

Application Type Renewal
Facility Type Municipal
Major / Minor Major

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

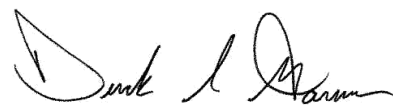
Application No. PA0020486
APS ID 1101568
Authorization ID 1463012

1.0 Applicant and Facility Information

Applicant Name	<u>Bellefonte Borough Authority</u>	Facility Name	<u>Bellefonte Borough Wastewater Treatment Plant</u>
Applicant Address	<u>236 W Lamb Street</u> <u>Bellefonte, PA 16823-1502</u>	Facility Address	<u>615 Pleasant View Boulevard</u> <u>Bellefonte, PA 16823</u>
Applicant Contact	<u>Frank Noll</u>	Facility Contact	<u>Frank Noll</u>
Applicant Phone	<u>(814) 353-2624</u>	Facility Phone	<u>(814) 353-2624</u>
Client ID	<u>65277</u>	Site ID	<u>458717</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Bellefonte Borough</u>
Connection Status	<u>No Limitations</u>	County	<u>Centre</u>
Date Application Received	<u>November 20, 2023</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>December 12, 2023</u>	If No, Reason	<u>Major Facility, Significant CB Discharge</u>
Purpose of Application	<u>Renewal of an existing NPDES permit for the discharge of treated sewage.</u>		

2.0 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		 Derek S. Garner / Project Manager	6/28/2024
X		 Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	7/8/2024

3.0 Treatment Facility Summary

Facility Description

The Bellefonte Borough Authority (“BBA”) owns and operates the Bellefonte Borough Wastewater Treatment Plant (“BB WWTP”). The BB WWTP currently consists of headworks pretreatment, three equalization basins, two activated sludge treatment trains, three post anoxic tanks, final clarification, denitrification filters, and an ultraviolet disinfection system. Sludge is collected, aerobically digested, and dewatered using a volute filter press to produce Class B sludge for land application. The BB WWTP is rated for an average annual flow of 3.22 MGD, a hydraulic capacity of 4.54 MGD, and a design organic capacity of 7,941 lbs/day maximum monthly and 11,845 lbs/day maximum daily.

The BB WWTP receives flows from Bellefonte Borough (30.3%) and Spring-Benner-Walker Joint Authority service area (69.7%). All sewers are separated.

See Attachment A for the Facility and Outfall Location Map.

Sewage Sludge / Biosolids Management

In the previous year, the BB WWTP produced approximately 408 dry tons of biosolids. Additional sources of sludge came from Gregg Township, Millheim Borough, Penn Township, Potter Township, and Robinson Septic Service, Inc. A total of approximately 321 dry tons of biosolids were land applied under PAG084814 to the Jesse Schaffer and Mitchell Weaver Farms.

Pretreatment Program

The BBA implements an approved pretreatment program administered by the U.S. Environmental Protection Agency (“EPA”), most recently approved in 2015. The industrial wastewater flows to the BB WWTP are as follows:

Table 3-1. Industrial User Information

Industrial User	Total Wastewater Flow (GPD)
Piezo Kinetics, Inc.	775
Quality Machining, Inc.	775
Restek Corporation	9,230
SilcoTek	320
State of the Art	3,035
Supelco, Inc.	23,000
Bolton Metals	15,140
University Park Airport	1,500
Glenn O. Hawbaker	3,500
SCI Rockview	492,000
SCI Benner Township	223,000
TOTAL	772,000

Proposed Modifications

No proposed upgrades are anticipated to treatment facilities over the next five years.

4.0 Discharge, Receiving Waters and Water Supply Information

4.1 Outfall 001

Outfall 001 continuously discharges directly to Spring Creek following UV disinfection.

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>3.22</u>
Latitude	<u>40° 55' 25.68"</u>	Longitude	<u>-77° 47' 1.70"</u>
Quad Name	<u>Bellefonte</u>	Quad Code	<u>1123</u>
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Spring Creek</u>	Stream Code	<u>22966</u>
NHD Com ID	<u>67179050</u>	RMI	<u>1.58</u>
Drainage Area	<u>139</u>	Yield (cfs/mi ²)	<u>0.333</u>
Q ₇₋₁₀ Flow (cfs)	<u>46.2</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 01546500</u>
Elevation (ft)	<u>715</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>HQ-CWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>

Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

4.2 Outfall 002

Outfall 002 discharges uncontaminated stormwater from a stormwater collection tank. The collection tank receives stormwater drainage from throughout the site.

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>n/a</u>
Latitude	<u>40° 55' 29"</u>	Longitude	<u>-77° 47' 2"</u>
Quad Name	<u>Bellefonte</u>	Quad Code	<u>1123</u>
Wastewater Description: <u>Stormwater</u>			

Receiving Waters	<u>Spring Creek</u>	Stream Code	<u>22966</u>
NHD Com ID	<u>67179050</u>	RMI	<u>1.55</u>
Drainage Area	<u>n/a</u>	Yield (cfs/mi ²)	<u>n/a</u>
Q ₇₋₁₀ Flow (cfs)	<u>n/a</u>	Q ₇₋₁₀ Basis	<u>n/a</u>
Elevation (ft)	<u>n/a</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>9-C</u>	Chapter 93 Class.	<u>HQ-CWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>

Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>n/a</u>	Name	<u>n/a</u>

4.3 Spring Creek

Outfalls 001 and 002 discharge to a segment of Spring Creek that is not impaired and holds a HQ-CWF Chapter 93 designation.

The calculated Q7-10 has been lowered from 105 to 46.2 cfs. The previous Q7-10 was developed using downstream Streamgage No. 01547100, Spring Creek at Milesburg. However, it appears that this gage reports inflated flows in comparison to other gages inside the same watershed; resulting in a much larger low flow yield that is not representative of Spring Creek at Outfall 001. To demonstrate, the below table was compiled comparing Streamgage No. 01547100 to the closest two downstream and upstream gages.

Table 4-1. Streamgage Summary

Streamgage No.	Streamgage Name	Drainage Area (mi²)	Q7-10 (cfs)	LFY (cfs/mi²)
1546400	Spring Creek at Houserville, Pa.	58.5	14	0.239
1546500	Spring Creek near Axemann, Pa.	87.2	29	0.333
1547100	Spring Creek at Milesburg, Pa.	142	105	0.739
1547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	265	101	0.381
1547500	Bald Eagle Creek at Blanchard, Pa.	339	109	0.322

Streamgage No. 1547100 has a low flow yield more than double the next two downstream and upstream gages. The gage reports a Q7-10 approximately equal to the gages on Bald Eagle Creek, which are both located downstream of the confluence with Spring Creek and feature drainage areas more than double its size. Based on these inconsistencies DEP is recommending the use of Streamgage No. 01546500, Spring Creek near Axemann, to develop the Q7-10.

See Attachment B for Q7-10 calculations and supporting documentation.

4.4 Downstream Public Water Supply Intake

The nearest downstream water supply intake is PA American Water Company in Milton, PA, approximately 87 river miles downstream on the West Branch Susquehanna River. The discharge is not expected to impact the water supply.

