pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0021237**
Facility Type	**Municipal**	APS ID	**46382**
Major / Minor	**Minor**	Authorization ID	**1360929**

Applicant and Facility Information

Applicant Name	**Newport Borough Municipal Authority Perry County**	Facility Name	**Newport Borough STP**
Applicant Address	101 Mulberry Street	Facility Address	101 Mulberry Street
	Newport, PA 17074-1533		Newport, PA 17074
Applicant Contact	James Sharar	Facility Contact	Christopher Burkholder
Applicant Phone	(717) 567-7005	Facility Phone	(717) 572-2911
Client ID	61477	Site ID	252506
Ch 94 Load Status	Not Overloaded	Municipality	Newport Borough
Connection Status	Dept. Imposed Connection Prohibitions	County	Perry
Date Application Received	June 30, 2021	EPA Waived?	No
Date Application Accepted	July 14, 2021	If No, Reason	Significant CB Discharge

Purpose of Application: This is an application for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	April 17, 2023
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	April 21, 2023
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	April 21, 2023

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Newport Borough WWTP located at 101 Mulberry Street, Newport, PA 17074 in Perry County, municipality of Newport. The existing permit became effective on January 1, 2017 and expired on December 31, 2021. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on June 30, 2021. The renewal application was processed on delay as the borough was completing CSO separation.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.51 MGD average annual treatment facility. The hydraulic design flow is 0.959 MGD. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 2) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Perry County Commissions and Oliver Township Supervisors and the notice was received by the parties on June 11, 2021 and June 9, 2021. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be the Little Buffalo Creek. The sequence of receiving streams that the Little Buffalo Creek discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for cold water fishes (CWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Little Buffalo Creek is a Category 4c and 5 stream listed in the 2022 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an impaired for aquatic life due to habitat alterations from habitat modifications. The receiving stream is also impaired for aquatic life due to siltation from sediment. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Reduced effluent limits for ammonia-nitrogen**
- **Due to EPA triennial review, monitoring shall be required for E. Coli.**
- **Monitoring shall be required for total lead and total zinc.**

Sludge use and disposal description and location(s): Sewage sludge/biosolids disposed at Springettsbury WWTP in York County or at Annville WWTP in Lebanon County

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Newport Borough WWTP
NPDES Permit #	PA0021237
Physical Address:	101 Mulberry Street Newport, PA 17074
Mailing Address:	101 Mulberry Street Newport, PA 17074
Contact:	James Sharar Authority Chairman newportsewer@comcast.net Chris Burkholder Chief Operator CBurkholder@newportsewer.com
Consultant:	Shawn Downey Larson Design Group sdowney@larsondesigngroup.com

1.2 Permit History

Update on CSO separation

On January 17, 2023, an inspection was conducted to confirm the elimination of combined sewer overflow (CSO) 003. CSO 003 is located at the intersection of Dock Street and North Front Street. CSO 003 was located within the Dock street CSO vault. The vault contained a rectangular weir and a pipe connection from the nearby mechanical vault. The pipe connection from the mechanical vault was responsible for conveying raw sewage to the CSO vault. The elimination project was completed on 1/16/2023 which included removal of the rectangular weir and plugging the pipe connection from the mechanical vault with hydraulic cement.

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 101 Mulberry Street, Newport, PA 17074. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

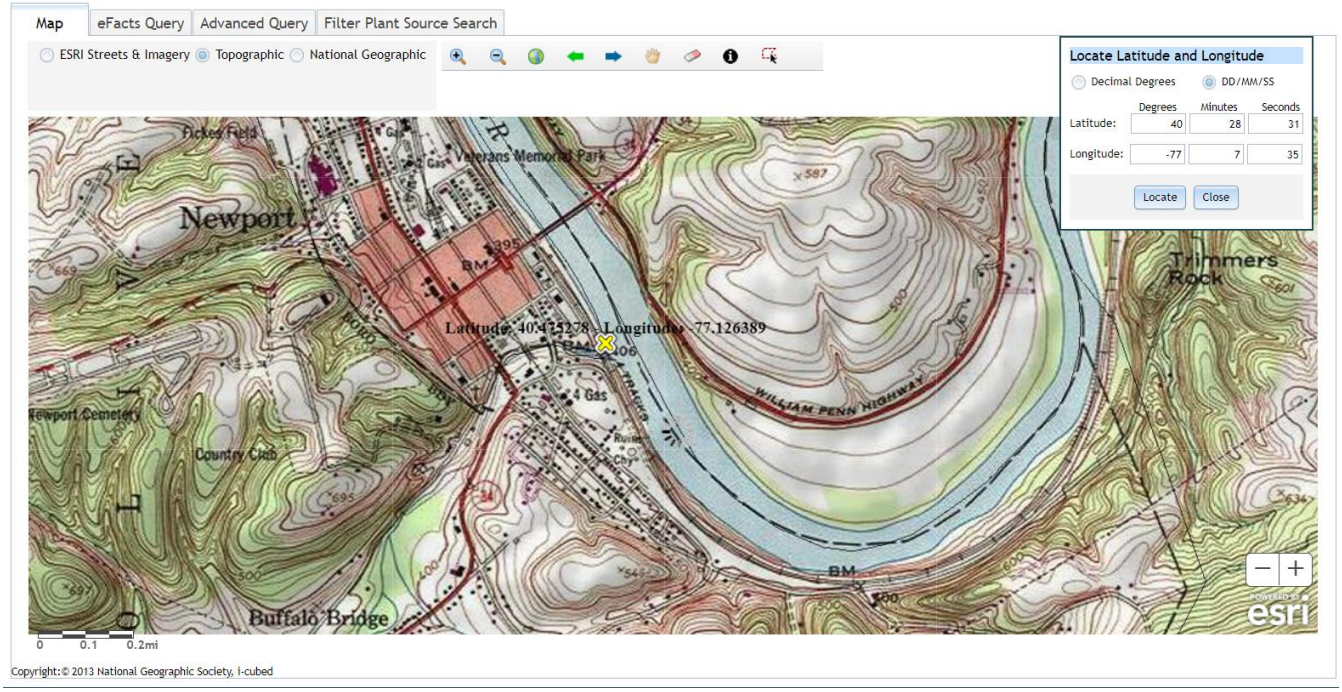
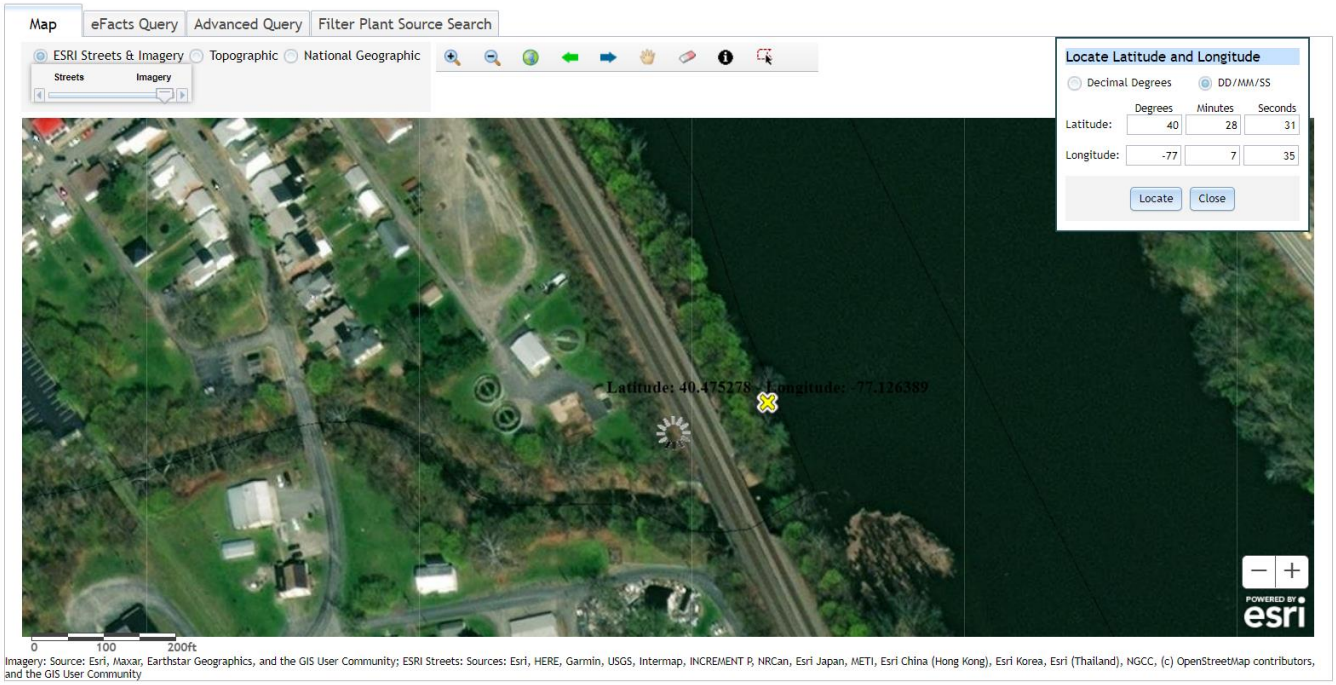


