pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0028461**
Facility Type	**Municipal**	APS ID	**1049058**
Major / Minor	**Major**	Authorization ID	**1371792**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mifflinburg Borough Union County**	Facility Name	**Mifflinburg Borough Municipal STP**
Applicant Address	120 N 3rd Street	Facility Address	200 Gessner Lane
	Mifflinburg, PA 17844-1134		Mifflinburg, PA 17844
Applicant Contact	Margaret Metzger, Borough Manager	Facility Contact	Margaret Metzger, Borough Manager
Applicant Phone	(570) 966-1013	Facility Phone	(570) 966-1013
Client ID	166640	Site ID	248708
Ch 94 Load Status	Existing Hydraulic Overload	Municipality	Mifflinburg Borough
Connection Status	Department Ordered Connection Ban	County	Union
Date Application Received	September 29, 2021	EPA Waived?	No
Date Application Accepted	October 13, 2021	If No, Reason	Major Facility, Significant CB Discharge
Purpose of Application	Renewal of a NPDES Permit		

Summary of Review

The subject facility is a Publicly Owned Treatment Works (POTW) serving Mifflinburg Borough and neighboring portions of West Buffalo and Limestone Townships.

A map of the discharge location is attached.

Sludge use and disposal description and location(s): Per the application, the applicant disposed of 135.77 dry tons of dewatered sludge by landfill in the previous year.

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
✓		*Keith C. Allison* Keith C. Allison / Project Manager	February 3, 2022
✓		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	February 3, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.4
Latitude	40º 55' 33.88"	Longitude	-77º 2' 35.74"
Quad Name	Mifflinburg, PA	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Buffalo Creek	Stream Code	18920
NHD Com ID	66921295	RMI	14.3
Drainage Area	21.3 mi^2	Yield (cfs/mi^2)	0.125
Q_{7-10} Flow (cfs)	2.66	Q_{7-10} Basis	USGS Gage 01555000, Penns Creek @ Penns Creek (1931-2008)
Elevation (ft)	530	Slope (ft/ft)	0.00146
Watershed No.	10-C	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	PATHOGENS, SILTATION		
Source(s) of Impairment	AGRICULTURE, SOURCE UNKNOWN		
TMDL Status	**None**	Name	
Nearest Downstream Public Water Supply Intake	Sunbury Municipal Authority		
PWS Waters	Susquehanna River	Distance from Outfall (mi)	Approx. 24

Changes Since Last Permit Issuance: None. The above stream and drainage characteristics were determined for previous reviews and remain adequate.

Other Comments:

The facility is not likely to be contributing to the above-listed impairment by pathogens and siltation. The facility is producing a discharge that is consistently meeting its TSS and Fecal Coliform limits (see DMR summary staring on Page 4 of this fact sheet). The limitations for fecal coliform are at instream criteria. No impacts have been noted around the facility outfall that would suggest an excessive discharges of solids.

The discharge is not expected to affect any downstream water supply with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: Mifflinburg WWTP

Relevant WQM Permits

WQM Permit No.	Issuance Date	Permit For:
6006401	Amendment 3 – 5/19/20 Amendment 2 – 3/28/13 Amendment 1 – 7/25/08 Original – 11/22/06	Raw water pump replacement Correction of Facility Organic Capacity Current Membrane Bioreactor Treatment Process

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Membrane Filtration	UV	1.4

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.4	1985	Existing Hydraulic Overload	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: Issuance of WQM Permit No. 6006401 A-3 for replacing existing sludge presses with a new sludge press.

Other Comments: The treatment system, as approved by WQM Permit No. 6006401 includes course mechanical bar screen, grit removal, mechanical fine screen, two equalization tanks, two pre-anoxic tanks, two anoxic tanks, two aeration tanks, two post-anoxic tanks, four membrane bioreactor tanks, UV disinfection, aerobic digester and sludge press.

Trucked-in Wastes

According to the application, the facility has not received any trucked in waste over the past three years and does not indicate that they expect to receive any for the next permit term.

Stormwater Management

The permittee identified one stormwater outfall to Buffalo Creek, Outfall 002

This storm water outfall is included in the NPDES permit because discharges from the facility meet the definition of a storm water discharge associated with industrial activity in 40 CFR §122.26(b)(14)(ix). The requirements of Appendix J of the PAG-03 are appropriate for this discharge and will be included in this permit. The requirements include twice per year monitoring of stormwater outfalls for TSS and Oil and Grease. Benchmark monitoring levels from the PAG-03 for TSS and Oil and Grease will be included in Part C of the draft permit.

The stormwater discharges also are not expected to affect any downstream water supply.

