Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0004766**
Facility Type	**Industrial**	APS ID	**1122369**
Major / Minor	**Minor**	Authorization ID	**1500762**

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

Applicant and Facility Information

Applicant Name	**Ellwood National Forge Co.**	Facility Name	**Ellwood National Forge Co.**
Applicant Address	1 Front Street	Facility Address	1 Front Street
	Irvine, PA 16329-1801		Irvine, PA 16329-1801
Applicant Contact	Mike Matvey	Facility Contact	
Applicant Phone	(724) 656-6437	Facility Phone	
Client ID	208903	Site ID	614967
SIC Code	3462	Municipality	Brokenstraw Township
SIC Description	Manufacturing - Iron And Steel Forgings	County	Warren
Date Application Received	September 26, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: This is an application for the renewal of an Individual Industrial Waste Permit for a facility that conducts operations related to the Federal ELG 40 CFR Part 420.

Summary of Review

This facility is a steel manufacturing complex that has seen no significant changes to the wastewater discharge and the facility is in compliance with the existing permit conditions. The process discharge from the vacuum degasser wastewater treatment system that discharges via sub-outfall 101 to a pump station that transfers the discharge to the Central Treatment Plant. The wastewater system consists of two separate lined impoundment ponds, with a storage capacity of 1,000,000 gallons each. The oil skimmers skim oil on the two ponds as needed. Collected oil is stored in two poly tanks at the WWTP.

Wastewater generated from the vacuum degasser is treated by a pre-treatment system prior to entering the central wastewater treatment system. In this pre-treatment system, wastewater is added to one of two sequencing batch reactors, treated to remove solids/contaminants, and then discharged to the Central Wastewater Treatment Plant. Resultant sludge is pumped to the sludge tank and then hauled off site for disposal.

There are currently 3 open violations in WMS for the subject Client ID (208903) as of 11/14/25. The open violations consist of 3 violations with the Air Quality program out of the NWRO.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Dustin Hargenrater Dustin Hargenrater / Project Manager	November 14, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	January 22, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.55
Latitude	41º 50' 44.23"	Longitude	-79º 16' 43.38"
Quad Name	Youngsville	Quad Code	41079G3
Wastewater Description:	Contact Cooling (Quench) Water, boiler blowdown, softener backwash, steam condensate, non-contact cooling water, waterjet machining wastewater, sub-outfall 101, and stormwater.		

Receiving Waters	Brokenstraw Creek (CWF)	Stream Code	55847
NHD Com ID	112375747	RMI	1.2400
Drainage Area	327	Yield (cfs/mi^2)	0.0856
Q_{7-10} Flow (cfs)	28	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1164	Slope (ft/ft)	---
Watershed No.	16-B	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Aqua Pennsylvania Emlenton	
PWS Waters	Allegheny River	Flow at Intake (cfs)	1,376
PWS RMI	90.0	Distance from Outfall (mi)	93.5

Changes Since Last Permit Issuance: No changes since the last permit issuance. There are no proposed changes to the treatment system within the next 5 years.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	101	Design Flow (MGD)	0.009
Latitude	41º 50' 46.83"	Longitude	-79º 16' 46.99"
Quad Name	Youngsville	Quad Code	41079G3
Wastewater Description:	Vacuum Degassing Operations		
Receiving Waters	Brokenstraw Creek (CWF) (via Outfall 001)	Stream Code	55847
NHD Com ID	112375239	RMI	
Drainage Area	327	Yield (cfs/mi^2)	0.0856
Q_{7-10} Flow (cfs)	28	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1164	Slope (ft/ft)	---
Watershed No.	16-B	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		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Aqua Pennsylvania Emlenton	
PWS Waters	Allegheny River	Flow at Intake (cfs)	1,376
PWS RMI	90.0	Distance from Outfall (mi)	93.5

Changes Since Last Permit Issuance: No changes since last permit issuance.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	41º 50' 24.37"	Longitude	-79º 15' 50.86"
Outfall No.	004	Design Flow (MGD)	0
Latitude	41º 50' 28.80"	Longitude	-79º 16' 27.47"
Quad Name	Youngsville	Quad Code	41079G3
Wastewater Description:	Stormwater		

Receiving Waters	Brokenstraw Creek (CWF)	Stream Code	55847
NHD Com ID	112375747	RMI	1.5200
Drainage Area	327	Yield (cfs/mi^2)	0.0856
Q_{7-10} Flow (cfs)	28	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1164	Slope (ft/ft)	---
Watershed No.	16-B	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Aqua Pennsylvania Emlenton	
PWS Waters	Allegheny River	Flow at Intake (cfs)	1,376
PWS RMI	90.0	Distance from Outfall (mi)	93.5

Other Comments: Stormwater Outfall 003 is considered a No Exposure outfall and will not receive monitoring requirements for stormwater.

Compliance History

DMR Data for Outfall 001 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Average Monthly	1	1.013	0.899	0.735	1.109	1.048	0.975	0.933	0.981	0.757	0.569	0.743
pH (S.U.) Daily Minimum	6.7	6.7	6.8	6.9	6.8	6.8	7.0	6.7	6.6	6.5	6.7	6.9
pH (S.U.) Daily Maximum	7.4	7.5	7.8	7.5	7.5	7.9	7.8	8.1	7.4	7.6	7.8	8.5
Oil and Grease (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

DMR Data for Outfall 002 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
pH (S.U.) Daily Maximum				9.3						8.9		
TSS (mg/L) Daily Maximum				97						104		
Nitrate-Nitrite (mg/L) Daily Maximum				0.197						< 0.104		
Total Aluminum (mg/L) Daily Maximum				1.33						2.47		
Total Iron (mg/L) Daily Maximum				1.18						1.89		
Total Zinc (mg/L) Daily Maximum				0.063						0.191		

DMR Data for Outfall 004 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
pH (S.U.) Daily Maximum				9.5						9.00		
TSS (mg/L) Daily Maximum				16						14		
Nitrate-Nitrite (mg/L) Daily Maximum				0.674						0.158		

Total Aluminum (mg/L) Daily Maximum				0.167						0.277		
Total Iron (mg/L) Daily Maximum				0.671						0.332		
Total Zinc (mg/L) Daily Maximum				0.017						0.058		

DMR Data for Outfall 101 (from October 1, 2024 to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Internal Monitoring Point Average Monthly	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Flow (MGD) Internal Monitoring Point Daily Maximum	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
TSS (lbs/day) Internal Monitoring Point Average Monthly	0.5	1.1	1.1	0.7	0.6	0.8	2.8	0.9	1.1	1.0	0.7	< 0.5
TSS (lbs/day) Internal Monitoring Point Daily Maximum	0.5	2.0	1.7	1.4	0.8	1.4	8.9	1.2	2.5	1.2	1.4	0.9
TSS (mg/L) Internal Monitoring Point Average Monthly	6	15	14	10	8	11	37	13	15	13	10	< 7
TSS (mg/L) Internal Monitoring Point Daily Maximum	7	27	23	19	10	18	118	16	33	16	19	12
Total Lead (lbs/day) Internal Monitoring Point Average Monthly	< 0.0004	< 0.001	< 0.0005	< 0.003	< 0.0005	< 0.0004	< 0.0006	< 0.0005	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Total Lead (lbs/day) Internal Monitoring Point Daily Maximum	0.0005	0.002	0.0008	0.01	0.0005	0.0004	0.001	0.0008	0.0004	0.0005	0.0004	0.0004

Total Lead (mg/L) Internal Monitoring Point Average Monthly	< 0.005	< 0.017	< 0.007	< 0.036	< 0.006	< 0.005	< 0.008	< 0.007	< 0.005	< 0.0053	< 0.005	< 0.005
Total Lead (mg/L) Internal Monitoring Point Daily Maximum	0.006	0.031	0.01	0.128	0.007	0.005	0.014	0.011	0.005	0.0062	0.005	0.005
Total Zinc (lbs/day) Internal Monitoring Point Average Monthly	0.003	< 0.01	< 0.01	0.80	0.004	0.005	0.02	< 0.007	0.005	< 0.004	0.006	0.004
Total Zinc (lbs/day) Internal Monitoring Point Daily Maximum	0.003	0.05	0.02	3.06	0.006	0.007	0.07	0.01	0.01	0.009	0.009	0.007
Total Zinc (mg/L) Internal Monitoring Point Average Monthly	0.034	< 0.194	< 0.132	10.471	0.05	0.073	0.307	< 0.099	0.069	< 0.055	0.077	0.053
Total Zinc (mg/L) Internal Monitoring Point Daily Maximum	0.046	0.629	0.286	40.8	0.077	0.099	0.928	0.172	0.152	0.126	0.114	0.092

Compliance History

Effluent Violations for Outfall 101, from: November 1, 2024 To: September 30, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Zinc	06/30/25	Avg Mo	0.80	lbs/day	.04	lbs/day
Total Zinc	06/30/25	Daily Max	3.06	lbs/day	.12	lbs/day

Summary of Inspections: There has been one inspection at the facility since 2021. The inspection was on 9/26/22 and no violations were noted.

