pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0029491**
Facility Type	**Non-Municipal**	APS ID	**1040514**
Major / Minor	**Major**	Authorization ID	**1357276**

Applicant and Facility Information

Applicant Name	**PA American Water Company**	Facility Name	**Clarion Area STP**
Applicant Address	852 Wesley Drive	Facility Address	279 CAA Lane
	Mechanicsburg, PA 17055-4436		Clarion, PA 16214-8553
Applicant Contact	Dale Warner	Facility Contact	Michelle Cavallo (Production Supervisor)
Applicant Phone	(814) 280-0013 (dale.warner@amwater.com)	Facility Phone	(814) 226-6240 (michelle.cavallo@amwater.com)
Client ID	87712	Site ID	262003
Ch 94 Load Status	Not overloaded	Municipality	Monroe Township
Connection Status	No prohibitions.	County	Clarion
Date Application Received	June 8, 2021	EPA Waived?	No
Date Application Accepted	June 16, 2021	If No, Reason	Major Facility

Purpose of Application: Renewal of an NPDES Permit for an existing discharge of treated sewage

Summary of Review

This is a privately-owned treatment works treating municipal sewage received from Clarion Borough, Clarion Township, Monroe Township, and Strattanville Borough.

WET testing will be added to the renewed permit as required under 25 Pa. Code § 92a.27.A(1)(i) and in accordance with the Department's SOP entitled "Whole Effluent Toxicity (SOP No. BPNPSM-PMT-031)."

There are currently ten violations listed in EFACTS for this client (1/15/2025). All violations are at other facilities in other regions.

Sludge use and disposal description and location(s): Sludge is dewatered and transported via Waste Management to a landfill.

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		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	January 15, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	January 24, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.9
Latitude	41º 12' 8.1"	Longitude	-79º 24' 22.6"
Quad Name	Clarion	Quad Code	04064
Wastewater Description:	Treated domestic sewage		
Receiving Waters	Trout Run (CWF)	Stream Code	49635
NHD Com ID	102670445	RMI	0.18
Drainage Area	962	Yield (cfs/mi^2)	0.0706[1]
Q_{7-10} Flow (cfs)	181.7[2]	Q_{7-10} Basis	USGS 03029500 ('54-'08)
Elevation (ft)	1093	Slope (ft/ft)	
Watershed No.	17-B	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired*		
Cause(s) of Impairment	Metals, Nutrients, Organic Enrichment, Total Suspended Solids (TSS)		
Source(s) of Impairment	Acid Mine Drainage, On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.8	Clarion River TMDL – Sample point TR01
Temperature (°C)	20	Default (CWF)
Hardness (mg/L)	58	Clarion Raw Water Intake 2020 average
Other:		

Nearest Downstream Public Water Supply Intake		Parker City Water System	
PWS Waters	Allegheny River	Flow at Intake (cfs)	2050
PWS RMI	85.0	Distance from Outfall (mi)	30

Changes Since Last Permit Issuance:

Other Comments: *Our Region's Biologist verified that the Nutrients, Organic Enrichment/Low D.O. & Suspended Solids impairment to Trout Run (all related to on-site wastewater) is not appropriate given the changes since the initial listing of the stream. That survey was done when the facility discharged to the free-flowing section of Trout Run. They have since re-established the discharge back to the backwater area at the mouth of stream. The PA American changes to the facility and sewer system have also improved the quality of the effluent being discharged. A re-evaluation of the stream is warranted. Refer to the 10/7/16 e-mail from Joe Brancato.

([1]) – Accumulated yield was derived from USGS# 03029500 pre-regulated flow for tributary flow below the Cooksburg, PA gage (1940-1952).
([2]) – Flowrate uses Clarion River flow after confluence of Trout Run because the discharge is to the backwash area at the mouth of Trout Run.

Treatment Facility Summary

Treatment Facility Name: Clarion Area STP

WQM Permit No.	Issuance Date
1612402	12/20/2012
1612402 A-1	5/1/2018
1612402 A-2	2/19/2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with Ammonia Reduction	Contact Stabilization	Ultraviolet Disinfection	2.9

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.9	3650	Existing Hydraulic Overload	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: WQM Permit Nos. 1612402 Amendment No. 2 & 3 were issued (details below)

Other Comments: **WQM #1612402**: (2) 1.9-million-gallon equalization tanks with a wet weather lift station, vortex separator (for grit removal), automatic mechanically cleaned fine screen with a manual bypass bar screen, new influent flow meter (Parshall flume), new process water and plant drainage pump stations. The existing equalization tank will be converted to an aerobic digestion tank and also serve as a reserve stabilization tank. The original digestion tank will be combined with the existing thickening tank and sludge holding tank to create a single, large digester with the same capacity of the converted equalization tank.

The unit processes constructed under WQM #1673401 that will remain are: contact/stabilization tanks, (4) clarifiers and (2) chlorine contact tanks. This former permit was incorporated into WQM #1612402.