Compliance History

DMR Data for Outfall 001 (from November 1, 2020 to October 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Flow (MGD) Average Monthly	0.73	0.9	0.85	1.31	0.75	0.76	0.59	0.76	0.95	1	0.86	0.79
Flow (MGD) Daily Maximum	1.29	2	2.17	4.62	1.89	1.2	0.75	1.14	2.85	2.33	1.81	1.4
pH (S.U.) Minimum	7.03	7.38	7.53	7.52	7.36	6.89	7.21	7.06	6.88	6.6	6.62	6.59
pH (S.U.) Maximum	7.84	8.44	7.86	7.8	8.12	7.73	7.68	7.62	7.71	7.12	8.35	7.52
DO (mg/L) Minimum	4.31	4.17	4.12	4.05	4.36	5.5	4.14	4.29	5.12	6.23	6.08	6.88
CBOD5 (lbs/day) Average Monthly	< 22	< 22	< 19	< 31	< 29	< 21	< 15	< 20	< 28	< 82	< 25	< 24
CBOD5 (lbs/day) Weekly Average	40	< 29	< 22	< 99	< 56	< 27	< 18	< 24	< 52	< 327	< 48	< 38
CBOD5 (mg/L) Average Monthly	< 3.6	< 2.9	< 3.0	< 3.0	< 4.9	< 3.0	< 3.0	< 3.0	< 3.0	< 5.9	< 4.2	< 3.8
CBOD5 (mg/L) Weekly Average	6	< 3	< 3	< 3	< 12	< 3	< 3	< 3	< 3.0	< 18	< 8	< 6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	521	< 22	380	605	552	482	497	867	748	587	755	1020
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	788	< 32	850	1901	893	1063	1299	1279	1010	1366	1207	1502
BOD5 (mg/L) Raw Sewage Influent Average Monthly	90	< 2.9	59	59	93	66	99	138	95	77	126	160
TSS (lbs/day) Average Monthly	< 9	< 13	< 9	< 15	< 25	< 19	< 9	< 11	< 24	< 9	< 10	< 8
TSS (lbs/day) Raw Sewage Influent Average Monthly	634	13	489	523	647	681	314	676	782	690	640	830
TSS (lbs/day) Raw Sewage Influent Daily Maximum	1232	36	755	1589	1035	1390	585	1272	1735	1127	1027	1293
TSS (lbs/day) Weekly Average	< 13	< 18	< 12	53	< 51	31	< 13	< 13	< 65	< 12	< 15	< 9

TSS (mg/L) Average Monthly	< 2	< 2	< 1	< 1	< 3	< 3	< 2	< 2	< 3	< 1	< 2	< 1
TSS (mg/L) Raw Sewage Influent Average Monthly	107	< 2	78	50	117	99	64	105	90	83	111	138
TSS (mg/L) Weekly Average	< 2.2	< 1.8	< 1.6	1.6	< 7.8	4.4	< 2.4	2	< 8.6	1.5	< 3	< 1.6
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 1	< 1	< 1	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	6.3	< 1	< 1	< 1	< 1	< 1	72.7	< 1	2	< 1	< 1	1
Nitrate-Nitrite (mg/L) Average Monthly	< 1.865	< 1.37	< 1.298	< 1.632	< 1.261	< 0.226	< 1.2	< 1.2	< 1.401	< 1.617	< 1.469	< 2.27
Nitrate-Nitrite (lbs) Total Monthly	< 360	< 325	< 263	< 724	< 275	< 54	< 177	< 247	< 480	< 547	< 277	< 313
Total Nitrogen (mg/L) Average Monthly	< 2.365	< 1.988	< 2.004	< 2.132	< 2.592	< 1.86	< 1.7	< 1.7	< 1.901	< 2.12	< 1.997	< 1.967
Total Nitrogen (lbs) Effluent Net Total Monthly	< 451	< 460	< 399	< 880	< 504	< 419	< 250	< 350	< 620	< 681	< 369	< 412
Total Nitrogen (lbs) Total Monthly	< 451	< 460	< 399	< 880	< 504	< 419	< 250	< 350	< 620	< 681	< 369	< 412
Ammonia (lbs/day) Average Monthly	< 0.6	< 0.8	< 0.6	< 1	< 5	< 2	< 0.5	< 0.7	< 0.9	< 0.9	< 0.6	< 0.6
Ammonia (lbs/day) Weekly Average	< 0.6	< 1	< 0.7	< 3	< 19	< 4	< 0.6	< 0.8	< 2	< 2	< 0.8	< 0.9
Ammonia (mg/L) Average Monthly	< 0.101	< 0.1	< 0.1	< 0.1	< 0.919	< 0.226	< 0.1	< 0.1	< 0.5	< 0.1	< 0.102	< 0.1
Ammonia (mg/L) Weekly Average	< 0.107	< 0.1	< 0.1	< 0.1	< 3.784	< 0.389	< 0.1	< 0.1	< 2	< 0.1	< 0.107	< 0.1
Ammonia (lbs) Total Monthly	< 18	< 23	< 20	< 31	< 145	< 54	< 15	< 21	< 28	< 27	< 18	< 0.6
Ammonia (lbs) Total Annual				< 407								
TKN (mg/L) Average Monthly	< 0.5	< 0.614	< 0.706	< 0.5	< 1.331	< 0.66	< 0.5	< 0.5	< 0.5	< 0.5	< 0.53	< 0.5
TKN (lbs) Total Monthly	< 91	< 134	< 136	< 157	< 229	< 157	< 74	< 103	< 140	< 134	< 92	< 3
Total Phosphorus (lbs/day) Average Monthly	4	3	9	15	10	8	3	2	4	2	3	2

