that quarterly monitoring will be required for those parameters. 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 quarterly results in EPC's case), then the monitoring may be discontinued.

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

[3] 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.

Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential

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 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. 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 001

Table 8. TMS Inputs for Outfall 001

Discharge Characteristics		
Parameter	**Value**	
Discharge Flow (MGD)	0.197	
Hardness (mg/L)	465.67	
Receiving Stream Characteristics		
Parameter	**Outfall 001**	**End of Segment**
Stream Code	44618	44618
River Mile Index	11.1	10.1
Drainage Area (mi^2)	19	20.3
Q_{7-10} (cfs)	2.74	1.91
Low-flow Yield (cfs/mi^2)	0.144	0.144
Elevation (ft)	1,772	1,743
Slope (ft/ft)	0.00766	0.00766

Discharges from Outfall 001 are evaluated based on the maximum concentrations reported on the permit renewal application or on DMRs. The TMS model is run for Outfall 001 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.

As with the previous permit, the Q_{7-10} flow of South Branch Blacklick Creek calculated by USGS's StreamStats web application is adjusted upwards to give EPC the benefit of the standard error associated with the regression equations used by StreamStats to predict the Q_{7-10} flow of ungaged streams. For the previous permit, StreamStats' Q_{7-10} flow, 1.74 cfs, was adjusted upwards by 23% to 2.14 cfs to model Outfall 001. However, the 23% error is associated with StreamStats' base flow statistics, not low-flow statistics that include Q_{7-10}. The standard error associated with the low-flow regression equations for streams in Region 3 of Pennsylvania (the region encompassing the Ebensburg Cogeneration Plant) is 54% (see **Attachment A**). Therefore, for this permit renewal, the Q_{7-10} calculated by USGS StreamStats, 1.78 cfs, is adjusted upwards by 54% to 2.74 cfs.

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 001.

Table 9. Water Quality-Based Effluent Limits for Outfall 001

Parameter	Permit Limits					Modeled Discharge Conc. (µg/L)	Governing WQBEL	Target QL (µg/L)
	Mass (lbs/day)		Concentration (µg/L)					
	Avg Mo.	Max Daily	Avg Mo.	Max Daily	IMAX			
Aluminum, Total	Report	Report	Report	Report	Report	669 †	4,796	10
Antimony, Total	Report	Report	Report	Report	Report	5.8 ††	55.9	2
Iron, Total	Report	Report	Report	Report	Report	1,530 †	14,966	20
Zinc, Total	Report	Report	Report	Report	Report	200 †	1,152	5
~~Acrylamide~~	~~0.007~~	~~0.011~~	~~4.18~~	~~6.53~~	~~10.5~~	~~<21~~ †	~~4.18~~	~~N/A~~

† Maximum concentration as reported on EPC's permit renewal application
†† Long-term average using DEP's TOXCONC Spreadsheet and two years of the most recent Daily Effluent Monitoring data

EPC reported results for Acrylamide using an analytical reporting limit of 21 µg/L. For modeling purposes, the TMS uses a Target QL of 0.1 µg/L for Acrylamide. The permit application instructions do not identify a Target QL for Acrylamide, so applicants are not held to the TMS's Target QL for Acrylamide. Also, according to the application, chemical additives containing Acrylamide are not used at the facility. Therefore, the TMS's WQBELs for Acrylamide are not 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 2.74 cfs and 0.197 MGD, respectively. An acute partial mix factor of 1.0 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 C**, indicate that no WQBELs are required for TRC.[4] The existing TRC WQBELs will be adopted as TBELs and will be maintained in the renewed permit because the limits are achievable by the existing passive dechlorination system.

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 ($Q_{7\text{-}10}$), 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

4 The existing TRC WQBELs (0.011 mg/L average monthly and 0.026 mg/L daily maximum) were calculated for the previous permit because acute and chronic partial mix factors were not entered into TRC_CALC.

adverse factors exist. No adverse factors are known to exist in the receiving stream. The TMS modeling derived partial mix factors of 1.0 for both acute and chronic mixing conditions (*i.e.,* the discharge mixes with 100% of the receiving stream in less than fifteen minutes), so the assumption of instantaneous complete mixing is generally appropriate.

EPC obtains its water from an external private water supplier, the Cambria Somerset Authority, so the discharge is analyzed as Case 2 and is modeled using the average discharge flow rate (0.197 MGD) with limits expressed as temperatures.

Pursuant to an April 7, 2007 Consent Order and Agreement by and between DEP and EPC, EPC was required to conduct an Ambient Temperature Study with the intention of refining temperature limits at Outfall 001. EPC submitted the results of its completed study to DEP in April 2009 with an addendum submitted in December 2009. Based on the results of that study, site-specific ambient stream temperatures developed by EPC are used to derive temperature WQBELs instead of DEP's default ambient stream temperatures.

The results of the thermal discharge analysis using the Thermal Discharge Limit Calculation Spreadsheet (see **Attachment D**) show that the temperature WQBELs ("Allowable Discharge Temp.") in Table 10 apply to Outfall 001.

Table 10. Temperature WQBELs for Outfall 001

Period	Allowable Downstream Temp. (°F)	Default Ambient Stream Temp. (°F)	Site-Specific Ambient Stream Temp. (°F)	Allowable Discharge Temp. (°F)
Jan 1-31	38	34	35	110.0
Feb 1-29	38	35	33	110.0
Mar 1-31	42	39	38	110.0
Apr 1-15	48	46	43	110.0
Apr 16-30	52	52	50	110.0
May 1-15	54	55	54	100.9
May 16-31	58	59	56	110.0
Jun 1-15	60	63	63	91.0
Jun 16-30	64	67	62	110.0
July 1-31	66	71	64	96.6
Aug 1-15	66	70	65	78.6
Aug 16-31	66	70	63	103.8
Sep 1-15	64	66	62	83.8
Sep 16-30	60	60	56	99.6
Oct 1-15	54	55	50	97.2
Oct 16-31	50	51	45	104.0
Nov 1-15	46	46	43	89.2
Nov 16-30	42	40	38	99.6
Dec 1-31	40	35	36	110.0

The temperature limits are less stringent than those in the previous permit owning to an increase in the Q_{7-10} flow used for modeling. The relaxation of temperature limits is consistent with the exception to anti-backsliding given by Section 402(o)(2)(B)(i) of the Clean Water Act regarding new information that justifies the application of less stringent requirements.

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

On April 7, 2005, the U.S. Environmental Protection Agency (USEPA) approved a Total Maximum Daily Load (TMDL) for "South Branch Blacklick Creek Watershed (Cambria and Indiana Counties)" to control aluminum, iron, and manganese in acid mine drainage affected segments of the watershed. On January 29, 2010, a TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which South Branch Blacklick Creek and its tributaries are a part—was approved by USEPA to control aluminum, iron, manganese, sediment and pH in that watershed. The Kiski-Conemaugh TMDL imposes wasteload allocations (WLAs) to directly control aluminum, iron, and manganese and uses a surrogate approach for sediment and pH by which reductions of in-stream concentrations of aluminum, iron, and manganese result in acceptable reductions of sediment and mitigation of acidic pH. Upon approval, the Kiski-Conemaugh TMDL superseded the South Branch Blacklick Creek Watershed TMDL.

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.

In the draft version of the Kiski-Conemaugh TMDL, EPC was assigned WLAs that did not require any reductions from baseline (existing) loadings. The TMDL conservatively set baseline loadings at levels equal to Pennsylvania's most stringent water quality criteria. In other words, EPC's loadings were not expected to contribute to excursions above water quality criteria, but the TMDL still needed to account for EPC's load contributions and conservatively assumed those contributions were at levels equivalent to water quality criteria. In the final TMDL, EPC's WLAs were combined with other WLAs for facilities in the same sub-watershed (SWS) and specified as "Negligible Discharge Gross WLAs" for the whole SWS. The draft and final TMDL WLAs are summarized in Tables 11 and 12.

Table 11. Draft Kiski-Conemaugh TMDL WLAs for SWS 4505

SWS	PERMIT	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
4505	PA0098612	Aluminum	441	0.75	441	0.75	0
4505	PA0098612	Iron	882	1.50	882	1.50	0
4505	PA0098612	Manganese	588	1.00	588	1.00	0
4505	PA0204935	Aluminum	228	0.75	228	0.75	0
4505	PA0204935	Iron	457	1.50	457	1.50	0
4505	PA0204935	Manganese	305	1.00	305	1.00	0

Note: PA0204935 is the NPDES permit for New Enterprise Stone & Lime Co. Inc.'s Ebensburg concrete batch plant.

