

Application Type Renewal
Facility Type Municipal
Major / Minor Major

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. PA0104442
APS ID 1045879
Authorization ID 1365928

Applicant and Facility Information

Applicant Name <u>Breakneck Creek Region Authority</u>	Facility Name <u>Breakneck Creek STP</u>
Applicant Address <u>1166 Mars Evans City Road</u> <u>Mars, PA 16046-2216</u>	Facility Address <u>1166 Mars Evans City Road</u> <u>Mars, PA 16046-2216</u>
Applicant Contact <u>Matthew Marasco</u>	Facility Contact <u>Robert Husband (Operator)</u>
Applicant Phone <u>(724) 625-1699</u>	Facility Phone <u>(724) 652-1699</u>
Client ID <u>44306</u>	Site ID <u>259094</u>
Ch 94 Load Status <u>Not Overloaded</u>	Municipality <u>Adams Township</u>
Connection Status <u>No Limitations</u>	County <u>Butler</u>
Date Application Received <u>August 12, 2021</u>	EPA Waived? <u>No</u>
Date Application Accepted <u>August 30, 2021</u>	If No, Reason <u>Major Facility</u>
Purpose of Application <u>Renewal of a NPDES Permit for an existing discharge from a POTW</u>	

Summary of Review

This is a publicly operated sewage treatment plant serving all or parts of Mars Borough, Adams Township, Valencia Borough, Pine Township, Richland Township, Middlesex Township, Cranberry Township, Forward Township, and Seven Fields Borough in Butler County. There are no industrial users and the facility is not implementing an approved pretreatment program administered by EPA. The facility is not currently accepting hauled-in waste or anticipate to in the next permit term.

There are currently no open violations listed in EFACTS for this client (7/3/2024).

Sludge use and disposal description and location(s): Sludge is dewatered and disposed of at an approved 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	July 3, 2024
X		Jason T. Roessing Jason T. Roessing, P.E. / Environmental Engineer Manager	July 10, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	4.5
Latitude	40° 43' 18"	Longitude	-80° 1' 30"
Quad Name	Mars	Quad Code	01305
Wastewater Description: Effluent			
Receiving Waters	Breakneck Creek	Stream Code	35016
NHD Com ID	126220319	RMI	8.1
Drainage Area	19.829	Yield (cfs/mi ²)	0.0428
Q ₇₋₁₀ Flow (cfs)	0.848	Q ₇₋₁₀ Basis	USGS #03049000 (1977 – 2011)
Elevation (ft)	973	Slope (ft/ft)	0.00158
Watershed No.	20-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, SILTATION		
Source(s) of Impairment	SOURCE UNKNOWN, URBAN RUNOFF/STORM SEWERS		
TMDL Status		Name	
Background/Ambient Data		Data Source	
pH (SU)	7.81		Department sample upstream of discharge on 8/31/2006
Temperature (°F)	25		Default (WWF)
Hardness (mg/L)	100		Default
Other: NH ₃ -N (mg/L)	0.1		Default
Nearest Downstream Public Water Supply Intake	PA American Water Company – Ellwood District		
PWS Waters	Connoquenessing Creek	Flow at Intake (cfs)	67
PWS RMI	0.01	Distance from Outfall (mi)	33.1

Changes Since Last Permit Issuance: None

Other Comments: An emergency Sanitary Sewer Overflow (002) exists but cannot be expressly acknowledged in the NPDES Permit because bypassing of secondary treatment is prohibited. It originates prior to headworks and does have its own chlorination system. Stormwater Outfalls 003 and 004 also discharge to Breakneck Creek:

Outfall No.	003	RMI	8.2
Latitude	40° 43' 19"	Longitude	80° 1' 31"
Outfall No.	004	RMI	8.1
Latitude	40° 43' 17 "	Longitude	80° 1' 40"

Treatment Facility Summary				
Treatment Facility Name: Breakneck Creek STP				
WQM Permit No.	Issuance Date			
1091403	April 12, 1991			
1002401 A-1	March 4, 2013			
1002401 A-2	May 14, 2020			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	4.5
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
4.5	1 1,454	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: Expanded/upgraded plant which resulted in a rerate of the plant.