Process improvements detailed in a 7/25/16 e-mail: (not resulting in a formal amendment)

1. **Additional air line from process blowers to contact and stabilization tanks** - Currently, the four blowers within the control building feed into one air header and provide air to the contact and stabilization tanks. Manual valves are used to balance the air between the contact and stabilization tanks. We are looking at the potential to add an additional air line that would allow us to dedicate a set of two blowers to each tank. This should allow us to have better control over the air and provides greater operational flexibility.

2. **Flow control to the clarifiers** - Clarifiers #1 and #2 were constructed in the 1960's and are smaller than Clarifiers #3 and #4 that were built in the 1960's. Flow to the clarifiers is regulated by the size of the flow channels and by manual slide gates. We are looking into installing some weir gates within the channels to allow us to optimize the flow to the clarifiers.

3. **Clarifier skimmings to digestor** - Currently the clarifier skimmings are directed to the plant drain lift station and returned back to the head of the plant. We are looking into a way to divert the skimmings to the digestor. We are proposing to install a short force main branch off of the existing force main from the plant drain lift station. The force main branch would include valving that would allow the operator to divert the plant drain lift station flow to the digestor during times when the clarifier skimmers would be in operation.

4. **Automated slide gates for clarifiers** - Prior to our acquisition of the system, automated gates were placed in the flow channels to clarifiers #1 and #2. During low flows, clarifiers #1 and/or #2 would be taken off-line to prevent treatment issues. From our understanding, the automated gates were installed so that during a rain event, the gates would automatically open and place the clarifier(s) online. This was accomplished by a level sensor in the flow channel. The automated gates were decommissioned as part of the recent improvements project. We are looking at the potential of bringing the gates back online and controlling their operation based on influent flow readings rather than level.

Process improvements detailed in a 6/22/16 e-mail: (not resulting in a formal amendment)

There are currently four Spencer centrifugal blowers at the Clarion WWTP that provide air to the contact and stabilization tanks and also provide air to some air lift pumps in the digesters. The Spencer blowers were installed in the 1980's. During the recent improvements, new motors and VFDs were installed on the Spencer blowers.

We are replacing blowers #2 and #3 with new, positive displacement Gardner Denver Heliflow units. We will be utilizing the existing motors and VFDs. The new blowers will provide a greater range of flow and will replace the blowers that are near the end of their useful life. The new blowers are of similar size to the existing blowers and will be able to meet the aeration needs of the plant. The new blowers will be able to be controlled via SCADA and can fluctuate air output based on DO levels in the treatment tanks. Blowers #1 and #4 will remain in service.

WQM# 1612402 A-1 - Replacement of the existing belt filter press, polymer feed system, and sludge conveyor system within the existing belt filter press building with a new volute press (Design Capacity = 0.081 MGD, 2,700 lbs/day), dry polymer feed system (Design Capacity = 0.000072 MGD), and conveyor system, enhancements to the sludge dumpster storage area, and associated appurtenances.

WQM# 1612402 A-2 - Replace the gaseous chlorine disinfection system with a redundant UV disinfection system. The UV units will be located in a new building in the area of the existing Chlorine Contact Tank No. 1. Replace the manually added dry lime system with a new 8,000-gallon capacity bulk storage liquid lime feed system near the Headworks Building. A new cascade aerator structure on the plant effluent line.

Compliance History	
Summary of DMRs:	There have been no effluent violations in the last six years. A noted violation in February 2022 of IMAX fecal coliform limit was incorrectly logged (>2420 no./100 ml) when limit was 10000 no./100 ml.
Summary of Inspections:	The last site inspection was conducted on 6/5/2023. No violations were noted. The inspection report mentions extensive I&I work has been done on the collection system since it was sold to PA American Water Co., and as a result hydraulic flows to the plant have dramatically decreased. The new UV unit was not operational at the time of the inspection due to some engineering issues.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	1.590	0.859	0.789	0.764	0.668	1.062	1.279	0.733	0.616	0.779	1.268	0.978
Flow (MGD) Weekly Average	2.373	1.077	1.005	1.383	0.847	1.385	1.629	1.257	0.947	1.200	1.625	1.386
pH (S.U.) Minimum	6.4	6.5	6.5	6.4	6.3	6.4	6.7	6.7	6.6	6.5	6.4	6.4
pH (S.U.) Maximum	7.1	7.0	7.0	6.8	6.9	7.3	7.3	7.1	7.0	6.9	7.0	6.9
DO (mg/L) Minimum	5.9	4.90	4.7	4.7	4.40	4.3	4.8	4.90	4.40	5.00	4.6	4.50
TRC (mg/L) Average Monthly	0.36	0.41	0.35	0.38	0.43	0.31	0.37	0.40	0.35	0.34	0.34	0.41
TRC (mg/L) Instantaneous Maximum	0.50	0.50	0.50	0.50	0.50	0.49	0.50	0.50	0.49	0.50	0.49	0.50
CBOD5 (lbs/day) Average Monthly	86.0	48.0	66.8	19.1	18.8	49.7	37.7	43.8	38.5	39.7	38.9	54.2
CBOD5 (lbs/day) Weekly Average	305.9	86.6	116	22.0	23.8	82.9	56.8	81.1	105.2	50.8	43.3	59.9
CBOD5 (mg/L) Average Monthly	5.7	5.9	9.7	3.7	3.5	4.7	5.8	7.4	6.2	6.6	4.6	7.5
CBOD5 (mg/L) Weekly Average	11.5	8.5	17.0	4.5	4.5	7.0	7.5	10.0	11.0	9.0	5.5	9.0
BOD5 (lbs/day) Influent Average Monthly	1488.3	1109.6	1623.0	928.7	1219.8	1117.0	948.3	1028.4	1050.1	1323.5	894.6	1320.2
BOD5 (mg/L) Influent Average Monthly	118.3	121.4	201.4	177.8	219.1	113.7	129.6	185.8	187.0	178.9	101.1	159.9
TSS (lbs/day) Average Monthly	96.0	82.2	81.2	35.8	40.6	98.1	63.3	54.7	45.4	58.3	71.4	128.3
TSS (lbs/day) Influent Average Monthly	926.7	1103.7	1252.8	960.5	1224.8	1401.2	764.3	1003.2	868.1	1133.1	911.6	1130.5
TSS (lbs/day) Weekly Average	306.7	201.0	88.2	51.1	52.6	187.1	85.3	124.5	124.7	100	93.9	154.4