Table 12. Final Kiski-Conemaugh TMDL WLAs for SWS 4485

SWS	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
4505	Aluminum	669	0.75	669	0.75	0
4505	Iron	1,339	1.50	1,339	1.50	0
4505	Manganese	893	1.00	893	1.00	0

TMDL WLAs for SWS 4505 are not facility-specific or outfall-specific—they apply collectively to all discharges in SWS 4505. In the draft of the previous permit, DEP proposed concentration limits at Outfall 001 for aluminum, iron, and manganese at levels equivalent to water quality criteria. In comments on the draft permit, EPC requested DEP to consider reductions in discharge mass loadings to the watershed achieved by EPC's use of waste coal from mine reclamation/refuse reprocessing sites in Cambria County with EPC consuming up to 550,000 tons of waste coal per year. EPC cited a DEP study ("Reclamation of Refuse Piles using Fluidized Bed Combustion Ash in the Blacklick Creek Watershed, Pennsylvania") to detail the reductions in metals discharged to the watershed to support its request. The study demonstrated that waste coal removal from the Blacklick Creek Watershed (from only the Revloc #1 and Revloc #2 and Nanty Glo East and West sites) and the associated remediation of abandoned coal mines and waste coal sites with alkaline rich ash from the Ebensburg Cogeneration Plant substantially reduced the discharge of metals to waters of the Commonwealth from those waste coal sites. The abstract for DEP's study states:

> Refuse piles from abandoned, pre-SMCRA (Surface Mining Control and Reclamation Act of 1977) underground mining operations have been a major source of acid mine drainage in the Blacklick Creek watershed located in Cambria County, Pennsylvania. Beginning in 1988, five of the largest refuse piles in the watershed were permitted for refuse reprocessing. The refuse was to be removed, screened, and hauled to a nearby fluidized bed combustion (FBC) power plant, specifically designed to burn coal refuse. At the FBC power plant, ground lime is injected into the boiler to aid in air pollution control by removing sulfur dioxide. The FBC ash would then be returned to the site and mixed along with the reject refuse material. As a result of the lime addition in the combustion process the FBC ash that encapsulates the reject material is alkaline and has a low permeability resulting in reduced water infiltration and acidity generation. The sites are revegetated once all combustible refuse is removed and ash placement is completed. Of the five refuse piles, two have been fully reclaimed and three are still in the process of removing refuse or placing ash. As of 2015 more than seven million metric tons of refuse has been reprocessed from the five sites. A total of twenty-three individual discharges are being monitored on the five sites. As refuse reprocessing has been progressing there has been a substantial reduction in the loadings of pollutants to Blacklick Creek watershed. Prior to reclamation the total average acidity loading from the twenty-three discharges was 4,826 kilograms per day. After reclamation was fully or partially completed the total average acidity loading is now 204 kilograms per day. The water quality of the immediate receiving streams had been net acidic for several decades since the refuse piles first were placed, but is now consistently or intermittently net alkaline."

Figure 1. Revloc Refuse Piles #1 and #2 Pre-Reclamation. [Image Source and Date: Google Earth Pro, April 26, 1993].

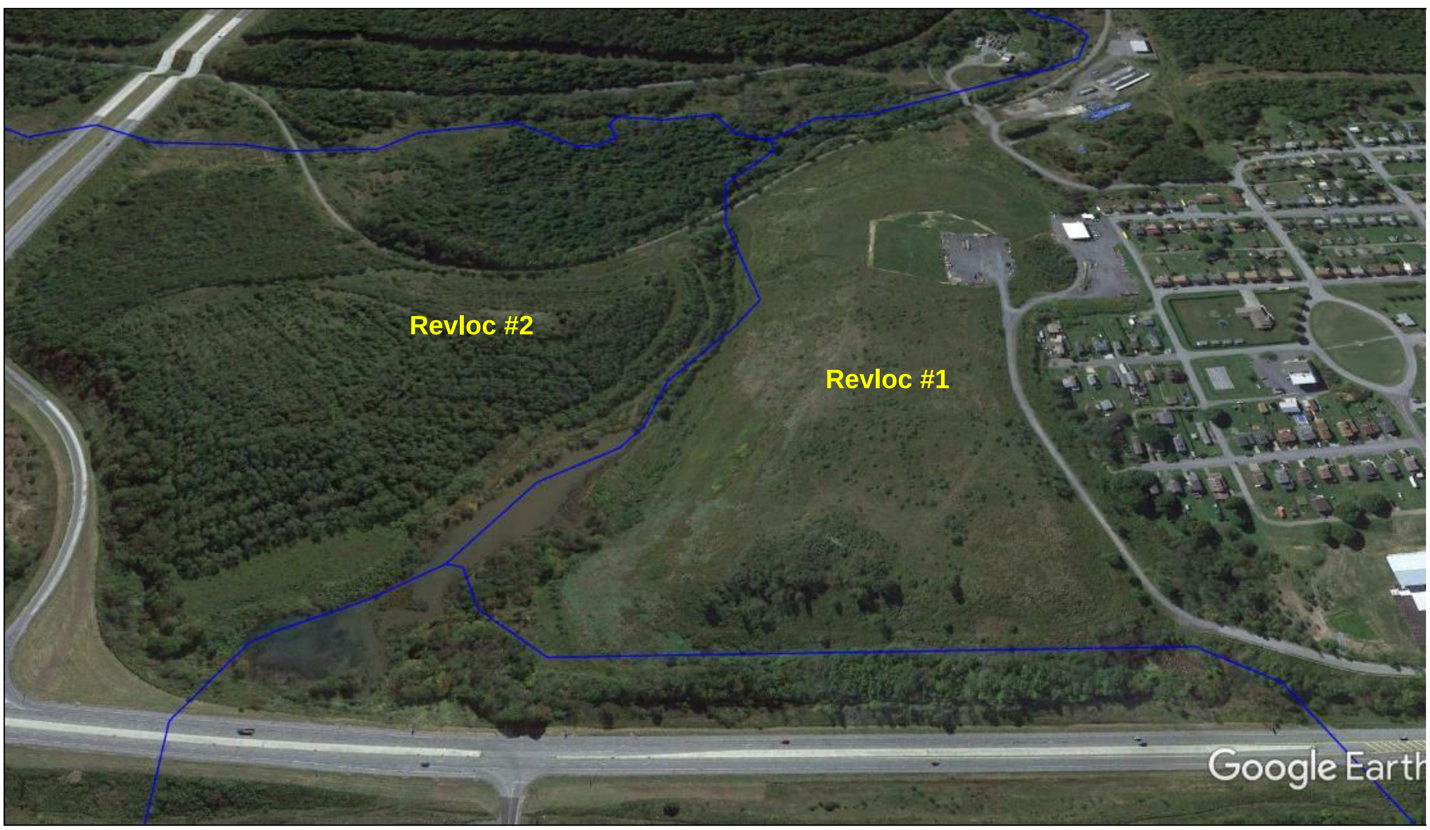

Figure 2. Revloc Refuse Piles #1 and #2 Post-Reclamation. [Image Source and Date: Google Earth Pro, September 26, 2019].

Table 13 compares the loads allocated by the TMDL for SWS 4505 and the estimated load reductions achieved by EPC through its consumption of waste coal for power generation from four waste coal sites (Revloc #1 and Revloc #2 and Nanty Glo East and West).

Table 13. TMDL Allocations for SWS 4505 and Estimated Load Reductions Attributable to Pre-2016 Reclamation

Parameter	Maximum Discharge Conc. (Jan. 2020 – Aug 2024) (mg/L)	Wasteload Allocation (pounds/year)	Metal Loading Reductions Due to Reclamation Activities (pounds/year)
Aluminum, Total	2.9	669	212,381
Iron, Total	2.97	1,339	215,052
Manganese, Total	1.32	893	11,515

EPC has mostly moved on to other waste coal piles (the two-million ton Mine #37 refuse pile in Windber and the seventeen-million ton Mine #33 pile in Ebensburg) since the load reductions were calculated for the Revloc #1 and Revloc #2 and Nanty Glo East and West sites, but the premise remains the same—EPC's consumption of waste coal and placement of alkaline ash from fluidized bed combustion significantly reduces metals loading and acid mine drainage in the Kiskiminetas-Conemaugh River Watershed and facilitates restoration of long-term, historically impaired waters.