Other Comments:

Compliance History	
Summary of DMRs:	In the last five years, there have been six effluent violations. Four for total phosphorus in the summer of 2022, one for nitrogen in 2023 and one for total suspended solids in 2023.
Summary of Inspections:	The last site inspection was conducted on 11/05/2021. The inspection report did not report any violations.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from December 1, 2022 to November 30, 2023)

Parameter	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22
Flow (MGD) Average Monthly	1.587	1.46	1.484	1.691	1.655	1.489	1.652	1.712	1.856	1.656	2.186	1.815
Flow (MGD) Daily Maximum	2.768	2.312	2.692	3.106	3.519	1.751	2.379	2.312	2.727	2.033	3.766	2.73
pH (S.U.) Daily Minimum	6.59	6.6	6.72	6.74	6.74	6.61	6.48	6.53	6.53	6.53	6.56	6.42
pH (S.U.) Daily Maximum	7.02	6.91	6.94	6.94	7.04	6.97	6.88	6.85	6.96	6.93	6.89	7.01
DO (mg/L) Daily Minimum	8.25	7.72	7.48	7.51	7.69	7.51	7.2	7.68	8.46	8.45	7.32	8.35
CBOD5 (lbs/day) Average Monthly	< 39	< 24	< 33	< 40	< 44	< 30	< 35	< 47	< 50	< 35	< 52	< 47
CBOD5 (lbs/day) Weekly Average	71	< 29	< 39	< 54	63	51	< 46	52	73	< 32	< 62	72
CBOD5 (mg/L) Average Monthly	< 3.0	< 2.0	< 3.0	< 3.0	< 3.0	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	6.0	< 3.0	< 3.0	< 4.0	5.0	4.0	3.0	4.0	5.0	< 2.0	< 4.0	5.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	3822	3510	3579	3056	2833	2749	2963	2794	1985	2447	4185	3119
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	6418	4269	5860	5092	3604	3389	3668	4034	3612	3520	8713	4508
BOD5 (mg/L) Raw Sewage Influent Average Monthly	285	308	274	220	214	214	208	200	133	172	190	202
TSS (lbs/day) Average Monthly	< 68	< 57	< 66	< 69	< 67	< 64	< 72	< 71	< 76	< 74	< 106	< 78
TSS (lbs/day) Raw Sewage Influent Average Monthly	4186	4114	5005	3712	3049	3219	3701	3532	3641	3757	4845	4078

**NPDES Permit Fact Sheet
Breakneck Creek STP**

NPDES Permit No. PA0104442

TSS (lbs/day) Raw Sewage Influent Daily Maximum	7110	4695	7409	4758	3489	4233	4484	4599	6082	4456	9125	6734
TSS (lbs/day) Weekly Average	< 115	< 58	< 85	< 77	< 71	< 70	< 92	< 78	< 90	< 82	< 125	< 89
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	310	362	385	267	230	251	261	250	242	269	224	271
TSS (mg/L) Weekly Average	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 6.0	< 6.0	< 5.0	< 5.0
Total Dissolved Solids (lbs/day) Average Quarterly			6562			6953			9753			6703
Total Dissolved Solids (mg/L) Average Quarterly			518			498			457			525
Fecal Coliform (No./100 ml) Geometric Mean	< 8	< 5	< 7	< 12	< 5	6	8	7	5.0	5	5	4
Fecal Coliform (No./100 ml) Instantaneous Maximum	26	10	15	37	15	10	20	16	5.0	5	5	10
UV Intensity ($\mu\text{w}/\text{cm}^2$) Average Monthly	2.788	3.504	3.083	2.944	3.084	3.437	3.437	4.262	3.855	4.34	4.058	4.045
Total Nitrogen (lbs/day) Average Monthly	29	28	30	38	33	34	25	75	71	43	73	41
Total Nitrogen (mg/L) Average Monthly	2.14	2.43	2.33	2.72	2.48	2.66	1.66	5.31	4.76	2.95	3.41	2.6
Ammonia (lbs/day) Average Monthly	< 5.4	< 4.5	< 5.3	< 5.5	< 5.3	< 5.1	< 6.2	< 8.4	< 17.5	< 19.4	< 17.0	< 11.7
Ammonia (mg/L) Average Monthly	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.6	< 1.2	< 1.3	< 0.8	< 0.8
Total Phosphorus (lbs/day) Average Monthly	5	5	4	5	5	5	2	4	4	< 4.0	4	3
Total Phosphorus (mg/L) Average Monthly	0.4	0.4	0.3	0.4	0.4	0.4	0.2	0.3	0.2	< 0.3	0.2	0.2

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	4.5
Latitude	40° 43' 18"	Longitude	-80° 1' 30"
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)
Phosphorus, Total	2.0	Average Monthly	-	96.5
E. Coli	Report (No./100 ml)	IMAX	-	92a.61

Comments: The phosphorus limit is implemented for all dischargers to the Connoquenessing Creek basin above the confluence with Slippery Rock Creek.