Other Comments: There have been 4 effluent violations of Total Zinc over the permit term and one violation of pH. The Total Zinc violations were exceedances of the ELG limits calculated during the permit term. 2 violations were reported in June of 2025, on the non-compliance reporting form the operator commented that one of the monthly tests was the reason for the non-compliance as the facility received a concentration above 40 mg/l for the Total Zinc parameter. The first 3 samples of June were below 0.5 mg/l and the first sample of July was at 0.133 mg/l so the operator believes the higher concentration were due to a contaminated sample either due to the sampling equipment or lab equipment. The facility is working with the lab to ensure there is no contamination and a review of the sampling procedure to ensure no contaminants are present both in-house and at the laboratory. Additionally, the other two exceedances of Total Zinc occurred during the month of August in 2022 with the main cause of the exceedances being better housekeeping on the facilities end. These two violations were a reported value of 0.3 lbs/day daily maximum and 0.09 lbs/day average monthly. The previous permit limitations were 0.04 lbs/day average monthly and 0.12 lbs/day daily maximum. The pH violation occurred in September of 2024 with an exceedance of 9.2 S.U. being reported by the facility. The facility reported that due to the low precipitation during the summer of 2024 the impoundment ponds were at below average levels, reportedly 1 foot below normal levels. Which in combination with the warmer weather caused an observable algal bloom which could have had an effect on the water chemistry in the ponds.

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	1.55
Latitude	41º 50' 44.32"	**Longitude**	-79º 16' 43.40"

Wastewater Description: Contact Cooling (Quench) Water, boiler blowdown, softener backwash, steam condensate, non-contact cooling water, waterjet machining wastewater, sub-outfall 101, and stormwater.

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
	15	Average Monthly		95.2(2)(ii)
Oil & Grease	30	Daily Maximum		95.2(2)(ii)

Comments: ELG limits are applied at Sub-Outfall 101 for the Vacuum Degassing Wastewater.

Water Quality-Based Limitations

This discharge was modeled using the Toxics Management Spreadsheet and the Thermal Limit spreadsheet due to the facility being an Industrial Waste permit that uses contact and non-contact cooling water. The Toxics Management Spreadsheet uses a mass-balance approach to calculate limits based on in-stream data for Q_{7-10}, Yield, Drainage Area, pH, and Hardness. The model also uses existing concentrations of pollutants reported at the facility for pollutant groups 1-5, the maximum concentrations reported are used if there are less than 10 samples of any given parameter and the average concentrations are used for parameters with a sample size greater than 10. The Thermal Limits Spreadsheet takes into consideration the existing intake rates for the cooling water at the facility, the thermal criteria for CWF, TSF, and WWF designations, and Q_{7-10} multipliers that are based on typical flows during each month and uses a mass-balance approach to calculate thermal limits at the facility.

Toxics Management Spreadsheet Limitations

Modeling Procedure

The DEP default values of 100 mg/l for Hardness and 7.0 S.U. for pH were used in the model. The permittee was sent a pre-draft survey letter in which they were given the option to retest for Total Thallium, Hexachlorobutadiene, and 1,2,4 – Trichlorobenzene due to the facility having non-detects for these parameters. These parameters were not tested down to DEP's quantitation limits and therefore were eligible to collect 3 additional samples for each of these parameters down to the Departments QLs. With the completion of the pre-draft survey and additional sampling the potential limits for Total Thallium, Hexachlorobutadiene, and 1,2,4 – Trichlorobenzene were able to be removed as the parameters came back still non-detected when tested down to the Department's QL's.

Total Copper

Total Copper monitoring is proposed for this permit renewal due to the facility having detections of Total Copper in the discharge. The proposed monitoring is based on the Acute Fish Criteria and the reported concentration being greater than 10% of the WQBEL. The monitoring frequency will be 1/week to conform to Table 6-4 Self-Monitoring Requirements for Industrial Dischargers in the Permit Writers Manual.

Thermal Limits Spreadsheet Limitations

The following thermal limits were calculated by the Thermal Limits Spreadsheet:

Semi-Monthly Increment	CWF Target Maximum Stream Temp. (ºF)	Daily WLA (ºF)
January 1-31	38	110.0
February 1-29	38	110.0
March 1-31	42	110.0
April 1-15	48	110.0
April 16-30	53	110.0
May 1-15	56	110.0
May 16-31	60	110.0
June 1-15	64	110.0
June 16-30	68	110.0
July 1-31	72	99.2
August 1-15	71	93.4
August 16-31	71	93.4
September 1-15	67	84.6
September 16-30	61	78.6
October 1-15	56	75.2
October 16-31	52	71.2
November 1-15	47	72.6
November 16-30	42	93.3
December 1-31	40	110.0

The permittee will also be required to ensure that the facility is not causing more than a 2-degree temperature change in the receiving stream during any 1 hour. This will be implemented as a Part C Condition in the permit.

Best Professional Judgment (BPJ) Limitations

Comments: No BPJ Limitations are being proposed for this permit renewal.

Anti-Backsliding

According to the Clean Water Act Section 402(o)(1) “In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, reissued, or modified on the bases of effluent guidelines promulgated under section 1314(b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. In the case of effluent limitations established on the bases of section 1311(b)(1)(C) or section 1313(d) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313(d)(4) of this title.”

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15	XXX	30	2/month	Grab

Development of Effluent Limitations

Outfall No. 101 **Design Flow (MGD)** ___
Latitude 41º 50' 32.50" **Longitude** -79º 16' 8.80"
Wastewater Description: Vacuum Degassing Operations

Technology-Based Limitations

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

Pollutant	ELG – BPT/BAT Effluent Limits (lbs/1,000 lbs of Product)		Mass Based Effluent Limits (lbs/day)	
	Max for Any 1 Day	Average Daily Value for 30 Consecutive Days	Average Monthly	Maximum Daily
Total Suspended Solids (BPT – 420.52)	0.0156	0.00521	4.29	12.85
pH (BPT – 420.52)	Between the range of 6.0 – 9.0		Between the range of 6.0 – 9.0	
Total Lead (BAT – 420.53)	0.0000939	0.000313	0.03	0.08
Total Zinc (BAT – 420.53)	0.000141	0.0000469	0.04	0.12

Comments: The production values used to calculate the limits are based on the Production Rates provided in the application. Calculations of this production rate will be included as Attachment 3. The calculated limits for TSS will be rounded down to conform to the Round-Off Guidelines found in the Permit Writers Manual.

EPA has indicated in the past that the need for applying pH limits to this outfall was unnecessary and instead will be placed at the main outfall.

Water Quality-Based Limitations

This discharge point was also modeled in the Toxics Management Spreadsheet. The Toxics Management Spreadsheet suggested monitoring requirements for Hexavalent Chromium from this outfall. The Hexavalent Chromium monitoring will be placed in the permit at the frequency of 1/week to conform to Table 6-4 Self-Monitoring Requirements for Industrial Dischargers in the Permit Writers Manual. Hexavalent Chromium was the only limit suggested from the Toxics Management Spreadsheet and since the facility had detections in the application sampling they were not given the option to retest down to the Department's QLs. The monitoring requirements are based on the Acute Fish Criteria and the discharge concentration being greater than 10% of the WQBEL.