Based on the preceding information, DEP determined that EPC exceeds the load reductions required by the TMDL by many orders of magnitude just by operating the Ebensburg Cogeneration Plant because the plant is supplied with waste coal from un-reclaimed refuse sites within the Kiskiminetas-Conemaugh River Watershed and the reclamation of those mine sites goes much further toward the mitigation of stream impairments than direct regulation of EPC's point source discharges. Consequently, DEP did not impose WQBELs based on the TMDL in the previous permit. The limits for Total Aluminum and Dissolved Iron in the previous permit were based on DEP's localized reasonable potential analysis. No WQBELs were imposed for Total Manganese or Total Iron. [5]

Given that EPC's discharges do not exhibit a reasonable potential to cause or contribute to excursions above water quality criteria for aluminum, iron, or manganese and EPC removes thousands of pounds of mine drainage metals from the Kiski-Conemaugh Watershed each year, reporting only will be required for Total Aluminum, Total Iron, and Total Manganese (mass and concentration). Backsliding from the existing WQBELs for Total Aluminum to reporting only is consistent with the exception to anti-backsliding under Section 402(o)(2)(B)(i) of the Clean Water Act regarding new information (that being DEP's updated reasonable potential analysis) that justifies the application of a less stringent effluent limitation.

Table 14. Maximum Reported and Average Allowable Effluent Concentrations

Parameter	Maximum Discharge Conc. (Jan. 2020 – Aug 2024) (mg/L)	Most Stringent WQBEL (mg/L)
Aluminum, Total	2.9	4.80
Iron, Total	2.97	15.0
Manganese, Total	1.32	10.0

001.C. <u>Effluent Limitations and Monitoring Requirements for Outfall 001</u>

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 001 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 in this Fact Sheet. Applicable effluent limits and monitoring requirements are summarized in the table below.

Table 15. Effluent Limits and Monitoring Requirements for Outfall 001

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)
pH (S.U.)	—	—	6.0 Inst. Min.	—	9.0	40 CFR § 423.15(a)(1)

[5] The TMDL does not require any load reductions in SWS 4505 (the "% Reduction" is zero for all metals), but that assumes that the concentrations of metals in the effluent from the point source dischargers in that SWS are at criteria levels. As Table 13 shows, the concentrations of aluminum, iron, and manganese in EPC's effluent are higher than criteria, but those concentrations are less than the WQBELs that would be necessary to protect the uses of South Branch Blacklick Creek.

Table 15 (cont'd). Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Total Residual Chlorine	—	—	0.011	—	0.026	BPJ TBELs; 25 Pa. Code §§ 92a.48(a)(2) & 95.5(2)(ii)
Free Available Chlorine	—	—	0.2	0.5	—	40 CFR § 438.12; 25 Pa. Code §§ 92a.48(a)(2) & 95.2(2)
Temp. (°F) (Jan 1 - 31)	—	—	—	110.0	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temp. (°F) (Feb 1 - 29)	—	—	—	110.0	—	
Temp. (°F) (Mar 1 - 31)	—	—	—	110.0	—	
Temp. (°F) (Apr 1 - 15)	—	—	—	110.0	—	
Temp. (°F) (Apr 16 - 30)	—	—	—	110.0	—	
Temp. (°F) (May 1 - 15)	—	—	—	100.9	—	
Temp. (°F) (May 16 - 31)	—	—	—	110.0	—	
Temp. (°F) (Jun 1 - 15)	—	—	—	91.0	—	
Temp. (°F) (Jun 16 - 30)	—	—	—	110.0	—	
Temp. (°F) (Jul 1 - 31)	—	—	—	96.6	—	
Temp. (°F) (Aug 1 - 15)	—	—	—	78.6	—	
Temp. (°F) (Aug 16 - 31)	—	—	—	103.8	—	
Temp. (°F) (Sep 1 - 15)	—	—	—	83.8	—	
Temp. (°F) (Sep 16 - 30)	—	—	—	99.6	—	
Temp. (°F) (Oct 1 - 15)	—	—	—	97.2	—	
Temp. (°F) (Oct 16 - 31)	—	—	—	104.0	—	
Temp. (°F) (Nov 1 - 15)	—	—	—	89.2	—	
Temp. (°F) (Nov 16 - 30)	—	—	—	99.6	—	
Temp. (°F) (Dec 1 - 31)	—	—	—	110.0	—	
Total Suspended Solids	—	—	30.0	100.0	—	40 CFR § 423.15(a)(10)(i)
Oil and Grease	—	—	15.0	30.0	—	BPJ TBELs; 25 Pa. Code §§ 92a.48(a)(2) & 95.5(2)(ii)
Aluminum, Total	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Antimony, Total	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Chromium, Total	—	—	Report	Report	—	40 CFR § 423.15(a)(10)(i)
Iron, Dissolved	—	—	Report	Report	—	25. Pa. Code § 92.61(b)
Iron, Total	Report	Report	Report	Report	—	25. Pa. Code § 92.61(b)
Manganese, Total	Report	Report	Report	Report	—	25. Pa. Code § 92.61(b)
Zinc, Total	—	—	1.0	1.0	—	40 CFR § 423.15(a)(10)(i)
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 Permit Writer's Manual, DEP's IW NPDES SOP, and the previous permit. Flow must be recorded continuously. TSS, Oil and Grease, and pH will require grab sampling 1/week. Temperature must be measured continuously using immersion stabilization sampling. Temperature must be measured daily using immersion stabilization sampling. Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) will require grab sampling 1/quarter. All other parameters will require 2/month grab sampling.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** Variable
Latitude 40° 26' 19.985" **Longitude** -78° 44' 42.19"
Wastewater Description: Storm water runoff from facility roads and buildings

Discharges monitored at Outfall 002 are currently subject to the following effluent limits and monitoring requirements.

Table 16. Current Effluent Limits and Monitoring Requirements for Outfall 002

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Basis
	Avg. Mo.	Daily Max	Avg. Mo.	Daily Max	IMAX			
pH (S.U.)	—	—	—	Report	—	1/6 months	Grab	25 Pa. Code § 92a.61(h)
TSS	—	—	—	Report	—	1/6 months	Grab	25 Pa. Code § 92a.61(h)
Oil and Grease	—	—	—	Report	—	1/6 months	Grab	25 Pa. Code § 92a.61(h)
Iron, Total	—	—	—	Report	—	1/6 months	Grab	25 Pa. Code § 92a.61(h)

The effluent limits and monitoring requirements in Table 16 will remain in effect at Outfall 002 pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act (33 U.S.C. § 1342(o)) and/or 40 CFR § 122.44(l), 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).

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

There are no Federal ELGs that apply to Outfall 002's storm water discharges. Therefore, if warranted, case-by-case 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 EPC's storm water discharges. Based on the plant's SIC Code of 4911, the facility would be classified under Appendix H – "Steam Electric Generating Facilities" of the PAG-03 General Permit.[6] To ensure that there is consistency across the state for all steam electric generating facilities that discharge storm water associated with their industrial activities, the monitoring requirements and sector-specific best management practices (BMPs) of Appendix H of the PAG-03 are imposed at this outfall. The monitoring requirements of Appendix H are shown in Table 17. Monitoring for additional pollutants is considered if baseline monitoring requirements from Appendix H do not capture the range of analytes present in Outfall 002's discharges.

Table 17. PAG-03 Appendix H – 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
Iron, 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 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 18 summarizes the effluent data reported for the general chemistry pollutants listed on Module 1 of the NPDES permit renewal application.

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

Table 18. Effluent Concentrations Reported for Outfall 002

Parameter	Outfall 002 Result	No Expos. Threshold	Benchmark Value	Parameter	Outfall 002 Result	No Expos. Threshold	Benchmark Value
Oil and Grease	<5.0	≤5.0	30	Nitrogen, Total	<1.20	≤2	—
BOD_5	<31.71	≤10	—	Phosphorus, Total	0.13	≤1	—
COD	29.8	≤30	—	pH (S.U.)	7.51	6.0 to 9.0	9.0
TSS	11	≤30	100	Iron, Total	3.17	1.5	—

Based on the results in Table 18, no effluent limits are imposed at Outfall 002. Pollutants generally are present in low concentrations except for Total Iron, which is slightly elevated, but at a concentration that is not expected to cause acute adverse impacts. However, TBELs may be warranted in the future if concentrations in storm water consistently exceed the benchmark values shown in Table 18. 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 EPC 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 002's discharges will be set at 9.0 standard units for pH, 100 mg/L for TSS, and 30 mg/L for Oil and Grease. The Corrective Action Plan requirement and the benchmark values will be specified in a condition in Part C of the permit.