5.0 Compliance History

5.1 Inspection Reports

The facility was most recently inspected by DEP Clean Water Program on March 26, 2024. No violations were noted during the inspection; however, biological growth in Spring Creek at Outfall 001 was noted along the edge of the right descending stream bank for an undetermined distance. Similar growth was noted in the treatment train after UV disinfection.

5.2 Violations

The following effluent violations occurred during the existing permit's term:

Table 5-1. Effluent Violations Summary

Noncompliance Date	Noncompliance Description	Noncompliance Category	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
6/1/2020	Late DMR Submission	Other Violations						
6/25/2020	Violation of permit condition	Effluent	Fecal Coliform	1203.3	>	1000	No./100 ml	IMAX
4/6/2021	Late DMR Submission	Other Violations						
3/17/2022 ⁽¹⁾		Unauthorized Discharges						
4/25/2023	Sample collection less frequent than required	Other Violations						
5/26/2023 ⁽²⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	13.819	>	13.5	mg/L	Wkly Avg
6/28/2023 ⁽³⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	5.028	>	3	mg/L	Avg Mo
6/28/2023 ⁽³⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	6.499	>	4.5	mg/L	Wkly Avg
7/26/2023 ⁽⁴⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	126.16	>	120	lbs/day	Wkly Avg
7/26/2023 ⁽⁴⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	4.809	>	3	mg/L	Avg Mo
7/26/2023 ⁽⁴⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	8.353	>	4.5	mg/L	Wkly Avg
8/22/2023 ⁽⁵⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	3.012	>	3	mg/L	Avg Mo
8/22/2023 ⁽⁵⁾	Violation of permit condition	Effluent	Ammonia-Nitrogen	6.3893	>	4.5	mg/L	Wkly Avg
10/26/2023	Other	Other Violations						
12/27/2023	Sample collection less frequent than required	Other Violations						
5/21/2024	Other	Other Violations						
5/21/2024	Violation of permit condition	Effluent	Fecal Coliform	> 9678.4	>	10000	No./100 ml	IMAX

Permittee's comments:

- ⁽¹⁾ Sand from BNR filter reject water tank clogged up the processed sewer line running back to the head of the plant and created periodic overflows of process water to enter our storm drains which then discharged to Spring Creek along with our site water.
- ⁽²⁾ New engineering firm contracted in March has been researching to find a solution.
- ⁽³⁾ Research has pointed to our ORP levels at different stages of our process potentially being a factor in our elevated ammonia numbers. We continue monitoring our influent ammonia levels and checking levels at SIU's on our scheduled samplings.

- (4) Adjustments made at stages of our process showed promise in lower ammonia and TKN results. These gains were negated by mechanical failures at the targeted adjustment areas. We continue monitoring our influent and SIU's ammonia levels.
- (5) Adjustments to our processing areas has continued to improve the analysis results for ammonia and TKN. Mechanical repair parts are pending. We continue monitoring our SIU's and influent ammonia levels.

No open violations are associated with the permittee.

6.0 Development of Effluent Limitations

6.1 Outfall 001

Outfall No. 001
Latitude 40° 55' 25.15"
Wastewater Description: Sewage Effluent

Design Flow (MGD) 3.22
Longitude -77° 47' 1.25"

6.1.1 Technology-Based Limitations

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

Table 6-1. Secondary Treatment Standards

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)

6.1.2 Water Quality-Based Limitations

The Department models in-stream conditions to determine if WQBELs are appropriate. Models were created using WQM 7.0 v1.1 for CBOD₅, ammonia-N (NH₃-N), and dissolved oxygen and the Toxics Management Spreadsheet v1.4 ("TMS") for toxics.

WQM 7.0 v1.1

The water quality model WQM 7.0 v1.1 is used to determine the WQBELs for CBOD₅, ammonia-N, and dissolved oxygen based on a multiple-discharge analysis, if applicable. The model assumes complete and instantaneous mixing with the receiving surface water. The reach chosen to model the in-stream characteristics is appropriate as a recovery in dissolved oxygen levels is demonstrated. The modeling output is as follows:

See Attachment C for model input/output data and supporting documentation.

WQM assumes complete and instantaneous mixing with the receiving surface water. The model created for this scenario does not demonstrate a full recovery in dissolved oxygen downstream of the discharge at RMI 0.0, where Spring Creek meets Bald Eagle Creek; however, the additional capacity available at Bald Eagle Creek should produce a recovery in the dissolved oxygen levels. Accordingly, the reach used is appropriate.

Table 6-2. WQM 7.0 Output

Parameter	Discharge Conc. (mg/L)	Effluent Limitations		
		30 Day Average (mg/L)	Maximum (mg/L)	Minimum (mg/L)
CBOD ₅	25	25	--	--
NH ₃ -N	3	3	6	--
Dissolved Oxygen	3	--	--	3

The discharge concentration for CBOD₅ is the proposed technology-based concentration limitation based on secondary treatment standards. The discharge concentration for ammonia-n is the warm-weather average monthly limit in the existing permit. The dissolved oxygen discharge is a typical concentration in treated effluent. Based on the model output, the existing permit limits are protective of Spring Creek.

Toxics Management Spreadsheet

Unlike WQM 7.0 v1.1, TMS is a single discharge model that does not assume instantaneous mixing with the receiving surface water upon discharge, but instead, assigns a partial mixing factor based upon surface water and discharge characteristics.

Pollutant Groups 1 through 6 were submitted with the application. Maximum concentrations were taken from the pollutant groups and entered into TMS to determine if the pollutant requires reporting or effluent limits. Based on the available data, the following requirements are proposed:

Table 6-3. TMS Output

Pollutants	Mass Limits		Concentration Limits			Units	Governing WQBEL	WQBEL Basis
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX			
Total Aluminum ⁽¹⁾	Report	Report	Report	Report	Report	µg/l	1084	AFC
Total Copper ⁽¹⁾	Report	Report	Report	Report	Report	µg/l	30.8	AFC
Total Silver ⁽¹⁾	Report	Report	Report	Report	Report	µg/l	11.8	AFC
Aldrin ⁽²⁾	9.36E-07	0.000001	0.00003	0.00005	0.00009	µg/l	0.00003	CRL
alpha-BHC ⁽²⁾	0.0005	0.0007	0.017	0.027	0.044	µg/l	0.017	CRL
beta-BHC ⁽²⁾	0.009	0.015	0.35	0.54	0.87	µg/l	0.35	CRL
Chlordane ⁽²⁾	0.0004	0.0005	0.013	0.02	0.033	µg/l	0.013	CRL
4,4-DDT ⁽²⁾	0.00004	0.00005	0.001	0.002	0.003	µg/l	0.001	CRL
4,4-DDE ⁽²⁾	0.00002	0.00004	0.0009	0.001	0.002	µg/l	0.0009	CRL
4,4-DDD ⁽²⁾	0.0001	0.0002	0.004	0.007	0.011	µg/l	0.004	CRL
Dieldrin ⁽²⁾	0.000001	0.000002	0.00004	0.00007	0.0001	µg/l	0.00004	CRL
alpha-Endosulfan ⁽²⁾	0.009	0.013	0.32	0.5	0.8	µg/l	0.32	AFC
beta-Endosulfan ⁽³⁾	Report	Report	Report	Report	Report	µg/l	0.32	AFC
Endrin ⁽²⁾	0.003	0.005	0.012	0.19	0.31	µg/l	0.12	AFC
Heptachlor ⁽²⁾	0.000007	0.00001	0.0003	0.0004	0.0007	µg/l	0.0003	CRL
Heptachlor Epoxide ⁽²⁾	0.00004	0.00005	0.001	0.002	0.003	µg/l	0.001	CRL
Toxaphene ⁽²⁾	0.00005	0.00008	0.002	0.003	0.005	µg/l	0.002	CFC

Comments:

- (1) Discharge concentration > 10% WQBEL (no RP)
- (2) Discharge concentration ≥ 50% WQBEL (RP)
- (3) Discharge concentration > 25% WQBEL (no RP)

Except for total aluminum and total copper, none of the above pollutants were detected in the effluent. However, the reported non-detections were higher than the quantitative limits ("QLs") recommended by DEP's Bureau of Laboratories. Consequently, DEP assumes the pollutants are present at the reported higher detection limits. The permittee will be allowed to resample during the draft permit's comment period to demonstrate the pollutants are not present down to the recommended QLs.