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 TRC tech-based effluent limit is not applicable because UV disinfection is utilized.

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
CBOD ₅	10	Average Monthly	WQM 7.0 Version 1.1
Ammonia Nitrogen (5/01-10/31)	1.5	Average Monthly	WQM 7.0 Version 1.0b (previous modeling)
Dissolved Oxygen	5.0	Minimum	WQM 7.0 Version 1.1

Comments: A seasonal multiplier of 3 is used for the ammonia nitrogen wintertime limit.

The Toxics Management Spreadsheet recommended monitoring for total boron, total copper, total thallium, and total zinc. Monitoring for these parameters will be placed in the permit at a frequency of twice a month.

Best Professional Judgment (BPJ) Limitations

Comments: Monitoring for influent TSS and BOD₅ were placed in the permit in accordance with the Department's SOP entitled "New and Reissuance Sewage Individual NPDES Permit Applications."

Monitoring for ultraviolet intensity was placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Tertiary treatment limits found in the Department's DEP's "Policy and Procedure for Evaluating Wastewater Discharges of Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers" (391-2000-014) are to be applied for new and expanding discharges where there is less than three-parts stream flow (Q₇₋₁₀) to one-part effluent (design flow) in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits." The tertiary limits found in the above-mentioned document that are applicable to this expanding discharge are as follows:

Parameter	Limit (mg/l)	SBC
CBOD ₅	10	Average Monthly
TSS	10	Average Monthly
Total Nitrogen	5.0	Average Monthly
Dissolved Oxygen	6.0	Daily Minimum
Total Phosphorus	0.5	Average Monthly

Quarterly monitoring for TDS was placed in the permit as suggested in a special study done by the Department entitled "Determination of TDS WQBEL for New Castle POTW," dated September 12, 2011, for discharges in the watershed that have average daily TDS loadings between 5,000 and 10,000 lbs/day. The projected average daily TDS loading was found by correlating the current design flow (3.0 MGD) and the current average discharge loading from the 2016 NPDES Permit renewal application (6,215 lbs/day) with the proposed design flow. $(4.5 \times 6215) / 3.0 = 9322$ lbs/day is projected TDS loading.

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.

Additional Considerations

The permittee requested during the permit renewal technical review that the total nitrogen and total phosphorus limits be relaxed due to having to use twice as much alum to achieve the new BPJ limits that took effect after the plant upgrade was completed. In discussing with the permittee's consultant, it was suggested the total phosphorus limit be relaxed back to 2.0 mg/l which is Chapter 96.5 based for all discharges all dischargers to the Connoquenessing Creek basin above the confluence with Slippery Rock Creek and a total nitrogen limit of 10 mg/l which should allow for a significant reduction in alum addition. These relaxed limits will be placed in the proposed renewed permit.

Anti-Backsliding

As stated above, total nitrogen and total phosphorus limits were relaxed in the proposed renewed permit. This is permissible under 402(o)(1) of the CWA based on compliance with 303(d)(4)(B) –Attainment Water. Compliance with 303(d)(4)(B) is being met because the receiving stream – Breakneck Creek, is not impaired due to nutrients, the existing limits are not based on a TMDL, WLA, or state permitting standard (based on Department guidance) and the backsliding of the effluent limits is consistent with PADEP's antidegradation policy located in 25 Pa. Code Chapter 93.4(a).

Development of Effluent Limitations			
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Outfall No.	003	Design Flow (MGD)	0
Latitude	40° 43' 19.00"	Longitude	-80° 1' 31.00"
Outfall No.	004	Design Flow (MGD)	0
Latitude	40° 43' 17.00"	Longitude	-80° 1' 40.00"
Wastewater Description:		Stormwater	

Technology-Based Limitations

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

Comments: None applicable

Water Quality-Based Limitations

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

Comments: None

Best Professional Judgment (BPJ) Limitations

Comments: None

Anti-Backsliding

N/A

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **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%, 96%, 92%, 46%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 92.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	Ceriodaphnia Results (Pass/Fail)		Pimephales Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
8/31/2020	Pass	Pass	Pass	Pass
3/30/2021	Pass	Pass	Pass	Pass
6/23/2022	Pass	Pass	Pass	Pass
5/16/2023	Pass	Pass	Pass	Pass
5/7/2024	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.