002.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 $Q_{7\text{-}10}$ low-flow conditions. Storm water discharges generally do not occur at $Q_{7\text{-}10}$ 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 BMPs including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

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

The Kiski-Conemaugh TMDL did not provide a wasteload allocation for storm water discharges from Outfall 002. DEP previously determined that no TMDL-based requirements were warranted due to the lack of industrial activity associated with the discharge and negligible level of pollutants reported therein. DMR data shows that Total Iron concentrations are slightly elevated, but not consistently.

Table 19. DMR Results for Total Iron – January 1, 2020 to June 30, 2024

1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	1st Half 2023	2nd Half 2023	1st Half 2024
<0.20	0.562	0.77	0.911	0.714	0.208	3.48	1.36	3.44

As explained in Section 001.B of this Fact Sheet, EPC exceeds the load reductions required by the TMDL by many orders of magnitude just by operating the Ebensburg Cogeneration Plant because the plant is supplied with waste coal from un-reclaimed refuse sites within the Kiskiminetas-Conemaugh River Watershed. Also, BMPs are expected to ensure compliance with water quality standards. However, Total Aluminum and Total Manganese will be added to the semi-annual monitoring requirements for Outfall 002 in addition to Total Iron that already must be monitored based on PAG-03, Appendix H.

002.C. Effluent Limitations and Monitoring Requirements for Outfall 002

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 002 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and monitoring requirements from the previous permit, as summarized in the table below.

Table 20. Effluent Limits and Monitoring Requirements for Outfall 002

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

The sampling frequency for all parameters will be 1/6 months based on the sampling frequency in Appendix H 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.

Clean Water Act Section 316(b) – Best Technology Available for Cooling Water Intake Structures

On August 15, 2014, EPA promulgated Clean Water Act Section 316(b) regulations that apply to cooling water intake structures. The regulation established best technology available (BTA) standards to reduce impingement mortality and entrainment of aquatic organisms at existing power-generating and manufacturing facilities. The rule took effect on October 14, 2014. Regulations implementing the new rules are provided in 40 CFR Part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act (§§ 125.90 – 125.99). NPDES permit application requirements for facilities with cooling water intake structures are provided in 40 CFR Part 122, Subpart B – Permit Application and Special NPDES Program Requirements (§ 122.21(r)).

EPC's Ebensburg Cogeneration Plant uses cooling water from the Wilmore Reservoir in Cambria County, PA. Raw water is withdrawn and supplied to EPC by the Cambria Somerset Authority (CSA), which owns and operates the Wilmore Reservoir, dam, and intake structure. CSA maintains a raw water supply pipeline (Wilmore Pipeline) for distribution of raw water to its customers. EPC has a pump station below the Wilmore dam that is used to pump water to the cogeneration plant from the Wilmore Pipeline. While there is piping infrastructure leading from the Wilmore intake to the Johnstown area where other CSA customers are located, an interconnection between the Wilmore Pipeline and the rest of CSA's system currently does not exist. Presently, the Wilmore intake supplies cooling water only to EPC.

Pursuant to the applicability criteria given by § 125.91(a), EPC would be subject to cooling water intake structure requirements of §§125.94 – 125.99 if:

(1) The facility is a point source;

(2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and

(3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

The applicability requirements under § 125.91(b), reproduced below, also bear on EPC because EPC's cooling water supplier, CSA, owns and operates the intake structure that is used to withdraw cooling water.

> (b) Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the independent supplier withdraws water from waters of the United States but is not itself a new or existing facility as defined in subparts I or J of this part, except as provided in paragraphs (c) and (d) of this section. An owner or operator of an existing facility may not circumvent these requirements by creating arrangements to receive cooling water from an entity that is not itself a facility subject to subparts I or J of this part.

DEP's understanding of the § 125.91(b) applicability criterion as it applies here is that if CSA is a new or existing facility, then EPC is not, in the regulatory sense, a 'user of a cooling water intake structure' and is not subject to requirements under §§125.94 – 125.99 because it does not meet the § 125.91(a)(2) applicability criterion. However, if CSA is not defined as a new or existing facility, then EPC <u>is</u> a 'user of a cooling water intake structure' subject to requirements under §§ 125.94 through 125.99 (or other requirements). This is appropriate because, one way or another, impingement mortality and entrainment are minimized by requirements imposed on the independent supplier (if the independent supplier also is a new or existing facility) and/or the facility supplied with cooling water by the independent supplier (if the independent supplier is not a new or existing facility).

"Existing facility" is defined in § 125.92(k) as follows:

(k) *Existing facility* means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002 (or July 17, 2006 for an offshore oil and gas extraction facility) and any modification of, or any addition of a unit at such a facility. A facility built adjacent to another facility would be a new facility while the original facility would remain as an existing facility for purposes of this subpart. A facility cannot both be an existing facility and a new facility as defined at § 125.83.

"Independent supplier" is defined in § 125.92(p) as follows:

(p) *Independent supplier* means an entity, other than the regulated facility, that owns and operates its own cooling water intake structure and directly withdraws water from waters of the United States. The supplier provides the

> cooling water to other facilities for their use, but may itself also use a portion of the water. An entity that provides potable water to residential populations (e.g., public water system) is not a supplier for purposes of this subpart.

Cooling water intake structures that are not subject to the cooling water intake structure requirements of §§125.94 – 125.99 based on the applicability criteria of 40 CFR § 125.91(a) are subject to case-by-case requirements in accordance with 40 CFR § 125.90(b), which states:

> (b) Cooling water intake structures not subject to requirements under §§ 125.94 through 125.99 or subparts I or N of this part must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis.

CSA is an "existing facility" as defined in § 125.92(k) and also is described by the "independent supplier" definition in § 125.92(p) to the extent that CSA withdraws and supplies cooling water to other facilities for their use. Section 125.91(b) explains that use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the independent supplier withdraws water from waters of the United States but is not itself a new or existing facility. That section was intended to prevent circumvention of the rule and indicates that a supplier's status as an existing facility supersedes its status as an independent supplier or otherwise removes the supplier from classification as an independent supplier because an existing facility is "the regulated facility" referenced in the independent supplier definition. In the case of CSA and EPC, CSA is an existing (regulated) facility and is subject to an applicability evaluation under § 125.91(a) (refer to supporting documentation for CSA's NPDES Permit PA0253359). For CSA's NPDES permit, DEP determined that CSA does not meet the applicability requirements under § 125.91 and consequently is not subject to the requirements of §§ 125.94 through 125.99. Therefore, the Wilmore cooling water intake structure is subject to requirements under section 316(b) of the CWA established by the Director (DEP according to its delegated authority) on a case-by-case, BPJ basis in accordance with 40 CFR § 125.90(b).

<u>BTA Standards for Impingement Mortality and Entrainment</u>

DEP's "Standard Operating Procedure (SOP) for Clean Water Program, Establishing Best Technology Available (BTA) Using Best Professional Judgement (BPJ) for Cooling Water Intake Structures at Existing NPDES Facilities" [SOP No. BCW-PMT-038, 12/7/2021] describes the procedures DEP uses to make BTA determinations for existing cooling water intake structures based on BPJ.

Pursuant to Section II.A of the SOP, facilities that have one or more of the following technologies or best management practices has BTA for impingement mortality:

1. Closed-cycle recirculating system.

2. 0.5 foot per second (fps) through-screen design velocity.

3. 0.5 fps through-screen actual velocity.

4. Modified Traveling Screens with a fish handling and return system with sufficient water flow to return the fish directly to the source water in a manner that does not promote reimpingement of the fish or require a large vertical drop.

In addition, pursuant to Section II.B of the SOP, facilities that have one or more of the following technologies or best management practices has BTA for entrainment:

1. Closed-cycle recirculating system.

2. The actual intake flow (AIF) is minimal compared to the mean annual flow of the river. For cases where this option is being used, cumulative withdrawals from nearby facilities should be considered. The application manager may contact the Bureau of Clean Water to determine if this option is applicable.

3. Seasonal flow reductions - If a facility can reduce flows to mimic closed cycle cooling during spawning and biologically important time periods.

EPC operates a closed-cycle recirculating system and is the only facility supplied with cooling water by CSA's Wilmore intake. Therefore, pursuant to Sections II.A.1 and II.B.1 of the SOP, EPC satisfies one of the compliance options for both impingement BTA and entrainment BTA.