TSS (mg/L) Average Monthly	6.6	9.1	12.3	6.9	7.5	8.5	9.9	8.5	7.2	9.1	8.2	17.4
TSS (mg/L) Influent Average Monthly	93.6	123.9	169.6	181.8	220.5	154.1	110.4	162.3	146.6	166.5	101.9	136
TSS (mg/L) Weekly Average	12.5	19.0	15.0	8.5	9.0	12.0	12.0	13.5	13.0	11.0	9.8	23.0
Fecal Coliform (No./100 ml) Geometric Mean	2	5	1	1	1	2	4	11	2	1	2	2
Fecal Coliform (No./100 ml) Instantaneous Maximum	14	24	6	12	2	42	15	58	4	4	14	9
Total Nitrogen (mg/L) Average Monthly	< 20.2	14.58	19.3	< 34.2	32.8	< 29.7	11.5	12.02	20.2	13.74	11.88	17.4
Total Phosphorus (mg/L) Average Monthly	1.66	2.07	2.74	4.18	2.93	3.94	1.5	4.4	2.4	1.06	1.06	1.73

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.9
Latitude 41º 12' 8.1" **Longitude** -79º 24' 22.6"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
E. Coli	Report (No./100 ml)	IMAX	-	92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

The plant had installed UV disinfection, which became operational in October of 2024. Therefore, the TRC limits are no longer applicable.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
None			

Comments: The Toxics Management Spreadsheet (attached) recommended monitoring for total copper and total zinc. Monitoring for these parameters will be placed in the draft permit at a frequency of 2/month.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen limit of a minimum of 4.0 mg/l and monitoring for ammonia nitrogen, total nitrogen, total phosphorus, and UV intensity was placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Influent monitoring for TSS and BOD5 was placed in the permit in accordance with the Department's SOP entitled "New and Reissuance of Sewage Individual NPDES Permit Applications (SOP No. BCW-PMT-002)."

Annual monitoring for PFAS parameters – PFOA, PFOS, PFBS, and HFPO-DA –was added to the renewed permit in accordance with Department directive under the authority of Chapter 92a.51. A footnote was also for discontinuation of sampling requirements for PFAS parameters after four consecutive non-detect are reported for all parameters at or below the Target QLs. Note annual sampling was chosen because this is a major POTW that does not have any industrial users.

Anti-Backsliding

N/A

Whole Effluent Toxicity (WET)

Comments: A requirement to do annual WET testing will be required in the renewed permit under the authority of 25 Pa. Code § 92a.27.A(1)(i) and in accordance with the Department's SOP entitled "Whole Effluent Toxicity (SOP No. BPNPSM-PMT-031)."

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.067** Chronic Partial Mix Factor (PMFc): **0.463**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.9 MGD x 1.547) / ((181.7 cfs x 0.067) + (2.9 MGD x 1.547))] x 100 = **26.9%**

Is IWCa < 1%? ☐ **YES** ☒ **NO**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

n/a

Type of Test for Permit Renewal: **Chronic**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.9 MGD x 1.547) / ((181.7 cfs x 0.463) + (2.9 MGD x 1.547))] x 100 = **5%**

3. Determine Dilution Series

Dilution Series = 100%, 60%, 30%, 5%, and 2%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

Comments: Not applicable as WETT Testing was not previously done.