Best Professional Judgment (BPJ) Limitations

Comments: No BPJ limits are being proposed for this permit renewal.

Anti-Backsliding

According to the Clean Water Act Section 402(o)(1) "In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, reissued, or modified on the bases of effluent guidelines promulgated under section 1314(b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit. In the case of effluent limitations established on the bases of section 1311(b)(1)(C) or section 1313(d) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313(d)(4) of this title."

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
TSS Internal Monitoring Point	4.3	12.8	XXX	Report	Report	384	4/month	Composite
Total Lead Internal Monitoring Point	0.03	0.08	XXX	Report	Report	2.3	4/month	Composite
Total Zinc Internal Monitoring Point	0.04	0.12	XXX	Report	Report	3.5	4/month	Composite

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	41º 50' 24.04"	**Longitude**	-79º 15' 51.27"
Outfall No.	004	**Design Flow (MGD)**	0
Latitude	41º 50' 28.80"	**Longitude**	-79º 16' 27.47"

Wastewater Description: Stormwater

Technology-Based Limitations

N/A

Water Quality-Based Limitations

N/A

Best Professional Judgment (BPJ) Limitations

Comments: Monitoring requirements and benchmark values found in the PAG-03 General Permit under Appendix U – Fabricated Metal Products will be placed in the permit in accordance with the Departments SOP for Establishing Effluent Limitations for Individual Industrial Permits.

Anti-Backsliding

N/A

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/week	Grab
Temperature (ºF) Sep 16 - 30	XXX	XXX	XXX	XXX	XXX	78.6	2/month	I-S
Temperature (ºF) Dec 1 - Jun 30	XXX	XXX	XXX	XXX	XXX	110	2/month	I-S
Temperature (ºF) Sep 1 - 15	XXX	XXX	XXX	XXX	XXX	84.6	2/month	I-S
Temperature (ºF) Oct 16 - 31	XXX	XXX	XXX	XXX	XXX	71.2	2/month	I-S
Temperature (ºF) Oct 1 - 15	XXX	XXX	XXX	XXX	XXX	75.2	2/month	I-S
Temperature (ºF) Jul 1 - 31	XXX	XXX	XXX	XXX	XXX	99.2	2/month	I-S
Temperature (ºF) Aug 1 - 31	XXX	XXX	XXX	XXX	XXX	93.4	2/month	I-S
Temperature (ºF) Nov 1 - 15	XXX	XXX	XXX	XXX	XXX	72.6	2/month	I-S
Temperature (ºF) Nov 16 - 30	XXX	XXX	XXX	XXX	XXX	93.3	2/month	I-S
Oil and Grease	XXX	XXX	XXX	15	XXX	30	2/month	Grab
Total Copper (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001.

Other Comments: Although chlorine disinfection is covered under WQM Permit No. 6272201 the Chlorine disinfection is not operational or active at the facility.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 002.

Other Comments: PAG-03 General Permit Appendix U – Fabricated Metal Products stormwater monitoring requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 004

Other Comments: PAG-03 General Permit Appendix U – Fabricated Metal Products stormwater monitoring requirements.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) Internal Monitoring Point	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
TSS Internal Monitoring Point	4.2	12.8	XXX	Report	Report	384	4/month	24-Hr Composite
Hexavalent Chromium (ug/L) Internal Monitoring Point	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Lead Internal Monitoring Point	0.03	0.08	XXX	Report	Report	2.3	4/month	24-Hr Composite
Total Zinc Internal Monitoring Point	0.04	0.12	XXX	Report	Report	3.5	4/month	24-Hr Composite

Compliance Sampling Location: Outfall 101.

Attachment 1 – Toxics Management Spreadsheet – Outfall 001

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Ellwood National Forge** NPDES Permit No.: **PA000746** Outfall No.: **001**

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

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
1.5514	130.367	7.3						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		171.33									
	Chloride (PWS)	mg/L		16.7									
	Bromide	mg/L		0.188									
	Sulfate (PWS)	mg/L		12.2									
	Fluoride (PWS)	mg/L		0.151									
Group 2	Total Aluminum	µg/L		90									
	Total Antimony	µg/L	<	0.3									
	Total Arsenic	µg/L	<	10									
	Total Barium	µg/L		67									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L	<	250									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L	<	0.8									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		13									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		351									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		100									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	0.5									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.1									
	Total Zinc	µg/L	<	8									
	Total Molybdenum	µg/L	<	20									
	Acrolein	µg/L	<	0.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.3									
	Benzene	µg/L	<	0.4									
	Bromoform	µg/L	<	0.4									
	Carbon Tetrachloride	µg/L	<	0.4									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	0.4									
	Chloroethane	µg/L	<	0.9									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.3									

Group 3	Chloroform	µg/L	<	0.3									
	Dichlorobromomethane	µg/L	<	0.4									
	1,1-Dichloroethane	µg/L	<	0.4									
	1,2-Dichloroethane	µg/L	<	0.3									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.3									
	1,3-Dichloropropylene	µg/L	<	0.3									
	1,4-Dioxane	µg/L	<	0.116									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.9									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.4									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.3									
	Toluene	µg/L	<	0.3									
	1,2-trans-Dichloroethylene	µg/L	<	0.4									
	1,1,1-Trichloroethane	µg/L	<	0.3									
	1,1,2-Trichloroethane	µg/L	<	0.3									
	Trichloroethylene	µg/L	<	0.4									
	Vinyl Chloride	µg/L	<	0.3									
Group 4	2-Chlorophenol	µg/L	<	1.16									
	2,4-Dichlorophenol	µg/L	<	1.16									
	2,4-Dimethylphenol	µg/L	<	1.16									
	4,6-Dinitro-o-Cresol	µg/L	<	3.49									
	2,4-Dinitrophenol	µg/L	<	3.49									
	2-Nitrophenol	µg/L	<	1.16									
	4-Nitrophenol	µg/L	<	3.49									
	p-Chloro-m-Cresol	µg/L	<	1.16									
	Pentachlorophenol	µg/L	<	1.16									
	Phenol	µg/L	<	3.49									
	2,4,6-Trichlorophenol	µg/L	<	1.16									
Group 5	Acenaphthene	µg/L	<	1.16									
	Acenaphthylene	µg/L	<	1.16									
	Anthracene	µg/L	<	1.16									
	Benzidine	µg/L	<	1.16									
	Benzo(a)Anthracene	µg/L	<	1.16									
	Benzo(a)Pyrene	µg/L	<	1.16									
	3,4-Benzofluoranthene	µg/L	<	1.16									
	Benzo(ghi)Perylene	µg/L	<	1.16									
	Benzo(k)Fluoranthene	µg/L	<	1.16									
	Bis(2-Chloroethoxy)Methane	µg/L	<	1.16									
	Bis(2-Chloroethyl)Ether	µg/L	<	1.16									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1.16									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3.49									
	4-Bromophenyl Phenyl Ether	µg/L	<	1.16									
	Butyl Benzyl Phthalate	µg/L	<	1.16									
	2-Chloronaphthalene	µg/L	<	1.16									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1.16									
	Chrysene	µg/L	<	1.16									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.16									
	1,2-Dichlorobenzene	µg/L	<	0.4									
	1,3-Dichlorobenzene	µg/L	<	0.2									
	1,4-Dichlorobenzene	µg/L	<	0.4									
	3,3-Dichlorobenzidine	µg/L	<	1.16									
	Diethyl Phthalate	µg/L	<	1.16									
	Dimethyl Phthalate	µg/L	<	1.16									
	Di-n-Butyl Phthalate	µg/L	<	3.49									
	2,4-Dinitrotoluene	µg/L	<	1.16									
	2,6-Dinitrotoluene	µg/L	<	1.16									
	Di-n-Octyl Phthalate	µg/L	<	1.16									
	1,2-Diphenylhydrazine	µg/L	<	1.16									
	Fluoranthene	µg/L	<	1.16									
	Fluorene	µg/L	<	1.16									
	Hexachlorobenzene	µg/L	<	1.16									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	1.16									
	Hexachloroethane	µg/L	<	1.16									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.16									