DEP notes that EPC does not control the cooling water intake structure used to supply it with cooling water and CSA does not control the closed-cycle recirculating system that constitutes impingement and entrainment BTA for the Wilmore intake, so both EPC and CSA are parties to BTA requirements for the Wilmore intake in accordance with 40 CFR § 125.90(b).

The 316(b) conditions in EPC's NPDES permit will remain unchanged.

COOLING WATER INTAKE STRUCTURE(S)

A. Nothing in this permit authorizes a take of endangered or threatened species under the Endangered Species Act.

B. Technology and operational measures employed at the cooling water intake structures must be operated in a way that minimizes impingement mortality and entrainment to the fullest extent possible.

C. The location, design, construction or capacity of the intake structure(s) may not be altered without prior approval of DEP.

D. The permittee shall monitor the actual intake flows at a minimum frequency of daily, including measurements of cooling water withdrawals, make-up water and blow down volume or, alternatively, monitor cycles of concentration at a minimum frequency of daily.

E. The permittee shall retain data and other records for any information developed pursuant to Section 316(b) of the Clean Water Act for a minimum of ten years.

F. Throughout the permit term, the permittee shall continue to operate and maintain the following technologies or BMPs that constitute Best Technology Available (BTA) for reducing impingement:

    - Closed-cycle recirculating cooling system

G. Throughout the permit term, the permittee shall continue to operate and maintain the following technologies or BMPs that constitute Best Technology Available (BTA) for reducing entrainment:

    - Closed-cycle recirculating cooling system

H. If DEP requests additional information to determine whether there is evidence of adverse impacts due to impingement and/or entrainment, the permittee shall submit the information within 30 days unless an alternative schedule is approved by DEP.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment A)
☒	TRC Model Spreadsheet (see Attachment C)
☒	Temperature Model Spreadsheet (see Attachment D)
☐	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

Supporting Documentation for USGS StreamStats Q_{7-10} Low-Flow Statistics Error Accounting

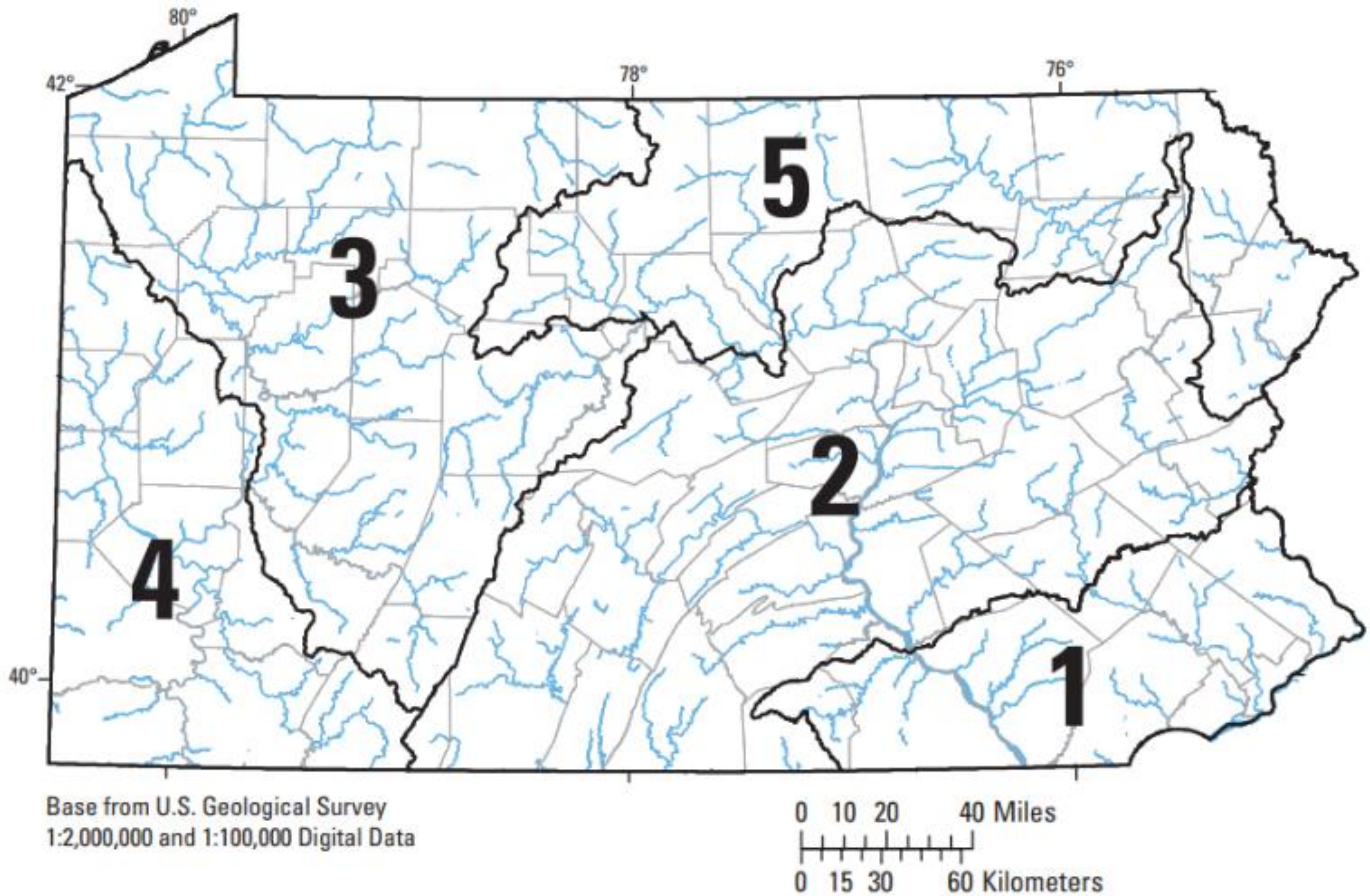

Figure 3. Low-flow regions in Pennsylvania.

Table 2. Regression coefficients for use with low-flow regression equations for Pennsylvania streams.

[ft3/s, cubic feet per second; --, basin characteristic not significant]

n-day, T-year lowflow (ft^3/s)	Basin-characteristic coefficients											Standard error of prediction		90-percent prediction interval (T)
	Intercept	Drainage area[1]	Basin slope[2]	Mean elevation[3]	Mean annual precipi-tation[4]	Stream density[5]	Soil thickness[6]	Percent glaciation[7]	Percent carbonate bedrock[8]	Percent forested area[9]	Percent urban area[10]	Log units	Percent	
[11]Region 1														
Q7,10	-5.70201	1.05288	1.62282	--	--	--	5.21302	--	--	--	2.51917	0.21	51	0.3554
Q7,2	-4.44504	1.00716	1.26486	--	--	--	4.27137	--	--	--	1.99733	.19	46	.3216
Q30,10	-4.91436	1.03525	1.38505	--	--	--	4.49335	--	--	--	2.45072	.19	46	.3216
Q30,2	-3.77752	.99956	1.04192	--	--	--	3.68127	--	--	--	1.98542	.16	38	.2708
Q90,10	-3.90411	1.0178	.89939	--	--	--	3.78717	--	--	--	2.31127	.17	41	.2877
Region 2														
Q7,10	-9.60878	1.16210	--	--	3.91978	-1.01269	3.13463	--	1.74497	--	--	.21	51	.3516
Q7,2	-8.16272	1.10202	--	--	3.77376	-.91760	1.85625	--	1.43110	--	--	.16	38	.2679
Q30,10	-8.67823	1.14466	--	--	3.69006	-.96862	2.49124	--	1.54653	--	--	.19	46	.3182
Q30,2	-7.44070	1.08468	--	--	3.5817	-.86063	1.43967	--	1.19191	--	--	.14	33	.2344
Q90,10	-7.14619	1.11420	--	--	3.16473	-.96714	1.8053	--	1.06758	--	--	.15	36	.2512
Region 3														
Q7,10	-10.13371	1.07462	--	0.82334	3.73250	--	--	--	--	--	--	.22	54	.3706
Q7,2	-7.24952	1.02053	--	.76167	2.33858	--	--	--	--	--	--	.18	43	.3032
Q30,10	-8.93856	1.05382	--	.65464	3.43231	--	--	--	--	--	--	.20	49	.3369
Q30,2	-7.26942	1.00313	--	.68218	2.61125	--	--	--	--	--	--	.16	38	.2695
Q90,10	-8.31264	1.04235	--	.64223	3.18259	--	--	--	--	--	--	.17	41	.2863
Region 4														
Q7,10	-3.81524	1.23338	--	.56179	--	--	--	--	--	--	--	.26	66	.4402
Q7,2	-4.11933	1.13926	--	.83386	--	--	--	--	--	--	--	.18	43	.3047
Q30,10	-3.77287	1.15806	--	.65521	--	--	--	--	--	--	--	.22	54	.3725
Q30,2	-4.01786	1.09261	--	.89355	--	--	--	--	--	--	--	.16	38	.2709
Q90,10	-4.15607	1.10944	--	.88085	--	--	--	--	--	--	--	.17	41	.2878
Region 5														
Q7,10	-12.22164	1.27803	--	--	5.43165	--	--	1.83875	--	4.15769	--	.23	57	.3870
Q7,2	-9.58408	1.16411	--	--	4.40038	--	--	1.23470	--	3.29894	--	.16	38	.2692
Q30,10	-11.23671	1.22977	--	--	5.18796	--	--	1.27831	--	3.38638	--	.21	51	.3534
Q30,2	-8.86493	1.13345	--	--	4.16399	--	--	.99296	--	3.02015	--	.14	33	.2356
Q90,10	-9.92625	1.17914	--	--	4.62441	--	--	1.11455	--	3.16956	--	.17	41	.2861