Total Phosphorus (mg/L) Average Monthly	0.582	0.379	1.38	1.602	1.585	1.056	0.611	0.307	0.486	0.2513	0.4771	0.2814
Total Phosphorus (lbs) Effluent Net Total Monthly	112	96	276	446	302	241	91	65	126	70	75	65
Total Phosphorus (lbs) Total Monthly	112	96	276	446	302	241	91	65	126	70	75	65
Total Mercury (lbs/day) Daily Maximum	< 1			< 0.9			< 1			< 2		
Total Mercury (ug/L) Daily Maximum	< 0.2			< 0.2			< 0.2			< 0.2		
UV Dosage (mjoules/cm²) Minimum	5	3	3	3	3	3	18	3	3	3	3	5

Compliance History, Cont'd	
Summary of Inspections:	The facility has been inspected at least annually by the Department during the past permit term. The most recent compliance inspection of the facility on October 15, 2021 identified no violations. Additionally, a Chesapeake Bay inspection on November 23, 2021 identified no violations.
Other Comments:	A query in WMS found the open violation listed below in eFACTS for Mifflinburg Borough for the failure to submit a WET test report within 45 days of test completion.

Open Violations for Mifflinburg Borough, Union County

CLIENT_ID	CLIENT	FACILITY	PROGRAM SPECIFIC_ID	INSP_ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
166640	MIFFLINBURG BORO UNION CNTY	MIFFLINBURG WWTP	PA0028461	3172327	912629	3/29/2021	92A.46	NPDES - Violation of Part C permit condition(s)

Existing Effluent Limitations and Monitoring Requirements – Outfall 001

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	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	292	467 Wkly Avg	XXX	25	40	50	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	99	140 Wkly Avg	XXX	8.5	12	17	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	350	525 Wkly Avg	XXX	30	45	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
Ammonia-Nitrogen Nov 1 - Apr 30	91	128 Wkly Avg	XXX	7.8	11	15	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	30	45 Wkly Avg	XXX	2.6	3.9	5.2	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Mercury (ug/L)	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
UV Dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered

Existing Effluent Limitations and Monitoring Requirements – Outfall 002

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Existing Effluent Limitations and Monitoring Requirements- Chesapeake Bay

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	Report	25570	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	Report	3409	XXX	XXX	XXX	XXX	1/year	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.4
Latitude 40º 55' 33.80" **Longitude** -77º 2' 36.30"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

The above limits are applicable already included in the permit with the exception of $CBOD_5$ which has more stringent water quality-based limits as noted below.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. The discharge has existing Water Quality Based limits for DO, CBOD5, and NH3-N of 4 mg/L, 8.5 mg/L, and 2.6 mg/L, respectively. WQM7.0 modeling was performed (see Attachment B) for the discharge to Buffalo Creek and showed that water quality-based existing limitations for $CBOD_5$ and NH_3-N of 2.32 mg/L and 7.74 mg/L, respectively are necessary to protect the receiving stream with the existing DO minimum of 4 mg/L being adequate. The existing eDMR discharge data listed in this fact sheet starting on page 4 indicate that the limits are achievable.

Water Quality Toxics Management

A “Reasonable Potential Analysis” was performed to determine parameters with the potential to violate water quality standards. The Reasonable Potential Analysis was conducted through the use of the Department’s Toxics Management Strategy (TMS) Spreadsheet (see Attachment C). Toxic Management Strategy is a mass-balance water quality analysis model that includes consideration for mixing and other factors to determine water quality-based effluent limits. The model incorporates the water quality criteria in Chapter 93 of the Department’s regulations. The TMS recommends limits when the highest seen concentration is greater 50% of the WQBEL and recommends monitoring when the concentration is greater than 25% of the WQBEL for non-conservative pollutants or is greater than 10% of the WQBEL for conservative pollutants.

The parameters listed below were determined by the TMS to be recommended for monitoring. In addition, the existing toxic parameter requiring monitoring in the existing permit (Total Mercury) is listed. All concentrations are in µg/L.

Pollutant	Existing Limit	Highest Concentration Reported (µg/L)	WQBEL (µg/L)	TMS Recommendation
Total Copper	None	10.8	52.2	Report
Total Lead	None	5.07	28.3	Report
Total Selenium	None	1.26	11.1	Report
Total Zinc	None	139	403	Report
Total Mercury	Report	< 0.2	0.11	No limit or Monitoring

Total Copper – Because Copper was detected in all three application samples as high as 10.8 ug/L, monitoring will be required in the draft permit.