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

Comments:

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

Acute Partial Mix Factor (PMFa): 1

Chronic Partial Mix Factor (PMFc): 1

1. Determine IWC – Acute (IWCa):

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

$$[(4.5 \text{ MGD} \times 1.547) / ((0.85 \text{ cfs} \times 1) + (4.5 \text{ MGD} \times 1.547))] \times 100 = 89\%$$

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)

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

$$[(4.5 \text{ MGD} \times 1.547) / ((0.85 \text{ cfs} \times 1) + (4.5 \text{ MGD} \times 1.547))] \times 100 = 89\%$$

3. Determine Dilution Series

Dilution Series = 100%, 95%, 89%, 45%, and 22%.

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).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	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	6.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	375	560	XXX	10.0	15.0	20	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	375	560	XXX	10.0	15.0	20	2/day	24-Hr Composite
Total Dissolved Solids	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	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
UV Intensity (µw/cm²)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
Total Nitrogen	375	XXX	XXX	10.	XXX	20	2/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	165	XXX	XXX	4.5	XXX	9	2/week	24-Hr Composite

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		
Ammonia May 1 - Oct 31	56	XXX	XXX	1.5	XXX	3	2/week	24-Hr Composite
Total Phosphorus	75	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Boron	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	2/month	24-Hr Composite
Total Thallium (µg/L)	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	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)

Other Comments:

Approve	Deny	Signatures	Date
X		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	July 3, 2024
X		Jason T. Roessing Jason T. Roessing, P.E. / Environmental Engineer Manager	July 10, 2024

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
20C	35016	BREAKNECK CREEK	8.100	973.00	19.83	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.043	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.81	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
Breakneck Creek	PA0104442	4.5000	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	2.00	0.00	1.50
Dissolved Oxygen	4.00	7.54	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
20C	35016	BREAKNECK CREEK	4.500	943.00	31.07	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.043	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.81	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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
20C		35016				BREAKNECK CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
8.100	0.85	0.00	0.85	6.9615	0.00158	.703	35.54	50.57	0.31	0.703	20.55	7.04
Q1-10 Flow												
8.100	0.55	0.00	0.55	6.9615	0.00158	NA	NA	NA	0.31	0.719	20.36	7.03
Q30-10 Flow												
8.100	1.16	0.00	1.16	6.9615	0.00158	NA	NA	NA	0.32	0.688	20.71	7.06

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
20C		35016		BREAKNECK CREEK			

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
8.100	Breakneck Creek	15.87	17.1	15.87	17.1	1	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
8.100	Breakneck Creek	1.76	2.04	1.76	2.04	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
8.10	Breakneck Creek	13.46	13.46	2.04	2.04	5	5	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20C	35016	BREAKNECK CREEK		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
8.100	4.500	20.546	7.042	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
35.536	0.703	50.572	0.313	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
12.21	0.788	1.83	0.730	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
5.277	4.754	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.703	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.070	11.53	1.74	5.14
	0.141	10.90	1.65	5.11
	0.211	10.30	1.57	5.15
	0.281	9.73	1.49	5.23
	0.352	9.19	1.41	5.35
	0.422	8.68	1.34	5.48
	0.492	8.20	1.28	5.63
	0.562	7.75	1.21	5.78
	0.633	7.32	1.15	5.94
	0.703	6.92	1.09	6.09

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
20C		35016	BREAKNECK CREEK				
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)
8.100	Breakneck Creek	PA0104442	4.500	CBOD5	13.46		
				NH3-N	2.04	4.08	
				Dissolved Oxygen			5



Discharge Information

Instructions Discharge Stream

Facility: Breakneck Creek MA STP NPDES Permit No.: PA0104442 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated 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
4.5	154	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		480										
	Chloride (PWS)	mg/L		149										
	Bromide	mg/L		0.17										
	Sulfate (PWS)	mg/L		82.7										
	Fluoride (PWS)	mg/L												
Group 2	Total Aluminum	µg/L		45										
	Total Antimony	µg/L		0.3										
	Total Arsenic	µg/L	<	1										
	Total Barium	µg/L		39										
	Total Beryllium	µg/L		1										
	Total Boron	µg/L		355										
	Total Cadmium	µg/L	<	0.2										
	Total Chromium (III)	µg/L		2										
	Hexavalent Chromium	µg/L	<	0.25										
	Total Cobalt	µg/L		2										
	Total Copper	µg/L		6										
	Free Cyanide	µg/L		1										
	Total Cyanide	µg/L		2										
	Dissolved Iron	µg/L		31										
	Total Iron	µg/L		20.7										
	Total Lead	µg/L		0.1										
	Total Manganese	µg/L		33										
	Total Mercury	µg/L	<	0.04										
	Total Nickel	µg/L		3										
	Total Phenols (Phenolics) (PWS)	µg/L	<	2										
	Total Selenium	µg/L	<	2										
	Total Silver	µg/L	<	0.4										
	Total Thallium	µg/L		0.1										
	Total Zinc	µg/L		64										
	Total Molybdenum	µg/L		55										
	Acrolein	µg/L	<	1.3										
	Acrylamide	µg/L	<											
	Acrylonitrile	µg/L	<	2										
	Benzene	µg/L	<	0.12										
	Bromoform	µg/L	<	0.37										