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
UV Intensity (µW/cm^2)	XXX	XXX	Report Daily Min	Report	XXX	XXX	1/day	Measured
CBOD5	605	967	XXX	25.0	40.0	50	2/week	24-Hr Composite
BOD5 Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	726	1088	XXX	30.0	45.0	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia Nitrogen	Report	XXX		Report	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Outfall 001, Continued (from 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Total Zinc	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 (after disinfection)

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**28.970**	1093.00	962.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.071	181.70	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.80	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Clarion Area ST	PA0029491	2.9000	0.0000	0.0000	0.000	20.00	6.70

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.10	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**26.430**	1090.00	966.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.071	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.80	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
28.970	181.70	0.00	181.70	4.4863	0.00022	1.165	237.19	203.65	0.67	0.230	20.00	7.69
Q1-10 Flow												
28.970	116.29	0.00	116.29	4.4863	0.00022	NA	NA	NA	0.53	0.293	20.00	7.64
Q30-10 Flow												
28.970	247.11	0.00	247.11	4.4863	0.00022	NA	NA	NA	0.80	0.195	20.00	7.72

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
28.970	Clarion Area ST	7.36	50	7.36	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
28.970	Clarion Area ST	1.12	25	1.12	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
28.97	Clarion Area ST	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
28.970	2.900	20.000	7.693
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
237.191	1.165	203.650	0.674
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.55	0.310	0.70	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.141	0.703	Tsivoglou	6
Reach Travel Time (days)			
0.230			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.023	2.54	0.69	8.08
0.046	2.52	0.68	8.02
0.069	2.50	0.67	7.96
0.092	2.48	0.66	7.91
0.115	2.46	0.65	7.85
0.138	2.45	0.64	7.80
0.161	2.43	0.63	7.75
0.184	2.41	0.62	7.70
0.207	2.40	0.61	7.66
0.230	2.38	0.60	7.61

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
28.970	Clarion Area ST	PA0029491	2.900	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Clarion Area STP - TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	181.7	= Q stream (cfs)		0.5	= CV Daily	
5	2.9	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		0.1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		0.463	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 1.311		1.3.2.iii	WLA cfc = 5.843
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.489		5.1d	LTA_cfc = 3.397
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

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

Clarion Area STP
Monroe Township, Clarion County
PA0029491 Discharge pH

Outfall 001

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Jul-21	6.6	7.4	2.51E-07	3.98E-08	1.45E-07	**6.8**
Aug-21	6.5	7.3	3.16E-07	5.01E-08	1.83E-07	**6.7**
Sep-21	6.3	7.4	5.01E-07	3.98E-08	2.7E-07	**6.6**
Jul-22	6.7	7.1	2E-07	7.94E-08	1.39E-07	**6.9**
Aug-22	6.5	6.9	3.16E-07	1.26E-07	2.21E-07	**6.7**
Sep-22	6.5	7.1	3.16E-07	7.94E-08	1.98E-07	**6.7**
Jul-23	6.7	7.3	2E-07	5.01E-08	1.25E-07	**6.9**
Aug-23	6.4	7.3	3.98E-07	5.01E-08	2.24E-07	**6.6**
Sep-23	6.3	6.9	5.01E-07	1.26E-07	3.14E-07	**6.5**
					Median:	**6.7**

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Clarion Area STP** NPDES Permit No.: **PA0029491** Outfall No.: **001**