	Isophorone	µg/L	<	1.16										
	Naphthalene	µg/L	<	1.16										
	Nitrobenzene	µg/L	<	1.16										
	n-Nitrosodimethylamine	µg/L	<	1.16										
	n-Nitrosodi-n-Propylamine	µg/L	<	1.16										
	n-Nitrosodiphenylamine	µg/L	<	1.16										
	Phenanthrene	µg/L	<	1.16										
	Pyrene	µg/L	<	1.16										
	1,2,4-Trichlorobenzene	µg/L	<	0.25										
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												

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Ellwood National Forge, NPDES Permit No. PA000746, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Brokenstraw Creek**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	055847	1.53	1164	327			Yes
End of Reach 1	055847	0.161805	1148	328			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.53	0.0856										100	7		
End of Reach 1	0.161805	0.08567													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.53														
End of Reach 1	0.161805														

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Toxics Management Spreadsheet
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Model Results

Ellwood National Forge, NPDES Permit No. PA000746, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***AFC*** CCT (min): 15 PMF: 0.265 Analysis Hardness (mg/l): 107.43 Analysis pH: 7.06

Pollutants	Stream Conc	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	3,066	
Total Antimony	0	0		0	1,100	1,100	4,497	
Total Arsenic	0	0		0	340	340	1,390	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	85,860	
Total Boron	0	0		0	8,100	8,100	33,118	
Total Cadmium	0	0		0	2.159	2.29	9.38	Chem Translator of 0.941 applied
Hexavalent Chromium	0	0		0	16	16.3	66.6	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	388	
Total Copper	0	0		0	14.378	15.0	61.2	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	69.815	89.4	366	Chem Translator of 0.781 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.73	Chem Translator of 0.85 applied
Total Nickel	0	0		0	497.494	498	2,038	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.639	4.28	17.5	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	266	
Total Zinc	0	0		0	124.514	127	521	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	12.3	
Acrylonitrile	0	0		0	650	650	2,658	
Benzene	0	0		0	640	640	2,617	
Bromoform	0	0		0	1,800	1,800	7,359	

Carbon Tetrachloride	0	0		0	2,800	2,800	11,448	
Chlorobenzene	0	0		0	1,200	1,200	4,906	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	73,595	
Chloroform	0	0		0	1,900	1,900	7,768	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	61,329	
1,1-Dichloroethylene	0	0		0	7,500	7,500	30,664	
1,2-Dichloropropane	0	0		0	11,000	11,000	44,975	
1,3-Dichloropropylene	0	0		0	310	310	1,267	
Ethylbenzene	0	0		0	2,900	2,900	11,857	
Methyl Bromide	0	0		0	550	550	2,249	
Methyl Chloride	0	0		0	28,000	28,000	114,481	
Methylene Chloride	0	0		0	12,000	12,000	49,063	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	4,089	
Tetrachloroethylene	0	0		0	700	700	2,862	
Toluene	0	0		0	1,700	1,700	6,951	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	27,802	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	12,266	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	13,901	
Trichloroethylene	0	0		0	2,300	2,300	9,404	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	2,290	
2,4-Dichlorophenol	0	0		0	1,700	1,700	6,951	
2,4-Dimethylphenol	0	0		0	660	660	2,698	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	327	
2,4-Dinitrophenol	0	0		0	660	660	2,698	
2-Nitrophenol	0	0		0	8,000	8,000	32,709	
4-Nitrophenol	0	0		0	2,300	2,300	9,404	
p-Chloro-m-Cresol	0	0		0	160	160	654	
Pentachlorophenol	0	0		0	9.233	9.23	37.8	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,881	
Acenaphthene	0	0		0	83	83.0	339	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,227	
Benzo(a)Anthracene	0	0		0	0.5	0.5	2.04	
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	122,658	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	18,399	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,104	
Butyl Benzyl Phthalate	0	0		0	140	140	572	
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	3,353	
1,3-Dichlorobenzene	0	0		0	350	350	1,431	
1,4-Dichlorobenzene	0	0		0	730	730	2,985	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	16,354	
Dimethyl Phthalate	0	0		0	2,500	2,500	10,221	
Di-n-Butyl Phthalate	0	0		0	110	110	450	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	6,542	
2,6-Dinitrotoluene	0	0		0	990	990	4,048	
1,2-Diphenylhydrazine	0	0		0	15	15.0	61.3	
Fluoranthene	0	0		0	200	200	818	
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	40.9	
Hexachlorocyclopentadiene	0	0		0	5	5.0	20.4	
Hexachloroethane	0	0		0	60	60.0	245	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	40,886	
Naphthalene	0	0		0	140	140	572	
Nitrobenzene	0	0		0	4,000	4,000	16,354	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	69,506	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,227	
Phenanthrene	0	0		0	5	5.0	20.4	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	532	

☑ ***CFC*** CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): 102.4 Analysis pH: 7.02

Pollutants	Stream Conc	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	2,786	
Total Arsenic	0	0		0	150	150	1,899	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	51,918	
Total Boron	0	0		0	1,600	1,600	20,261	
Total Cadmium	0	0		0	0.250	0.28	3.49	Chem Translator of 0.908 applied
Hexavalent Chromium	0	0		0	10	10.4	132	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	241	
Total Copper	0	0		0	9.139	9.52	121	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	18,994	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.582	3.28	41.5	Chem Translator of 0.788 applied

Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	11.5	Chem Translator of 0.85 applied
Total Nickel	0	0		0	53.060	53.2	674	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	63.2	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	165	
Total Zinc	0	0		0	120.535	122	1,548	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	38.0	
Acrylonitrile	0	0		0	130	130	1,646	
Benzene	0	0		0	130	130	1,646	
Bromoform	0	0		0	370	370	4,685	
Carbon Tetrachloride	0	0		0	560	560	7,091	
Chlorobenzene	0	0		0	240	240	3,039	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	44,320	
Chloroform	0	0		0	390	390	4,939	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	39,255	
1,1-Dichloroethylene	0	0		0	1,500	1,500	18,994	
1,2-Dichloropropane	0	0		0	2,200	2,200	27,858	
1,3-Dichloropropylene	0	0		0	61	61.0	772	
Ethylbenzene	0	0		0	580	580	7,344	
Methyl Bromide	0	0		0	110	110	1,393	
Methyl Chloride	0	0		0	5,500	5,500	69,646	
Methylene Chloride	0	0		0	2,400	2,400	30,391	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	2,659	
Tetrachloroethylene	0	0		0	140	140	1,773	
Toluene	0	0		0	330	330	4,179	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	17,728	
1,1,1-Trichloroethane	0	0		0	610	610	7,724	
1,1,2-Trichloroethane	0	0		0	680	680	8,611	
Trichloroethylene	0	0		0	450	450	5,698	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	1,393	
2,4-Dichlorophenol	0	0		0	340	340	4,305	
2,4-Dimethylphenol	0	0		0	130	130	1,646	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	203	
2,4-Dinitrophenol	0	0		0	130	130	1,646	
2-Nitrophenol	0	0		0	1,600	1,600	20,261	
4-Nitrophenol	0	0		0	470	470	5,952	
p-Chloro-m-Cresol	0	0		0	500	500	6,331	
Pentachlorophenol	0	0		0	7.084	7.08	89.7	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	1,152	
Acenaphthene	0	0		0	17	17.0	215	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	747	
Benzo(a)Anthracene	0	0		0	0.1	0.1	1.27	