[1]Drainage area, in square miles, determined from 30-meter digital elevation model (DEM).
[2]Basin slope, in degrees, is the change in elevation over distance, determined from 30-meter DEM.
[3]Mean elevation, in feet, is the average elevation in the basin, determined from 30-meter DEM.
[4]Mean annual precipitation, in inches, determined from Parameter-elevation Regressions on Independent Slopes Model (PRISM).
[5]Stream density, in miles per square mile, is the sum of the stream length divided by drainage area, determined from 24K National Hydrography Dataset (NHD) centerline flow.
[6]Soil thickness, in feet, is the depth to bedrock, determined from State Soil Geographic (STATSGO) database.
[7]Percent glaciation is the percent of basin in which the southern limit of glacial advance occurred, determined from modified glacial deposit maps.
[8]Percent carbonate bedrock is the percent of basin underlain by carbonate bedrock, determined by modified geology maps.
[9]Percent forested area is the percent of forested cover, as defined by deciduous trees, evergreen trees, and mixed trees in the basin, determined by National Land Cover Dataset enhanced (NLCDe).
[10]Percent urban area is the percent of urban area, as defined by low-intensity residential, high-intensity residential, commercial/industrial/transportation, residential with trees, and residential without trees in the basin, determined by NLCDe.
[11]Regions are shown on figure 3.

ATTACHMENT B

Toxics Management Spreadsheet Results for Outfall 001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Ebensburg Power Company - Ebensburg Coge| NPDES Permit No.: PA0098612 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Low volume wastes & cooling tower blowd

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
0.197	465.67	7.33						

	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
Group 1	Total Dissolved Solids (PWS)	mg/L		994									
	Chloride (PWS)	mg/L		161									
	Bromide	mg/L	<	0.1									
	Sulfate (PWS)	mg/L		474									
	Fluoride (PWS)	mg/L		0.63									
Group 2	Total Aluminum	µg/L		669									
	Total Antimony	µg/L		5.8									
	Total Arsenic	µg/L		5.82									
	Total Barium	µg/L		126									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	100									
	Total Cadmium	µg/L		0.21									
	Total Chromium (III)	µg/L	<	5									
	Hexavalent Chromium	µg/L		0.67									
	Total Cobalt	µg/L		2.06									
	Total Copper	µg/L		7									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		203									
	Total Iron	µg/L		2970									
	Total Lead	µg/L		1.33									
	Total Manganese	µg/L		122									
	Total Mercury	µg/L	<	0.09									
	Total Nickel	µg/L		16.3									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	2									
	Total Zinc	µg/L		200									
	Total Molybdenum	µg/L		78.3									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<	21									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L		2.21									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.2									
	1,4-Dioxane	µg/L	<	0.11									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	0.22									
	2,4-Dichlorophenol	µg/L	<	0.22									
	2,4-Dimethylphenol	µg/L	<	0.22									
	4,6-Dinitro-o-Cresol	µg/L	<	1.08									
	2,4-Dinitrophenol	µg/L	<	1.08									
	2-Nitrophenol	µg/L	<	0.54									
	4-Nitrophenol	µg/L	<	0.54									
	p-Chloro-m-Cresol	µg/L	<	0.11									
	Pentachlorophenol	µg/L	<	0.54									
	Phenol	µg/L	<	0.22									
	2,4,6-Trichlorophenol	µg/L	<	0.22									
Group 5	Acenaphthene	µg/L		0.4									
	Acenaphthylene	µg/L	<	0.11									
	Anthracene	µg/L		0.2									
	Benzidine	µg/L	<	0.54									
	Benzo(a)Anthracene	µg/L	<	0.11									
	Benzo(a)Pyrene	µg/L	<	0.11									
	3,4-Benzofluoranthene	µg/L	<	0.11									
	Benzo(ghi)Perylene	µg/L	<	0.11									
	Benzo(k)Fluoranthene	µg/L	<	0.11									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.11									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.11									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.11									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.15									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.11									
	Butyl Benzyl Phthalate	µg/L	<	1.08									
	2-Chloronaphthalene	µg/L	<	0.11									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.11									
	Chrysene	µg/L	<	0.11									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.11									
	1,2-Dichlorobenzene	µg/L	<	0.11									
	1,3-Dichlorobenzene	µg/L	<	0.11									
	1,4-Dichlorobenzene	µg/L	<	0.11									
	3,3-Dichlorobenzidine	µg/L	<	0.54									
	Diethyl Phthalate	µg/L	<	1.08									
	Dimethyl Phthalate	µg/L	<	1.08									
	Di-n-Butyl Phthalate	µg/L	<	1.08									
	2,4-Dinitrotoluene	µg/L	<	0.22									

	2,6-Dinitrotoluene	µg/L	<	0.22									
	Di-n-Octyl Phthalate	µg/L	<	1.08									
	1,2-Diphenylhydrazine	µg/L	<	0.11									
	Fluoranthene	µg/L	<	0.11									
	Fluorene	µg/L		0.3									
	Hexachlorobenzene	µg/L	<	0.11									
	Hexachlorobutadiene	µg/L	<	0.11									
	Hexachlorocyclopentadiene	µg/L	<	0.54									
	Hexachloroethane	µg/L	<	0.11									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.11									
	Isophorone	µg/L	<	0.22									
	Naphthalene	µg/L		0.2									
	Nitrobenzene	µg/L	<	0.11									
	n-Nitrosodimethylamine	µg/L	<	0.11									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.11									
	n-Nitrosodiphenylamine	µg/L	<	0.11									
	Phenanthrene	µg/L		0.9									
	Pyrene	µg/L	<	0.11									
	1,2,4-Trichlorobenzene	µg/L	<	0.11									
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

Ebensburg Power Company - Ebensburg Cogen Plant, NPDES Permit No. PA0098612, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **South Branch Blacklick 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	044618	11.1	1772	19	0.00766		Yes
End of Reach 1	044618	10.1	1743	20.3	0.00766		Yes

Q 7-10

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	11.1	0.144										128	7		
End of Reach 1	10.1	0.144													

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	11.1														
End of Reach 1	10.1														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Ebensburg Power Company - Ebensburg Cogen Plant, NPDES Permit No. PA0098612, Outfall 001

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

☑ ***Hydrodynamics***

Q 7-10

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
11.1	2.74		2.74	0.305	0.008	0.611	23.432	38.334	0.212	0.288	14.567
10.1	2.92		2.9232								

Q h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
11.1	17.91		17.91	0.305	0.008	1.344	23.432	17.44	0.578	0.106	5.338
10.1	18.974		18.97								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 14.567 PMF: 1 Analysis Hardness (mg/l): 161.84 Analysis pH: 7.02