Total Lead – Because Lead was detected in all three samples as high as 5.07 ug/L, monitoring will be required in the draft permit.

Total Selenium – Because Selenium was detected in two of three samples as high as 1.26 ug/L, monitoring will be required in the draft permit.

Total Zinc – Because Zinc was detected in all three samples as high as 139 ug/L, monitoring will be required in the draft permit.

Total Mercury – The permit includes an existing monitoring requirement for mercury due to Mercury being found in one of the three samples in the previous renewal application sampling. The permittee has conducted regular monitoring over the past permit term that has consistently being non-detectable at the Target QL of 0.2 µg/L. Therefore, Total Mercury monitoring will be removed in the draft permit.

Best Professional Judgment (BPJ) Limitations
Comments: None needed besides the abovementioned technology and water quality-based limits.

Chesapeake Bay/Nutrient Requirements
A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. Mifflinburg Borough is considered a Phase 2, Significant Chesapeake Bay discharger. Nutrient cap loadings have previously been established for this facility consistent with the Phase III Watershed Implementation Plan.

The discharge's cap loadings as well as the actual Total Nitrogen and Total Phosphorus loadings for the past two cycle years are listed in the table below.

Nutrient	Total Nitrogen	Total Phosphorus
Nutrient Cap Loads for PA0028461	25,570	3,409
10/1/20 – 9/30/21 Net Loadings	<6,173	2,125
10/1/19 – 9/30/20 Net Loadings	<9,774	2,577

e. Coli
Consistent with changes to Chapter 93 of the Department's regulations published in August 2021 e. Coli monitoring is now being required for domestic wastewater discharges. Therefore, the draft permit will include monthly e. Coli monitoring.

Anti-Backsliding

No proposed limitations have been made less stringent consistent with the anti-backsliding provisions of the Clean Water Act and 40 CFR 122.44(l).

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 over the permit term**

The dilution series used for the tests was: 100%, 45%, 25%, 12.5%, and 6.25%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 45%.

Summary of Four Most Recent Test Results
TST Data Analysis

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

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
July 2016	Pass	Pass	Pass	Pass
Aug-Sept 2017	Pass	Pass	Pass	Pass
Oct 2018	Pass	Pass	Pass	Pass
Dec 2019	Pass	Pass	Pass	Pass
Dec 2020	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: None

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

Acute Partial Mix Factor (PMFa): **0.883** Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

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

[(1.4 MGD x 1.547) / ((2.66 cfs x 0.883) + (1.4 MGD x 1.547))] x 100 = **47.97%**

Is IWCa < 1%? ☐ **YES** ☒ **NO Therefore, chronic testing is required**

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

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

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

[(1.4 MGD x 1.547) / ((2.66 cfs x 1.0) + (1.4 MGD x 1.547))] x 100 = **45%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 73%, 45%, 23%, and 11%.

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" (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) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	292	467 Wkly Avg	XXX	25	40	50	2/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	99	140 Wkly Avg	XXX	8.5	12	17	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	350	525 Wkly Avg	XXX	30	45	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
Ammonia-Nitrogen Nov 1 - Apr 30	91	128 Wkly Avg	XXX	7.8	11	15	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	30	45 Wkly Avg	XXX	2.6	3.9	5.2	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	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) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Copper, Total (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
Lead, Total (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
Selenium, Total (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
Zinc, Total (ug/L)	XXX	Report	XXX	XXX	Report Daily Max	XXX	1/month	24-Hr Composite
Ultraviolet light dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/month	Grab

Compliance Sampling Location: Outfall 001

Other Comments: Monitoring for Total Copper, Total Lead, Total Selenium, and Total Zinc as mentioned above. In addition, Total Mercury monitoring has been removed as also mentioned above. E. Coli monitoring is also new as mentioned above.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 002

Proposed Effluent Limitations and Monitoring Requirements

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	25570	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	3409	XXX	XXX	XXX	XXX	1/year	Calculation