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The wastewater treatment plant receives flow 59% of flow from Newport Borough and 41% of flow from Oliver Township.

A summary of wastewater contributions from commercial facilities is in the table.

Newport Borough Municipal Authority
Wastewater Treatment Plant
Commercial Wastewater Contributions

Business Name	Type of Business	Average Wastewater Flow (Gallon per Day)
Prosser, Attorney	Office	14
Walz, Apartments	Apartments	89
Sections Salon	Salon	53
Perry County Council of the Arts	Shop	31
Hess, Garage	Garage	64
Hench, Attorney	Office	75
Shear Pleasure Salon	Salon	56
Beard, Museum	Museum	58
Myers, Furniture Store	Store	150
Myers, Funeral Home	Business	19
Bitting's	Restaurant	164
Orrstown Bank	Bank	14
Orrstown Bank, Center Square	Bank	28
Jacobs, Insurance Office	Office	62
Carpet Baggers	Store	228
McNaughton, Office	Office	25
Hallmark	Store	47
Witmer News Agency	Business	50
Beacon Lights, LLC	Store	64
Fry, Consignment Store	Store	203
Sharar's Grocery Store	Grocery Store	119
Bambino's Restaurant	Restaurant	208
Belmonot, Insurance	Office	114
Daydreams Salon	Salon	100
Bruce, Flower Shop	Store	44
Dr. Deimler, Foot Doctor	Doctor's Office	139
H&H Carwash	Carwash	353
Myers, Laundromat	Laundromat	2100
Fortenbaugh, Restaurant	Restaurant	6
Newport Senior Housing	Housing	472
Turnbaugh's Place	Bar	164
Kaufman's Service Center	Garage	25
Frownfelter, Antique Shop	Store	5
Meck Brother's Pizza	Restaurant	347

Centurylink	Office	28
US Post Office	Office	81
King, Fitness Center	Fitness Center	139
Trinity Pharmacy Services	Pharmacy	89
Weis Markets	Grocery Store	2153
Newport Order of Owls	Bar	200
C&G Lyter	Business	69
Fahnestock, Beauty Shop	Store	11
Lowe, Office	Office	86
Chelle's Family Pet Center	Store	58
Flckinger, Plumbing Store	Store	58
Fisher Auto Parts	Store	75
Buffalo Brew Café	Restaurant	247
Palsy, Office	Office	22
Turner, Attorney	Office	19
Dollar General	Store	136
Newport Family Restaurant	Restaurant	236
PLCB Spirits	Store	117
King, Salon	Salon	39
Mill Auto, LLC	Garage	72
Butcher's Market	Grocery Store	478
Super 7	Gas Station	272
Espresso Yourself Café	Restaurant	408
VFW Post 34	Organization	200

There is no industrial user connected to the sewer system.

The facility did not receive any hauled-in wastes in the past three years and does not anticipate hauled-in wastes in the next five years.