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	75,978	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	11,523	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	684	
Butyl Benzyl Phthalate	0	0		0	35	35.0	443	
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	2,026	
1,3-Dichlorobenzene	0	0		0	69	69.0	874	
1,4-Dichlorobenzene	0	0		0	150	150	1,899	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	10,130	
Dimethyl Phthalate	0	0		0	500	500	6,331	
Di-n-Butyl Phthalate	0	0		0	21	21.0	266	
2,4-Dinitrotoluene	0	0		0	320	320	4,052	
2,6-Dinitrotoluene	0	0		0	200	200	2,533	
1,2-Diphenylhydrazine	0	0		0	3	3.0	38.0	
Fluoranthene	0	0		0	40	40.0	507	
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	25.3	
Hexachlorocyclopentadiene	0	0		0	1	1.0	12.7	
Hexachloroethane	0	0		0	12	12.0	152	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	26,592	
Naphthalene	0	0		0	43	43.0	545	
Nitrobenzene	0	0		0	810	810	10,257	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	43,054	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	747	
Phenanthrene	0	0		0	1	1.0	12.7	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	329	

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

Pollutants	Stream Conc	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	70.9	
Total Arsenic	0	0		0	10	10.0	127	

Total Barium	0	0		0	2,400	2,400	30,391	
Total Boron	0	0		0	3,100	3,100	39,255	
Total Cadmium	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	3,799	
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	12,663	
Total Mercury	0	0		0	0.050	0.05	0.63	
Total Nickel	0	0		0	610	610	7,724	
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	3.04	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	38.0	
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	1,266	
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	72.2	
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	418	
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	861	
Methyl Bromide	0	0		0	100	100.0	1,266	
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	722	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	1,266	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	126,629	
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	380	
2,4-Dichlorophenol	0	0		0	10	10.0	127	
2,4-Dimethylphenol	0	0		0	100	100.0	1,266	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	25.3	
2,4-Dinitrophenol	0	0		0	10	10.0	127	
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	50,652	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	886	
Anthracene	0	0		0	300	300	3,799	
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	2,533	
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	1.27	
2-Chloronaphthalene	0	0		0	800	800	10,130	
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	12,663	
1,3-Dichlorobenzene	0	0		0	7	7.0	88.6	
1,4-Dichlorobenzene	0	0		0	300	300	3,799	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	7,598	
Dimethyl Phthalate	0	0		0	2,000	2,000	25,326	
Di-n-Butyl Phthalate	0	0		0	20	20.0	253	
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	253	
Fluorene	0	0		0	50	50.0	633	
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	50.7	
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	431	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	127	
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	253	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.89	

☑ ***CRL*** CCT (min): 89.246 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	3.48	
Benzene	0	0		0	0.58	0.58	33.6	
Bromoform	0	0		0	7	7.0	406	
Carbon Tetrachloride	0	0		0	0.4	0.4	23.2	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	46.4	
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	55.0	
1,2-Dichloroethane	0	0		0	9.9	9.9	574	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	52.2	
1,3-Dichloropropylene	0	0		0	0.27	0.27	15.6	
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	1,159	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	11.6	
Tetrachloroethylene	0	0		0	10	10.0	579	
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	31.9	
Trichloroethylene	0	0		0	0.6	0.6	34.8	
Vinyl Chloride	0	0		0	0.02	0.02	1.16	
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	1.74	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	86.9	
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	0.058	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.006	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.058	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.58	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	1.74	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	18.5	
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	6.95	
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	2.9	
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	2.9	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	2.9	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	1.74	
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	0.58	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	5.79	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.058	
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	0.041	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.29	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	191	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	µg/L	39.2	AFC	Discharge Conc > 10% WQBEL (no RP)

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

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	1,965	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	127	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	30,391	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	20,261	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	3.49	µg/L	Discharge Conc < TQL
Hexavalent Chromium	42.7	µg/L	Discharge Conc < TQL
Total Cobalt	241	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	3,799	µg/L	Discharge Conc < TQL
Total Iron	18,994	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	41.5	µg/L	Discharge Conc < TQL
Total Manganese	12,663	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.63	µg/L	Discharge Conc < TQL
Total Nickel	674	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL

Total Selenium	63.2	µg/L	Discharge Conc < TQL
Total Silver	11.2	µg/L	Discharge Conc < TQL
Total Thallium	3.04	µg/L	Discharge Conc < TQL
Total Zinc	334	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	7.86	µg/L	Discharge Conc < TQL
Acrylonitrile	3.48	µg/L	Discharge Conc < TQL
Benzene	33.6	µg/L	Discharge Conc < TQL
Bromoform	406	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	23.2	µg/L	Discharge Conc < TQL
Chlorobenzene	1,266	µg/L	Discharge Conc < TQL
Chlorodibromomethane	46.4	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	44,320	µg/L	Discharge Conc < TQL
Chloroform	72.2	µg/L	Discharge Conc < TQL
Dichlorobromomethane	55.0	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	574	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	418	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	52.2	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	15.6	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	861	µg/L	Discharge Conc < TQL
Methyl Bromide	1,266	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	69,646	µg/L	Discharge Conc < TQL
Methylene Chloride	1,159	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	11.6	µg/L	Discharge Conc < TQL
Tetrachloroethylene	579	µg/L	Discharge Conc < TQL
Toluene	722	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	1,266	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	7,724	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	31.9	µg/L	Discharge Conc < TQL
Trichloroethylene	34.8	µg/L	Discharge Conc < TQL
Vinyl Chloride	1.16	µg/L	Discharge Conc < TQL
2-Chlorophenol	380	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	127	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	1,266	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	25.3	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	127	µg/L	Discharge Conc < TQL
2-Nitrophenol	20,261	µg/L	Discharge Conc < TQL
4-Nitrophenol	5,952	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	419	µg/L	Discharge Conc < TQL
Pentachlorophenol	1.74	µg/L	Discharge Conc < TQL
Phenol	50,652	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	86.9	µg/L	Discharge Conc < TQL
Acenaphthene	215	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	3,799	µg/L	Discharge Conc < TQL
Benzidine	0.006	µg/L	Discharge Conc < TQL

Benzo(a)Anthracene	0.058	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.006	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.058	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.58	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	1.74	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	2,533	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	18.5	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	684	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	1.27	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	10,130	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	6.95	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.006	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	2,026	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	88.6	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	1,899	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	2.9	µg/L	Discharge Conc < TQL
Diethyl Phthalate	7,598	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	6,331	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	253	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	2.9	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	2.9	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	1.74	µg/L	Discharge Conc < TQL
Fluoranthene	253	µg/L	Discharge Conc < TQL
Fluorene	633	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.005	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.58	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	12.7	µg/L	Discharge Conc < TQL
Hexachloroethane	5.79	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.058	µg/L	Discharge Conc < TQL
Isophorone	431	µg/L	Discharge Conc < TQL
Naphthalene	367	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	127	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.041	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.29	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	191	µg/L	Discharge Conc < TQL
Phenanthrene	12.7	µg/L	Discharge Conc < TQL
Pyrene	253	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.89	µg/L	Discharge Conc < TQL

Attachment 2 – Toxics Management Spreadsheet – Outfall 101

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Ellwood National Forge** NPDES Permit No.: **PA000746** Outfall No.: **101**

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

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
0.009	1762.133	8.81						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		2620									
	Chloride (PWS)	mg/L		234									
	Bromide	mg/L		3.97									
	Sulfate (PWS)	mg/L		1520									
	Fluoride (PWS)	mg/L		6									
Group 2	Total Aluminum	µg/L		103									
	Total Antimony	µg/L		35.1									
	Total Arsenic	µg/L	<	10									
	Total Barium	µg/L		43									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L	<	250									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L		866									
	Hexavalent Chromium	µg/L		874									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		184									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	mg/L	<	22									
	Total Iron	µg/L		63.9									
	Total Lead	µg/L	<	6									
	Total Manganese	µg/L		133									
	Total Mercury	µg/L		0.2									
	Total Nickel	µg/L	<	5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		13									
	Total Silver	µg/L	<	3									
	Total Thallium	µg/L	<	10									
	Total Zinc	µg/L	<	82									
	Total Molybdenum	µg/L		58									
	Acrolein	µg/L	<	0.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.3									
	Benzene	mg/L	<	0.4									
	Bromoform	µg/L	<	0.4									
	Carbon Tetrachloride	µg/L	<	0.4									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	0.4									
	Chloroethane	µg/L	<	0.9									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.3									