Group 3	Carbon Tetrachloride	µg/L	<	0.23																
	Chlorobenzene	µg/L	<	0.25																
	Chlorodibromomethane	µg/L	<	0.25																
	Chloroethane	µg/L	<	0.47																
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1																
	Chloroform	µg/L	<	0.25																
	Dichlorobromomethane	µg/L	<	0.18																
	1,1-Dichloroethane	µg/L	<	0.05																
	1,2-Dichloroethane	µg/L	<	0.12																
	1,1-Dichloroethylene	µg/L	<	0.13																
	1,2-Dichloropropane	µg/L	<	0.26																
	1,3-Dichloropropylene	µg/L	<	0.47																
	1,4-Dioxane	µg/L	<	0.33																
	Ethylbenzene	µg/L	<	0.2																
	Methyl Bromide	µg/L	<	0.47																
	Methyl Chloride	µg/L	<	0.33																
	Methylene Chloride	µg/L	<	0.34																
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38																
	Tetrachloroethylene	µg/L	<	0.27																
	Toluene	µg/L	<	0.24																
	1,2-trans-Dichloroethylene	µg/L	<	0.08																
Group 4	1,1,1-Trichloroethane	µg/L	<	0.12																
	1,1,2-Trichloroethane	µg/L	<	0.13																
	Trichloroethylene	µg/L	<	0.29																
	Vinyl Chloride	µg/L	<	0.33																
	2-Chlorophenol	µg/L	<	0.37																
	2,4-Dichlorophenol	µg/L	<	0.42																
	2,4-Dimethylphenol	µg/L	<	0.45																
	4,6-Dinitro- <i>o</i> -Cresol	µg/L	<	1.2																
	2,4-Dinitrophenol	µg/L	<	2.7																
	2-Nitrophenol	µg/L	<	0.37																
Group 5	4-Nitrophenol	µg/L	<	1.3																
	<i>p</i> -Chloro- <i>m</i> -Cresol	µg/L	<	0.37																
	Pentachlorophenol	µg/L	<	1.7																
	Phenol	µg/L	<	0.25																
	2,4,6-Trichlorophenol	µg/L	<	0.45																
	Acenaphthene	µg/L	<	0.38																
	Acenaphthylene	µg/L	<	0.37																
	Anthracene	µg/L	<	0.38																
	Benzidine	µg/L	<	2.4																
	Benzo(a)Anthracene	µg/L	<	0.39																
	Benzo(a)Pyrene	µg/L	<	0.34																
	3,4-Benzofluoranthene	µg/L	<	0.38																
	Benzo(ghi)Perylene	µg/L	<	0.4																
	Benzo(k)Fluoranthene	µg/L	<	0.37																
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.42																
	Bis(2-Chloroethyl)Ether	µg/L	<	0.36																
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.42																
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.78																
	4-Bromophenyl Phenyl Ether	µg/L	<	0.43																
	Butyl Benzyl Phthalate	µg/L	<	0.56																
	2-Chloronaphthalene	µg/L	<	0.38																
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.38																
	Chrysene	µg/L	<	0.4																
	Dibenzo(a,h)Anthracene	µg/L	<	0.41																
	1,2-Dichlorobenzene	µg/L	<	0.37																
	1,3-Dichlorobenzene	µg/L	<	0.43																
	1,4-Dichlorobenzene	µg/L	<	0.43																
	3,3-Dichlorobenzidine	µg/L	<	1																
	Diethyl Phthalate	µg/L	<	0.54																
	Dimethyl Phthalate	µg/L	<	0.4																
	Di-n-Butyl Phthalate	µg/L	<	0.55																
	2,4-Dinitrotoluene	µg/L	<	0.43																

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Stream / Surface Water Information

Breakneck Creek MA STP, NPDES Permit No. PA0104442, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: Breakneck Creek

No. Reaches to Model: 1

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	035016	33.1	973	19.829			Yes
End of Reach 1	034025	0	735	839		1	Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	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	33.1	0.043										100	7.81		
End of Reach 1	0	0.1	67									100	7		

Q_h

Location	RMI	LFY (cfs/mi ²)*	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	33.1														
End of Reach 1	0														



