Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0020401**
Facility Type	**Municipal**	APS ID	**1048669**
Major / Minor	**Major**	Authorization ID	**1371080**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Johnsonburg Borough Municipal Authority**	Facility Name	**Johnsonburg STP**
Applicant Address	601 Market Street Johnsonburg, PA 15845-1305	Facility Address	509 Ridgway Avenue Johnsonburg, PA 15845
Applicant Contact	Brian Buesink	Facility Contact	Corey Mcabe
Applicant Phone	(814) 965-4218	Facility Phone	(814) 965-4218
Client ID	36535	Site ID	263837
Ch 94 Load Status	Not Overloaded	Municipality	Johnsonburg Borough
Connection Status	No Limitations	County	Elk
Date Application Received	September 29, 2021	EPA Waived?	No
Date Application Accepted	October 4, 2021	If No, Reason	Major Facility

Purpose of Application: Renewal of a NPDES Permit for an existing discharge of treated sewage from a POTW.

Summary of Review

The facility is a municipal sewage treatment plant serving Johnsonburg Borough and parts of Jones Township, and Ridgway Township in Elk County. The facility accepts hauled in municipal waste.

There are currently six open violations listed in EFACTS for this client, all under the Safe Drinking Water Program (7/25/2025).

Sludge use and disposal description and location(s): Sludge is dewatered and sent to Greentree Landfill for disposal.

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	July 25, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	July 25, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.0
Latitude	41º 28' 50.5"	Longitude	-78º 40' 26.26"
Quad Name	Ridgway	Quad Code	03094
Wastewater Description:	Sewage Effluent		

Receiving Waters	Clarion River	Stream Code	49224
NHD Com ID	102664767	RMI	0.1400
Drainage Area	216 mi^2	Yield (cfs/mi^2)	0.084
Q_{7-10} Flow (cfs)	80.98 (@ 1ºC)	Q_{7-10} Basis	*See below
Elevation (ft)	1407	Slope (ft/ft)	0.00092
Watershed No.	17-A	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.41	10/99 sample from Weyerhaeuser's 316(a) Thermal Variance Study dated June 2001- Sta. 3
Temperature (°C)	1	Temperature during Q_{7-10} Flow
Hardness (mg/L)	52.2	Upstream sample taken for renewal application
NH3-N (mg/l)	0.1	Default
$CBOD_5$ (mg/L)	1.1	10/99 sample from Weyerhaeuser's 316(a) Thermal Variance Study dated June 2001- Sta. 3

Nearest Downstream Public Water Supply Intake		PA American Water Company – Clarion Intake	
PWS Waters	Clarion River	Flow at Intake (cfs)	195.14
PWS RMI	33.46	Distance from Outfall (mi)	Approx. 68 miles

Changes Since Last Permit Issuance: None

[accrued flow below E. Br. Res.]
*80 cfs + [(216-204) mi^2 x 0.084 cfsm] = 80.98 cfs – for a 1ºC stream temp. modeling

80 cfs is the minimum guaranteed flow at the gage in Johnsonburg. The Clarion River is regulated based on the 3-day mean water temperature measured at the gage at Johnsonburg (see the attached, US Army Corps of Engineers graph). For estimating the unregulated, accrued flow below the gage, use the flow information measured prior to the construction of the East Branch – Clarion River dam (1942-1951). The yield rate using this data is 0.084 cfsm.

Treatment Facility Summary

Treatment Facility Name: Johnsonburg STP

WQM Permit No.	Issuance Date
2408403	2/23/09

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Gas Chlorine	1.0

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.0	1460	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: None

Other Comments: Bar Screen, Grit Chamber, Equalization, Activated Sludge, Clarification, Chlorination (gas), Aerobic Digestion and a Belt Filter Press.