Group 3	Chloroform	µg/L	<	0.3									
	Dichlorobromomethane	µg/L	<	0.4									
	1,1-Dichloroethane	µg/L	<	0.4									
	1,2-Dichloroethane	µg/L	<	0.3									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.3									
	1,3-Dichloropropylene	µg/L	<	0.3									
	1,4-Dioxane	µg/L	<	0.104									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.9									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.4									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.3									
	Toluene	mg/L	<	0.3									
	1,2-trans-Dichloroethylene	µg/L	<	0.4									
	1,1,1-Trichloroethane	µg/L	<	0.3									
	1,1,2-Trichloroethane	µg/L	<	0.3									
	Trichloroethylene	µg/L	<	0.4									
	Vinyl Chloride	µg/L	<	0.3									
Group 4	2-Chlorophenol	µg/L	<	1.04									
	2,4-Dichlorophenol	µg/L	<	1.04									
	2,4-Dimethylphenol	µg/L	<	1.04									
	4,6-Dinitro-o-Cresol	µg/L	<	3.12									
	2,4-Dinitrophenol	µg/L	<	3.12									
	2-Nitrophenol	µg/L		2.14									
	4-Nitrophenol	µg/L	<	3.12									
	p-Chloro-m-Cresol	µg/L	<	1.04									
	Pentachlorophenol	µg/L	<	1.04									
	Phenol	µg/L	<	3.12									
	2,4,6-Trichlorophenol	µg/L	<	1.04									
Group 5	Acenaphthene	µg/L	<	1.04									
	Acenaphthylene	µg/L	<	1.04									
	Anthracene	µg/L	<	1.04									
	Benzidine	µg/L	<	5.21									
	Benzo(a)Anthracene	µg/L	<	1.04									
	Benzo(a)Pyrene	µg/L	<	1.04									
	3,4-Benzofluoranthene	µg/L	<	1.04									
	Benzo(ghi)Perylene	µg/L	<	1.04									
	Benzo(k)Fluoranthene	µg/L	<	1.04									
	Bis(2-Chloroethoxy)Methane	µg/L	<	1.04									
	Bis(2-Chloroethyl)Ether	µg/L	<	1.04									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	1.04									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3.12									
	4-Bromophenyl Phenyl Ether	µg/L	<	1.04									
	Butyl Benzyl Phthalate	µg/L	<	3.12									
	2-Chloronaphthalene	µg/L	<	1.04									
	4-Chlorophenyl Phenyl Ether	µg/L	<	1.04									
	Chrysene	µg/L	<	1.04									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.04									
	1,2-Dichlorobenzene	µg/L	<	0.4									
	1,3-Dichlorobenzene	µg/L	<	0.2									
	1,4-Dichlorobenzene	µg/L	<	0.4									
	3,3-Dichlorobenzidine	µg/L	<	1.04									
	Diethyl Phthalate	µg/L	<	1.04									
	Dimethyl Phthalate	µg/L	<	1.04									
	Di-n-Butyl Phthalate	µg/L	<	3.12									
	2,4-Dinitrotoluene	µg/L	<	1.04									
	2,6-Dinitrotoluene	µg/L	<	1.04									
	Di-n-Octyl Phthalate	µg/L	<	1.04									
	1,2-Diphenylhydrazine	µg/L	<	1.04									
	Fluoranthene	µg/L	<	1.04									
	Fluorene	µg/L	<	1.04									
	Hexachlorobenzene	µg/L	<	1.04									
	Hexachlorobutadiene	µg/L	<	1.04									
	Hexachlorocyclopentadiene	µg/L	<	1.04									
	Hexachloroethane	µg/L	<	1.04									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.04									

	Isophorone	µg/L	<	1.04										
	Naphthalene	mg/L	<	1.04										
	Nitrobenzene	µg/L	<	1.04										
	n-Nitrosodimethylamine	µg/L	<	1.04										
	n-Nitrosodi-n-Propylamine	µg/L	<	1.04										
	n-Nitrosodiphenylamine	µg/L	<	1.04										
	Phenanthrene	µg/L	<	1.04										
	Pyrene	µg/L	<	1.04										
	1,2,4-Trichlorobenzene	µg/L	<	1.04										
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												

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Ellwood National Forge, NPDES Permit No. PA000746, Outfall 101

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Brokenstraw 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	055847	1.53	1164	327			Yes
End of Reach 1	055847	0.1618	1148	328			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.53	0.0856										100	7		
End of Reach 1	0.1618	0.0856													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.53														
End of Reach 1	0.1618														

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Toxics Management Spreadsheet
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Model Results

Ellwood National Forge, NPDES Permit No. PA000746, Outfall 101

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ ***AFC*** CCT (min): 15 PMF: 0.250 Analysis Hardness (mg/l): 103.3 Analysis pH: 7.00

Pollutants	Stream Conc	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	378,025	
Total Antimony	0	0		0	1,100	1,100	554,436	
Total Arsenic	0	0		0	340	340	171,371	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	10,584,695	
Total Boron	0	0		0	8,100	8,100	4,082,668	
Total Cadmium	0	0		0	2.078	2.2	1,111	Chem Translator of 0.943 applied
Total Chromium (III)	0	0		0	585.106	1,852	933,269	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	8,212	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	47,883	
Total Copper	0	0		0	13.856	14.4	7,275	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	66.902	85.1	42,887	Chem Translator of 0.786 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	830	Chem Translator of 0.85 applied
Total Nickel	0	0		0	481.266	482	243,060	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.401	4.0	2,017	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	32,762	
Total Zinc	0	0		0	120.446	123	62,075	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	1,512	
Acrylonitrile	0	0		0	650	650	327,622	
Benzene	0	0		0	640	640	322,581	

Bromoform	0	0		0	1,800	1,800	907,260	
Carbon Tetrachloride	0	0		0	2,800	2,800	1,411,293	
Chlorobenzene	0	0		0	1,200	1,200	604,840	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	9,072,596	
Chloroform	0	0		0	1,900	1,900	957,663	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	7,560,497	
1,1-Dichloroethylene	0	0		0	7,500	7,500	3,780,248	
1,2-Dichloropropane	0	0		0	11,000	11,000	5,544,364	
1,3-Dichloropropylene	0	0		0	310	310	156,250	
Ethylbenzene	0	0		0	2,900	2,900	1,461,696	
Methyl Bromide	0	0		0	550	550	277,218	
Methyl Chloride	0	0		0	28,000	28,000	14,112,927	
Methylene Chloride	0	0		0	12,000	12,000	6,048,397	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	504,033	
Tetrachloroethylene	0	0		0	700	700	352,823	
Toluene	0	0		0	1,700	1,700	856,856	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	3,427,425	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	1,512,099	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	1,713,713	
Trichloroethylene	0	0		0	2,300	2,300	1,159,276	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	282,259	
2,4-Dichlorophenol	0	0		0	1,700	1,700	856,856	
2,4-Dimethylphenol	0	0		0	660	660	332,662	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	40,323	
2,4-Dinitrophenol	0	0		0	660	660	332,662	
2-Nitrophenol	0	0		0	8,000	8,000	4,032,265	
4-Nitrophenol	0	0		0	2,300	2,300	1,159,276	
p-Chloro-m-Cresol	0	0		0	160	160	80,645	
Pentachlorophenol	0	0		0	8.731	8.73	4,401	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	231,855	
Acenaphthene	0	0		0	83	83.0	41,835	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	151,210	
Benzo(a)Anthracene	0	0		0	0.5	0.5	252	
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	15,120,993	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	2,268,149	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	136,089	
Butyl Benzyl Phthalate	0	0		0	140	140	70,565	
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	413,307	
1,3-Dichlorobenzene	0	0		0	350	350	176,412	
1,4-Dichlorobenzene	0	0		0	730	730	367,944	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	2,016,132	
Dimethyl Phthalate	0	0		0	2,500	2,500	1,260,083	
Di-n-Butyl Phthalate	0	0		0	110	110	55,444	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	806,453	
2,6-Dinitrotoluene	0	0		0	990	990	498,993	
1,2-Diphenylhydrazine	0	0		0	15	15.0	7,560	
Fluoranthene	0	0		0	200	200	100,807	
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	5,040	
Hexachlorocyclopentadiene	0	0		0	5	5.0	2,520	
Hexachloroethane	0	0		0	60	60.0	30,242	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	5,040,331	
Naphthalene	0	0		0	140	140	70,565	
Nitrobenzene	0	0		0	4,000	4,000	2,016,132	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	8,568,563	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	151,210	
Phenanthrene	0	0		0	5	5.0	2,520	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	65,524	