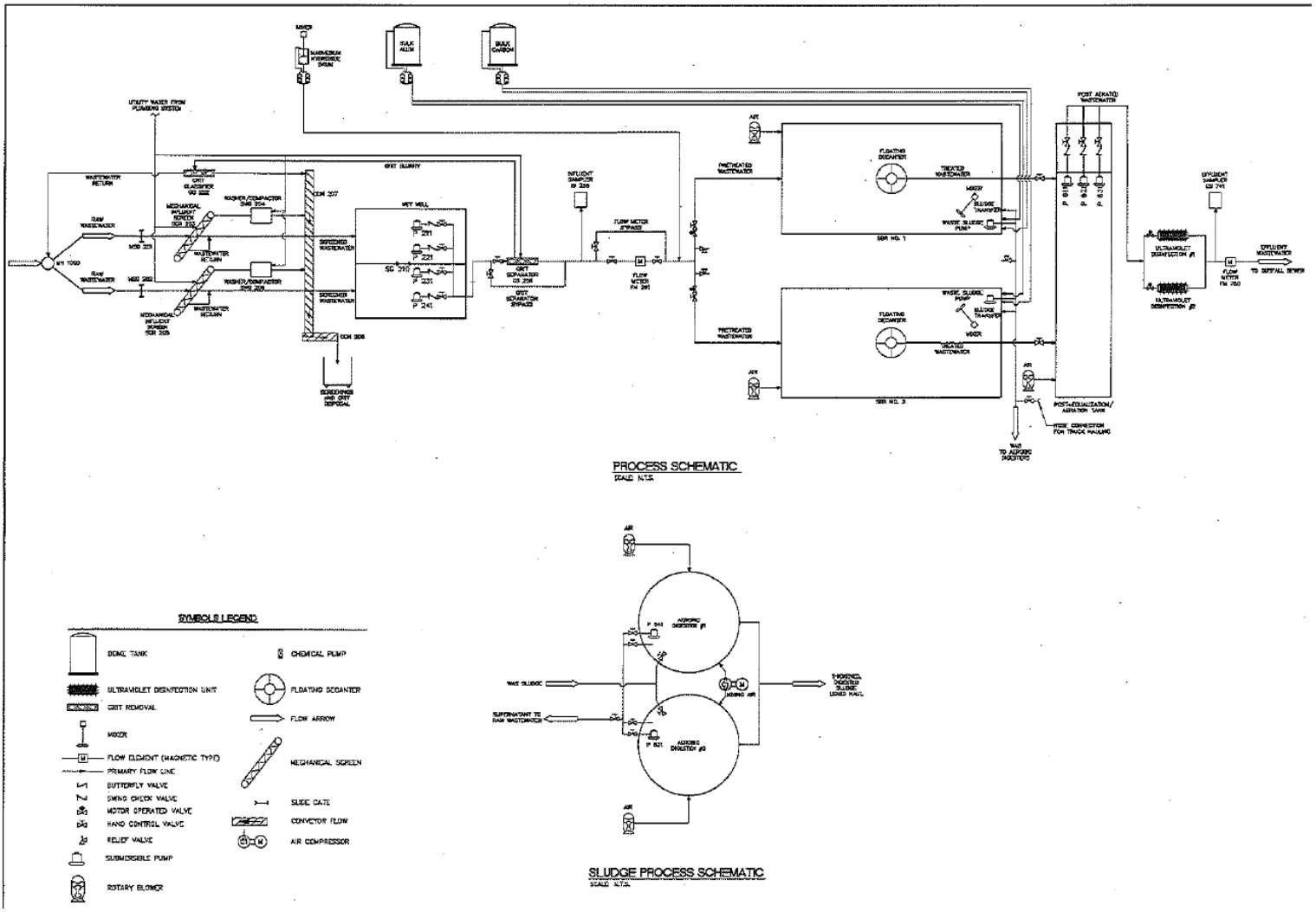
2.2 Description of Wastewater Treatment Process

The subject facility is a 0.51 MGD annual average design flow facility. The hydraulic capacity of the treatment plant is 0.959 MGD. The subject facility treats wastewater using mechanical screens, grit separator, sequencing batch reactor(s), post equalization/aeration tank, and UV disinfection prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, UV transmittance, fecal coliform, copper, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Newport STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Phosphorus Reduction	Sequencing Batch Reactor	Ultraviolet	0.51
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.959	1390	Not Overloaded		Other WWTP

A schematic of the process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.51
Latitude	40º 28' 30.00"	**Longitude**	-77º 7' 37.00"
Wastewater Description:	Sewage Effluent		

Outfall 003 was closed on January 16, 2023

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The upstream outfall is Little Buffalo STP (PA0031950) which is about 3 miles upstream from the subject facility.

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Magnesium hydroxide for supplemental alkalinity
- Alum for phosphorus removal
- Carbon for denitrification (not currently used)

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001 , **Latitude** 40° 28' 30.00" , **Longitude** 77° 7' 37.00" , **River Mile Index** 0.9 , **Stream Code** 11466

Receiving Waters: Little Buffalo Creek

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **July 1, 2019** through **December 31, 2021**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	106	170	XXX	25	40	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	128	191	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	89	XXX	XXX	21.0	XXX	42	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	30.0	XXX	XXX	7.0	XXX	14	2/week	24-Hr Composite
Copper, Total	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. D. For Outfall 001 , **Latitude** 40° 28' 30.00" , **Longitude** 77° 7' 37.00" , **River Mile Index** 0.9 , **Stream Code** 11466

Receiving Waters: Little Buffalo Creek

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **July 1, 2019** through **December 31, 2021**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 001
Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.
(3) The permittee is authorized to use 1,400 lbs/year as Total Nitrogen (TN) Offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 56 on- lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per Connection

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

01/23/2020:
- The new SBR plant was in the final stages of completion.

4/30/2020:
- An administrative inspection was conducted by telephone. The purpose of the inspection was to follow-up on the facility during the COVID-19 related restrictions. Mr. Christopher Burkholder (Certified Operator) contacted the Department with concerns of the effluent appearance and quality during the current rain event. Within 12 hours, the facility had received over 1" of rain. The current rain event was expected to continue until early Friday (5-1-2020). Mr. Burkholder stated that the flow was 1,834 GPM or 2.6 MGD with a plant design of 1.8 MGD. Mr. Burkholder stated that, with the elevated flow, the SBRs were accepting influent flow while in the decant phase of treatment. He has contacted their engineers with the details and concerns.

5/12/2020:
- There was nothing significant to report.

06/04/2020:

- A telephone inspection was precipitated by an oil spill that had entered the sewage treatment plant headworks which occurred on May 18, 2020. Mr. Burkholder contacted Kline's Septic Services to skim the contaminated wastewater from the wet well. Mr. Burkholder stated that the spill seemed to be contained to just the wet well. Both Mr. Burkholder and Mr. Hockenberry discovered that the oil spill originated within the Fickes Lane collection system that was owned and operated by Oliver Township. The odor and sheen from the oil were present at metering manhole #1. Mr. Hockenberry placed typed notices on two homes that have lateral connections between metering manhole #1 and manhole #102. Only one of the two residents have contacted Oliver Township.

12/18/2020:

- The facility was in violation of effluent limits in Part A of the permit. The facility exceeded the TP cap load.
- The facility had minor corrections for flow rate and CBAY spreadsheet.

10/27/2021:

- The facility was cited for violations of effluent limits in Part 1 of the permit. Violations occurred in May 2020, November 2020 – December 2020, May 2021, and July 2021 to September 2021.
- The facility was cited for failure to use a NIST thermometer for the influent composite sampler.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility was below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.503 MGD in May 2022. The hydraulic design capacity of the treatment system is 0.959 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at 2019 Ninth Avenue, Altoona, PA 16603.