Model Results

Breakneck Creek MA STP, NPDES Permit No. PA0104442, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All☐ Inputs☐ Results☐ Limits☒ Hydrodynamics Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
33.1	0.85		0.85	6.962	0.001	0.706	35.811	50.733	0.309	6.543	0.956
0	67.00	1.547	65.453								

 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)
33.1	6.46		6.46	6.962	0.001	0.896	35.811	39.983	0.419	4.833	13.026
0	293.075	1.547	291.53								

☒ Wasteload Allocations☒ AFC

CCT (min): 0.956

PMF: 1

Analysis Hardness (mg/l): 148.11

Analysis pH: 7.04

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	842	
Total Antimony	0	0		0	1,100	1,100	1,235	
Total Arsenic	0	0		0	340	340	382	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	23,572	
Total Boron	0	0		0	8,100	8,100	9,092	
Total Cadmium	0	0		0	2,950	3.18	3.57	Chem Translator of 0.928 applied
Total Chromium (III)	0	0		0	785.955	2,487	2,792	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	107	
Total Copper	0	0		0	19.458	20.3	22.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	24.7	

Model Results

4/30/2024

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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	98.772	135	151	Chem Translator of 0.734 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.85	Chem Translator of 0.85 applied
Total Nickel	0	0		0	652.790	654	734	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	6.321	7.44	8.35	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	73.0	
Total Zinc	0	0		0	163.450	167	188	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.37	
Acrylonitrile	0	0		0	650	650	730	
Benzene	0	0		0	640	640	718	
Bromoform	0	0		0	1,800	1,800	2,020	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,143	
Chlorobenzene	0	0		0	1,200	1,200	1,347	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	20,205	
Chloroform	0	0		0	1,900	1,900	2,133	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,837	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,419	
1,2-Dichloropropane	0	0		0	11,000	11,000	12,347	
1,3-Dichloropropylene	0	0		0	310	310	348	
Ethylbenzene	0	0		0	2,900	2,900	3,255	
Methyl Bromide	0	0		0	550	550	617	
Methyl Chloride	0	0		0	28,000	28,000	31,429	
Methylene Chloride	0	0		0	12,000	12,000	13,470	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,122	
Tetrachloroethylene	0	0		0	700	700	786	
Toluene	0	0		0	1,700	1,700	1,908	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,633	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,367	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,816	
Trichloroethylene	0	0		0	2,300	2,300	2,582	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	629	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,908	
2,4-Dimethylphenol	0	0		0	660	660	741	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	89.8	
2,4-Dinitrophenol	0	0		0	660	660	741	
2-Nitrophenol	0	0		0	8,000	8,000	8,980	
4-Nitrophenol	0	0		0	2,300	2,300	2,582	
p-Chloro-m-Cresol	0	0		0	160	160	180	
Pentachlorophenol	0	0		0	9.100	9.1	10.2	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	516	

Acenaphthene	0	0		0	83	83.0	93.2	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	337	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.56	
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	33,674	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	5,051	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	303	
Butyl Benzyl Phthalate	0	0		0	140	140	157	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	920	
1,3-Dichlorobenzene	0	0		0	350	350	393	
1,4-Dichlorobenzene	0	0		0	730	730	819	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,490	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,806	
Di-n-Butyl Phthalate	0	0		0	110	110	123	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,796	
2,6-Dinitrotoluene	0	0		0	990	990	1,111	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.8	
Fluoranthene	0	0		0	200	200	224	
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	11.2	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.61	
Hexachloroethane	0	0		0	60	60.0	67.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	11,225	
Naphthalene	0	0		0	140	140	157	
Nitrobenzene	0	0		0	4,000	4,000	4,490	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	19,082	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	337	
Phenanthrene	0	0		0	5	5.0	5.61	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	146	