TMS input/output data is included in Attachment F.

6.1.3 Best Professional Judgment ("BPJ") Limitations

Dissolved Oxygen

Monitoring for dissolved oxygen is proposed to help better characterize the wastewater.

Dissolved Phosphorus

A WQBEL for dissolved phosphorus has been previously established in past permits using BPJ based on water-quality studies conducted in the past due to the discharge being upstream of the Joseph Foster Sayers Reservoir. DEP recommends the dissolved phosphorus limits remain in the permit.

Ultraviolet Light Disinfection

The facility uses ultraviolet light for disinfection and has historically reported the percent transmittance to demonstrate the treatment unit is operational. It is recommended that this requirement remain in the permit.

E. Coli

A monthly reporting requirement for E. Coli is proposed per the 2017 Triennial Review of Water Quality Standards, published in the PA Bulletin on July 11, 2020.

PFAS

As part of DEP's initiative to collect more data pertaining to per- and polyfluoralkyl substances ("PFAS"), quarterly monitoring for PFAS-related compounds PFOA, PFOS, HFPO-DA, and PFBS has been proposed.

The following footnote will be included in the permit:

The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Raw Sewage Influent Monitoring

Influent monitoring for BOD5 and TSS will remain in the permit to continue to characterize the wastewater and help with Chapter 94 reporting.

6.1.4 Chesapeake Bay

The BB WWTP is assigned cap loads of 58,812 lbs/yr total nitrogen and 7,842 lbs/yr total phosphorus in the Wastewater Supplement to the Phase 3 Watershed Implementation Plan.

6.1.5 Anti-Backsliding

No limits are proposed to be made less stringent than the existing permit.

6.2 Stormwater Outfalls

Outfall No. 002

Design Flow (MGD) n/a

Wastewater Description: Stormwater

There are no effluent limits applicable to uncontaminated stormwater associated with sewage treatment plants. The outfall and sector-specific BMPs will be identified in Part C of the permit.

7.0 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:

The dilution series used for the tests was: 100%, 60%, 30%, 10%, and 5%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 10%.

Summary of Four Most Recent Test Results

Table 7-1. TST Data Analysis

Test Date	Ceriodaphnia Results (Pass/Fail)		Pimephales Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
August 2022	PASS	PASS	PASS	PASS
November 2022	PASS	PASS	PASS	PASS
February 2023	PASS	PASS	PASS	PASS
May 2023	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?

☐ **YES** ☒ **NO**

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

Acute Partial Mix Factor (PMFa): **0.135**

Chronic Partial Mix Factor (PMFc): **0.936**

1. Determine IWC – Acute (IWCa):

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

$$[(3.22 \text{ MGD} \times 1.547) / ((46.2 \text{ cfs} \times 0.135) + (3.22 \text{ MGD} \times 1.547))] \times 100 = \mathbf{44\%}$$

Is IWCa < 1%? ☐ **YES** ☒ **NO**

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

2. Determine Target IWCc

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

$$[(3.22 \text{ MGD} \times 1.547) / ((46.2 \text{ cfs} \times 0.936) + (3.22 \text{ MGD} \times 1.547))] \times 100 = \mathbf{10\%}$$

3. Determine Dilution Series

Dilution Series = **100%, 60%, 30%, 10%, and 5%.**

WET Limits

Has reasonable potential been determined? ☐ **YES** ☒ **NO**

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

8.0 Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/shift	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	670	1070 Wkly Avg	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	805	1200 Wkly Avg	XXX	30.0	45.0	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	240	360 Wkly Avg	XXX	9.0	13.5	18	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	80	120 Wkly Avg	XXX	3.0	4.5	6	2/week	24-Hr Composite
Phosphorus, Dissolved	26	40	XXX	1.0	1.5	2.0	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

9.0 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" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/shift	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	670	1070 Wkly Avg	XXX	25.0	40.0 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	805	1200 Wkly Avg	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	240	360 Wkly Avg	XXX	9.0	13.5 Wkly Avg	18	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	80	120 Wkly Avg	XXX	3.0	4.5 Wkly Avg	6	2/week	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Phosphorus, Dissolved	26	40 Wkly Avg	XXX	1.0	1.5 Wkly Avg	2	1/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Aluminum, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Copper, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Silver, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
4,4-DDD (ug/L)	0.0001	0.0002	XXX	0.004	0.007	0.011	1/week	24-Hr Composite
4,4-DDT (ug/L)	0.00004	0.00005	XXX	0.001	0.002	0.003	1/week	24-Hr Composite
4,4-DDE (ug/L)	0.00002	0.00004	XXX	0.0009	0.001	0.002	1/week	24-Hr Composite
Aldrin (ng/L)	0.000000936	0.000001	XXX	0.03	0.05	0.09	1/week	24-Hr Composite
alpha-BHC (ug/L)	0.0005	0.0007	XXX	0.017	0.027	0.044	1/week	24-Hr Composite
alpha-Endosulfan (ug/L)	0.009	0.013	XXX	0.32	0.5	0.8	1/week	24-Hr Composite
beta-BHC (ug/L)	0.009	0.015	XXX	0.35	0.54	0.87	1/week	24-Hr Composite
beta-Endosulfan (ug/L)	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chlordane (ug/L)	0.0004	0.0005	XXX	0.013	0.02	0.033	1/week	24-Hr Composite
Dieldrin (ng/L)	0.000001	0.000002	XXX	0.04	0.07	0.1	1/week	24-Hr Composite
Endrin (ug/L)	0.003	0.005	XXX	0.12	0.19	0.31	1/week	24-Hr Composite
Heptachlor (ug/L)	0.000007	0.00001	XXX	0.0003	0.0004	0.0007	1/week	24-Hr Composite
Heptachlor Epoxide (ug/L)	0.00004	0.00005	XXX	0.001	0.002	0.003	1/week	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Toxaphene (ug/L)	0.00005	0.00008	XXX	0.002	0.003	0.005	1/week	24-Hr Composite
PFOA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFOS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFBS (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ug/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 001

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	58812	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	7842	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

ATTACHMENT A
FACILITY AND OUTFALL LOCATION



ATTACHMENT B
Q7-10 CALCULATIONS

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania



Open-File Report 2011-1070

U.S. Department of the Interior
U.S. Geological Survey

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.-Continued

lit/s; cubic feet per second;-; statistic not computed;<, less than]