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

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
2.9	151	6.7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		462									
	Chloride (PWS)	mg/L		145									
	Bromide	mg/L		0.1									
	Sulfate (PWS)	mg/L		45.8									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		53.8									
	Total Antimony	µg/L		0.7									
	Total Arsenic	µg/L	<	0.5									
	Total Barium	µg/L		43.6									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		120									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L		1.7									
	Hexavalent Chromium	µg/L		2.3									
	Total Cobalt	µg/L		1.1									
	Total Copper	µg/L		13.91									
	Free Cyanide	µg/L	<	10									
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		39									
	Total Iron	µg/L		86									
	Total Lead	µg/L		0.4									
	Total Manganese	µg/L		25.3									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		7.9									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	0.5									
	Total Silver	µg/L	<	0.1									
	Total Thallium	µg/L	<	0.1									
	Total Zinc	µg/L		117									
	Total Molybdenum	µg/L		0.8									
	Acrolein	µg/L	<	0.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.2									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.2									
	Chlorobenzene	µg/L	<	0.2									
	Chlorodibromomethane	µg/L	<	0.4									
	Chloroethane	µg/L	<	0.2									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L		1.9									
	Dichlorobromomethane	µg/L		0.6									
	1,1-Dichloroethane	µg/L	<	0.2									
	1,2-Dichloroethane	µg/L	<	0.2									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.2									
	1,4-Dioxane	µg/L	<	0.1									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.2									
	Methylene Chloride	µg/L	<	0.4									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.2									
	Tetrachloroethylene	µg/L	<	0.4									
	Toluene	µg/L		0.8									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.2									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.2									
	Vinyl Chloride	µg/L	<	0.2									
Group 4	2-Chlorophenol	µg/L	<	5									
	2,4-Dichlorophenol	µg/L	<	5									
	2,4-Dimethylphenol	µg/L	<	5									
	4,6-Dinitro-o-Cresol	µg/L	<	5									
	2,4-Dinitrophenol	µg/L	<	5									
	2-Nitrophenol	µg/L	<	5									
	4-Nitrophenol	µg/L	<	5									
	p-Chloro-m-Cresol	µg/L	<	5									
	Pentachlorophenol	µg/L	<	5									
	Phenol	µg/L	<	5									
	2,4,6-Trichlorophenol	µg/L	<	5									
Group 5	Acenaphthene	µg/L	<	0.1									
	Acenaphthylene	µg/L	<	0.1									
	Anthracene	µg/L	<	0.1									
	Benzidine	µg/L	<	0.48									
	Benzo(a)Anthracene	µg/L	<	0.1									
	Benzo(a)Pyrene	µg/L	<	0.1									
	3,4-Benzofluoranthene	µg/L	<	0.1									
	Benzo(ghi)Perylene	µg/L	<	0.1									
	Benzo(k)Fluoranthene	µg/L	<	0.1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.1									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.1									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.95									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.1									
	Butyl Benzyl Phthalate	µg/L	<	0.95									
	2-Chloronaphthalene	µg/L	<	0.1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.1									
	Chrysene	µg/L	<	0.1									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.1									
	1,2-Dichlorobenzene	µg/L	<	0.1									
	1,3-Dichlorobenzene	µg/L	<	0.1									
	1,4-Dichlorobenzene	µg/L	<	0.1									
	3,3-Dichlorobenzidine	µg/L	<	0.48									
	Diethyl Phthalate	µg/L	<	0.95									
	Dimethyl Phthalate	µg/L	<	0.95									
	Di-n-Butyl Phthalate	µg/L	<	0.95									
	2,4-Dinitrotoluene	µg/L	<	0.19									

	2,6-Dinitrotoluene	µg/L	<	0.19									
	Di-n-Octyl Phthalate	µg/L	<	0.95									
	1,2-Diphenylhydrazine	µg/L	<	0.1									
	Fluoranthene	µg/L	<	0.1									
	Fluorene	µg/L	<	0.1									
	Hexachlorobenzene	µg/L	<	0.1									
	Hexachlorobutadiene	µg/L	<	0.1									
	Hexachlorocyclopentadiene	µg/L	<	0.48									
	Hexachloroethane	µg/L	<	0.1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.1									
	Isophorone	µg/L	<	0.19									
	Naphthalene	µg/L	<	0.1									
	Nitrobenzene	µg/L	<	0.1									
	n-Nitrosodimethylamine	µg/L	<	0.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.1									
	n-Nitrosodiphenylamine	µg/L	<	0.1									
	Phenanthrene	µg/L	<	0.1									
	Pyrene	µg/L	<	0.1									
	1,2,4-Trichlorobenzene	µg/L	<	0.1									
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

Clarion Area STP, NPDES Permit No. PA0029491, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Clarion River**

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	049224	28.97	1094	962			Yes
End of Reach 1	049224	26.43	1090	966		1	Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	28.97	0.0706	181.7									58	7.8		
End of Reach 1	26.43	0.0706										58	7.8		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	28.97														
End of Reach 1	26.43														

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Toxics Management Spreadsheet
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Model Results

Clarion Area STP, NPDES Permit No. PA0029491, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
28.97	181.70		181.70	4.486	0.0003	1.157	235.022	203.131	0.685	0.227	3354.779
26.43	181.98	1.547	180.4354								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
28.97	700.91		700.91	4.486	0.0003	2.079	235.022	113.042	1.444	0.108	1443.795
26.43	701.866	1.547	700.32								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.067 Analysis Hardness (mg/l): 83.08 Analysis pH: 7.18

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	2,781	
Total Antimony	0	0		0	1,100	1,100	4,079	
Total Arsenic	0	0		0	340	340	1,261	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	77,872	
Total Boron	0	0		0	8,100	8,100	30,036	
Total Cadmium	0	0		0	1.682	1.77	6.55	Chem Translator of 0.952 applied
Total Chromium (III)	0	0		0	489.509	1,549	5,744	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	60.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	352	
Total Copper	0	0		0	11.285	11.8	43.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	81.6	