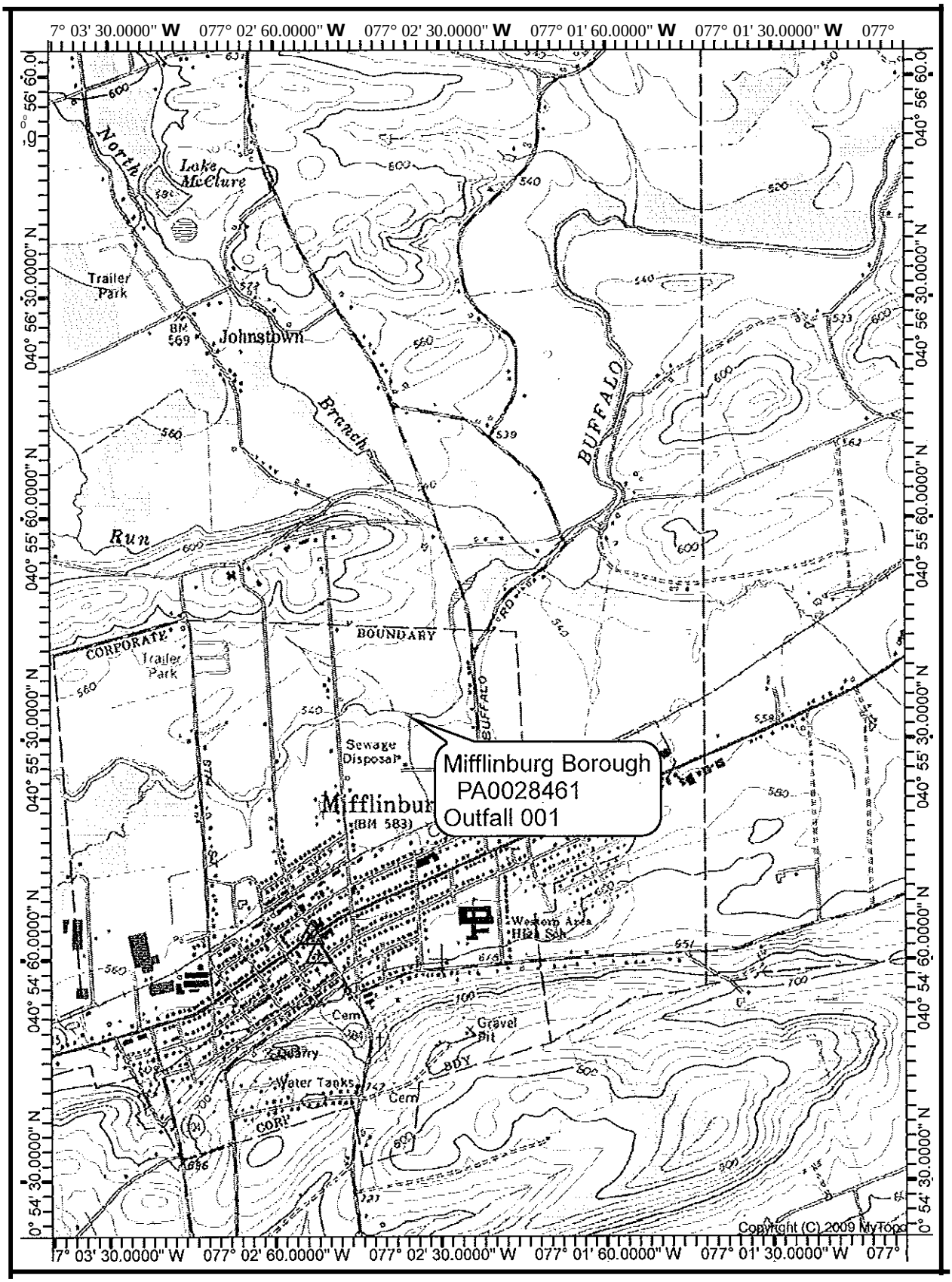
Compliance Sampling Location: Outfall 001

Other Comments: Consistent with the Phase III WIP and current Chesapeake Bay monitoring requirements Monthly Effluent Net monitoring for Total Nitrogen and Total Phosphorus will be removed from the draft permit.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment **C**)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 8/23/13; Whole Effluent Toxicity (WET), rev. 8/7/13.
☐	Other:

Attachments:

A. Discharge Location Map
B. WQM7.0 Model
C. Toxics Management Spreadsheet



SCALE 1:24000

0 1000 2000 3000 4000 5000 6000

Feet

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18920	BUFFALO CREEK	**14.300**	530.00	21.30	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	Disc pH
Mifflinburg	PA0028461	1.4000	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	8.50	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	2.60	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
18920	BUFFALO CREEK	**13.000**	520.00	24.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	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 Modeling Specifications

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
10C	18920	BUFFALO CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (ºC)	Analysis pH
Q7-10 Flow												
14.300	2.66	0.00	2.66	2.1658	0.00146	.667	30.97	46.42	0.23	0.340	22.24	7.00
Q1-10 Flow												
14.300	1.70	0.00	1.70	2.1658	0.00146	NA	NA	NA	0.21	0.385	22.80	7.00
Q30-10 Flow												
14.300	3.62	0.00	3.62	2.1658	0.00146	NA	NA	NA	0.26	0.307	21.87	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
10C	18920	BUFFALO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
14.300	1.400	22.243	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
30.969	0.667	46.420	0.234
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.58	0.967	1.04	0.832
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.340	3.412	Tsivoglou	6
Reach Travel Time (days)			
0.340			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.034	4.41	1.01	6.25
0.068	4.25	0.98	6.18
0.102	4.10	0.96	6.13
0.136	3.96	0.93	6.10
0.170	3.81	0.90	6.08
0.204	3.68	0.88	6.08
0.238	3.55	0.85	6.08
0.272	3.42	0.83	6.10
0.306	3.30	0.81	6.12
0.340	3.18	0.79	6.15