Streamgage number	Period of record used in analysis'	Number of years used in analysis	1-day, 10-year (lit/s)	7-day, 10-year (lit/s)	7-day, 2-year (lit/s)	JO-day, 10-year (lit/s)	JO-day, 2-year (lit/s)	90-day, 10-year (frfs)
01546000	1912-1934	17	1.8	2.2	6.8 "	3.7	12.1	1L2
01546400	1986--2008	23	13.5	14.0	19.6	15.4.	22;3.	18.7
01546400	1,942-2008	67	26.8	29.0	41.3	31.2	44.2	13.7
01547100	1969-2008	40	102	105	128	III	133	117
01547200	1957-2008	52	99.4	JOI	132	106	142	JI5
01547500	'1971-2008	38	28.2	109	151	131	172	153
01547500	'1956--1969	14	90.0	94.9	123	98.1	131	105
01547700	1957-2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971-1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970--2008	39	12.1	13.6	28.2	17.3	36.4	23.8
_01548005	'1971-2000	25	142	151	206	178	241	22.3.
01548005:	'19.12-1969	58	105	114	147	125	165	140
01548500•	1920--2008	89	21.2	24.2 •	SO.I	33.6	68.6	49.3
01549000.	191({).cl920	11	2_6.0	32.9	78.0.	46.4	106	89.8
ol'549500 .	1942-2008	67	.6	.8	25	1:4	3.9	2.6
01549700	1959-2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915-2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	'1963-2008	46	520	578	1,020	678	1,330	919
01551500	'1901-1961	61	400	439	742	523	943	752
01552000	1927-2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942-200_8	67>	.9	1?..	3.1	1.1	4.4	33
01ss:frio	1969-1981	13	1.0	LI >	1:f	1.3.	i:S•	•p
0155{500	'1968-2008	41	760	• 8.38	1,440	1:000	1,850	IA?D
01553500	31941-'1966	26'	562	619	880	6.90	1,090	881
015.53700	1981-2008	28	•9.1	10.9	15;0	12.6	17;1	J-5.2
01554000	'1981-2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	'1939-1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941-1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931-2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931-2008	78	4.9	6.5	18.0	9.4	24.3	16.6
015;.6000	1918-'2008 •	•91	43.3	• 47.8	66,0.	55.t	.75,0	63./
01557500	1946-'20.08	63	2.8	3.2	63	4.2 .	8.1	...;5.8
•• 01.558000	]94o-'2oos -.	69	56;3	59.0\	• 79,8>.	65.7	• 86{2	TJ,7
III55QOO	ri4;i-2008	66	104	177	249. "	198'	2,79.	.227
01559500.	1931-1958	28	9.3	10;5	15.0	12;4	17.8	15;8
01559700	1963-1978	16	.1	.1	.2	.1	.3	.2
01560000	1941-2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932-1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913-2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931-1957	27	1.1	1.6	3.8	2.3	5.4	3./
01563200	'1974C-2008	3_5	-			112	i.M•	129
01563200.	'194Sc-1972	25	10,3	28,2	86..I	64,5	113	95.5.!
0156;3500	2197 4,-2008	35	384	415	.519	441	58Q	493
01563500	'1939--1972	•• 34	1 3	242	343	278. •	399	3 3.
0156450()	• 1940--20()8	69 •	;1.6	• 4,2	10.0	6:2	]4.4	• . to.6•

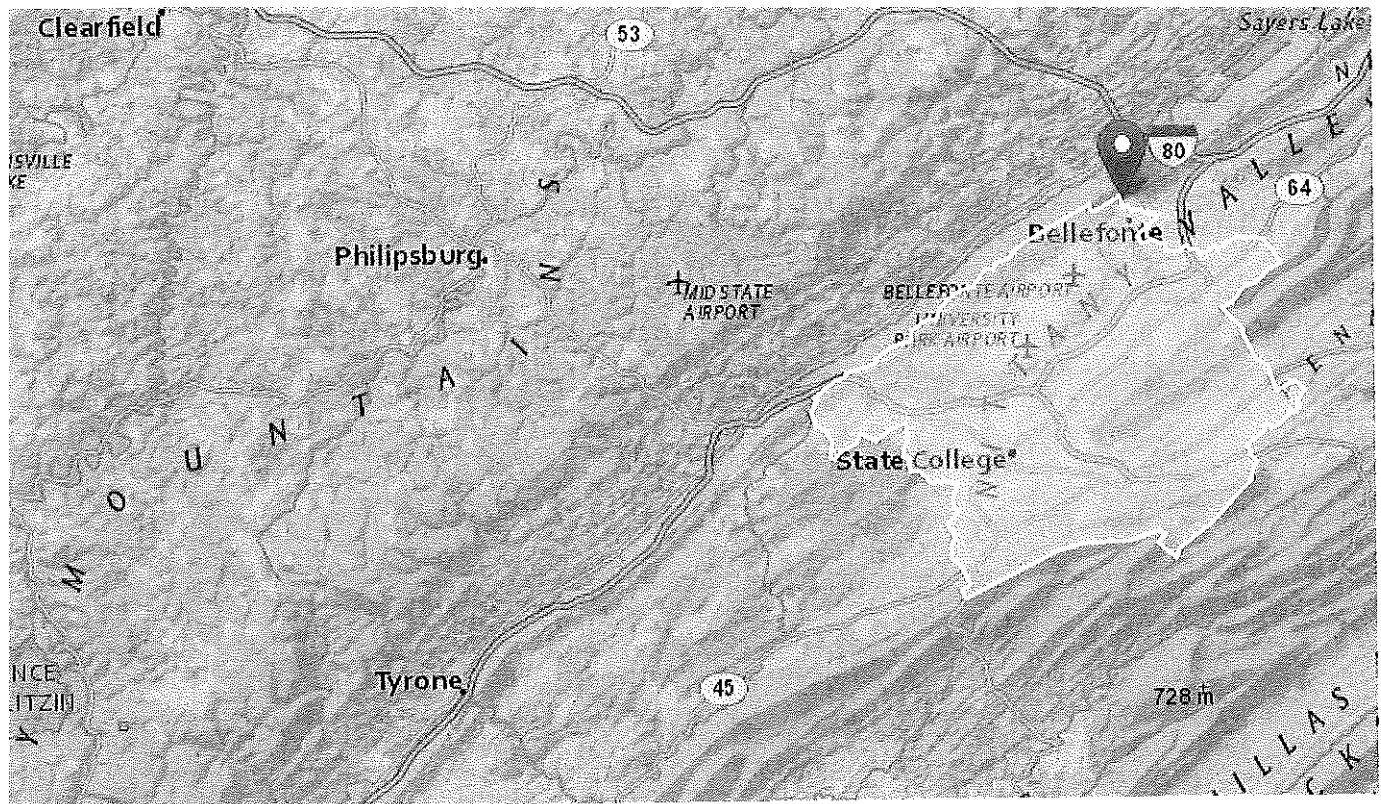
Bellefonte Borough Authority Wastewater Treatment Plant

Region ID: PA

Workspace ID: PA20190205203614525000

Clicked Point (Latitude, Longitude): 40.92404, -77.78352

Time: 2019-02-05 15:36:29 -0500



Outfall 001

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.2	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	6.4	degrees
CARBON	Percentage of area of carbonate rock	78	percent