Compliance History	
Summary of DMRs:	There have been six effluent violations in the last five years. Four are for fecal coliform and one for both pH and total suspended solids.
Summary of Inspections:	The last compliance evaluation inspection was conducted on 2/27/2025. The inspection report did not cite any violations but noted non-compliance for failure to use current pH buffers and not doing a WET test in 2024. The two other most recent inspections occurred on 7/31/2024 and 2/24/2023. No violations were reported as a result of those inspections.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	0.739	0.570	0.548	0.643	0.352	0.468	0.335	0.303	0.269	0.407	0.315	0.29
Flow (MGD) Daily Maximum	1.725	2.002	1.611	2.128	0.689	1.273	0.652	0.796	0.491	0.895	0.815	0.829
pH (S.U.) Minimum	6.5	6.7	6.7	6.6	6.8	6.9	6.9	6.17	6.8	6.8	6.6	6.7
pH (S.U.) Maximum	7.2	7.5	7.1	7.2	7.2	7.3	7.3	7.1	7.1	7.2	7.2	7.2
DO (mg/L) Minimum	6.0	8.4	8.5	7.7	9.8	7.8	7.9	7.9	7.1	7.0	7.0	7.1
TRC (mg/L) Average Monthly	0.28	0.35	0.25	0.25	0.33	0.33	0.36	0.35	0.38	0.36	0.31	0.24
TRC (mg/L) Instantaneous Maximum	0.48	0.59	0.48	0.53	0.55	0.56	0.97	0.64	0.73	0.8	0.61	0.63
CBOD5 (lbs/day) Average Monthly	< 18.5	< 9.9	< 9.2	< 37.5	< 6.7	35.4	18.3	< 5.0	< 4.4	< 10.5	< 8.1	< 8.7
CBOD5 (lbs/day) Weekly Average	28.9	11.9	13.6	122.7	15.1	79.5	29.7	< 5.7	< 5.5	< 26.1	< 12.6	19.6
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 4.0	< 3.0	9.0	7.0	< 2.0	< 2.0	< 3.0	< 3.0	< 4.0
CBOD5 (mg/L) Weekly Average	4.5	4.0	2.0	8.5	4.0	16.5	7.5	< 2.5	< 2.0	< 4.0	< 5.0	7.5
BOD5 (lbs/day) Influent Average Monthly	611	579	503	465.0	346.0	243.0	257.0	269	196.0	< 134	208.0	114
BOD5 (mg/L) Influent Average Monthly	100	156	125	83.0	122.0	63.0	94.0	116	85.0	< 43	91.0	48.0
TSS (lbs/day) Average Monthly	< 37.7	< 12.7	< 19.4	< 56.0	< 7.8	37.6	< 21.5	< 24.6	< 7.0	< 34.2	< 13.7	< 11.9
TSS (lbs/day) Influent Average Monthly	1013	1058	748	722.0	425.0	463.0	119.0	601	348.0	195	322.0	488
TSS (lbs/day) Weekly Average	77.3	< 15.5	60.4	164.6	< 9.8	61.4	55.3	90.8	< 8.2	104.4	< 25.5	25.2

TSS (mg/L) Average Monthly	< 3.0	< 3.0	< 4.0	< 6.0	< 3.0	9.0	< 7.0	< 10	< 3.0	< 8.0	< 6.0	< 5.0
TSS (mg/L) Influent Average Monthly	167	289	181	120.0	149.0	127.0	316.0	262	147.0	60	136.0	203
TSS (mg/L) Weekly Average	7.5	< 3.5	6.0	< 11.5	< 3.0	12.5	12.5	37.5	< 4.0	< 15.0	< 10.0	9.5
Fecal Coliform (No./100 ml) Geometric Mean	< 20.0	< 11	< 7.0	< 40	< 11.0	72.0	< 30.0	< 3.0	< 3.0	< 12.0	< 3.0	3.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	1733	870	124	2420	248.0	1986.0	2420	109	30.0	172.0	< 15.0	27.0
Total Nitrogen (mg/L) Average Monthly	< 6.2	7.58	5.72	7.43	8.29	12.73	13.35	14.18	17.3	14.4	16.6	20.0
Total Phosphorus (mg/L) Average Monthly	0.32	< 0.25	< 0.20	< 0.27	< 0.21	0.38	1.29	0.95	0.7	0.87	0.78	0.76

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.0
Latitude 41º 28' 50.50" **Longitude** -78º 40' 26.26"
Wastewater Description: Domestic Sewage

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."

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen	23.0	Average Monthly	WQM 7.0 Ver. 1.1

Comments: The ammonia nitrogen limit will be placed in the permit as a year-round limit due to low flow conditions occurring during wintertime periods.

The toxics management spreadsheet recommended monitoring for total copper, 1,2,4-Trichlorobenzene, and hexachlorobutadiene. Since these parameters were detected in the lower concentration percentile range of the governing WQBEL calculated, monitoring will be placed in the permit at a frequency of 1/month.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen limit of a minimum of 4.0 mg/l was placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Additional Considerations

Comments: Monitoring for influent TSS and BOD_5 were placed in the permit in accordance with the Department's SOP entitled "New and Reissuance Sewage Individual NPDES Permit Applications."

Monitoring for total nitrogen and total phosphorus were added to the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Annual monitoring for PFAS parameters – PFOA, PFOS, PFBS, and HFPO-DA – was added to the renewed permit in accordance with a 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.

Anti-Backsliding

No backsliding of limits is being proposed as part of this permit renewal.

Whole Effluent Toxicity (WET)

For Outfall ___, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

☐ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☒ Other: **Annually**

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 2%.

Summary of Four Most Recent Test Results

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
2/24/2025	Pass	Pass	Pass	Pass
3/21/2023	Pass	Pass	Pass	Pass
5/23/2022	Pass	Pass	Pass	Pass
5/30/2021	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Comment: The Permittee did not conduct a 2024 WET test as required under the existing permit.