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
10C	18920	BUFFALO 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
14.300	Mifflinburg	13.29	5.2	13.29	5.2	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
14.300	Mifflinburg	1.67	2.6	1.67	2.6	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
14.30	Mifflinburg	7.74	7.74	2.32	2.32	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
10C	18920	BUFFALO 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)
14.300	Mifflinburg	PA0028461	1.400	CBOD5	7.74		
				NH3-N	2.32	4.64	
				Dissolved Oxygen			4

Discharge Information

Instructions | Discharge | Stream

Facility: **Mifflinburg Borough** NPDES Permit No.: **PA0028461** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.4	304.7	7.88						

					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		576									
	Chloride (PWS)	mg/L		93.2									
	Bromide	mg/L	<	0.036									
	Sulfate (PWS)	mg/L		57.3									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		20.3									
	Total Antimony	µg/L		0.441									
	Total Arsenic	µg/L	<	0.5									
	Total Barium	µg/L		68									
	Total Beryllium	µg/L	<	0.135									
	Total Boron	µg/L		130									
	Total Cadmium	µg/L		0.044									
	Total Chromium (III)	µg/L		1.99									
	Hexavalent Chromium	µg/L		0.07									
	Total Cobalt	µg/L		0.238									
	Total Copper	µg/L		10.8									
	Free Cyanide	µg/L	<	0.5									
	Total Cyanide	µg/L		10									
	Dissolved Iron	µg/L	<	10									
	Total Iron	µg/L		37.6									
	Total Lead	µg/L		5.07									
	Total Manganese	µg/L		8.51									
	Total Mercury	µg/L	<	0.104									
	Total Nickel	µg/L		2.71									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.25									
	Total Selenium	µg/L		1.26									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	µg/L		139									
	Total Molybdenum	µg/L		3.53									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									

Group 3	Carbon Tetrachloride	µg/L	<	0.51									
	Chlorobenzene	µg/L	<	0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.33									
	1,4-Dioxane	µg/L	<	0.34									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L	<	0.13									
	2,4-Dichlorophenol	µg/L	<	0.25									
	2,4-Dimethylphenol	µg/L	<	0.26									
	4,6-Dinitro-o-Cresol	µg/L	<	0.9									
	2,4-Dinitrophenol	µg/L	<	0.86									
	2-Nitrophenol	µg/L	<	0.25									
	4-Nitrophenol	µg/L	<	0.19									
	p-Chloro-m-Cresol	µg/L	<	0.4									
	Pentachlorophenol	µg/L	<	0.97									
	Phenol	µg/L	<	0.25									
	2,4,6-Trichlorophenol	µg/L	<	0.24									
Group 5	Acenaphthene	µg/L	<	0.26									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.13									
	Benzidine	µg/L	<	0.35									
	Benzo(a)Anthracene	µg/L	<	0.21									
	Benzo(a)Pyrene	µg/L	<	0.29									
	3,4-Benzofluoranthene	µg/L	<	0.31									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.15									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.34									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.64									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.19									
	Butyl Benzyl Phthalate	µg/L	<	0.38									
	2-Chloronaphthalene	µg/L	<	0.28									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.29									
	Chrysene	µg/L	<	0.45									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.28									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	0.13									
	Diethyl Phthalate	µg/L	<	0.27									
	Dimethyl Phthalate	µg/L	<	0.23									
	Di-n-Butyl Phthalate	µg/L	<	0.29									
	2,4-Dinitrotoluene	µg/L	<	0.77									

	2,6-Dinitrotoluene	µg/L	<	0.32									
	Di-n-Octyl Phthalate	µg/L	<	0.28									
	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.35									
	Fluorene	µg/L	<	0.25									
	Hexachlorobenzene	µg/L	<	0.25									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	0.22									
	Hexachloroethane	µg/L	<	0.26									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.25									
	Isophorone	µg/L	<	0.23									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L	<	0.26									
	n-Nitrosodimethylamine	µg/L	<	0.4									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.31									
	n-Nitrosodiphenylamine	µg/L	<	0.27									
	Phenanthrene	µg/L	<	0.21									
	Pyrene	µg/L	<	0.16									
	1,2,4-Trichlorobenzene	µg/L	<	0.17									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

Mifflinburg Borough, NPDES Permit No. PA0028461, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Buffalo Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	018920	14.3	530	21.3			Yes
End of Reach 1	018920	13	520	24			Yes

Q ***7-10***

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	14.3	0.125										290	7		
End of Reach 1	13	0.125													

Q ***h***

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	14.3														
End of Reach 1	13														

Model Results

Mifflinburg Borough, NPDES Permit No. PA0028461, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All | ( ) Inputs | ( ) Results | ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.883 Analysis Hardness (mg/l): 297.05 Analysis pH: 7.23