☑ ***CFC*** CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): 100.83 Analysis pH: 7.00

Pollutants	Stream Conc	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	442,514	
Total Arsenic	0	0		0	150	150	301,714	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	8,246,858	
Total Boron	0	0		0	1,600	1,600	3,218,286	
Total Cadmium	0	0		0	0.247	0.27	548	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.616	86.8	174,517	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	20,909	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	38,217	
Total Copper	0	0		0	9.019	9.39	18,897	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	3,017,143	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.539	3.22	6,467	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1,822	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.370	52.5	105,655	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	10,035	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	26,149	
Total Zinc	0	0		0	118.966	121	242,689	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	6,034	
Acrylonitrile	0	0		0	130	130	261,486	
Benzene	0	0		0	130	130	261,486	
Bromoform	0	0		0	370	370	744,229	
Carbon Tetrachloride	0	0		0	560	560	1,126,400	
Chlorobenzene	0	0		0	240	240	482,743	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	7,040,001	
Chloroform	0	0		0	390	390	784,457	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	6,235,429	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,017,143	
1,2-Dichloropropane	0	0		0	2,200	2,200	4,425,143	
1,3-Dichloropropylene	0	0		0	61	61.0	122,697	
Ethylbenzene	0	0		0	580	580	1,166,629	
Methyl Bromide	0	0		0	110	110	221,257	
Methyl Chloride	0	0		0	5,500	5,500	11,062,858	
Methylene Chloride	0	0		0	2,400	2,400	4,827,429	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	422,400	
Tetrachloroethylene	0	0		0	140	140	281,600	
Toluene	0	0		0	330	330	663,771	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	2,816,000	
1,1,1-Trichloroethane	0	0		0	610	610	1,226,972	
1,1,2-Trichloroethane	0	0		0	680	680	1,367,772	
Trichloroethylene	0	0		0	450	450	905,143	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	221,257	
2,4-Dichlorophenol	0	0		0	340	340	683,886	
2,4-Dimethylphenol	0	0		0	130	130	261,486	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	32,183	
2,4-Dinitrophenol	0	0		0	130	130	261,486	
2-Nitrophenol	0	0		0	1,600	1,600	3,218,286	
4-Nitrophenol	0	0		0	470	470	945,372	
p-Chloro-m-Cresol	0	0		0	500	500	1,005,714	
Pentachlorophenol	0	0		0	6.698	6.7	13,473	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	183,040	
Acenaphthene	0	0		0	17	17.0	34,194	
Anthracene	0	0		0	N/A	N/A	N/A	

Benzidine	0	0		0	59	59.0	118,674	
Benzo(a)Anthracene	0	0		0	0.1	0.1	201	
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	12,068,573	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,830,400	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	108,617	
Butyl Benzyl Phthalate	0	0		0	35	35.0	70,400	
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	321,829	
1,3-Dichlorobenzene	0	0		0	69	69.0	138,789	
1,4-Dichlorobenzene	0	0		0	150	150	301,714	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,609,143	
Dimethyl Phthalate	0	0		0	500	500	1,005,714	
Di-n-Butyl Phthalate	0	0		0	21	21.0	42,240	
2,4-Dinitrotoluene	0	0		0	320	320	643,657	
2,6-Dinitrotoluene	0	0		0	200	200	402,286	
1,2-Diphenylhydrazine	0	0		0	3	3.0	6,034	
Fluoranthene	0	0		0	40	40.0	80,457	
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	4,023	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2,011	
Hexachloroethane	0	0		0	12	12.0	24,137	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	4,224,000	
Naphthalene	0	0		0	43	43.0	86,491	
Nitrobenzene	0	0		0	810	810	1,629,257	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	6,838,858	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	118,674	
Phenanthrene	0	0		0	1	1.0	2,011	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	52,297	

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

Pollutants	Stream Conc	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	11,264	
Total Arsenic	0	0		0	10	10.0	20,114	
Total Barium	0	0		0	2,400	2,400	4,827,429	
Total Boron	0	0		0	3,100	3,100	6,235,429	
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	603,429	
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	2,011,429	
Total Mercury	0	0		0	0.050	0.05	101	
Total Nickel	0	0		0	610	610	1,226,972	
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	483	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	6,034	
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	201,143	
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	11,465	
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	66,377	
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	136,777	
Methyl Bromide	0	0		0	100	100.0	201,143	
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	114,651	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	201,143	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	20,114,288	
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	60,343	
2,4-Dichlorophenol	0	0		0	10	10.0	20,114	
2,4-Dimethylphenol	0	0		0	100	100.0	201,143	

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	4,023	
2,4-Dinitrophenol	0	0		0	10	10.0	20,114	
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	8,045,715	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	140,800	
Anthracene	0	0		0	300	300	603,429	
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	402,286	
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	201	
2-Chloronaphthalene	0	0		0	800	800	1,609,143	
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	2,011,429	
1,3-Dichlorobenzene	0	0		0	7	7.0	14,080	
1,4-Dichlorobenzene	0	0		0	300	300	603,429	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,206,857	
Dimethyl Phthalate	0	0		0	2,000	2,000	4,022,858	
Di-n-Butyl Phthalate	0	0		0	20	20.0	40,229	
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	40,229	
Fluorene	0	0		0	50	50.0	100,571	
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	8,046	
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	68,389	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	20,114	
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	40,229	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	141	

☑ ***CRL*** CCT (min): 84.220 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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	
Acrylonitrile	0	0		0	0.06	0.06	589	
Benzene	0	0		0	0.58	0.58	5,694	
Bromoform	0	0		0	7	7.0	68,722	
Carbon Tetrachloride	0	0		0	0.4	0.4	3,927	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	7,854	
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	9,327	
1,2-Dichloroethane	0	0		0	9.9	9.9	97,192	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	8,836	
1,3-Dichloropropylene	0	0		0	0.27	0.27	2,651	
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	196,348	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1,963	

Tetrachloroethylene	0	0		0	10	10.0	98,174	
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	5,400	
Trichloroethylene	0	0		0	0.6	0.6	5,890	
Vinyl Chloride	0	0		0	0.02	0.02	196	
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	295	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	14,726	
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	0.98	
Benzo(a)Anthracene	0	0		0	0.001	0.001	9.82	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.98	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	9.82	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	98.2	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	295	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	3,142	
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	1,178	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.98	
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	491	
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	491	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	491	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	295	
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	0.79	
Hexachlorobutadiene	0	0		0	0.01	0.01	98.2	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	982	

Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	9.82	
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	6.87	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	49.1	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	32,397	
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
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	5,264	AFC	Discharge Conc > 10% WQBEL (no RP)

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

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	242,299	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	11,264	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	20,114	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	4,827,429	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,616,825	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	548	µg/L	Discharge Conc < TQL
Total Chromium (III)	174,517	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	30,691	µg/L	Discharge Conc < TQL
Total Copper	4,663	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	603	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	3,017,143	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	6,467	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,011,429	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	101	µg/L	Discharge Conc ≤ 10% WQBEL