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

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

Acute Partial Mix Factor (PMFa): **0.129** Chronic Partial Mix Factor (PMFc): 0**.896**

1. **Determine IWC – Acute (IWCa)**:

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

   [(1 MGD x 1.547) / ((80.98 cfs x 0.129) + (1 MGD x 1.547))] x 100 = **12.9%**

   Is IWCa < 1%? ☐ **YES** ☒ **NO**

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

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

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

   [(1.0 MGD x 1.547) / ((80.98 cfs x 0.896) + (1 MGD x 1.547))] x 100 = **2%**

3. Determine Dilution Series

Dilution Series = 100%, 60%, 30%, 2%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

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)	Required
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	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
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	205	330 Wkly Avg	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	250	375 Wkly Avg	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia	191	XXX	XXX	23.0	XXX	46	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	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
1,2,4-Trichloro-benzene (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	Grab
Hexachloro-butadiene (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	Grab
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	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	**102.400**	1411.00	204.34	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	0.084	80.00	0.00	0.000	0.000	0.0	0.00	0.00	1.00	6.62	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
Domtar Paper	PA0002143	12.2100	0.0000	0.0000	0.000	32.00	6.90

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	75.60	1.10	0.00	4.53
Dissolved Oxygen	3.00	14.20	0.00	0.00
NH3-N	10.00	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	**101.640**	1407.00	216.00	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	0.084	0.00	0.00	0.000	0.000	0.0	0.00	0.00	1.00	6.62	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
Johnsonburg STP	PA0020401	1.0000	0.0000	0.0000	0.000	15.00	6.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	1.10	0.00	1.50
Dissolved Oxygen	4.00	14.20	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	**93.300**	1380.00	303.00	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	0.084	0.00	0.00	0.000	0.000	0.0	0.00	0.00	1.00	6.62	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
Ridgway STP	PA0023212	2.2000	0.0000	0.0000	0.000	20.00	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	1.10	0.00	1.50
Dissolved Oxygen	4.00	14.20	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	**33.000**	1055.00	900.00	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	0.084	0.00	195.14	0.000	0.000	0.0	0.00	0.00	5.00	7.00	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	0.00	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												
102.400	80.00	0.00	80.00	18.8889	0.00100	.988	133.96	135.54	0.75	0.062	6.92	6.66
101.640	80.98	0.00	80.98	20.4359	0.00061	1.007	140.07	139.06	0.72	0.709	6.99	6.66
93.300	88.29	0.00	88.29	23.8393	0.00102	1.016	149.84	147.44	0.74	5.005	6.99	6.67
Q1-10 Flow												
102.400	51.20	0.00	51.20	18.8889	0.00100	NA	NA	NA	0.62	0.075	9.35	6.68
101.640	51.83	0.00	51.83	20.4359	0.00061	NA	NA	NA	0.59	0.857	9.40	6.68
93.300	56.50	0.00	56.50	23.8393	0.00102	NA	NA	NA	0.61	6.032	9.36	6.69
Q30-10 Flow												
102.400	108.80	0.00	108.80	18.8889	0.00100	NA	NA	NA	0.86	0.054	5.59	6.65
101.640	110.13	0.00	110.13	20.4359	0.00061	NA	NA	NA	0.83	0.616	5.65	6.65
93.300	120.07	0.00	120.07	23.8393	0.00102	NA	NA	NA	0.85	4.352	5.67	6.66

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
102.400	Domtar Paper	30.09	20	30.09	20	0	0
101.640	Johnsonburg ST	30.93	50	30.06	50	0	0
93.300	Ridgway STP	30.78	50	29.97	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
102.400	Domtar Paper	4.8	10	4.8	10	0	0
101.640	Johnsonburg ST	4.83	25	4.8	25	0	0
93.300	Ridgway STP	4.82	25	4.8	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)		
102.40	Domtar Paper	39.9	36.38	10	10	3	3	2	5
101.64	Johnsonburg STP	25	25	25	23.34	4	4	2	5
93.30	Ridgway STP	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
102.400	12.210	6.921	6.661
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
133.957	0.988	135.542	0.747
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.84	3.979	1.99	0.256
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.061	2.547	Tsivoglou	6
Reach Travel Time (days)			
0.062			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.006	7.73	1.99	10.91
0.012	7.63	1.98	10.91
0.019	7.53	1.98	10.91
0.025	7.43	1.98	10.91
0.031	7.32	1.98	10.91
0.037	7.23	1.97	10.91
0.044	7.13	1.97	10.91
0.050	7.03	1.97	10.83
0.056	6.94	1.96	10.69
0.062	6.84	1.96	10.56