DMR Data for Outfall 001 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly	0.206	0.394	0.427	0.263	0.208	0.232	0.207	0.210	0.358	0.503	0.437	0.377
Flow (MGD) Daily Maximum	0.327	0.985	1.226	0.85	0.565	0.744	0.637	0.446	0.891	2.3134	1.054	0.604
pH (S.U.) Minimum	6.97	6.8	7.07	7.06	7.18	7.19	7.17	6.97	6.97	6.92	6.85	6.7
pH (S.U.) Maximum	7.59	7.85	7.88	7.73	7.8	7.79	7.7	7.52	7.34	7.44	7.22	7.26
DO (mg/L) Minimum	7.53	5.56	5.2	7.15	6.88	6.33	7.39	7.55	7.5	6.93	7.3	7.39
CBOD5 (lbs/day) Average Monthly	< 6	< 16	< 13	< 8	< 6	< 7	< 4	< 5	< 10	< 17	< 37	< 10
CBOD5 (lbs/day) Weekly Average	< 8	37	25	< 16	9	< 15	< 5	< 6	< 16	25	78	< 15
CBOD5 (mg/L) Average Monthly	< 3	< 4	< 5	< 3	< 4	< 3	< 3	< 3	< 3	< 6	< 7	< 3
CBOD5 (mg/L) Weekly Average	< 3	7	9	4	5	< 3	< 3	< 3	< 3	12	12	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	487	504	427	505	477	423	283	363	622	247	583	595
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	605	696	470	823	545	726	370	461	1072	453	1035	942
BOD5 (mg/L) Raw Sewage Influent Average Monthly	243	153	182	217	304	188	194	219	207	80	142	176
TSS (lbs/day) Average Monthly	< 7	25	< 8	41	8	7	4	8	< 10	10	< 11	< 21
TSS (lbs/day) Raw Sewage Influent Average Monthly	451	470	334	416	387	324	408	451	690	656	578	410
TSS (lbs/day) Raw Sewage Influent Daily Maximum	536	698	490	673	673	431	571	546	1454	1145	795	615
TSS (lbs/day) Weekly Average	14	58	14	166	15	16	8	13	18	16	24	56
TSS (mg/L) Average Monthly	< 4	6	< 3	11	5	3	< 3	5	< 3	3	< 2	< 7

TSS (mg/L) Raw Sewage Influent Average Monthly	243	138	140	180	239	175	283	270	209	190	152	122
TSS (mg/L) Weekly Average	6	11	5	32	8	3	5	6	6	4	5	21
Fecal Coliform (CFU/100 ml) Geometric Mean	466	< 172	< 12	< 45	< 2	14	5	7	< 6	< 2	< 2	2
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	2416	2419	152.3	2419.6	3	112.4	292	8.6	727	9.8	3.1	7.4
UV Transmittance (%) Minimum	76.1	32	50.7	62.9	64.2	58.5	61.9	61.8	52.9	59.8	61.1	40.5
Nitrate-Nitrite (mg/L) Average Monthly	3.506	< 2.5247	2.906	< 2.2087	3.548	5.465	6.042	5.425	4.522	3.27	3.005	3.986
Nitrate-Nitrite (lbs) Total Monthly	179	< 304	214	< 169	< 212	356	296	268	363	287	339	377
Total Nitrogen (mg/L) Average Monthly	5.063	< 6.1875	< 7.649	< 3.4297	< 4.048	< 6.045	< 7.012	< 6.034	< 5.099	< 3.942	< 3.688	< 4.829
Total Nitrogen (lbs) Effluent Net Total Monthly	257	< 852	< 617	< 256	< 212	< 393	< 343	< 298	< 410	< 348	< 426	< 455
Total Nitrogen (lbs) Total Monthly	257	< 852	6.17	< 256	< 212	< 393	< 343	< 298	< 410	< 348	< 426	< 455
Total Nitrogen (lbs) Effluent Net Total Annual						< 3250						
Total Nitrogen (lbs) Total Annual						< 4650						
Ammonia (lbs/day) Average Monthly	< 0.7	< 16	< 9	< 0.2	< 0.2	< 0.8	< 1.0	< 0.7	< 1.0	< 1.0	< 0.4	< 0.7
Ammonia (mg/L) Average Monthly	< 0.41	< 2.869	< 3.442	< 0.1	< 0.1	< 0.395	< 0.8	< 0.5	< 0.4	< 0.4	< 0.1	< 0.253
Ammonia (lbs) Total Monthly	< 20	< 502	< 293	< 7	< 5	< 25	39	< 22	< 36	< 37	< 11	< 22
Ammonia (lbs) Total Annual						< 344						
TKN (mg/L) Average Monthly	1.56	3.663	< 4.743	< 1.221	< 0.5	< 0.579	< 0.971	0.609	< 0.578	< 0.672	< 0.683	< 0.844
TKN (lbs) Total Monthly	78	548	< 403	< 87	< 25	< 37	< 47	< 31	< 46	< 61	< 87	< 78

Total Phosphorus (mg/L) Average Monthly	0.938	0.725	1.73	0.622	0.835	1.36	1.016	3.16	2.36	0.6229	0.652	0.63
Total Phosphorus (lbs) Effluent Net Total Monthly	47	95	126	41	43	93	49	156	192	51	78	59
Total Phosphorus (lbs) Total Monthly	47	95	126	41	43	93	49	156	192	51	78	59
Total Phosphorus (lbs) Effluent Net Total Annual						973						
Total Phosphorus (lbs) Total Annual						1149						
Total Copper (lbs/day) Average Monthly	0.03	0.07	0.04	0.02	0.02	0.05	0.03	0.05	< 0.1	0.05	0.01	0.07
Total Copper (mg/L) Average Monthly	0.0149	0.0161	0.0173	0.0143	0.0138	0.0147	0.0212	0.03	< 0.0626	0.014	0.0225	0.0229

3.2.1 Chesapeake Bay Truing

The table summarizes the facility's compliance/noncompliance with Chesapeake Bay cap loads.

The facility was non-compliant with phosphorus cap loads in 2016 and 2020.

Chesapeake Bay Annual Nutrient Summary
Newport Borough MA
PA0021237

Year for Truing Period (Oct 1 - Sept 30)	Nitrogen (lbs)					Phosphorus (lbs)					Compliant with Permit Limits (Yes/No)	
	Annual Total Mass Load	Lbs Credit Purchased	Lbs from Credits Sold	Lbs Offsets Generated	Annual Net Mass Load	Annual Total Mass Load	Lbs Credit Purchased	Lbs from Credits Sold	Lbs Offsets Generated	Annual Net Mass Load	Nitrogen	Phosphorus
2016	19181	10475	0	1400	7306	2118	252	0	0	1866	Yes	No
2017	13895	6468	0	1400	6027	1902	959	0	0	943	Yes	Yes
2018	23458	14752	0	1400	7306	1552	578	0	0	974	Yes	Yes
2019	17440	8735	0	1400	7305	820	0	0	0	820	Yes	Yes
2020	8531	0	0	1400	7131	980	0	0	0	980	Yes	No
2021	8303	0	0	1400	6903	1592	620	0	0	972	Yes	Yes
2022	4650	0	0	1400	3250	1149	176	0	0	973	Yes	Yes

Notes:

Nitrogen Annual Net Mass CAP Load =	7306	lbs
Phosphorus Annual Net Mass CAP Load =	974	lbs

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in January 1, 2017 and ending on April 17, 2023, the following were observed effluent non-compliances.