Parameter Code	Parameter Description	Value	Unit
CENTROXA83	X coordinate of the centroid, in NAD_1983_Albers, meters	15649.2	meters
CENTROYA83	Basin centroid horizontal (y) location in NAD 1983 Albers	202494.8	meters
DRN	Drainage quality index from STATSGO	3.2	dimensionless
DRNAREA	Area that drains to a point on a stream	139	square miles
ELEV	Mean Basin Elevation	1264.4	feet
FOREST	Percentage of area covered by forest	40	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	5	percent
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	20	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	22.9	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	5.93	percent
LONG_OUT	Longitude of Basin Outlet	-77.78348	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	58	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers, meters	18235	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	213645	meters
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	5.4	feet
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0	percent
STRDEN	Stream Density -- total length of streams divided by drainage area	1.38	miles per square mile
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	191.71	miles
URBAN	Percentage of basin with urban development	9	percent

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

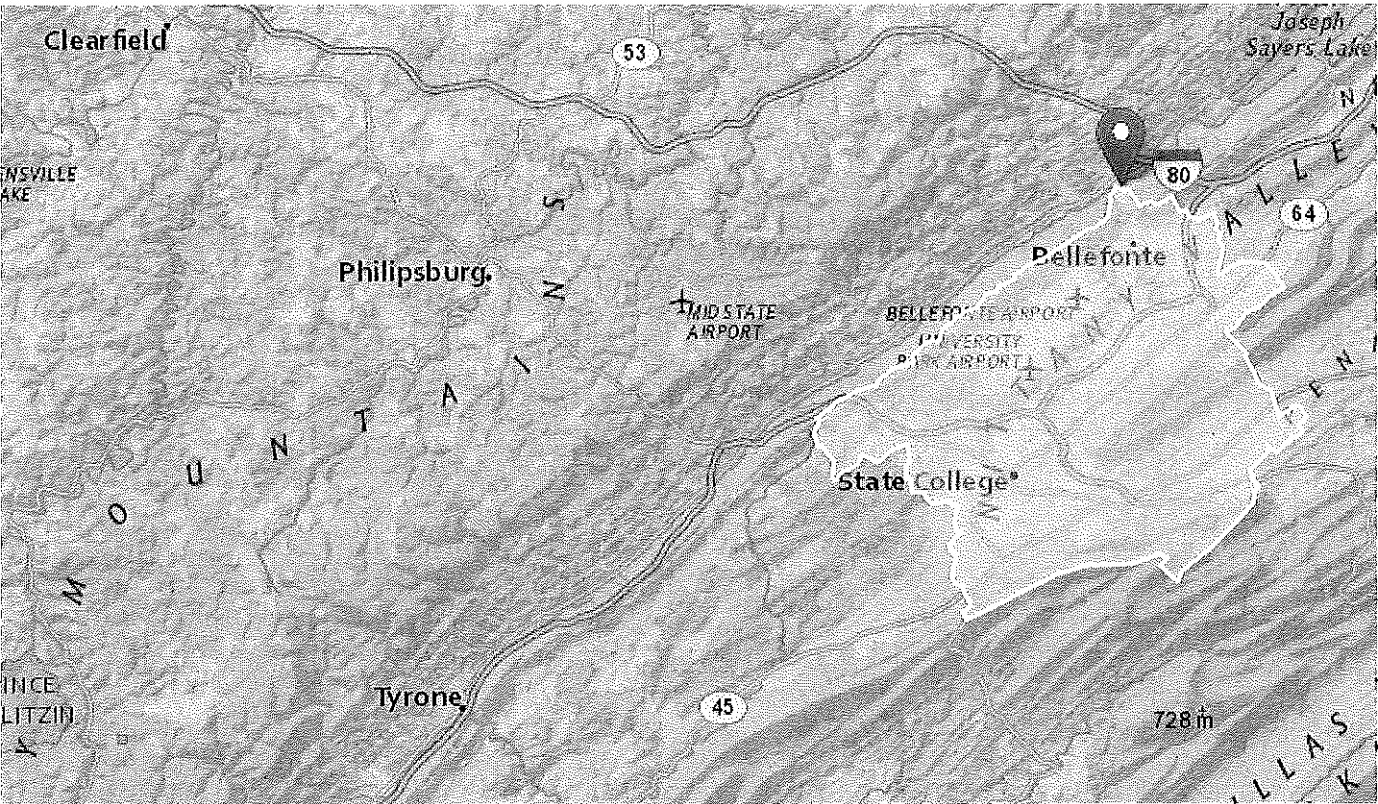
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.3.0

Bellefonte Borough Authority Wastewater Treatment Plant

Region ID: PA
Workspace ID: PA20190205204001490000
Clicked Point {Latitude, Longitude}: 40.94263, -77.78756
Time: 2019-02-05 15:40:16 -0500



RMIO.O

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.2	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	6.43	degrees
CARBON	Percentage of area of carbonate rock	78	percent

Parameter Code	Parameter Description	Value	Unit
CENTROXA83	X coordinate of the centroid, in NAD_1983_Albers, meters	15906.7	meters
CENTROYA83	Basin centroid horizontal (y) location in NAD 1983 Albers	203026	meters
DRN	Drainage quality index from STATSGO	3.2	dimensionless
DRNAREA	Area that drains to a point on a stream	146	square miles
ELEV	Mean Basin Elevation	1251.8	feet
FOREST	Percentage of area covered by forest	39	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	5	percent
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	20	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	22.8	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	5.88	percent
LONG_OUT	Longitude of Basin Outlet	-77.78746	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	58	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_ 1983_Albers,meters	17895	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	215705	meters
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	5.4	feet
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0	percent
STRDEN	Stream Density -- total length of streams divided by drainage area	1.39	miles per square mile
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	202.99	miles
URBAN	Percentage of basin with urban development	9	percent

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.3.0

Low-Flow (0₇₋₁₀) Calculation

Facility: **Bellefonte Borough Authority WWTP**

NPDES Permit No. **PA0020486**

Gage Information

Drainage Area: **87.2** mi²

01.10: **29** cfs

LFY: **0.333** cfsm

Outfall Information

Drainage Area: **139** mi²

01.10: **46.2** cfs

Downstream Locations

RMI: **0**

Drainage Area: **146** mi²

01.10: **48.56** cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

RMI:

Drainage Area: _____ mi²

01.10: _____ cfs

ATTACHMENT C
MODEL INPUT/OUTPUT DATA

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		22966	SPRING CREEK	1.580	715.00	139.00	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.333	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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
BBA WWTP	PA0020486	3.2200	3.2200	3.2200	0.000	15.00	7.38

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	3.00	0.00	0.00	0.70

Input Data WQM 7.0

		Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
		22966	SPRING CREEK	0.000	713.00	146.00	0.00000	0.00	☒

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfs)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.333	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	8.00	20.00	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						
09C		22966				SPRING 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												
1.580	46.29	0.00	46.29	4.9813	0.00024	.978	104.89	107.3	0.50	0.193	19.51	7.88
Q1-10 Flow												
1.580	29.62	0.00	29.62	4.9813	0.00024	NA	NA	NA	0.40	0.241	19.28	7.84
Q30-10 Flow												
1.580	62.95	0.00	62.95	4.9813	0.00024	NA	NA	NA	0.59	0.165	19.63	7.91