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	52.748	64.5	239	Chem Translator of 0.818 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.11	Chem Translator of 0.85 applied
Total Nickel	0	0		0	400.273	401	1,487	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	2.339	2.75	10.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	241	
Total Zinc	0	0		0	100.148	102	380	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	11.1	
Acrylonitrile	0	0		0	650	650	2,410	
Benzene	0	0		0	640	640	2,373	
Bromoform	0	0		0	1,800	1,800	6,675	
Carbon Tetrachloride	0	0		0	2,800	2,800	10,383	
Chlorobenzene	0	0		0	1,200	1,200	4,450	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	66,748	
Chloroform	0	0		0	1,900	1,900	7,046	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	55,623	
1,1-Dichloroethylene	0	0		0	7,500	7,500	27,811	
1,2-Dichloropropane	0	0		0	11,000	11,000	40,790	
1,3-Dichloropropylene	0	0		0	310	310	1,150	
Ethylbenzene	0	0		0	2,900	2,900	10,754	
Methyl Bromide	0	0		0	550	550	2,040	
Methyl Chloride	0	0		0	28,000	28,000	103,830	
Methylene Chloride	0	0		0	12,000	12,000	44,498	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	3,708	
Tetrachloroethylene	0	0		0	700	700	2,596	
Toluene	0	0		0	1,700	1,700	6,304	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	25,216	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	11,125	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	12,608	
Trichloroethylene	0	0		0	2,300	2,300	8,529	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	2,077	
2,4-Dichlorophenol	0	0		0	1,700	1,700	6,304	
2,4-Dimethylphenol	0	0		0	660	660	2,447	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	297	
2,4-Dinitrophenol	0	0		0	660	660	2,447	
2-Nitrophenol	0	0		0	8,000	8,000	29,666	
4-Nitrophenol	0	0		0	2,300	2,300	8,529	
p-Chloro-m-Cresol	0	0		0	160	160	593	
Pentachlorophenol	0	0		0	10.501	10.5	38.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,706	

Acenaphthene	0	0		0	83	83.0	308	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,112	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.85	
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	111,246	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	16,687	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,001	
Butyl Benzyl Phthalate	0	0		0	140	140	519	
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	3,041	
1,3-Dichlorobenzene	0	0		0	350	350	1,298	
1,4-Dichlorobenzene	0	0		0	730	730	2,707	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	14,833	
Dimethyl Phthalate	0	0		0	2,500	2,500	9,270	
Di-n-Butyl Phthalate	0	0		0	110	110	408	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	5,933	
2,6-Dinitrotoluene	0	0		0	990	990	3,671	
1,2-Diphenylhydrazine	0	0		0	15	15.0	55.6	
Fluoranthene	0	0		0	200	200	742	
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	37.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	18.5	
Hexachloroethane	0	0		0	60	60.0	222	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	37,082	
Naphthalene	0	0		0	140	140	519	
Nitrobenzene	0	0		0	4,000	4,000	14,833	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	63,039	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,112	
Phenanthrene	0	0		0	5	5.0	18.5	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	482	

☑ ***CFC*** CCT (min): 720 PMF: 0.463 Analysis Hardness (mg/l): 62.706 Analysis pH: 7.60

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	4,348	
Total Arsenic	0	0		0	150	150	2,964	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	81,028	
Total Boron	0	0		0	1,600	1,600	31,621	
Total Cadmium	0	0		0	0.178	0.19	3.78	Chem Translator of 0.929 applied
Total Chromium (III)	0	0		0	50.571	58.8	1,162	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	205	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	375	
Total Copper	0	0		0	6.010	6.26	124	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	103	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	62,252	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.509	1.76	34.7	Chem Translator of 0.859 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	17.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	35.041	35.1	695	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	98.6	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	257	
Total Zinc	0	0		0	79.552	80.7	1,595	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	59.3	
Acrylonitrile	0	0		0	130	130	2,569	
Benzene	0	0		0	130	130	2,569	
Bromoform	0	0		0	370	370	7,312	
Carbon Tetrachloride	0	0		0	560	560	11,067	
Chlorobenzene	0	0		0	240	240	4,743	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	69,170	
Chloroform	0	0		0	390	390	7,708	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	61,265	
1,1-Dichloroethylene	0	0		0	1,500	1,500	29,644	
1,2-Dichloropropane	0	0		0	2,200	2,200	43,478	
1,3-Dichloropropylene	0	0		0	61	61.0	1,206	
Ethylbenzene	0	0		0	580	580	11,463	
Methyl Bromide	0	0		0	110	110	2,174	
Methyl Chloride	0	0		0	5,500	5,500	108,696	
Methylene Chloride	0	0		0	2,400	2,400	47,431	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	4,150	
Tetrachloroethylene	0	0		0	140	140	2,767	
Toluene	0	0		0	330	330	6,522	

1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	27,668	
1,1,1-Trichloroethane	0	0		0	610	610	12,055	
1,1,2-Trichloroethane	0	0		0	680	680	13,439	
Trichloroethylene	0	0		0	450	450	8,893	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	2,174	
2,4-Dichlorophenol	0	0		0	340	340	6,719	
2,4-Dimethylphenol	0	0		0	130	130	2,569	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	316	
2,4-Dinitrophenol	0	0		0	130	130	2,569	
2-Nitrophenol	0	0		0	1,600	1,600	31,621	
4-Nitrophenol	0	0		0	470	470	9,289	
p-Chloro-m-Cresol	0	0		0	500	500	9,881	
Pentachlorophenol	0	0		0	8.056	8.06	159	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	1,798	
Acenaphthene	0	0		0	17	17.0	336	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,166	
Benzo(a)Anthracene	0	0		0	0.1	0.1	1.98	
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	118,578	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	17,984	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,067	
Butyl Benzyl Phthalate	0	0		0	35	35.0	692	
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	3,162	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,364	
1,4-Dichlorobenzene	0	0		0	150	150	2,964	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	15,810	
Dimethyl Phthalate	0	0		0	500	500	9,881	
Di-n-Butyl Phthalate	0	0		0	21	21.0	415	
2,4-Dinitrotoluene	0	0		0	320	320	6,324	
2,6-Dinitrotoluene	0	0		0	200	200	3,953	
1,2-Diphenylhydrazine	0	0		0	3	3.0	59.3	
Fluoranthene	0	0		0	40	40.0	791	
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	39.5	