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
101.640	13.210	6.987	6.663
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
140.069	1.007	139.056	0.719
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.07	3.132	2.27	0.257
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
10.495	1.510	Tsivoglou	6
Reach Travel Time (days)			
0.709			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	6.25	2.23	9.33
0.142	5.53	2.19	8.41
0.213	4.90	2.15	7.71
0.284	4.33	2.11	7.19
0.355	3.84	2.07	6.81
0.425	3.40	2.03	6.56
0.496	3.00	2.00	6.41
0.567	2.66	1.96	6.34
0.638	2.35	1.92	6.34
0.709	2.08	1.89	6.39

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
93.300	15.410	6.992	6.667
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
149.841	1.016	147.440	0.736
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.71	0.328	2.47	0.257
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.825	2.575	Tsivoglou	6
Reach Travel Time (days)			
5.005			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.500	2.48	2.18	9.69
1.001	2.27	1.91	10.59
1.501	2.07	1.68	10.89
2.002	1.89	1.48	10.89
2.502	1.73	1.30	10.89
3.003	1.58	1.14	10.89
3.503	1.44	1.00	10.89
4.004	1.32	0.88	10.89
4.504	1.20	0.78	10.89
5.005	1.10	0.68	10.89

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)
102.400	Domtar Paper	PA0002143	12.210	CBOD5	36.38		
				NH3-N	10	20	
				Dissolved Oxygen			3

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)
101.640	Johnsonburg STP	PA0020401	1.000	CBOD5	25		
				NH3-N	23.34	46.68	
				Dissolved Oxygen			4

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)
93.300	Ridgway STP	PA0023212	2.200	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Johnsonburg STP** NPDES Permit No.: **PA0020401** 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
1	79.5	6.62						

					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		276		46							
	Chloride (PWS)	mg/L		71.5		3							
	Bromide	mg/L	<	0.362		4							
	Sulfate (PWS)	mg/L		23.9		8.75							
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		60.9		35							
	Total Antimony	µg/L	<	0.348									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		51.8		27							
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L		207									
	Total Cadmium	µg/L	<	0.123									
	Total Chromium (III)	µg/L	<	2.15									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.482									
	Total Copper	µg/L		11.3		0.85							
	Free Cyanide	µg/L		6									
	Total Cyanide	µg/L		9									
	Dissolved Iron	µg/L		34.1									
	Total Iron	µg/L		140		213							
	Total Lead	µg/L		0.452									
	Total Manganese	µg/L		61		62							
	Total Mercury	µg/L	<	0.104									
	Total Nickel	µg/L		16.5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		1.67									
	Total Silver	µg/L	<	0.376									
	Total Thallium	µg/L	<	0.068									
	Total Zinc	µg/L		31.7									
	Total Molybdenum	µg/L		7.52									
	Acrolein	µg/L	<	1.08									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	1									
	Benzene	µg/L	<	1									
	Bromoform	µg/L	<	1									

Group 3	Carbon Tetrachloride	µg/L	<	2									
	Chlorobenzene	µg/L	<	1									
	Chlorodibromomethane	µg/L		6.2									
	Chloroethane	µg/L	<	1									
	2-Chloroethyl Vinyl Ether	µg/L	<	10									
	Chloroform	µg/L		8.01									
	Dichlorobromomethane	µg/L		5.91									
	1,1-Dichloroethane	µg/L	<	1									
	1,2-Dichloroethane	µg/L	<	1									
	1,1-Dichloroethylene	µg/L	<	1									
	1,2-Dichloropropane	µg/L	<	1									
	1,3-Dichloropropylene	µg/L	<	1									
	1,4-Dioxane	µg/L	<	3									
	Ethylbenzene	µg/L	<	1									
	Methyl Bromide	µg/L	<	1									
	Methyl Chloride	µg/L	<	1									
	Methylene Chloride	µg/L	<	5									
	1,1,2,2-Tetrachloroethane	µg/L	<	1									
	Tetrachloroethylene	µg/L	<	1									
	Toluene	µg/L	<	1									
	1,2-trans-Dichloroethylene	µg/L	<	1									
	1,1,1-Trichloroethane	µg/L	<	1									
	1,1,2-Trichloroethane	µg/L	<	1									
	Trichloroethylene	µg/L	<	1									
	Vinyl Chloride	µg/L	<	1									
Group 4	2-Chlorophenol	µg/L	<	4.85									
	2,4-Dichlorophenol	µg/L	<	4.85									
	2,4-Dimethylphenol	µg/L	<	4.85									
	4,6-Dinitro-o-Cresol	µg/L	<	0.269									
	2,4-Dinitrophenol	µg/L	<	5									
	2-Nitrophenol	µg/L	<	4.85									
	4-Nitrophenol	µg/L	<	4.85									
	p-Chloro-m-Cresol	µg/L	<	4.85									
	Pentachlorophenol	µg/L	<	0.221									
	Phenol	µg/L	<	0.971									
	2,4,6-Trichlorophenol	µg/L	<	4.85									
Group 5	Acenaphthene	µg/L	<	4.85									
	Acenaphthylene	µg/L	<	4.85									
	Anthracene	µg/L	<	4.85									
	Benzidine	µg/L	<	5									
	Benzo(a)Anthracene	µg/L	<	0.245									
	Benzo(a)Pyrene	µg/L	<	0.249									
	3,4-Benzofluoranthene	µg/L	<	0.228									
	Benzo(ghi)Perylene	µg/L	<	4.85									
	Benzo(k)Fluoranthene	µg/L	<	0.363									
	Bis(2-Chloroethoxy)Methane	µg/L	<	4.85									
	Bis(2-Chloroethyl)Ether	µg/L	<	4.85									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	4.85									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.94									
	4-Bromophenyl Phenyl Ether	µg/L	<	4.85									
	Butyl Benzyl Phthalate	µg/L	<	4.85									
	2-Chloronaphthalene	µg/L	<	4.85									
	4-Chlorophenyl Phenyl Ether	µg/L	<	4.85									
	Chrysene	µg/L	<	3.88									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.139									
	1,2-Dichlorobenzene	µg/L	<	0.845									
	1,3-Dichlorobenzene	µg/L	<	4.85									
	1,4-Dichlorobenzene	µg/L		6.2									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	0.485									
	Di-n-Butyl Phthalate	µg/L	<	4.85									
	2,4-Dinitrotoluene	µg/L	<	4.85									