☒ CFC

CCT (min): 0.956

PMF: 1

Analysis Hardness (mg/l): 148.11

Analysis pH: 7.04

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	247	
Total Arsenic	0	0		0	150	150	168	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,602	
Total Boron	0	0		0	1,600	1,600	1,796	
Total Cadmium	0	0		0	0.323	0.36	0.41	Chem Translator of 0.893 applied
Total Chromium (III)	0	0		0	102.237	119	133	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.3	
Total Copper	0	0		0	12.527	13.0	14.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	5.84	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,684	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	3.849	5.25	5.89	Chem Translator of 0.734 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.02	Chem Translator of 0.85 applied
Total Nickel	0	0		0	72.505	72.7	81.6	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	5.6	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	14.6	
Total Zinc	0	0		0	164.787	167	188	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.37	
Acrylonitrile	0	0		0	130	130	146	
Benzene	0	0		0	130	130	146	
Bromoform	0	0		0	370	370	415	
Carbon Tetrachloride	0	0		0	560	560	629	
Chlorobenzene	0	0		0	240	240	269	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,929	
Chloroform	0	0		0	390	390	438	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,480	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,684	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,469	
1,3-Dichloropropylene	0	0		0	61	61.0	68.5	
Ethylbenzene	0	0		0	580	580	651	
Methyl Bromide	0	0		0	110	110	123	
Methyl Chloride	0	0		0	5,500	5,500	6,174	
Methylene Chloride	0	0		0	2,400	2,400	2,694	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	236	
Tetrachloroethylene	0	0		0	140	140	157	
Toluene	0	0		0	330	330	370	

1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,571
1,1,1-Trichloroethane	0	0		0	610	610	685
1,1,2-Trichloroethane	0	0		0	680	680	763
Trichloroethylene	0	0		0	450	450	505
Vinyl Chloride	0	0		0	N/A	N/A	N/A
2-Chlorophenol	0	0		0	110	110	123
2,4-Dichlorophenol	0	0		0	340	340	382
2,4-Dimethylphenol	0	0		0	130	130	146
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	18.0
2,4-Dinitrophenol	0	0		0	130	130	146
2-Nitrophenol	0	0		0	1,600	1,600	1,796
4-Nitrophenol	0	0		0	470	470	528
p-Chloro-m-Cresol	0	0		0	500	500	561
Pentachlorophenol	0	0		0	6.981	6.98	7.84
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	91	91.0	102
Acenaphthene	0	0		0	17	17.0	19.1
Anthracene	0	0		0	N/A	N/A	N/A
Benzidine	0	0		0	59	59.0	66.2
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11
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	6,735
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,021
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	60.6
Butyl Benzyl Phthalate	0	0		0	35	35.0	39.3
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0		0	160	160	180
1,3-Dichlorobenzene	0	0		0	69	69.0	77.5
1,4-Dichlorobenzene	0	0		0	150	150	168
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A
Diethyl Phthalate	0	0		0	800	800	898
Dimethyl Phthalate	0	0		0	500	500	561
Di-n-Butyl Phthalate	0	0		0	21	21.0	23.6
2,4-Dinitrotoluene	0	0		0	320	320	359
2,6-Dinitrotoluene	0	0		0	200	200	224
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.37
Fluoranthene	0	0		0	40	40.0	44.9
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	2.24

NPDES Permit Fact Sheet
Breakneck Creek STP

NPDES Permit No. PA0104442

Hexachlorocyclopentadiene	0	0		0	1	1.0	1.12	
Hexachloroethane	0	0		0	12	12.0	13.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,357	
Naphthalene	0	0		0	43	43.0	48.3	
Nitrobenzene	0	0		0	810	810	909	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,816	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	66.2	
Phenanthrene	0	0		0	1	1.0	1.12	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	29.2	

☒ THH

CCT (min): 0.956

THH PMF: 1

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)	0	0		0	500,000	500,000	5,312,181	WQC applied at RMI 0 with a design stream flow of 67 cfs
Chloride (PWS)	0	0		0	250,000	250,000	2,656,091	WQC applied at RMI 0 with a design stream flow of 67 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	2,656,091	WQC applied at RMI 0 with a design stream flow of 67 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.29	
Total Arsenic	0	0		0	10	10.0	11.2	
Total Barium	0	0		0	2,400	2,400	2,694	
Total Boron	0	0		0	3,100	3,100	3,480	
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	4.49	
Dissolved Iron	0	0		0	300	300	337	
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	1,122	
Total Mercury	0	0		0	0.050	0.05	0.056	
Total Nickel	0	0		0	610	610	685	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	53.1	WQC applied at RMI 0 with a design stream flow of 67 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	0.27	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.37	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	

Model Results

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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	112
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	6.4
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	37.0
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	76.3
Methyl Bromide	0	0		0	100	100.0	112
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	64.0
1,2-trans-Dichloroethylene	0	0		0	100	100.0	112
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,225
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	33.7
2,4-Dichlorophenol	0	0		0	10	10.0	11.2
2,4-Dimethylphenol	0	0		0	100	100.0	112
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.24
2,4-Dinitrophenol	0	0		0	10	10.0	11.2
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	4,490
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A
Acenaphthene	0	0		0	70	70.0	78.6
Anthracene	0	0		0	300	300	337
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	224
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	0.11	
2-Chloronaphthalene	0	0		0	800	800	898	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,122	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.86	
1,4-Dichlorobenzene	0	0		0	300	300	337	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	673	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,245	
Di-n-Butyl Phthalate	0	0		0	20	20.0	22.4	
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	22.4	
Fluorene	0	0		0	50	50.0	56.1	
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	4.49	
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	38.2	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.2	
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	22.4	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.079	