Hexachlorocyclopentadiene	0	0		0	1	1.0	19.8	
Hexachloroethane	0	0		0	12	12.0	237	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	41,502	
Naphthalene	0	0		0	43	43.0	850	
Nitrobenzene	0	0		0	810	810	16,008	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	67,194	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,166	
Phenanthrene	0	0		0	1	1.0	19.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	514	

☑ ***THH*** CCT (min): ###### THH PMF: 0.463 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 0.3119

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	6,826,796	WQC applied at RMI 26.43 with a design stream flow of 161.3624 cfs
Chloride (PWS)	0	0		0	250,000	250,000	3,413,398	WQC applied at RMI 26.43 with a design stream flow of 161.3624 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	3,413,398	WQC applied at RMI 26.43 with a design stream flow of 161.3624 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	76.4	THH WQC applied at PWS at RMI 26.43
Total Arsenic	0	0		0	10	10.0	136	THH WQC applied at PWS at RMI 26.43
Total Barium	0	0		0	2,400	2,400	32,721	THH WQC applied at PWS at RMI 26.43
Total Boron	0	0		0	3,100	3,100	42,265	THH WQC applied at PWS at RMI 26.43
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	
Free Cyanide	0	0		0	4	4.0	54.5	THH WQC applied at PWS at RMI 26.43
Dissolved Iron	0	0		0	300	300	4,090	THH WQC applied at PWS at RMI 26.43
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	13,634	THH WQC applied at PWS at RMI 26.43
Total Mercury	0	0		0	0.050	0.05	0.68	THH WQC applied at PWS at RMI 26.43
Total Nickel	0	0		0	610	610	8,317	THH WQC applied at PWS at RMI 26.43
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	68.3	WQC applied at RMI 26.43 with a design stream flow of 161.3624 cfs
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	3.27	THH WQC applied at PWS at RMI 26.43
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	40.9	THH WQC applied at PWS at RMI 26.43
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	1,363	THH WQC applied at PWS at RMI 26.43
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	77.7	THH WQC applied at PWS at RMI 26.43
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	450	THH WQC applied at PWS at RMI 26.43
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	927	THH WQC applied at PWS at RMI 26.43
Methyl Bromide	0	0		0	100	100.0	1,363	THH WQC applied at PWS at RMI 26.43
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	777	THH WQC applied at PWS at RMI 26.43
1,2-trans-Dichloroethylene	0	0		0	100	100.0	1,363	THH WQC applied at PWS at RMI 26.43
1,1,1-Trichloroethane	0	0		0	10,000	10,000	136,340	THH WQC applied at PWS at RMI 26.43
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	409	THH WQC applied at PWS at RMI 26.43
2,4-Dichlorophenol	0	0		0	10	10.0	136	THH WQC applied at PWS at RMI 26.43
2,4-Dimethylphenol	0	0		0	100	100.0	1,363	THH WQC applied at PWS at RMI 26.43
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	27.3	THH WQC applied at PWS at RMI 26.43
2,4-Dinitrophenol	0	0		0	10	10.0	136	THH WQC applied at PWS at RMI 26.43
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	54,536	THH WQC applied at PWS at RMI 26.43
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	954	THH WQC applied at PWS at RMI 26.43
Anthracene	0	0		0	300	300	4,090	THH WQC applied at PWS at RMI 26.43
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	2,727	THH WQC applied at PWS at RMI 26.43
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	1.36	THH WQC applied at PWS at RMI 26.43
2-Chloronaphthalene	0	0		0	800	800	10,907	THH WQC applied at PWS at RMI 26.43
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	13,634	THH WQC applied at PWS at RMI 26.43
1,3-Dichlorobenzene	0	0		0	7	7.0	95.4	THH WQC applied at PWS at RMI 26.43
1,4-Dichlorobenzene	0	0		0	300	300	4,090	THH WQC applied at PWS at RMI 26.43
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	8,180	THH WQC applied at PWS at RMI 26.43
Dimethyl Phthalate	0	0		0	2,000	2,000	27,268	THH WQC applied at PWS at RMI 26.43
Di-n-Butyl Phthalate	0	0		0	20	20.0	273	THH WQC applied at PWS at RMI 26.43
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	273	THH WQC applied at PWS at RMI 26.43
Fluorene	0	0		0	50	50.0	682	THH WQC applied at PWS at RMI 26.43
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	54.5	THH WQC applied at PWS at RMI 26.43
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	464	THH WQC applied at PWS at RMI 26.43
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	136	THH WQC applied at PWS at RMI 26.43
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	273	THH WQC applied at PWS at RMI 26.43
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.95	THH WQC applied at PWS at RMI 26.43