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	7,483	
Total Antimony	0	0		0	1,100	1,100	10,975	
Total Arsenic	0	0		0	340	340	3,392	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	209,529	
Total Boron	0	0		0	8,100	8,100	80,818	
Total Cadmium	0	0		0	3.215	3.48	34.7	Chem Translator of 0.924 applied
Total Chromium (III)	0	0		0	845.166	2,675	26,686	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	163	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	948	
Total Copper	0	0		0	21.153	22.0	220	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	108.630	151	1,504	Chem Translator of 0.721 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	16.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	703.652	705	7,035	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	7.363	8.66	86.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	649	
Total Zinc	0	0		0	176.206	180	1,798	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	29.9	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	6,485	
Benzene	0	0		0	640	640	6,386	
Bromoform	0	0		0	1,800	1,800	17,960	
Carbon Tetrachloride	0	0		0	2,800	2,800	27,937	
Chlorobenzene	0	0		0	1,200	1,200	11,973	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	179,597	
Chloroform	0	0		0	1,900	1,900	18,957	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	149,664	
1,1-Dichloroethylene	0	0		0	7,500	7,500	74,832	
1,2-Dichloropropane	0	0		0	11,000	11,000	109,753	
1,3-Dichloropropylene	0	0		0	310	310	3,093	
Ethylbenzene	0	0		0	2,900	2,900	28,935	
Methyl Bromide	0	0		0	550	550	5,488	
Methyl Chloride	0	0		0	28,000	28,000	279,372	
Methylene Chloride	0	0		0	12,000	12,000	119,731	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	9,978	
Tetrachloroethylene	0	0		0	700	700	6,984	
Toluene	0	0		0	1,700	1,700	16,962	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	67,848	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	29,933	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	33,924	
Trichloroethylene	0	0		0	2,300	2,300	22,948	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	5,587	
2,4-Dichlorophenol	0	0		0	1,700	1,700	16,962	
2,4-Dimethylphenol	0	0		0	660	660	6,585	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	798	
2,4-Dinitrophenol	0	0		0	660	660	6,585	
2-Nitrophenol	0	0		0	8,000	8,000	79,821	
4-Nitrophenol	0	0		0	2,300	2,300	22,948	
p-Chloro-m-Cresol	0	0		0	160	160	1,596	
Pentachlorophenol	0	0		0	8.935	8.93	89.1	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	4,590	
Acenaphthene	0	0		0	83	83.0	828	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	2,993	
Benzo(a)Anthracene	0	0		0	0.5	0.5	4.99	
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	299,328	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	44,899	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	2,694	
Butyl Benzyl Phthalate	0	0		0	140	140	1,397	
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	8,182	
1,3-Dichlorobenzene	0	0		0	350	350	3,492	
1,4-Dichlorobenzene	0	0		0	730	730	7,284	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	39,910	
Dimethyl Phthalate	0	0		0	2,500	2,500	24,944	
Di-n-Butyl Phthalate	0	0		0	110	110	1,098	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	15,964	
2,6-Dinitrotoluene	0	0		0	990	990	9,878	
1,2-Diphenylhydrazine	0	0		0	15	15.0	150	
Fluoranthene	0	0		0	200	200	1,996	
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	99.8	
Hexachlorocyclopentadiene	0	0		0	5	5.0	49.9	
Hexachloroethane	0	0		0	60	60.0	599	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	99,776	
Naphthalene	0	0		0	140	140	1,397	
Nitrobenzene	0	0		0	4,000	4,000	39,910	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	169,619	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	2,993	
Phenanthrene	0	0		0	5	5.0	49.9	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	1,297	

☑ ***CFC*** CCT (min): 14.567 PMF: 1 Analysis Hardness (mg/l): 161.84 Analysis pH: 7.02

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	2,195	
Total Arsenic	0	0		0	150	150	1,497	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	40,908	
Total Boron	0	0		0	1,600	1,600	15,964	
Total Cadmium	0	0		0	0.344	0.39	3.86	Chem Translator of 0.889 applied
Total Chromium (III)	0	0		0	109.939	128	1,275	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	104	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	190	
Total Copper	0	0		0	13.514	14.1	140	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	14,966	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.233	5.87	58.6	Chem Translator of 0.721 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	9.04	Chem Translator of 0.85 applied
Total Nickel	0	0		0	78.154	78.4	782	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	49.8	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	130	
Total Zinc	0	0		0	177.647	180	1,798	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	29.9	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	1,297	
Benzene	0	0		0	130	130	1,297	
Bromoform	0	0		0	370	370	3,692	
Carbon Tetrachloride	0	0		0	560	560	5,587	
Chlorobenzene	0	0		0	240	240	2,395	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	34,922	
Chloroform	0	0		0	390	390	3,891	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	30,931	
1,1-Dichloroethylene	0	0		0	1,500	1,500	14,966	
1,2-Dichloropropane	0	0		0	2,200	2,200	21,951	
1,3-Dichloropropylene	0	0		0	61	61.0	609	
Ethylbenzene	0	0		0	580	580	5,787	
Methyl Bromide	0	0		0	110	110	1,098	
Methyl Chloride	0	0		0	5,500	5,500	54,877	
Methylene Chloride	0	0		0	2,400	2,400	23,946	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	2,095	
Tetrachloroethylene	0	0		0	140	140	1,397	

Toluene	0	0		0	330	330	3,293	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	13,969	
1,1,1-Trichloroethane	0	0		0	610	610	6,086	
1,1,2-Trichloroethane	0	0		0	680	680	6,785	
Trichloroethylene	0	0		0	450	450	4,490	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	1,098	
2,4-Dichlorophenol	0	0		0	340	340	3,392	
2,4-Dimethylphenol	0	0		0	130	130	1,297	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	160	
2,4-Dinitrophenol	0	0		0	130	130	1,297	
2-Nitrophenol	0	0		0	1,600	1,600	15,964	
4-Nitrophenol	0	0		0	470	470	4,689	
p-Chloro-m-Cresol	0	0		0	500	500	4,989	
Pentachlorophenol	0	0		0	6.855	6.85	68.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	908	
Acenaphthene	0	0		0	17	17.0	170	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	589	
Benzo(a)Anthracene	0	0		0	0.1	0.1	1.	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	59,866	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	9,080	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	539	
Butyl Benzyl Phthalate	0	0		0	35	35.0	349	
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	1,596	
1,3-Dichlorobenzene	0	0		0	69	69.0	688	
1,4-Dichlorobenzene	0	0		0	150	150	1,497	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	7,982	
Dimethyl Phthalate	0	0		0	500	500	4,989	
Di-n-Butyl Phthalate	0	0		0	21	21.0	210	
2,4-Dinitrotoluene	0	0		0	320	320	3,193	
2,6-Dinitrotoluene	0	0		0	200	200	1,996	
1,2-Diphenylhydrazine	0	0		0	3	3.0	29.9	
Fluoranthene	0	0		0	40	40.0	399	
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	20.0	
Hexachlorocyclopentadiene	0	0		0	1	1.0	9.98	
Hexachloroethane	0	0		0	12	12.0	120	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	20,953	
Naphthalene	0	0		0	43	43.0	429	
Nitrobenzene	0	0		0	810	810	8,082	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	33,924	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	589	
Phenanthrene	0	0		0	1	1.0	9.98	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	259	

☑ ***THH*** CCT (min): 14.567 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	55.9	
Total Arsenic	0	0		0	10	10.0	99.8	
Total Barium	0	0		0	2,400	2,400	23,946	
Total Boron	0	0		0	3,100	3,100	30,931	
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	2,993	
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	9,978	
Total Mercury	0	0		0	0.050	0.05	0.5	
Total Nickel	0	0		0	610	610	6,086	
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	2.39	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	29.9	
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	998	
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	56.9	
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	329	
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	678	
Methyl Bromide	0	0		0	100	100.0	998	
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	569	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	998	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	99,776	
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	299	
2,4-Dichlorophenol	0	0		0	10	10.0	99.8	
2,4-Dimethylphenol	0	0		0	100	100.0	998	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	20.0	
2,4-Dinitrophenol	0	0		0	10	10.0	99.8	
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	39,910	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	698	
Anthracene	0	0		0	300	300	2,993	
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	1,996	

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	1.	
2-Chloronaphthalene	0	0		0	800	800	7,982	
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	9,978	
1,3-Dichlorobenzene	0	0		0	7	7.0	69.8	
1,4-Dichlorobenzene	0	0		0	300	300	2,993	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	5,987	
Dimethyl Phthalate	0	0		0	2,000	2,000	19,955	
Di-n-Butyl Phthalate	0	0		0	20	20.0	200	
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	200	
Fluorene	0	0		0	50	50.0	499	
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	39.9	
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	339	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	99.8	
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	200	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.7	