Summary of Non Compliance of NPDES Effluent Limits
Beginning June 2021 to April 2023

NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	FACILITY_COMMENTS
6/21/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	9.678	>	7.0	mg/L	Average Monthly	Increased Dissolved oxygen set points
6/21/2021	Violation of permit condition	Effluent	Fecal Coliform	2419.6	>	1000	CFU/100 ml	Instantaneous Maximum	Changed sampling procedures
6/21/2021	Violation of permit condition	Effluent	Fecal Coliform	410	>	200	CFU/100 ml	Geometric Mean	Changed sampling procedures
8/23/2021	Violation of permit condition	Effluent	Fecal Coliform	1413.6	>	1000	CFU/100 ml	Instantaneous Maximum	
9/22/2021	Violation of permit condition	Effluent	Fecal Coliform	9678.4	>	1000	CFU/100 ml	Instantaneous Maximum	
10/22/2021	Violation of permit condition	Effluent	Fecal Coliform	1046.2	>	1000	CFU/100 ml	Instantaneous Maximum	
10/22/2021	Violation of permit condition	Effluent	Total Suspended Solids	280	>	191	lbs/day	Weekly Average	

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in January 1, 2017 to April 12, 2023, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning January 1, 2017 and Ending April 12, 2023

ENF ID	ENF TYPE	ENF TYPE DESC	DATE	EXECUTED DATE	INITIATED DATE	ONS	ENF FINAL STATUS	DATE
354557	CACP	Consent	06/26/2017	06/22/2017	06/22/2017	92A.44	Comply/Closed	06/22/2017
398592	NOV	Notice of Violation	10/28/2021	10/27/2021		92A.44	Comply/Closed	11/01/2021
391634	NOV	Notice of Violation	01/27/2021	01/27/2021		92A.44	Comply/Closed	01/27/2021
354783	NOV	Notice of Violation	07/05/2017	06/29/2017		92A.44	Comply/Closed	07/10/2017
351944	NOV	Notice of Violation	03/27/2017	03/27/2017		92A.44	Comply/Closed	06/22/2017

The past enforcement actions have been closed.

There are currently no open enforcement actions

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2022
Sewage Sludge / Biosolids Production Information

Hauled Off-Site			
2022	Gallons	% Solids	Dry Tons
January	22,500	1.90	1.783
February	24,000	1.87	1.832
March	67,000	2.00	5.978
April	45,500	1.97	3.943
May	44,000	2.27	3.876
June	91,500	1.99	7.933
July	23,500	1.90	1.862
August	22,000	6.80	2.133
September	35,000	1.80	2.627
October	17,000	1.80	1.276
November	51,500	1.97	4.095
December	24,000	1.65	1.651

Notes:

Sewage sludge/biosolids disposed at Springettsbury WWTP in York County or at Annville WWTP in Lebanon County

3.5 Open Violations

No open violations existed as of April 2023.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be the Little Buffalo Creek. The sequence of receiving streams that the Little Buffalo Creek discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Suez Water (PWS ID #7220015) located approximately 21 miles downstream of the subject facility on the Susquehanna River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2022 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 4c and 5 waterbody. The surface waters is impaired for aquatic life due to habitat alterations from habitat modifications. The receiving waters is also impaired for aquatic life due to siltation from sediment. The designated use has been classified as protected waters for cold water fishes (CWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Juniata River station (WQN214). This WQN station is located approximately 0.28 miles upstream of the subject facility.

The closest gauge station to the subject facility is the Juniata River at Newport, PA (USGS station number 1567000). This gauge station is located approximately 0.28 miles upstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.4 and the stream water temperature was estimated to be 23.97 C.

The hardness of the stream was estimated from the water quality network to be 97 mg/l $CaCO_3$.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1567000		
Station Name	Juniata River at Newport, PA		
Q710	367	ft^3/sec	
Drainage Area (DA)	3354	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(367 ft^3/sec / 3354 mi^2)		
LFY =	0.1094	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		20.1	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.1094 $ft^3/sec/mi^2$)(20.1 mi^2)			
Q710 =	2.199	ft^3/sec	

4.6.1 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.51
Latitude	40º 28' 30.06"	Longitude	-77º 7' 34.06"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Little Buffalo Creek (CWF, MF)	Stream Code	11466
NHD Com ID	66206573	RMI	0.02
Drainage Area	20	Yield (cfs/mi^2)	0.1094
Q_{7-10} Flow (cfs)	2.199	Q_{7-10} Basis	StreamStats/Steamgauge
Elevation (ft)	366	Slope (ft/ft)	
Watershed No.	12-B	Chapter 93 Class.	CWF, MF
Existing Use	Same as Chapter 93 class.	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for aquatic life		
Cause(s) of Impairment	Habitat modifications; Siltation		
Source(s) of Impairment	Habitat alterations; Sediment		
TMDL Status	Not appl.	Name	

Background/Ambient Data		Data Source
pH (SU)	8.4	WQN 214; median Jul to Sept
Temperature (°C)	23.97	WQN 214; median Jul to Sept
Hardness (mg/L)	97	WQN 214; historical median
Other:		

Nearest Downstream Public Water Supply Intake		Suez Water	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	75	Distance from Outfall (mi)	21

4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	003 (Eliminated on 1/16/2023)	Design Flow (MGD)	0
Latitude	40º 28' 40.91"	Longitude	-77º 7' 38.52"
Quad Name		Quad Code	
Wastewater Description:	Combined Sewer Overflow (Eliminated on 1/16/2023)		

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity\left(\frac{lb}{day}\right) = (MGD)(Concentration)(8.34)$$

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1	*(Modeling Point #1)*	*(Modeling Point #2)*	*(Modeling Point #3)*	*Units*
Stream Code	11466	11466	11466	
River Mile Index	0.07	0	2.98	miles
Elevation	366	365	449.14	feet
Latitude	40.475067	40.475069	40.457762	
Longitude	-77.127205	-77.12601	-77.165337	
Drainage Area	20	20.1	15.72	sq miles
Low Flow Yield	0.1094	0.1094	0.1094	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) a 30-day average concentration for CBOD5 in the discharge;
(c) a 30-day average concentration for the NH_3-N in the discharge;
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the following pollutants: TDS, Chloride, Bromide, Sulfate, Total Copper, Total Lead, and Total Zinc.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector A discharger. The supplement defines Sector A as a sewage facility is considered significant if it has a design flow of at least 0.4 MGD.

Table 5 of the Phase 3 WIP (revised September 13, 2021) presents all NPDES permits for Significant Sewage dischargers with Cap Loads. The NPDES Permit No., phase, facility name, latest permit issuance date, expiration date, Cap Load compliance start date, TN and TP Cap Loads, and TN and TP Delivery Ratios are presented. In addition, if TN Offsets were incorporated into the TN Cap Loads when the permit was issued, the amount is shown; these Offsets will be removed from Cap Loads upon issuance

of renewed permits to implement Section IV of this document (i.e., a facility may use Offsets for compliance but may not register them as credits).