☑ ***CRL*** CCT (min): 720 PMF: 0.706 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	
Free Cyanide	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	6.68	
Benzene	0	0		0	0.58	0.58	64.6	
Bromoform	0	0		0	7	7.0	779	
Carbon Tetrachloride	0	0		0	0.4	0.4	44.5	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	89.1	
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	106	
1,2-Dichloroethane	0	0		0	9.9	9.9	1,102	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	100	
1,3-Dichloropropylene	0	0		0	0.27	0.27	30.1	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	2,227	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	22.3	
Tetrachloroethylene	0	0		0	10	10.0	1,113	
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	61.2	
Trichloroethylene	0	0		0	0.6	0.6	66.8	
Vinyl Chloride	0	0		0	0.02	0.02	2.23	
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	3.34	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	167	
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	0.011	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.11	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.011	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.11	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	1.11	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	3.34	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	35.6	
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	13.4	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.011	
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	5.57	
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	5.57	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	5.57	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	3.34	
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	0.009	
Hexachlorobutadiene	0	0		0	0.01	0.01	1.11	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	11.1	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.11	
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	0.078	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.56	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	367	

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	27.9	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	243	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)	6,827	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	3,413	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	3,413	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	1,783	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	76.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	32,721	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	19,252	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	3.78	µg/L	Discharge Conc < TQL
Total Chromium (III)	1,162	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	38.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	226	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	52.3	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	4,090	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	62,252	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	34.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	13,634	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.68	µg/L	Discharge Conc < TQL

Total Nickel	695	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	68.3	µg/L	Discharge Conc < TQL
Total Selenium	98.6	µg/L	Discharge Conc < TQL
Total Silver	6.54	µg/L	Discharge Conc < TQL
Total Thallium	3.27	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	7.13	µg/L	Discharge Conc < TQL
Acrylonitrile	6.68	µg/L	Discharge Conc < TQL
Benzene	64.6	µg/L	Discharge Conc < TQL
Bromoform	779	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	44.5	µg/L	Discharge Conc < TQL
Chlorobenzene	1,363	µg/L	Discharge Conc < TQL
Chlorodibromomethane	89.1	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	42,782	µg/L	Discharge Conc < TQL
Chloroform	77.7	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	106	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,102	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	450	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	100	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	30.1	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	927	µg/L	Discharge Conc < TQL
Methyl Bromide	1,307	µg/L	Discharge Conc < TQL
Methyl Chloride	66,551	µg/L	Discharge Conc < TQL
Methylene Chloride	2,227	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	22.3	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,113	µg/L	Discharge Conc < TQL
Toluene	777	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	1,363	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	7,130	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	61.2	µg/L	Discharge Conc < TQL
Trichloroethylene	66.8	µg/L	Discharge Conc < TQL
Vinyl Chloride	2.23	µg/L	Discharge Conc < TQL
2-Chlorophenol	409	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	136	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	1,363	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	27.3	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	136	µg/L	Discharge Conc < TQL
2-Nitrophenol	19,014	µg/L	Discharge Conc < TQL
4-Nitrophenol	5,467	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	380	µg/L	Discharge Conc < TQL
Pentachlorophenol	3.34	µg/L	Discharge Conc < TQL
Phenol	54,536	µg/L	Discharge Conc < TQL

2,4,6-Trichlorophenol	167	µg/L	Discharge Conc < TQL
Acenaphthene	197	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	4,090	µg/L	Discharge Conc < TQL
Benzidine	0.011	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.11	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.011	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.11	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.11	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	3.34	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	2,727	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	35.6	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	642	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	1.36	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	10,907	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	13.4	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.011	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,949	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	95.4	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	1,735	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	5.57	µg/L	Discharge Conc < TQL
Diethyl Phthalate	8,180	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	5,942	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	261	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	5.57	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	5.57	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	3.34	µg/L	Discharge Conc < TQL
Fluoranthene	273	µg/L	Discharge Conc < TQL
Fluorene	682	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.009	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	1.11	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	11.9	µg/L	Discharge Conc < TQL
Hexachloroethane	11.1	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.11	µg/L	Discharge Conc < TQL
Isophorone	464	µg/L	Discharge Conc < TQL
Naphthalene	333	µg/L	Discharge Conc < TQL
Nitrobenzene	136	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.078	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.56	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	367	µg/L	Discharge Conc < TQL
Phenanthrene	11.9	µg/L	Discharge Conc < TQL

Pyrene	273	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.95	µg/L	Discharge Conc < TQL