	2,6-Dinitrotoluene	µg/L	<	4.85									
	Di-n-Octyl Phthalate	µg/L	<	4.85									
	1,2-Diphenylhydrazine	µg/L	<	3.88									
	Fluoranthene	µg/L	<	4.85									
	Fluorene	µg/L	<	4.85									
	Hexachlorobenzene	µg/L	<	4.85									
	Hexachlorobutadiene	µg/L	<	0.834									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	1.94									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.18									
	Isophorone	µg/L	<	4.85									
	Naphthalene	µg/L	<	4.85									
	Nitrobenzene	µg/L	<	4.85									
	n-Nitrosodimethylamine	µg/L	<	4.85									
	n-Nitrosodi-n-Propylamine	µg/L	<	4.85									
	n-Nitrosodiphenylamine	µg/L	<	4.85									
	Phenanthrene	µg/L	<	4.85									
	Pyrene	µg/L	<	4.85									
	1,2,4-Trichlorobenzene	µg/L	<	0.996									
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

Johnsonburg STP, NPDES Permit No. PA0020401, 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	101.64	1407.5	216	0.00061		Yes
End of Reach 1	049224	33.46	1089	903.5		4	Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	101.64	0.084	80.98									52.2	7.41		
End of Reach 1	33.46	0.076										100	7		

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	101.64														
End of Reach 1	33.46														

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Toxics Management Spreadsheet
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Model Results

Johnsonburg STP, NPDES Permit No. PA0020401, 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)
101.64	80.98		80.98	1.547	0.00061	0.997	129.311	129.711	0.64	6.508	897.651
33.46	133.23	6.188	127.042								

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)
101.64	345.87		345.87	1.547	0.00061	1.876	129.311	68.913	1.432	2.91	357.817
33.46	534.43	6.188	528.24								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.129 Analysis Hardness (mg/l): 55.715 Analysis pH: 7.19

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)	46000	0		0	N/A	N/A	N/A	
Chloride (PWS)	3000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	8750	0		0	N/A	N/A	N/A	
Total Aluminum	35	0		0	750	750	5,588	
Total Antimony	0	0		0	1,100	1,100	8,543	
Total Arsenic	0	0		0	340	340	2,641	Chem Translator of 1 applied
Total Barium	27	0		0	21,000	21,000	162,919	
Total Boron	0	0		0	8,100	8,100	62,911	
Total Cadmium	0	0		0	1.140	1.18	9.14	Chem Translator of 0.968 applied
Total Chromium (III)	0	0		0	352.895	1,117	8,674	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	127	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	738	
Total Copper	0.85	0		0	7.745	8.07	56.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	171	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	213	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	33.976	38.8	301	Chem Translator of 0.876 applied
Total Manganese	62	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	12.8	Chem Translator of 0.85 applied
Total Nickel	0	0		0	285.468	286	2,222	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	1.176	1.38	10.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	505	
Total Zinc	0	0		0	71.387	73.0	567	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	23.3	
Acrylonitrile	0	0		0	650	650	5,048	
Benzene	0	0		0	640	640	4,971	
Bromoform	0	0		0	1,800	1,800	13,980	
Carbon Tetrachloride	0	0		0	2,800	2,800	21,747	
Chlorobenzene	0	0		0	1,200	1,200	9,320	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	139,801	
Chloroform	0	0		0	1,900	1,900	14,757	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	116,501	
1,1-Dichloroethylene	0	0		0	7,500	7,500	58,251	
1,2-Dichloropropane	0	0		0	11,000	11,000	85,434	
1,3-Dichloropropylene	0	0		0	310	310	2,408	
Ethylbenzene	0	0		0	2,900	2,900	22,524	
Methyl Bromide	0	0		0	550	550	4,272	
Methyl Chloride	0	0		0	28,000	28,000	217,469	
Methylene Chloride	0	0		0	12,000	12,000	93,201	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	7,767	
Tetrachloroethylene	0	0		0	700	700	5,437	
Toluene	0	0		0	1,700	1,700	13,203	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	52,814	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	23,300	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	26,407	
Trichloroethylene	0	0		0	2,300	2,300	17,863	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	4,349	
2,4-Dichlorophenol	0	0		0	1,700	1,700	13,203	
2,4-Dimethylphenol	0	0		0	660	660	5,126	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	621	
2,4-Dinitrophenol	0	0		0	660	660	5,126	
2-Nitrophenol	0	0		0	8,000	8,000	62,134	
4-Nitrophenol	0	0		0	2,300	2,300	17,863	
p-Chloro-m-Cresol	0	0		0	160	160	1,243	
Pentachlorophenol	0	0		0	10.543	10.5	81.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	3,573	