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	1,565	
Total Antimony	0	0		0	1,100	1,100	2,295	
Total Arsenic	0	0		0	340	340	709	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	43,807	
Total Boron	0	0		0	8,100	8,100	16,897	
Total Cadmium	0	0		0	5.797	6.45	13.5	Chem Translator of 0.898 applied
Total Chromium (III)	0	0		0	1389.755	4,398	9,174	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	34.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	198	
Total Copper	0	0		0	37.486	39.0	81.5	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	45.9	
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	206.444	326	681	Chem Translator of 0.632 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.44	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1176.182	1,179	2,459	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	20.926	24.6	51.4	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	136	
Total Zinc	0	0		0	294.768	301	629	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	6.26	

Acrylonitrile	0	0		0	650	650	1,356	
Benzene	0	0		0	640	640	1,335	
Bromoform	0	0		0	1,800	1,800	3,755	
Carbon Tetrachloride	0	0		0	2,800	2,800	5,841	
Chlorobenzene	0	0		0	1,200	1,200	2,503	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	37,549	
Chloroform	0	0		0	1,900	1,900	3,964	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	31,291	
1,1-Dichloroethylene	0	0		0	7,500	7,500	15,645	
1,2-Dichloropropane	0	0		0	11,000	11,000	22,947	
1,3-Dichloropropylene	0	0		0	310	310	647	
Ethylbenzene	0	0		0	2,900	2,900	6,050	
Methyl Bromide	0	0		0	550	550	1,147	
Methyl Chloride	0	0		0	28,000	28,000	58,410	
Methylene Chloride	0	0		0	12,000	12,000	25,033	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,086	
Tetrachloroethylene	0	0		0	700	700	1,460	
Toluene	0	0		0	1,700	1,700	3,546	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	14,185	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	6,258	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	7,093	
Trichloroethylene	0	0		0	2,300	2,300	4,798	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,168	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,546	
2,4-Dimethylphenol	0	0		0	660	660	1,377	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	167	
2,4-Dinitrophenol	0	0		0	660	660	1,377	
2-Nitrophenol	0	0		0	8,000	8,000	16,688	
4-Nitrophenol	0	0		0	2,300	2,300	4,798	
p-Chloro-m-Cresol	0	0		0	160	160	334	
Pentachlorophenol	0	0		0	11.033	11.0	23.0	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	960	
Acenaphthene	0	0		0	83	83.0	173	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	626	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.04	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	62,582	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	9,387	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	563	

Butyl Benzyl Phthalate	0	0		0	140	140	292	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,711	
1,3-Dichlorobenzene	0	0		0	350	350	730	
1,4-Dichlorobenzene	0	0		0	730	730	1,523	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	8,344	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,215	
Di-n-Butyl Phthalate	0	0		0	110	110	229	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,338	
2,6-Dinitrotoluene	0	0		0	990	990	2,065	
1,2-Diphenylhydrazine	0	0		0	15	15.0	31.3	
Fluoranthene	0	0		0	200	200	417	
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	20.9	
Hexachlorocyclopentadiene	0	0		0	5	5.0	10.4	
Hexachloroethane	0	0		0	60	60.0	125	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	20,861	
Naphthalene	0	0		0	140	140	292	
Nitrobenzene	0	0		0	4,000	4,000	8,344	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	35,463	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	626	
Phenanthrene	0	0		0	5	5.0	10.4	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	271	

☑ ***CFC*** CCT (min): 19.219 PMF: 1 Analysis Hardness (mg/l): 296.59 Analysis pH: 7.21

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	490	
Total Arsenic	0	0		0	150	150	334	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	9,140	
Total Boron	0	0		0	1,600	1,600	3,567	
Total Cadmium	0	0		0	0.523	0.61	1.35	Chem Translator of 0.864 applied
Total Chromium (III)	0	0		0	180.553	210	468	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	23.2	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	42.4	
Total Copper	0	0		0	22.676	23.6	52.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	11.6	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	3,344	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	8.032	12.7	28.3	Chem Translator of 0.633 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.02	Chem Translator of 0.85 applied
Total Nickel	0	0		0	130.469	131	292	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	11.1	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	29.0	
Total Zinc	0	0		0	296.795	301	671	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	6.69	
Acrylonitrile	0	0		0	130	130	290	
Benzene	0	0		0	130	130	290	
Bromoform	0	0		0	370	370	825	
Carbon Tetrachloride	0	0		0	560	560	1,248	
Chlorobenzene	0	0		0	240	240	535	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	7,803	
Chloroform	0	0		0	390	390	869	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	6,911	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,344	
1,2-Dichloropropane	0	0		0	2,200	2,200	4,905	
1,3-Dichloropropylene	0	0		0	61	61.0	136	
Ethylbenzene	0	0		0	580	580	1,293	
Methyl Bromide	0	0		0	110	110	245	
Methyl Chloride	0	0		0	5,500	5,500	12,261	
Methylene Chloride	0	0		0	2,400	2,400	5,350	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	468	
Tetrachloroethylene	0	0		0	140	140	312	
Toluene	0	0		0	330	330	736	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	3,121	
1,1,1-Trichloroethane	0	0		0	610	610	1,360	
1,1,2-Trichloroethane	0	0		0	680	680	1,516	
Trichloroethylene	0	0		0	450	450	1,003	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	245	
2,4-Dichlorophenol	0	0		0	340	340	758	
2,4-Dimethylphenol	0	0		0	130	130	290	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	35.7	
2,4-Dinitrophenol	0	0		0	130	130	290	