☒ **CRL** CCT (min): **13.026** PMF: **1** Analysis Hardness (mg/l): **N/A** Analysis pH: **N/A**

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
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	0.12
Benzene	0	0		0	0.58	0.58	1.12
Bromoform	0	0		0	7	7.0	13.5
Carbon Tetrachloride	0	0		0	0.4	0.4	0.77
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	1.54
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	1.83
1,2-Dichloroethane	0	0		0	9.9	9.9	19.1
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	1.74
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.52
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	38.6
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.39
Tetrachloroethylene	0	0		0	10	10.0	19.3
Toluene	0	0		0	N/A	N/A	N/A
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.06
Trichloroethylene	0	0		0	0.6	0.6	1.16
Vinyl Chloride	0	0		0	0.02	0.02	0.039
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	0.058
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.89
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	0.0002
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.019
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.058
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.62
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	0.23
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.0002
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	0.096
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	0.096
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.096
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.058
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	0.0002
Hexachlorobutadiene	0	0		0	0.01	0.01	0.019
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	0.19
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002
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	0.001
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.01
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	6.36

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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Boron	Report	Report	Report	Report	Report	µg/L	1,796	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	14.6	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	Report	Report	Report	Report	Report	µg/L	0.27	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	167	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)	5,312	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	2,656	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	2,656	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	6.29	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,694	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.41	µg/L	Discharge Conc < TQL
Total Chromium (III)	133	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	11.7	µg/L	Discharge Conc < TQL
Total Cobalt	21.3	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	4.49	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	337	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,684	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	5.89	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,122	µg/L	Discharge Conc ≤ 10% WQBEL

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Total Mercury	0.056	µg/L	Discharge Conc < TQL
Total Nickel	81.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	53.1	µg/L	Discharge Conc < TQL
Total Selenium	5.6	µg/L	Discharge Conc < TQL
Total Silver	7.44	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.12	µg/L	Discharge Conc < TQL
Benzene	1.12	µg/L	Discharge Conc < TQL
Bromoform	13.5	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.77	µg/L	Discharge Conc < TQL
Chlorobenzene	112	µg/L	Discharge Conc < TQL
Chlorodibromomethane	1.54	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,929	µg/L	Discharge Conc < TQL
Chloroform	6.4	µg/L	Discharge Conc < TQL
Dichlorobromomethane	1.83	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	19.1	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	37.0	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.74	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.52	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	76.3	µg/L	Discharge Conc < TQL
Methyl Bromide	112	µg/L	Discharge Conc < TQL
Methyl Chloride	6,174	µg/L	Discharge Conc < TQL
Methylene Chloride	38.6	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.39	µg/L	Discharge Conc < TQL
Tetrachloroethylene	19.3	µg/L	Discharge Conc < TQL
Toluene	64.0	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	112	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	685	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.06	µg/L	Discharge Conc < TQL
Trichloroethylene	1.16	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.039	µg/L	Discharge Conc < TQL
2-Chlorophenol	33.7	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	11.2	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	112	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.24	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	11.2	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,796	µg/L	Discharge Conc < TQL
4-Nitrophenol	528	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.058	µg/L	Discharge Conc < TQL
Phenol	4,490	µg/L	Discharge Conc < TQL

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2,4,6-Trichlorophenol	2.89	µg/L	Discharge Conc < TQL
Acenaphthene	19.1	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	337	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.019	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.058	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	224	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.62	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	60.6	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.11	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	898	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.23	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	180	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	7.86	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	168	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.096	µg/L	Discharge Conc < TQL
Diethyl Phthalate	673	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	561	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	22.4	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.096	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.096	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.058	µg/L	Discharge Conc < TQL
Fluoranthene	22.4	µg/L	Discharge Conc < TQL
Fluorene	56.1	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0002	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.019	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.12	µg/L	Discharge Conc < TQL
Hexachloroethane	0.19	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL
Isophorone	38.2	µg/L	Discharge Conc < TQL
Naphthalene	48.3	µg/L	Discharge Conc < TQL
Nitrobenzene	11.2	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.01	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	6.36	µg/L	Discharge Conc < TQL
Phenanthrene	1.12	µg/L	Discharge Conc < TQL

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Pyrene	22.4	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.079	µg/L	Discharge Conc < TQL