Acenaphthene	0	0		0	83	83.0	645	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	2,330	
Benzo(a)Anthracene	0	0		0	0.5	0.5	3.88	
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	233,002	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	34,950	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	2,097	
Butyl Benzyl Phthalate	0	0		0	140	140	1,087	
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	6,369	
1,3-Dichlorobenzene	0	0		0	350	350	2,718	
1,4-Dichlorobenzene	0	0		0	730	730	5,670	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	31,067	
Dimethyl Phthalate	0	0		0	2,500	2,500	19,417	
Di-n-Butyl Phthalate	0	0		0	110	110	854	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	12,427	
2,6-Dinitrotoluene	0	0		0	990	990	7,689	
1,2-Diphenylhydrazine	0	0		0	15	15.0	117	
Fluoranthene	0	0		0	200	200	1,553	
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	77.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	38.8	
Hexachloroethane	0	0		0	60	60.0	466	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	77,667	
Naphthalene	0	0		0	140	140	1,087	
Nitrobenzene	0	0		0	4,000	4,000	31,067	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	132,035	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	2,330	
Phenanthrene	0	0		0	5	5.0	38.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	1,010	

☑ ***CFC*** CCT (min): 720 PMF: 0.896 Analysis Hardness (mg/l): 52.77 Analysis pH: 7.37

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)	46000	0		0	N/A	N/A	N/A	

Chloride (PWS)	3000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	8750	0		0	N/A	N/A	N/A	
Total Aluminum	35	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	10,534	
Total Arsenic	0	0		0	150	150	7,182	Chem Translator of 1 applied
Total Barium	27	0		0	4,100	4,100	195,048	
Total Boron	0	0		0	1,600	1,600	76,610	
Total Cadmium	0	0		0	0.158	0.17	8.07	Chem Translator of 0.936 applied
Total Chromium (III)	0	0		0	43.908	51.1	2,445	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	498	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	910	
Total Copper	0.85	0		0	5.187	5.4	219	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	249	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	213	0		0	1,500	1,500	68,870	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.247	1.41	67.5	Chem Translator of 0.884 applied
Total Manganese	62	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	43.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	30.283	30.4	1,454	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	239	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	622	
Total Zinc	0	0		0	68.734	69.7	3,338	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	144	
Acrylonitrile	0	0		0	130	130	6,225	
Benzene	0	0		0	130	130	6,225	
Bromoform	0	0		0	370	370	17,716	
Carbon Tetrachloride	0	0		0	560	560	26,814	
Chlorobenzene	0	0		0	240	240	11,492	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	167,585	
Chloroform	0	0		0	390	390	18,674	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	148,432	
1,1-Dichloroethylene	0	0		0	1,500	1,500	71,822	
1,2-Dichloropropane	0	0		0	2,200	2,200	105,339	
1,3-Dichloropropylene	0	0		0	61	61.0	2,921	
Ethylbenzene	0	0		0	580	580	27,771	
Methyl Bromide	0	0		0	110	110	5,267	
Methyl Chloride	0	0		0	5,500	5,500	263,347	
Methylene Chloride	0	0		0	2,400	2,400	114,915	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	10,055	
Tetrachloroethylene	0	0		0	140	140	6,703	
Toluene	0	0		0	330	330	15,801	