The total nitrogen (TN) and total phosphorus (TP) cap loads itemized by Table 5 for the subject facility are as follows:

TN Cap Load (lbs/yr)	7,306
TN Delivery Ratio	0.821
TP Cap Load (lbs/yr)	974
TP Delivery Ratio	0.374

Expansions by any Significant Sewage discharger will not result in any increase in Cap Loads. Where non-significant facilities expand to a design flow of 0.4 MGD or greater, the lesser of baseline Cap Loads of 7,306 lbs/yr TN and 974 lbs/yr TP or existing performance will be used for permits, and the load will be moved from the Non-Significant sector load to the Significant Sewage sector load. If considered necessary for environmental protection, DEP may decide to move load from the Point Source Reserve to the Significant Sewage sector in the future.

The minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for Significant Sewage dischargers is 2/week.

This facility is subject to Sector A monitoring requirements. Monitoring shall be required at least 2x/week.

Reporting

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30.

Facilities with NPDES permits must use DEP's eDMR system for reporting, except small flow treatment facilities. An Annual DMR must be submitted by the end of the Truing Period, November 28. As attachments to the Annual DMR a facility must submit a completed Annual Chesapeake Bay Spreadsheet, available through DEP's Supplemental Reports website, which contains an Annual Nutrient Monitoring worksheet and an Annual Nutrient Budget worksheet. This Spreadsheet will be submitted once per Compliance Year only, and reflect all nutrient sample results (for the period October 1 – September 30), Credit transactions (including the Truing Period) and Offsets applied during the Compliance Year.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

The previous renewal utilized default values for receiving streams pH and temperature (i.e. pH = 7 and temperature = 20 C). This renewal utilized the water quality networks (WQN) available data for pH and temperature (i.e. pH = 8.4 and temperature = 23.97 The WQN data utilized was the median value for the months of July to September. The data included sampling from 1999 to 2016. This renewal also utilized an average pH of 7.29 from 12 months of DMR beginning in March 2022 and ending in February 2023.

A significant difference in ammonia nitrogen was realized when using the average discharge pH (pH_{ave}= 7.29). To illustrate the affects of pH on ammonia-nitrogen, modeling runs were also conducted for minimum pH from the DMR (pH_{min} = 6.7) and maximum pH (pH_{max}= 7.88). The modeling runs results in the following ammonia nitrogen concentration:

For average pH (= 7.29), ammonia-nitrogen was 3.24 mg/l.

For minimum pH (= 6.7), ammonia-nitrogen was 5.14 mg/l.

For maximum pH (=7.88), ammonia-nitrogen was 1.85 mg/l.

The selected ammonia-nitrogen for permit limit was the ammonia-nitrogen arrived from the average pH. Winter limits shall be 3x the summer limits.

The treatment sequence includes SBR. A review of 12 months of DMR indicate that the facility would have no issues in meeting the reduced ammonia-nitrogen effluent limit. For the DMRs from March 2022 to February 2023, the ammonia-nitrogen limit ranged from < 0.1 mg/l to < 3.442 mg/l. The ammonia-nitrogen DMR sample results in December 2023 and January 2023 were < 2.869 mg/l and < 3.442 mg/l. The winter months are from November 1 to April 30. Reiterating, given the type of treatment being SBR and the sampling results from the past 12 months, the facility should have no issues meeting the reduced ammonia-nitrogen limit.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Newport Boro, PA0021237

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 1x/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 106 lbs/day and 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 1x/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 128 lbs/day and 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD. Since the TBEL is more stringent than TBEL, TBEL will apply.
UV disinfection	SOP	Monitoring:	The monitoring frequency is 1/day. The facility will be required to record the UV transmittance.
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity.
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/week as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.51 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Newport Boro, PA0021237

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	WQBEL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	During the months of May 1 to October 31, effluent limits shall not exceed 12 lbs/day and 3.0 mg/l as an average monthly.During the months of November 1 to October 31, effluent limits shall not exceed 38 lbs/day and 9.0 mg/l as an average monthly.
		Rationale:	Effluent limits were based upon water quality modeling.
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/month as a calculation
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/month.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation.
		Effluent Limit:	Effluent requirements shall not exceed 7,306 lbs/day
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Net Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation.
		Effluent Limit:	Effluent requirements shall not exceed 974 lbs/day
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Notes:			

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.51 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3 Toxics

Summary of Proposed NPDES Parameter Details for Toxics

Newport Boro, PA0021237			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
Total Copper	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent limit
		Rationale:	Toxics Management Spreadsheet recommends limits. Since the facility recently upgraded the treatment plant, monitoring shall be required 1x/month. Pending favorable results, future renewals may reduce or eliminate monitoring.
Total Lead	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent limit
		Rationale:	Toxics Management Spreadsheet recommends limits. Since the facility recently upgraded the treatment plant, monitoring shall be required 1x/month. Pending favorable results, future renewals may reduce or eliminate monitoring.
Total Zinc	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	No effluent limit
		Rationale:	Toxics Management Spreadsheet recommends limits. Since the facility recently upgraded the treatment plant, monitoring shall be required 1x/month. Pending favorable results, future renewals may reduce or eliminate monitoring.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.51 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth. Based upon DEP policy directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required.

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

Changes in Permit Monitoring or Effluent Quality

Parameter	Existing Permit	Draft Permit
Ammonia-Nitrogen	During the months of November 1 to October 31, effluent limits shall not exceed 89 lbs/day and 21 mg/l as an average monthly.During the months of May 1 to October 31, effluent limits shall not exceed 30 lbs/day and 7.0 mg/l as an average monthly. Effluent limits were reduced due to water quality modeling.	During the months of November 1 to October 31, effluent limits shall not exceed 12 lbs/day and 3.0 mg/l as an average monthly.During the months of May 1 to October 31, effluent limits shall not exceed 38 lbs/day and 9.0 mg/l as an average monthly. Effluent limits were reduced due to water quality modeling.
E. Coli	No monitoring or effluent limits	Monitoring shall be 1x/quarter
Total Copper	Monitoring is 2x/month	Monitoring shall be 1x/month
Total Lead	No monitoring or effluent limits	Monitoring shall be 1x/month
Total Zinc	No monitoring or effluent limits	Monitoring shall be 1x/month

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 28' 30.00" , **Longitude** 77° 7' 37.00" , **River Mile Index** 0.02 , **Stream Code** 11466

Receiving Waters: Little Buffalo Creek (CWF, MF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	106	170	XXX	25	40	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	128	191	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	38	XXX	XXX	9.0	XXX	18	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	12.0	XXX	XXX	3.0	XXX	6	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Copper, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Lead, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Zinc, Total	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- SBR Batch Discharge Condition
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	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: New and Reissuance Sewage Individual NPDES Permit Applications, rev February 3, 2022
☐	Other:

Attachment A
Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	N

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

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01565000	1941–2008	37	17.6	18.6	28.6	20.3	32.4	24.4
01565700	1965–1981	17	.4	.4	.9	.5	1.1	.8
01566000	1913–2008	52	4.3	7.9	18.8	12.4	25.6	19.2
01566500	1932–1958	27	1.7	2.4	4.0	3.2	5.7	4.9
01567000	[2]1974–2008	35	504	534	725	589	857	727
01567000	[3]1901–1972	72	311	367	571	439	704	547
01567500	1955–2008	54	2.0	2.2	3.3	2.6	3.8	3.1
01568000	1931–2008	78	12.7	15.5	25.5	19.2	32.0	26.0
01568500	[2]1943–1997	55	1.8	2.3	4.3	2.7	5.0	3.1
01569000	1939–1974	14	2.6	4.0	7.4	5.1	9.4	7.8
01569800	1978–2008	31	15.9	17.0	24.4	18.4	26.1	20.3
01570000	[3]1913–1969	35	—	63.1	110	76.1	124	95.3
01570000	[2]1971–2008	38	63.1	69.3	109	78.3	125	97.8
01570500	[3]1901–1972	72	2,310	2,440	4,000	2,830	4,950	3,850
01570500	[2]1974–2008	35	3,020	3,200	5,180	3,690	6,490	4,960
01571000	1941–1995	16	.1	.2	.6	.3	1.2	.8
01571500	1911–2008	62	81.6	86.8	115	94.0	124	105
01572000	1921–1984	14	2.1	2.3	4.8	3.0	6.5	4.5
01572025	1990–2008	17	15.2	16.4	26.7	18.5	34.6	27.7
01572190	1990–2008	17	19.1	20.5	36.2	23.9	45.8	35.3
01573000	1920–2008	89	18.0	22.0	52.0	30.8	69.2	50.9
01573086	1965–1981	17	.5	.6	2.6	.8	3.3	1.1
01573160	1977–1994	18	26.9	29.6	46.4	33.6	51.9	39.5
01573500	1939–1958	20	1.3	1.4	2.5	1.8	3.2	2.6
01573560	1977–2008	30	50.3	62.0	104	76.9	131	108
01574000	1930–2008	79	8.0	11.1	32.0	17.7	47.0	33.9
01574500	[2]1968–2008	41	14.2	24.0	35.9	29.4	42.0	33.3
01574500	[3]1930–1966	34	2.3	7.1	11.5	9.3	14.8	12.7
01575000	[2]1973–1995	23	.7	1.4	6.7	3.2	12.0	9.3
01575000	[3]1929–1971	43	.1	.6	10.3	2.3	15.0	6.1
01575500	[2]1948–1996	49	12.1	18.7	41.3	23.9	50.0	33.8
01576000	[3]1933–1972	40	2,100	2,420	4,160	2,960	5,130	4,100
01576000	[2]1974–2008	35	2,990	3,270	5,680	3,980	7,180	5,540
01576085	1984–1995	12	.4	.5	.8	.7	1.2	1.2
01576500	1931–2008	78	27.2	38.6	79.4	49.1	97.3	66.1
01576754	1986–2008	23	74.2	84.9	151	106	189	147
[4]01578310	1969–2008	40	549	2,820	5,650	4,190	7,380	6,140
01578400	1964–1981	18	1.4	1.5	2.7	1.9	3.2	2.5
[4]01580000	1928–2008	81	19.7	22.8	48.1	28.1	51.8	35.4
[4]01581500	1946–2008	28	.2	.3	1.2	.8	1.7	1.5
[4]01581700	1969–2008	40	4.7	5.5	17.5	8.1	18.3	12.0
[4]01582000	1946–2008	63	11.3	12.5	25.0	15.5	28.0	20.3
[4]01582500	1979–2008	27	41.2	43.9	78.8	53.8	90.6	74.1
[4]01583000	1949–1981	33	.3	.3	.7	.3	1.0	.6
[4]01583100	1984–2008	15	2.1	2.4	5.5	3.2	6.0	4.2

Attachment B

WQM 7.0 Modeling Output Values

Toxics Management Spreadsheet Output Values

Run #1: Average pH

Run #1: Average pH

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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)
2.980	Little Buffalo	PA0031950	0.076	CBOD5	25		
				NH3-N	7.5	15	
				Dissolved Oxygen			5

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)
0.070	Newport Boro	PA0021237	0.510	CBOD5	25		
				NH3-N	3.24	6.48	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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
2.980	Little Buffalo	3.05	15	3.05	15	0	0
0.070	Newport Boro	4.37	14.67	4.96	14.67	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
2.980	Little Buffalo	.57	7.5	.57	7.5	0	0
0.070	Newport Boro	.75	3.24	.82	3.24	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)		
2.98	Little Buffalo	25	25	7.5	7.5	5	5	0	0
0.07	Newport Boro	25	25	3.24	3.24	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	2.980	449.00	15.72	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Little Buffalo	PA0031950	0.0760	0.0760	0.0760	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	5.00	8.24	0.00	0.00
NH3-N	7.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	0.070	387.00	20.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Newport Boro	PA0021237	0.5100	0.5100	0.5100	0.000	25.00	7.29

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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	0.000	365.00	20.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE BUFFALO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.980	0.076	24.036	7.995
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
20.374	0.570	35.760	0.158
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.47	0.378	0.48	0.955
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.035	6.678	Tsivoglou	5
Reach Travel Time (days)			
1.124			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.112	3.30	0.43	7.66
0.225	3.13	0.39	7.66
0.337	2.98	0.35	7.66
0.449	2.83	0.31	7.66
0.562	2.69	0.28	7.66
0.674	2.55	0.25	7.66
0.786	2.43	0.23	7.66
0.899	2.31	0.20	7.66
1.011	2.19	0.18	7.66
1.124	2.08	0.16	7.66

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.070	0.586	24.272	7.706
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.921	0.773	20.584	0.251
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.91	1.228	0.92	0.972
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.073	157.292	Tsivoglou	5
Reach Travel Time (days)			
0.017			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	7.89	0.92	7.37
0.003	7.87	0.92	7.60
0.005	7.85	0.92	7.63
0.007	7.83	0.92	7.63
0.009	7.81	0.92	7.63
0.010	7.79	0.92	7.63
0.012	7.77	0.91	7.63
0.014	7.75	0.91	7.63
0.015	7.73	0.91	7.63
0.017	7.71	0.91	7.63

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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 (°C)	Analysis pH
Q7-10 Flow												
2.980	1.72	0.00	1.72	.1176	0.00404	.57	20.37	35.76	0.16	1.124	24.04	7.99
0.070	2.19	0.00	2.19	.9065	0.05952	.773	15.92	20.58	0.25	0.017	24.27	7.71
Q1-10 Flow												
2.980	1.46	0.00	1.46	.1176	0.00404	NA	NA	NA	0.15	1.223	24.05	7.95
0.070	1.86	0.00	1.86	.9065	0.05952	NA	NA	NA	0.24	0.018	24.31	7.67
Q30-10 Flow												
2.980	2.06	0.00	2.06	.1176	0.00404	NA	NA	NA	0.17	1.021	24.03	8.04
0.070	2.63	0.00	2.63	.9065	0.05952	NA	NA	NA	0.27	0.016	24.23	7.75