☑ ***CRL*** CCT (min): 5.338 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	4.18	
Acrylonitrile	0	0		0	0.06	0.06	3.59	
Benzene	0	0		0	0.58	0.58	34.7	
Bromoform	0	0		0	7	7.0	418	
Carbon Tetrachloride	0	0		0	0.4	0.4	23.9	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	47.8	
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	56.8	
1,2-Dichloroethane	0	0		0	9.9	9.9	592	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	53.8	
1,3-Dichloropropylene	0	0		0	0.27	0.27	16.1	
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	1,195	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	12.0	
Tetrachloroethylene	0	0		0	10	10.0	598	
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	32.9	
Trichloroethylene	0	0		0	0.6	0.6	35.9	
Vinyl Chloride	0	0		0	0.02	0.02	1.2	
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	1.79	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	89.6	
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	0.006	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.06	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.006	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.06	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.6	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	1.79	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	19.1	
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	7.17	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.006	
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	2.99	
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	2.99	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	2.99	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	1.79	
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	0.005	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.6	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	5.98	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.06	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	

n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.042	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.3	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	197	
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 Aluminum	Report	Report	Report	Report	Report	μg/L	4,796	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Antimony	Report	Report	Report	Report	Report	μg/L	55.9	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	μg/L	14,966	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	μg/L	1,152	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.007	0.011	4.18	6.53	10.5	μg/L	4.18	CRL	Discharge Conc ≥ 50% WQBEL (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 Arsenic	99.8	μg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	23,946	μg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	15,964	μg/L	Discharge Conc < TQL
Total Cadmium	3.86	μg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	1,275	μg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	104	μg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	190	μg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	140	μg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS

Dissolved Iron	2,993	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	58.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	9,978	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.5	µg/L	Discharge Conc < TQL
Total Nickel	782	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	49.8	µg/L	Discharge Conc < TQL
Total Silver	55.4	µg/L	Discharge Conc < TQL
Total Thallium	2.39	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	19.2	µg/L	Discharge Conc < TQL
Acrylonitrile	3.59	µg/L	Discharge Conc < TQL
Benzene	34.7	µg/L	Discharge Conc < TQL
Bromoform	418	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	23.9	µg/L	Discharge Conc < TQL
Chlorobenzene	998	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	47.8	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	34,922	µg/L	Discharge Conc < TQL
Chloroform	56.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	56.8	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	592	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	329	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	53.8	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	16.1	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	678	µg/L	Discharge Conc < TQL
Methyl Bromide	998	µg/L	Discharge Conc < TQL
Methyl Chloride	54,877	µg/L	Discharge Conc < TQL
Methylene Chloride	1,195	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	12.0	µg/L	Discharge Conc < TQL
Tetrachloroethylene	598	µg/L	Discharge Conc < TQL
Toluene	569	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	998	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	6,086	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	32.9	µg/L	Discharge Conc < TQL
Trichloroethylene	35.9	µg/L	Discharge Conc < TQL
Vinyl Chloride	1.2	µg/L	Discharge Conc < TQL
2-Chlorophenol	299	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	99.8	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	998	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	20.0	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	99.8	µg/L	Discharge Conc < TQL
2-Nitrophenol	15,964	µg/L	Discharge Conc < TQL

4-Nitrophenol	4,689	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	1,023	µg/L	Discharge Conc < TQL
Pentachlorophenol	1.79	µg/L	Discharge Conc < TQL
Phenol	39,910	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	89.6	µg/L	Discharge Conc < TQL
Acenaphthene	170	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	2,993	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.006	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.06	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.006	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.06	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.6	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	1.79	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,996	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	19.1	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	539	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	1.	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	7,982	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	7.17	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.006	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,596	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	69.8	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	1,497	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	2.99	µg/L	Discharge Conc < TQL
Diethyl Phthalate	5,987	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	4,989	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	200	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	2.99	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	2.99	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	1.79	µg/L	Discharge Conc < TQL
Fluoranthene	200	µg/L	Discharge Conc < TQL
Fluorene	499	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.005	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.6	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	9.98	µg/L	Discharge Conc < TQL
Hexachloroethane	5.98	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.06	µg/L	Discharge Conc < TQL
Isophorone	339	µg/L	Discharge Conc < TQL
Naphthalene	429	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	99.8	µg/L	Discharge Conc < TQL

n-Nitrosodimethylamine	0.042	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.3	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	197	µg/L	Discharge Conc < TQL
Phenanthrene	9.98	µg/L	Discharge Conc ≤ 25% WQBEL
Pyrene	200	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.7	µg/L	Discharge Conc < TQL

ATTACHMENT C

TRC Modeling Results

TRC EVALUATION – Outfall 001

2.74	= Q stream (cfs)	0.5	= CV Daily
0.37	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= 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 =	1.546	**1.3.2.iii**	WLA cfc =	1.500
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.576	**5.1d**	LTA_cfc =	0.872

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)**

ATTACHMENT D

Temperature Modeling Results for Outfall 001

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Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *Inputs* | CLEAR FORM | CALCULATE

Facility: **EPC - Ebensburg Cogeneration Plant**

Permit No.: **PA0098612**

Stream Name: **South Branch Blacklick Creek**

Analyst/Engineer: **Ryan Decker**

Stream Q7-10 (cfs)*: **2.7**

Outfall No.: **001**

Analysis Type*: **CWF**

	Facility Flows				Stream Flows				Temperature
Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)	Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)	Ambient Stream Temperature (ºF)*
Jan 1-31	0	1.022	0.825	0.197	3.2	1.00	8.77	9.08	35
Feb 1-29	0	1.022	0.825	0.197	3.5	1.00	9.59	9.90	33
Mar 1-31	0	1.022	0.825	0.197	7	1.00	19.19	19.49	38
Apr 1-15	0	1.022	0.825	0.197	9.3	1.00	25.49	25.80	43
Apr 16-30	0	1.022	0.825	0.197	9.3	1.00	25.49	25.80	50
May 1-15	0	1.022	0.825	0.197	5.1	1.00	13.98	14.28	54
May 16-31	0	1.022	0.825	0.197	5.1	1.00	13.98	14.28	56
Jun 1-15	0	1.022	0.825	0.197	3	1.00	8.22	8.53	63
Jun 16-30	0	1.022	0.825	0.197	3	1.00	8.22	8.53	62
Jul 1-31	0	1.022	0.825	0.197	1.7	1.00	4.66	4.96	64
Aug 1-15	0	1.022	0.825	0.197	1.4	1.00	3.84	4.14	65
Aug 16-31	0	1.022	0.825	0.197	1.4	1.00	3.84	4.14	63
Sep 1-15	0	1.022	0.825	0.197	1.1	1.00	3.02	3.32	62
Sep 16-30	0	1.022	0.825	0.197	1.1	1.00	3.02	3.32	56
Oct 1-15	0	1.022	0.825	0.197	1.2	1.00	3.29	3.59	50
Oct 16-31	0	1.022	0.825	0.197	1.2	1.00	3.29	3.59	45
Nov 1-15	0	1.022	0.825	0.197	1.6	1.00	4.39	4.69	43
Nov 16-30	0	1.022	0.825	0.197	1.6	1.00	4.39	4.69	38
Dec 1-31	0	1.022	0.825	0.197	2.4	1.00	6.58	6.88	36

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *CWF Results* | RETURN TO INPUTS | PRINT TO PDF | PRINT CWF

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	**CWF** Target Maximum Stream Temp. (ºF)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (ºF)
Jan 1-31	38	N/A -- Case 2	110.0
Feb 1-29	38	N/A -- Case 2	110.0
Mar 1-31	42	N/A -- Case 2	110.0
Apr 1-15	48	N/A -- Case 2	110.0
Apr 16-30	52	N/A -- Case 2	110.0
May 1-15	55	N/A -- Case 2	100.9
May 16-31	58	N/A -- Case 2	110.0
Jun 1-15	64	N/A -- Case 2	91.0
Jun 16-30	64	N/A -- Case 2	110.0
Jul 1-31	66	N/A -- Case 2	96.6
Aug 1-15	66	N/A -- Case 2	78.6
Aug 16-31	66	N/A -- Case 2	103.8
Sep 1-15	64	N/A -- Case 2	83.8
Sep 16-30	60	N/A -- Case 2	99.6
Oct 1-15	54	N/A -- Case 2	97.2
Oct 16-31	50	N/A -- Case 2	104.0
Nov 1-15	46	N/A -- Case 2	89.2
Nov 16-30	42	N/A -- Case 2	99.6
Dec 1-31	40	N/A -- Case 2	110.0