1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	67,034	
1,1,1-Trichloroethane	0	0		0	610	610	29,208	
1,1,2-Trichloroethane	0	0		0	680	680	32,559	
Trichloroethylene	0	0		0	450	450	21,547	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	5,267	
2,4-Dichlorophenol	0	0		0	340	340	16,280	
2,4-Dimethylphenol	0	0		0	130	130	6,225	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	766	
2,4-Dinitrophenol	0	0		0	130	130	6,225	
2-Nitrophenol	0	0		0	1,600	1,600	76,610	
4-Nitrophenol	0	0		0	470	470	22,504	
p-Chloro-m-Cresol	0	0		0	500	500	23,941	
Pentachlorophenol	0	0		0	8.089	8.09	387	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	4,357	
Acenaphthene	0	0		0	17	17.0	814	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	2,825	
Benzo(a)Anthracene	0	0		0	0.1	0.1	4.79	
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	287,288	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	43,572	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	2,586	
Butyl Benzyl Phthalate	0	0		0	35	35.0	1,676	
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	7,661	
1,3-Dichlorobenzene	0	0		0	69	69.0	3,304	
1,4-Dichlorobenzene	0	0		0	150	150	7,182	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	38,305	
Dimethyl Phthalate	0	0		0	500	500	23,941	
Di-n-Butyl Phthalate	0	0		0	21	21.0	1,006	
2,4-Dinitrotoluene	0	0		0	320	320	15,322	
2,6-Dinitrotoluene	0	0		0	200	200	9,576	
1,2-Diphenylhydrazine	0	0		0	3	3.0	144	
Fluoranthene	0	0		0	40	40.0	1,915	
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	95.8	

Hexachlorocyclopentadiene	0	0		0	1	1.0	47.9	
Hexachloroethane	0	0		0	12	12.0	575	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	100,551	
Naphthalene	0	0		0	43	43.0	2,059	
Nitrobenzene	0	0		0	810	810	38,784	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	162,796	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	2,825	
Phenanthrene	0	0		0	1	1.0	47.9	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	1,245	

☑ ***THH*** CCT (min): 720 THH PMF: 0.896 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

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)	46000	0		0	500,000	500,000	39,599,173	WQC applied at RMI 33.46 with a design stream flow of 133.23 cfs
Chloride (PWS)	3000	0		0	250,000	250,000	21,522,017	WQC applied at RMI 33.46 with a design stream flow of 133.23 cfs
Sulfate (PWS)	8750	0		0	250,000	250,000	21,026,818	WQC applied at RMI 33.46 with a design stream flow of 133.23 cfs
Total Aluminum	35	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	268	
Total Arsenic	0	0		0	10	10.0	479	
Total Barium	27	0		0	2,400	2,400	113,649	
Total Boron	0	0		0	3,100	3,100	148,432	
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	0.85	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	192	
Dissolved Iron	0	0		0	300	300	14,364	
Total Iron	213	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	62	0		0	1,000	1,000	44,975	
Total Mercury	0	0		0	0.050	0.05	2.39	
Total Nickel	0	0		0	610	610	29,208	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	436	WQC applied at RMI 33.46 with a design stream flow of 133.23 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	11.5	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	144	
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	4,788	
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	273	
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	1,580	
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	3,256	
Methyl Bromide	0	0		0	100	100.0	4,788	
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	2,729	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	4,788	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	478,813	
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	1,436	
2,4-Dichlorophenol	0	0		0	10	10.0	479	
2,4-Dimethylphenol	0	0		0	100	100.0	4,788	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	95.8	
2,4-Dinitrophenol	0	0		0	10	10.0	479	
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	191,525	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	3,352	
Anthracene	0	0		0	300	300	14,364	
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	9,576	
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	4.79	
2-Chloronaphthalene	0	0		0	800	800	38,305	
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	47,881	
1,3-Dichlorobenzene	0	0		0	7	7.0	335	
1,4-Dichlorobenzene	0	0		0	300	300	14,364	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	28,729	
Dimethyl Phthalate	0	0		0	2,000	2,000	95,763	
Di-n-Butyl Phthalate	0	0		0	20	20.0	958	
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	958	
Fluorene	0	0		0	50	50.0	2,394	
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	192	
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	1,628	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	479	
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	958	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	3.35	

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

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	46000	0		0	N/A	N/A	N/A	
Chloride (PWS)	3000	0		0	N/A	N/A	N/A	
Sulfate (PWS)	8750	0		0	N/A	N/A	N/A	
Total Aluminum	35	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	27	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	0.85	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	213	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	62	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	13.5	
Benzene	0	0		0	0.58	0.58	130	
Bromoform	0	0		0	7	7.0	1,572	
Carbon Tetrachloride	0	0		0	0.4	0.4	89.8	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	180	
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	213	
1,2-Dichloroethane	0	0		0	9.9	9.9	2,223	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	202	
1,3-Dichloropropylene	0	0		0	0.27	0.27	60.6	
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	4,491	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	44.9	
Tetrachloroethylene	0	0		0	10	10.0	2,246	
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	124	
Trichloroethylene	0	0		0	0.6	0.6	135	
Vinyl Chloride	0	0		0	0.02	0.02	4.49	
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	6.74	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	337	
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	0.022	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.22	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.022	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.22	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	2.25	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	6.74	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	71.9	
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	26.9	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.022	
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	11.2	
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	11.2	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	11.2	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	6.74	
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	0.018	
Hexachlorobutadiene	0	0		0	0.01	0.01	2.25	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	22.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.22	
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	0.16	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	1.12	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	741	