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	0.85	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.2	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Run #2: Minimum pH

Run #2: min pH

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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)
2.980	Little Buffalo	PA0031950	0.076	CBOD5	25		
				NH3-N	7.24	14.48	
				Dissolved Oxygen			5

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)
0.070	Newport Boro	PA0021237	0.510	CBOD5	25		
				NH3-N	5.14	10.28	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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
2.980	Little Buffalo	3.05	15	3.05	15	0	0
0.070	Newport Boro	9.56	32.09	9.65	32.09	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
2.980	Little Buffalo	.57	7.5	.57	7.24	2	3
0.070	Newport Boro	1.23	5.32	1.24	5.14	2	3

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)		
2.98	Little Buffalo	25	25	7.24	7.24	5	5	0	0
0.07	Newport Boro	25	25	5.14	5.14	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	2.980	449.00	15.72	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Little Buffalo	PA0031950	0.0760	0.0760	0.0760	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	5.00	8.24	0.00	0.00
NH3-N	7.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	0.070	387.00	20.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Newport Boro	PA0021237	0.5100	0.5100	0.5100	0.000	25.00	6.70

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	0.000	365.00	20.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE BUFFALO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.980	0.076	24.036	7.995
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
20.374	0.570	35.760	0.158
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.47	0.378	0.46	0.955
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.035	6.678	Tsivoglou	5
Reach Travel Time (days)			
1.124			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.112	3.30	0.42	7.66
0.225	3.13	0.37	7.66
0.337	2.98	0.34	7.66
0.449	2.83	0.30	7.66
0.562	2.69	0.27	7.66
0.674	2.55	0.24	7.66
0.786	2.43	0.22	7.66
0.899	2.31	0.20	7.66
1.011	2.19	0.18	7.66
1.124	2.08	0.16	7.66

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.070	0.586	24.272	7.240
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.921	0.773	20.584	0.251
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.91	1.228	1.40	0.972
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.073	157.292	Tsivoglou	5
Reach Travel Time (days)			
0.017			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	7.89	1.40	7.37
0.003	7.87	1.40	7.59
0.005	7.85	1.40	7.63
0.007	7.83	1.40	7.63
0.009	7.81	1.39	7.63
0.010	7.79	1.39	7.63
0.012	7.77	1.39	7.63
0.014	7.75	1.39	7.63
0.015	7.73	1.38	7.63
0.017	7.71	1.38	7.63

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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 (°C)	Analysis pH
Q7-10 Flow												
2.980	1.72	0.00	1.72	.1176	0.00404	.57	20.37	35.76	0.16	1.124	24.04	7.99
0.070	2.19	0.00	2.19	.9065	0.05952	.773	15.92	20.58	0.25	0.017	24.27	7.24
Q1-10 Flow												
2.980	1.46	0.00	1.46	.1176	0.00404	NA	NA	NA	0.15	1.223	24.05	7.95
0.070	1.86	0.00	1.86	.9065	0.05952	NA	NA	NA	0.24	0.018	24.31	7.19
Q30-10 Flow												
2.980	2.06	0.00	2.06	.1176	0.00404	NA	NA	NA	0.17	1.021	24.03	8.04
0.070	2.63	0.00	2.63	.9065	0.05952	NA	NA	NA	0.27	0.016	24.23	7.29

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	0.85	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.2	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Run #3: Maximum pH

Run #3: max pH

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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)
2.980	Little Buffalo	PA0031950	0.076	CBOD5	25		
				NH3-N	7.5	15	
				Dissolved Oxygen			5

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)
0.070	Newport Boro	PA0021237	0.510	CBOD5	25		
				NH3-N	1.85	3.7	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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
2.980	Little Buffalo	3.05	15	3.05	15	0	0
0.070	Newport Boro	1.97	6.61	2.88	6.61	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
2.980	Little Buffalo	.57	7.5	.57	7.5	0	0
0.070	Newport Boro	.43	1.85	.56	1.85	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)		
2.98	Little Buffalo	25	25	7.5	7.5	5	5	0	0
0.07	Newport Boro	25	25	1.85	1.85	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	2.980	449.00	15.72	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Little Buffalo	PA0031950	0.0760	0.0760	0.0760	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	5.00	8.24	0.00	0.00
NH3-N	7.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	**0.070**	387.00	20.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Newport Boro	PA0021237	0.5100	0.5100	0.5100	0.000	25.00	7.88

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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11466	LITTLE BUFFALO CREEK	0.000	365.00	20.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.109	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.97	8.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE BUFFALO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.980	0.076	24.036	7.995
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
20.374	0.570	35.760	0.158
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.47	0.378	0.48	0.955
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.035	6.678	Tsivoglou	5
Reach Travel Time (days)			
1.124			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.112	3.30	0.43	7.66
0.225	3.13	0.39	7.66
0.337	2.98	0.35	7.66
0.449	2.83	0.31	7.66
0.562	2.69	0.28	7.66
0.674	2.55	0.25	7.66
0.786	2.43	0.23	7.66
0.899	2.31	0.20	7.66
1.011	2.19	0.18	7.66
1.124	2.08	0.16	7.66

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.070	0.586	24.272	8.001
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.921	0.773	20.584	0.251
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.91	1.228	0.57	0.972
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.073	157.292	Tsivoglou	5
Reach Travel Time (days)			
0.017			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	7.89	0.57	7.37
0.003	7.87	0.57	7.60
0.005	7.85	0.57	7.63
0.007	7.83	0.56	7.63
0.009	7.81	0.56	7.63
0.010	7.79	0.56	7.63
0.012	7.77	0.56	7.63
0.014	7.75	0.56	7.63
0.015	7.73	0.56	7.63
0.017	7.71	0.56	7.63

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
12B	11466	LITTLE 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 (°C)	Analysis pH
Q7-10 Flow												
2.980	1.72	0.00	1.72	.1176	0.00404	.57	20.37	35.76	0.16	1.124	24.04	7.99
0.070	2.19	0.00	2.19	.9065	0.05952	.773	15.92	20.58	0.25	0.017	24.27	8.00
Q1-10 Flow												
2.980	1.46	0.00	1.46	.1176	0.00404	NA	NA	NA	0.15	1.223	24.05	7.95
0.070	1.86	0.00	1.86	.9065	0.05952	NA	NA	NA	0.24	0.018	24.31	7.97
Q30-10 Flow												
2.980	2.06	0.00	2.06	.1176	0.00404	NA	NA	NA	0.17	1.021	24.03	8.04
0.070	2.63	0.00	2.63	.9065	0.05952	NA	NA	NA	0.27	0.016	24.23	8.03

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	0.85	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.2	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		