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	5		

WQM 7.0 Wasteload Allocations

SWP Basin

Stream Code

Stream Name

09C

22966

SPRING 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
1.580	BBA WWTP	5.6	6	5.6	6	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
1.580	BBA WWTP	.9	3	.9	3	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)		
1.58	BBA WWTP	25	25	3	3	3	3	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
09C	22966	SPRING CREEK			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
1.580	3.220	19.514		7.883	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
104.893	0.978	107.304		0.500	
<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>	
4.23	0.808	0.29		0.674	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.734	0.553	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.193	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.019	4.17	0.29	7.64	
	0.039	4.11	0.28	7.54	
	0.058	4.05	0.28	7.45	
	0.077	3.98	0.28	7.36	
	0.097	3.92	0.27	7.28	
	0.116	3.86	0.27	7.19	
	0.135	3.81	0.27	7.11	
	0.154	3.75	0.26	7.03	
	0.174	3.69	0.26	6.96	
	0.193	3.64	0.26	6.88	

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
09C		22966	SPRING 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)
1.580	BBA WWTP	PA0020486	3.220	CBOD5	25		
				NH3-N	3	6	
				Dissolved Oxygen			3

Discharge Information

Instructions Discharge Stream

Facility: **Bellefonte Borough WWTP** NPDES Permit No.: **PA0020486** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **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
3.22	227	7						

	Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
				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	516									
	Chloride (PWS)	mg/L	175									
	Bromide	mg/L	0.04									
	Sulfate (PWS)	mg/L	44.6									
	Fluoride (PWS)	mg/L										
Group 2	Total Aluminum	µg/L	434									
	Total Antimony	µg/L	< 0.348									
	Total Arsenic	µg/L	< 2.5									
	Total Barium	µg/L	< 9.58									
	Total Beryllium	µg/L	< 0.676									
	Total Boron	µg/L	0.19									
	Total Cadmium	µg/L	< 0.123									
	Total Chromium (III)	µg/L	< 0.00199									
	Hexavalent Chromium	µg/L	< 0.0025									
	Total Cobalt	µg/L	1.89									
	Total Copper	µg/L	3.85									
	Free Cyanide	µg/L	< 0.005									
	Total Cyanide	µg/L	< 0.006									
	Dissolved Iron	µg/L	41.2									
	Total Iron	µg/L	56.8									
	Total Lead	µg/L	1.9									
	Total Manganese	µg/L	13									
	Total Mercury	µg/L	< 0.00001									
	Total Nickel	µg/L	2.34									
	Total Phenols (Phenolics) (PWS)	µg/L	0.25									
	Total Selenium	µg/L	< 2.5									
	Total Silver	µg/L	< 1.37									
	Total Thallium	µg/L	< 0.068									
	Total Zinc	µg/L	21.7									
	Total Molybdenum	µg/L	6.92									
	Acrolein	µg/L	< 1.95									
	Acrylamide	µg/L	<									
	Acrylonitrile	µg/L	< 0.51									
	Benzene	µg/L	< 0.43									
	Bromoform	µg/L	< 0.34									

Group 6

Stream / Surface Water Information

Bellefonte Borough WWTP, NPDES Permit No. PA0020486, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **Spring 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	017873	1.58	715	139			Yes
End of Reach 1	017873	0	713	146			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	1.58	0.333										100	7		
End of Reach 1	0	0.333										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	1.58														
End of Reach 1	0														

Model Results

Bellefonte Borough WWTP, NPDES Permit No. PA0020486, 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)
1.58	46.29		46.29	4.981	0.00024	0.978	104.893	107.304	0.5	0.193	821.437
0	48.62		48.618								

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)
1.58	212.13		212.13	4.981	0.00024	1.845	104.893	56.86	1.122	0.086	371.095
0	221.437		221.44								

☒ **Wasteload Allocations**

☒ **AFC**

CCT (min): 15

PMF: 0.135

Analysis Hardness (mg/l): 156.3

Analysis pH: 7.00

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	1,692	
Total Antimony	0	0		0	1,100	1,100	2,481	
Total Arsenic	0	0		0	340	340	767	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	47,369	
Total Boron	0	0		0	8,100	8,100	18,271	
Total Cadmium	0	0		0	3.108	3.36	7.58	Chem Translator of 0.925 applied
Total Chromium (III)	0	0		0	821.398	2,599	5,863	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	36.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	214	
Total Copper	0	0		0	20.470	21.3	48.1	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	49.6	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	104.650	144	325	Chem Translator of 0.726 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.72	Chem Translator of 0.85 applied
Total Nickel	0	0		0	683.220	685	1,544	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	6.935	8.16	18.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	147	
Total Zinc	0	0		0	171.082	175	395	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	6.77	
Acrylonitrile	0	0		0	650	650	1,466	
Benzene	0	0		0	640	640	1,444	
Bromoform	0	0		0	1,800	1,800	4,060	
Carbon Tetrachloride	0	0		0	2,800	2,800	6,316	
Chlorobenzene	0	0		0	1,200	1,200	2,707	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	40,602	
Chloroform	0	0		0	1,900	1,900	4,286	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	33,835	
1,1-Dichloroethylene	0	0		0	7,500	7,500	16,917	
1,2-Dichloropropane	0	0		0	11,000	11,000	24,812	
1,3-Dichloropropylene	0	0		0	310	310	699	
Ethylbenzene	0	0		0	2,900	2,900	6,541	
Methyl Bromide	0	0		0	550	550	1,241	
Methyl Chloride	0	0		0	28,000	28,000	63,158	
Methylene Chloride	0	0		0	12,000	12,000	27,068	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,256	
Tetrachloroethylene	0	0		0	700	700	1,579	
Toluene	0	0		0	1,700	1,700	3,835	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	15,338	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	6,767	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	7,669	
Trichloroethylene	0	0		0	2,300	2,300	5,188	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,263	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,835	
2,4-Dimethylphenol	0	0		0	660	660	1,489	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	180	
2,4-Dinitrophenol	0	0		0	660	660	1,489	
2-Nitrophenol	0	0		0	8,000	8,000	18,045	
4-Nitrophenol	0	0		0	2,300	2,300	5,188	
p-Chloro-m-Cresol	0	0		0	160	160	361	
Pentachlorophenol	0	0		0	8.723	8.72	19.7	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,038	

Acenaphthene	0	0		0	83	83.0	187	
Anthracene	0	0		0	N/A	N/A	N/A	
Benididine	0	0		0	300	300	677	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.13	
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	67,670	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	10,150	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	609	
Butyl Benzyl Phthalate	0	0		0	140	140	316	
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	1,850	
1,3-Dichlorobenzene	0	0		0	350	350	789	
1,4-Dichlorobenzene	0	0		0	730	730	1,647	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	9,023	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,639	
Di-n-Butyl Phthalate	0	0		0	110	110	248	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,609	
2,6-Dinitrotoluene	0	0		0	990	990	2,233	
1,2-Diphenylhydrazine	0	0		0	15	15.0	33.8	
Fluoranthene	0	0		0	200	200	451	
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	22.6	
Hexachlorocyclopentadiene	0	0		0	5	5.0	11.3	
Hexachloroethane	0	0		0	60	60.0	135	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	22,557	
Naphthalene	0	0		0	140	140	316	
Nitrobenzene	0	0		0	4,000	4,000	9,023	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	38,346	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	677	
Phenanthrene	0	0		0	5	5.0	11.3	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	293	
Aldrin	0	0		0	3	3.0	6.77	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	2.14	
Chlordane	0	0		0	2.4	2.4	5.41	
4,4-DDT	0	0		0	1.1	1.1	2.48	
4,4-DDE	0	0		0	1.1	1.1	2.48	