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	36.5	AFC	Discharge Conc > 10% WQBEL (no RP)
Hexachlorobutadiene	Report	Report	Report	Report	Report	µg/L	2.25	CRL	Discharge Conc > 25% WQBEL (no RP)
1,2,4-Trichlorobenzene	Report	Report	Report	Report	Report	µg/L	3.35	THH	Discharge Conc > 25% 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)	39,599	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	21,522	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	21,027	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	3,582	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	104,424	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	40,323	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	5.86	µg/L	Discharge Conc < TQL
Total Chromium (III)	2,445	µg/L	Discharge Conc < TQL

Hexavalent Chromium	81.1	µg/L	Discharge Conc < TQL
Total Cobalt	473	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	110	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	14,364	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	68,870	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	67.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	44,975	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	2.39	µg/L	Discharge Conc < TQL
Total Nickel	1,424	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	436	µg/L	Discharge Conc < TQL
Total Selenium	239	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	6.89	µg/L	Discharge Conc < TQL
Total Thallium	11.5	µg/L	Discharge Conc < TQL
Total Zinc	363	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	14.9	µg/L	Discharge Conc < TQL
Acrylonitrile	13.5	µg/L	Discharge Conc < TQL
Benzene	130	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	1,572	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	89.8	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	4,788	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	180	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	89,607	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroform	273	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	213	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	2,223	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	1,580	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	202	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	60.6	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	3,256	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	2,738	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	139,389	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	4,491	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	44.9	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	2,246	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	2,729	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	4,788	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	14,934	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	124	µg/L	Discharge Conc ≤ 25% WQBEL
Trichloroethylene	135	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	4.49	µg/L	Discharge Conc ≤ 25% WQBEL

2-Chlorophenol	1,436	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	479	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	3,286	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	95.8	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	479	µg/L	Discharge Conc < TQL
2-Nitrophenol	39,825	µg/L	Discharge Conc < TQL
4-Nitrophenol	11,450	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	797	µg/L	Discharge Conc < TQL
Pentachlorophenol	6.74	µg/L	Discharge Conc < TQL
Phenol	191,525	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	337	µg/L	Discharge Conc < TQL
Acenaphthene	413	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	14,364	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.022	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.22	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.022	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.22	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	2.25	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	6.74	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	9,576	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	71.9	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,344	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	4.79	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	38,305	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	26.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dibenzo(a,h)Anthrancene	0.022	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	4,082	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	335	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	3,634	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	11.2	µg/L	Discharge Conc < TQL
Diethyl Phthalate	19,913	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	12,445	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	548	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	11.2	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	11.2	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	6.74	µg/L	Discharge Conc < TQL
Fluoranthene	958	µg/L	Discharge Conc ≤ 25% WQBEL
Fluorene	2,394	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.018	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	24.9	µg/L	Discharge Conc < TQL

Hexachloroethane	22.5	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.22	µg/L	Discharge Conc < TQL
Isophorone	1,628	µg/L	Discharge Conc < TQL
Naphthalene	697	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	479	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.16	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	1.12	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	741	µg/L	Discharge Conc < TQL
Phenanthrene	24.9	µg/L	Discharge Conc ≤ 25% WQBEL
Pyrene	958	µg/L	Discharge Conc ≤ 25% WQBEL

Johnsonburg STP - TRC eval_

TRC EVALUATION

Johnsonburg STP

80.98	= Q stream (cfs)	0.5	= CV Daily
1	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.129	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.896	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 2.173	1.3.2.iii	WLA cfc = 14.598
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.810	5.1d	LTA_cfc = 8.486

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		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)**

Johnsonburg STP
Johnsonburg Boro Elk County
PA0020401 Discharge pH

Outfall 001

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Jul-21	6.5	7.2	3.16E-07	6.31E-08	1.9E-07	**6.7**
Aug-21	6.7	7.3	2E-07	5.01E-08	1.25E-07	**6.9**
Sep-21	6.6	7.2	2.51E-07	6.31E-08	1.57E-07	**6.8**
Jul-22	6.6	8.0	2.51E-07	1E-08	1.31E-07	**6.9**
Aug-22	6.5	7.4	3.16E-07	3.98E-08	1.78E-07	**6.7**
Sep-22	6.8	7.4	1.58E-07	3.98E-08	9.92E-08	**7.0**
Jul-23	6.7	8.2	2E-07	6.31E-09	1.03E-07	**7.0**
Aug-23	6.7	7.2	2E-07	6.31E-08	1.31E-07	**6.9**
Sep-23	6.8	7.2	1.58E-07	6.31E-08	1.11E-07	**7.0**
					Median:	**6.8**