2-Nitrophenol	0	0		0	1,600	1,600	3,567	
4-Nitrophenol	0	0		0	470	470	1,048	
p-Chloro-m-Cresol	0	0		0	500	500	1,115	
Pentachlorophenol	0	0		0	8.465	8.46	18.9	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	203	
Acenaphthene	0	0		0	17	17.0	37.9	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	132	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.22	
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	13,376	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,029	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	120	
Butyl Benzyl Phthalate	0	0		0	35	35.0	78.0	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	357	
1,3-Dichlorobenzene	0	0		0	69	69.0	154	
1,4-Dichlorobenzene	0	0		0	150	150	334	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,783	
Dimethyl Phthalate	0	0		0	500	500	1,115	
Di-n-Butyl Phthalate	0	0		0	21	21.0	46.8	
2,4-Dinitrotoluene	0	0		0	320	320	713	
2,6-Dinitrotoluene	0	0		0	200	200	446	
1,2-Diphenylhydrazine	0	0		0	3	3.0	6.69	
Fluoranthene	0	0		0	40	40.0	89.2	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	4.46	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.23	
Hexachloroethane	0	0		0	12	12.0	26.8	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	4,682	
Naphthalene	0	0		0	43	43.0	95.9	
Nitrobenzene	0	0		0	810	810	1,806	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	7,580	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	132	
Phenanthrene	0	0		0	1	1.0	2.23	

Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	58.0	

☑ ***THH*** CCT (min): 19.219 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	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	12.5	
Total Arsenic	0	0		0	10	10.0	22.3	
Total Barium	0	0		0	2,400	2,400	5,350	
Total Boron	0	0		0	3,100	3,100	6,911	
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	8.92	
Dissolved Iron	0	0		0	300	300	669	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,229	
Total Mercury	0	0		0	0.050	0.05	0.11	
Total Nickel	0	0		0	610	610	1,360	
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	0.54	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	6.69	
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	223	
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	N/A	N/A	N/A	
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	73.6	
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	152	
Methyl Bromide	0	0		0	100	100.0	223	
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	127	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	223	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	22,293	
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	66.9	
2,4-Dichlorophenol	0	0		0	10	10.0	22.3	
2,4-Dimethylphenol	0	0		0	100	100.0	223	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	4.46	
2,4-Dinitrophenol	0	0		0	10	10.0	22.3	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	8,917	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	156	
Anthracene	0	0		0	300	300	669	
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	446	
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	0.22	
2-Chloronaphthalene	0	0		0	800	800	1,783	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,229	
1,3-Dichlorobenzene	0	0		0	7	7.0	15.6	
1,4-Dichlorobenzene	0	0		0	300	300	669	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,338	
Dimethyl Phthalate	0	0		0	2,000	2,000	4,459	

Di-n-Butyl Phthalate	0	0		0	20	20.0	44.6	
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	44.6	
Fluorene	0	0		0	50	50.0	111	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	8.92	
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	75.8	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	22.3	
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	44.6	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.16	

☑ ***CRL*** CCT (min): 19.814 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	0.54	
Benzene	0	0		0	0.58	0.58	5.26	
Bromoform	0	0		0	7	7.0	63.5	
Carbon Tetrachloride	0	0		0	0.4	0.4	3.63	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	7.26	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	51.7	
Dichlorobromomethane	0	0		0	0.95	0.95	8.62	
1,2-Dichloroethane	0	0		0	9.9	9.9	89.8	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	8.17	
1,3-Dichloropropylene	0	0		0	0.27	0.27	2.45	
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	181	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1.81	
Tetrachloroethylene	0	0		0	10	10.0	90.7	
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	4.99	
Trichloroethylene	0	0		0	0.6	0.6	5.44	
Vinyl Chloride	0	0		0	0.02	0.02	0.18	
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	0.27	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	13.6	
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	0.0009	

Benzo(a)Anthracene	0	0		0	0.001	0.001	0.009	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0009	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.009	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.091	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.27	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	2.9	
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	1.09	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0009	
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	0.45	
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	0.45	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.45	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.27	
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	0.0007	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.091	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.91	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.009	
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	0.006	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.045	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	29.9	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML	MDL	AML	MDL	IMAX	Units	Governing	WQBEL	Comments

	(lbs/day)	(lbs/day)					WQBEL	Basis	
Total Copper	Report	Report	Report	Report	Report	µg/L	52.2	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	28.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	11.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	403	AFC	Discharge Conc > 10% WQBEL (no RP)

☐ ***Other Pollutants without Limits or Monitoring***