Total Nickel	105,655	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	10,035	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	1,293	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	483	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	39,787	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	969	µg/L	Discharge Conc < TQL
Acrylonitrile	589	µg/L	Discharge Conc < TQL
Benzene	5.69	mg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	68,722	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	3,927	µg/L	Discharge Conc < TQL
Chlorobenzene	201,143	µg/L	Discharge Conc < TQL
Chlorodibromomethane	7,854	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	5,815,168	µg/L	Discharge Conc < TQL
Chloroform	11,465	µg/L	Discharge Conc < TQL
Dichlorobromomethane	9,327	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	97,192	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	66,377	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	8,836	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2,651	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	136,777	µg/L	Discharge Conc < TQL
Methyl Bromide	177,686	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	9,045,816	µg/L	Discharge Conc < TQL
Methylene Chloride	196,348	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	1,963	µg/L	Discharge Conc < TQL
Tetrachloroethylene	98,174	µg/L	Discharge Conc < TQL
Toluene	115	mg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	201,143	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	969,195	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	5,400	µg/L	Discharge Conc < TQL
Trichloroethylene	5,890	µg/L	Discharge Conc < TQL
Vinyl Chloride	196	µg/L	Discharge Conc < TQL
2-Chlorophenol	60,343	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	20,114	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	201,143	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	4,023	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	20,114	µg/L	Discharge Conc < TQL
2-Nitrophenol	2,584,519	µg/L	Discharge Conc ≤ 25% WQBEL
4-Nitrophenol	743,049	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	51,690	µg/L	Discharge Conc < TQL
Pentachlorophenol	295	µg/L	Discharge Conc < TQL
Phenol	8,045,715	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	14,726	µg/L	Discharge Conc < TQL
Acenaphthene	26,814	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS

Anthracene	603,429	µg/L	Discharge Conc < TQL
Benzidine	0.98	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	9.82	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.98	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	9.82	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	98.2	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	295	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	402,286	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	3,142	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	87,228	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	201	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,609,143	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1,178	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.98	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	264,913	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	14,080	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	235,837	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	491	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,206,857	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	807,662	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	35,537	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	491	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	491	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	295	µg/L	Discharge Conc < TQL
Fluoranthene	40,229	µg/L	Discharge Conc < TQL
Fluorene	100,571	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.79	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	98.2	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	1,615	µg/L	Discharge Conc < TQL
Hexachloroethane	982	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	9.82	µg/L	Discharge Conc < TQL
Isophorone	68,389	µg/L	Discharge Conc < TQL
Naphthalene	45.2	mg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	20,114	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	6.87	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	49.1	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	32,397	µg/L	Discharge Conc < TQL
Phenanthrene	1,615	µg/L	Discharge Conc < TQL
Pyrene	40,229	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	141	µg/L	Discharge Conc ≤ 25% WQBEL

Attachment 3 – Thermal Limits Spreadsheet – Outfall 001

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Instructions | *Inputs*

Facility: **Ellwood National Forge**

Permit No.: **PA0004766**

Stream Name: **Brokenstraw Creek**

Analyst/Engineer: **Dustin Hargenrater**

Stream Q7-10 (cfs)*: **28.0**

Outfall No.: **001**

Analysis Type*: **CWF**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		1.13		1.13
Feb 1-29		1.13		1.13
Mar 1-31		1.13		1.13
Apr 1-15		1.13		1.13
Apr 16-30		1.13		1.13
May 1-15		1.13		1.13
May 16-31		1.13		1.13
Jun 1-15		1.13		1.13
Jun 16-30		1.13		1.13
Jul 1-31		1.13		1.13
Aug 1-15		1.13		1.13
Aug 16-31		1.13		1.13
Sep 1-15		1.13		1.13
Sep 16-30		1.13		1.13
Oct 1-15		1.13		1.13
Oct 16-31		1.13		1.13
Nov 1-15		1.13		1.13
Nov 16-30		1.13		1.13

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	89.60	91.35
3.5	1.00	98.00	99.75
7	1.00	196.00	197.75
9.3	1.00	260.40	262.15
9.3	1.00	260.40	262.15
5.1	1.00	142.80	144.55
5.1	1.00	142.80	144.55
3	1.00	84.00	85.75
3	1.00	84.00	85.75
1.7	1.00	47.60	49.35
1.4	1.00	39.20	40.95
1.4	1.00	39.20	40.95
1.1	1.00	30.80	32.55
1.1	1.00	30.80	32.55
1.2	1.00	33.60	35.35
1.2	1.00	33.60	35.35
1.6	1.00	44.80	46.55
1.6	1.00	44.80	46.55

Dec 1-31		1.13		1.13	2.4	1.00	67.20	68.95

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Thermal Limits Spreadsheet
Version 1.0, April 2024

Instructions | *CWF Results*

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	**CWF** Target Maximum Stream Temp. (°F)	**Case 1** Daily WLA (Million BTUs/day)	**Case 2** Daily WLA (°F)
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	53	N/A -- Case 2	110.0
May 1-15	56	N/A -- Case 2	110.0
May 16-31	60	N/A -- Case 2	110.0
Jun 1-15	64	N/A -- Case 2	110.0
Jun 16-30	68	N/A -- Case 2	110.0
Jul 1-31	72	N/A -- Case 2	99.2
Aug 1-15	71	N/A -- Case 2	93.4
Aug 16-31	71	N/A -- Case 2	93.4
Sep 1-15	67	N/A -- Case 2	84.6
Sep 16-30	61	N/A -- Case 2	78.6
Oct 1-15	56	N/A -- Case 2	75.2
Oct 16-31	52	N/A -- Case 2	71.2
Nov 1-15	47	N/A -- Case 2	72.6
Nov 16-30	42	N/A -- Case 2	93.3
Dec 1-31	40	N/A -- Case 2	110.0

Attachment 4 – ELG Limit Calculation – Outfall 101

Production Based Effluent Limitation Guideline Calculator

Production Line and Process Description
Iron and Steel Manufacturing Point Source
Applicable ELG
40 CFR 420 - Subpart E (Vacuum Degassing)
Outfall / IMP No. receiving wastewater
101
Units of Production measurement for ELG
1,000 lbs of product.
Design Production Capacity
300,000

Parameter	Production Years					5 Year Averages
	2021	2022	2023	2024	2025	
Total Annual Production	54,773.58	88,347.30	66,945.72	51,119.16	79,274.49	68,092.05
Max Monthly Production	7,282.96	10,060.52	**10,502.20**	5492.46	9264.22	8,520.47
Month of Max Production	October	October	January	February	July	
Avg Annual Production	329.96	424.74	437.56	419.01	450.42	412.338
Avg Production Hours/Day	1.15	1.73	1.54	1.39	1.34	1.43
Avg Production Days/Month	13.83	17.33	**12.75**	10.17	14.67	13.75
Avg Annual Water Usage (MGD)	0.0001084	0.0008654	0.0001176	0.00015	0.0001	0.00026828
Avg Annual Wastewater Flow (MGD)	0.0001084	0.0008654	0.0001176	0.00015	0.0001	0.00026828

Average Annual Production Over Past 5 years
68,092.05 1,000 lbs of product
Anticipated Average Annual Production over next 5 years
68,092.05 1,000 lbs of product

Daily Max Production Max Monthly Production/Avg Production Days/Month 10,502.20 / 12.75 = 823.7
823.70 1,000 lbs of product

ELG Limit Calculation				
	ELG - BPT/BAT Effluent Limits (lbs/1,000 lbs of product)		Mass Based Effluent Limits (lbs/day)	
Pollutant	Max for Any 1 Day	Average Daily Value for 30 Consecutive Days	Average Monthly	Maximum Daily
Total Suspended Solids (BPT - 420.52)	0.0156	0.00521	4.29	12.85
pH (BPT - 420.52)	Within the range of 6.0 to 9.0		Within the range of 6.0 to 9.0	
Total Lead (BAT - 420.53)	0.0000939	0.0000313	0.03	0.08
Total Zinc (BAT - 420.53)	0.000141	0.0000469	0.04	0.12

Example Calculation **TSS**
Daily Max Production x ELG BPT/BAT Effluent Limits 0.0156 x 823.70 = 12.84972
0.00521 x 823.70 = 4.291477
*Repeat process for Total Lead and Total Zinc