4,4-DDD	0	0		0	1.1	1.1	2.48	
Dieldrin	0	0		0	0.24	0.24	0.54	
alpha-Endosulfan	0	0		0	0.22	0.22	0.5	
beta-Endosulfan	0	0		0	0.22	0.22	0.5	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.19	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	1.17	
Heptachlor Epoxide	0	0		0	0.5	0.5	1.13	
Toxaphene	0	0		0	0.73	0.73	1.65	

☒ **CFC**

CCT (min): 720

PMF: 0.936

Analysis Hardness (mg/l): 113.09

Analysis pH: 7.00

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	2,134	
Total Arsenic	0	0		0	150	150	1,455	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	39,768	
Total Boron	0	0		0	1,600	1,600	15,519	
Total Cadmium	0	0		0	0.268	0.3	2.88	Chem Translator of 0.904 applied
Total Chromium (III)	0	0		0	81.973	95.3	925	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	101	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	184	
Total Copper	0	0		0	9.949	10.4	101	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	50.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	15,438	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.877	3.72	36.1	Chem Translator of 0.773 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	8.79	Chem Translator of 0.85 applied
Total Nickel	0	0		0	57.712	57.9	561	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	48.4	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	126	
Total Zinc	0	0		0	131.121	133	1,290	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	29.1	
Acrylonitrile	0	0		0	130	130	1,261	
Benzene	0	0		0	130	130	1,261	
Bromoform	0	0		0	370	370	3,589	
Carbon Tetrachloride	0	0		0	560	560	5,432	
Chlorobenzene	0	0		0	240	240	2,328	

Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	33,948	
Chloroform	0	0		0	390	390	3,783	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	30,068	
1,1-Dichloroethylene	0	0		0	1,500	1,500	14,549	
1,2-Dichloropropane	0	0		0	2,200	2,200	21,339	
1,3-Dichloropropylene	0	0		0	61	61.0	592	
Ethylbenzene	0	0		0	580	580	5,626	
Methyl Bromide	0	0		0	110	110	1,067	
Methyl Chloride	0	0		0	5,500	5,500	53,347	
Methylene Chloride	0	0		0	2,400	2,400	23,279	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	2,037	
Tetrachloroethylene	0	0		0	140	140	1,358	
Toluene	0	0		0	330	330	3,201	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	13,579	
1,1,1-Trichloroethane	0	0		0	610	610	5,917	
1,1,2-Trichloroethane	0	0		0	680	680	6,596	
Trichloroethylene	0	0		0	450	450	4,365	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	1,067	
2,4-Dichlorophenol	0	0		0	340	340	3,298	
2,4-Dimethylphenol	0	0		0	130	130	1,261	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	155	
2,4-Dinitrophenol	0	0		0	130	130	1,261	
2-Nitrophenol	0	0		0	1,600	1,600	15,519	
4-Nitrophenol	0	0		0	470	470	4,559	
p-Chloro-m-Cresol	0	0		0	500	500	4,850	
Pentachlorophenol	0	0		0	6.693	6.69	64.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	883	
Acenaphthene	0	0		0	17	17.0	165	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	572	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.97	
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	58,197	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	8,827	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	524	
Butyl Benzyl Phthalate	0	0		0	35	35.0	339	
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	1,552	
1,3-Dichlorobenzene	0	0		0	69	69.0	669	
1,4-Dichlorobenzene	0	0		0	150	150	1,455	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	7,760	
Dimethyl Phthalate	0	0		0	500	500	4,850	
Di-n-Butyl Phthalate	0	0		0	21	21.0	204	
2,4-Dinitrotoluene	0	0		0	320	320	3,104	
2,6-Dinitrotoluene	0	0		0	200	200	1,940	
1,2-Diphenylhydrazine	0	0		0	3	3.0	29.1	
Fluoranthene	0	0		0	40	40.0	388	
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	19.4	
Hexachlorocyclopentadiene	0	0		0	1	1.0	9.7	
Hexachloroethane	0	0		0	12	12.0	116	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	20,369	
Naphthalene	0	0		0	43	43.0	417	
Nitrobenzene	0	0		0	810	810	7,857	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	32,978	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	572	
Phenanthrene	0	0		0	1	1.0	9.7	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	252	
Aldrin	0	0		0	0.1	0.1	0.97	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.042	
4,4-DDT	0	0		0	0.001	0.001	0.01	
4,4-DDE	0	0		0	0.001	0.001	0.01	
4,4-DDD	0	0		0	0.001	0.001	0.01	
Dieldrin	0	0		0	0.056	0.056	0.54	
alpha-Endosulfan	0	0		0	0.056	0.056	0.54	
beta-Endosulfan	0	0		0	0.056	0.056	0.54	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.35	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.037	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.037	
Toxaphene	0	0		0	0.0002	0.0002	0.002	



THH

CCT (min): 720

PMF: 0.936

Analysis Hardness (mg/l):

N/A

Analysis pH:

N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	54.3	
Total Arsenic	0	0		0	10	10.0	97.0	
Total Barium	0	0		0	2,400	2,400	23,279	
Total Boron	0	0		0	3,100	3,100	30,068	
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	38.8	
Dissolved Iron	0	0		0	300	300	2,910	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	9,699	
Total Mercury	0	0		0	0.050	0.05	0.48	
Total Nickel	0	0		0	610	610	5,917	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	2.33	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	29.1	
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	970	
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	55.3	
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	320	
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	660	
Methyl Bromide	0	0		0	100	100.0	970	

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	553	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	970	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	96,995	
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	291	
2,4-Dichlorophenol	0	0		0	10	10.0	97.0	
2,4-Dimethylphenol	0	0		0	100	100.0	970	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	19.4	
2,4-Dinitrophenol	0	0		0	10	10.0	97.0	
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	38,798	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	679	
Anthracene	0	0		0	300	300	2,910	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	1,940	
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	0.97	
2-Chloronaphthalene	0	0		0	800	800	7,760	
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	9,699	
1,3-Dichlorobenzene	0	0		0	7	7.0	67.9	
1,4-Dichlorobenzene	0	0		0	300	300	2,910	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	5,820	
Dimethyl Phthalate	0	0		0	2,000	2,000	19,399	
Di-n-Butyl Phthalate	0	0		0	20	20.0	194	
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	194	
Fluorene	0	0		0	50	50.0	485	
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	38.8	
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	330	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	97.0	
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	194	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.68	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	40.7	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	194	
beta-Endosulfan	0	0		0	20	20.0	194	
Endosulfan Sulfate	0	0		0	20	20.0	194	
Endrin	0	0		0	0.03	0.03	0.29	
Endrin Aldehyde	0	0		0	1	1.0	9.7	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☒ 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)	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	2.62	
Benzene	0	0		0	0.58	0.58	25.3	
Bromoform	0	0		0	7	7.0	305	
Carbon Tetrachloride	0	0		0	0.4	0.4	17.4	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	34.9	
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	41.4	
1,2-Dichloroethane	0	0		0	9.9	9.9	431	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	39.2	
1,3-Dichloropropylene	0	0		0	0.27	0.27	11.8	
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	872	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	8.72	
Tetrachloroethylene	0	0		0	10	10.0	436	
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	24.0	
Trichloroethylene	0	0		0	0.6	0.6	26.2	
Vinyl Chloride	0	0		0	0.02	0.02	0.87	

2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	1.31	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	65.4	
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	0.004	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.044	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.004	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.044	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.44	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	1.31	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	13.9	
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	5.23	
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.004	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	2.18	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	2.18	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	2.18	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	1.31	
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	0.003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.44	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	4.36	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.044	
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	0.031	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.22	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	144	
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	
Aldrin	0	0		0	0.0000008	8.00E-07	0.00003	
alpha-BHC	0	0		0	0.0004	0.0004	0.017	
beta-BHC	0	0		0	0.008	0.008	0.35	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.013	
4,4-DDT	0	0		0	0.00003	0.00003	0.001	
4,4-DDE	0	0		0	0.00002	0.00002	0.0009	
4,4-DDD	0	0		0	0.0001	0.0001	0.004	
Dieldrin	0	0		0	0.000001	0.000001	0.00004	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.0003	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.001	
Toxaphene	0	0		0	0.0007	0.0007	0.031	

☒ **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 Aluminum	Report	Report	Report	Report	Report	µg/L	1,084	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	30.8	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	11.8	AFC	Discharge Conc > 10% WQBEL (no RP)
Aldrin	9.36E-07	0.000001	0.00003	0.00005	0.00009	µg/L	0.00003	CRL	Discharge Conc ≥ 50% WQBEL (RP)
alpha-BHC	0.0005	0.0007	0.017	0.027	0.044	µg/L	0.017	CRL	Discharge Conc ≥ 50% WQBEL (RP)
beta-BHC	0.009	0.015	0.35	0.54	0.87	µg/L	0.35	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Chlordane	0.0004	0.0005	0.013	0.02	0.033	µg/L	0.013	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDT	0.00004	0.00005	0.001	0.002	0.003	µg/L	0.001	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDE	0.00002	0.00004	0.0009	0.001	0.002	µg/L	0.0009	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDD	0.0001	0.0002	0.004	0.007	0.011	µg/L	0.004	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dieldrin	0.000001	0.000002	0.00004	0.00007	0.0001	µg/L	0.00004	CRL	Discharge Conc ≥ 50% WQBEL (RP)
alpha-Endosulfan	0.009	0.013	0.32	0.5	0.8	µg/L	0.32	AFC	Discharge Conc ≥ 50% WQBEL (RP)
beta-Endosulfan	Report	Report	Report	Report	Report	µg/L	0.32	AFC	Discharge Conc > 25% WQBEL (no RP)

Endrin	0.003	0.005	0.12	0.19	0.31	µg/L	0.12	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Heptachlor	0.000007	0.00001	0.0003	0.0004	0.0007	µg/L	0.0003	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Heptachlor Epoxide	0.00004	0.00005	0.001	0.002	0.003	µg/L	0.001	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Toxaphene	0.00005	0.00008	0.002	0.003	0.005	µg/L	0.002	CFC	Discharge Conc ≥ 50% WQBEL (RP)

☒ **Other Pollutants without Limits or Monitoring**

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	23,279	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	11,711	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	2.88	µg/L	Discharge Conc < TQL
Total Chromium (III)	925	µg/L	Discharge Conc < TQL
Hexavalent Chromium	23.6	µg/L	Discharge Conc < TQL
Total Cobalt	137	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	31.8	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	2,910	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	15,438	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	36.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	9,699	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.48	µg/L	Discharge Conc < TQL
Total Nickel	561	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	48.4	µg/L	Discharge Conc < TQL
Total Thallium	2.33	µg/L	Discharge Conc < TQL
Total Zinc	253	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	4.34	µg/L	Discharge Conc < TQL
Acrylonitrile	2.62	µg/L	Discharge Conc < TQL
Benzene	25.3	µg/L	Discharge Conc < TQL
Bromoform	305	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	17.4	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	970	µg/L	Discharge Conc < TQL
Chlorodibromomethane	34.9	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS

2-Chloroethyl Vinyl Ether	26,024	µg/L	Discharge Conc < TQL
Chloroform	55.3	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	41.4	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	431	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	320	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	39.2	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	11.8	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	660	µg/L	Discharge Conc < TQL
Methyl Bromide	795	µg/L	Discharge Conc < TQL
Methyl Chloride	40,482	µg/L	Discharge Conc < TQL
Methylene Chloride	872	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	8.72	µg/L	Discharge Conc < TQL
Tetrachloroethylene	436	µg/L	Discharge Conc < TQL
Toluene	553	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	970	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	4,337	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	24.0	µg/L	Discharge Conc < TQL
Trichloroethylene	26.2	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.87	µg/L	Discharge Conc < TQL
2-Chlorophenol	291	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dichlorophenol	97.0	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dimethylphenol	954	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	19.4	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	97.0	µg/L	Discharge Conc < TQL
2-Nitrophenol	11,566	µg/L	Discharge Conc < TQL
4-Nitrophenol	3,325	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	231	µg/L	Discharge Conc < TQL
Pentachlorophenol	1.31	µg/L	Discharge Conc < TQL
Phenol	38,798	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	65.4	µg/L	Discharge Conc < TQL
Acenaphthene	120	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	2,910	µg/L	Discharge Conc < TQL
Benzidine	0.004	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.044	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.004	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.044	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.44	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	1.31	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,940	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	13.9	µg/L	Discharge Conc < TQL

4-Bromophenyl Phenyl Ether	390	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.97	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	7,760	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	5.23	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.004	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,186	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	67.9	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	1,055	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	2.18	µg/L	Discharge Conc < TQL
Diethyl Phthalate	5,783	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	3,614	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	159	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	2.18	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	2.18	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	1.31	µg/L	Discharge Conc < TQL
Fluoranthene	194	µg/L	Discharge Conc < TQL
Fluorene	485	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.44	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	7.23	µg/L	Discharge Conc < TQL
Hexachloroethane	4.36	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.044	µg/L	Discharge Conc < TQL
Isophorone	330	µg/L	Discharge Conc < TQL
Naphthalene	202	µg/L	Discharge Conc < TQL
Nitrobenzene	97.0	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.031	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.22	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	144	µg/L	Discharge Conc < TQL
Phenanthrene	7.23	µg/L	Discharge Conc < TQL
Pyrene	194	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.68	µg/L	Discharge Conc < TQL
gamma-BHC	1.37	µg/L	Discharge Conc ≤ 25% WQBEL
delta BHC	N/A	N/A	No WQS
Endosulfan Sulfate	194	µg/L	Discharge Conc ≤ 25% WQBEL
Endrin Aldehyde	9.7	µg/L	Discharge Conc ≤ 25% WQBEL