pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021865**
Facility Type	**Municipal**	APS ID	**74**
Major / Minor	**Minor**	Authorization ID	**1031891**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Adamstown Borough**	Facility Name	**Adamstown STP**
Applicant Address	3000 North Reading Road PO Box 546	Facility Address	235 East Swartzfille Road
	Adamstown, PA 19501-0546		Denver, PA 17517
Applicant Contact	Mike Palm	Facility Contact	Mike Palm
Applicant Phone	(717) 484-4234	Facility Phone	(717) 484-4234
Client ID	4786	Site ID	451873
Ch 94 Load Status	Not Overloaded	Municipality	Adamstown Borough
Connection Status	No Limitations	County	Lancaster
Date Application Received	June 27, 2014	EPA Waived?	No
Date Application Accepted	July 21, 2014	If No, Reason	Pretreatment, Significant CB Discharge
Purpose of Application	NPDES Renewal.		

Summary of Review

Adamstown Borough has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit was issued on January 5, 2010 and became effective on February 1, 2010. The permit authorized discharge of treated sewage from the existing wastewater treatment plant (WWTP) located in Adamstown Borough, Lancaster County into Little Muddy Creek. The existing permit expiration date was January 31, 2015, and the permit has been administratively extended since that time.

Changes in this renewal: A parameter for monitoring of ultraviolet (UV) Transmittance was added to the permit. An effluent limit for Total Copper was added. A parameter for monitoring of Bromide was added. Nutrient parameters were revised to have a 24-hour composite sampling type with a minimum measurement frequency of 2/week.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	August 26, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.6
Latitude	40º 13' 35"	Longitude	76º 4' 1.4"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Little Muddy Creek	Stream Code	7765
NHD Com ID	57461401	RMI	5.19
Drainage Area	9.22 mi^2	Yield (cfs/mi^2)	0.12
Q_{7-10} Flow (cfs)	1.11	Q_{7-10} Basis	USGS Gage # 01576500
Elevation (ft)	435	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	27.6

Changes Since Last Permit Issuance: A drainage area of 9.22 mi^2 and a Q_{7-10} flow of 1.11 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q_{7-10} and drainage area at the gage are 38.6 cfs and 324 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (38.6 cfs)/ 324 mi^2 = 0.12 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 9.22 mi^2

The Q_{7-10} at the discharge point = 9.22mi^2 x 0.12 cfs/mi^2 = 1.11 cfs

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Oxidation Ditch	Ultraviolet	0.6
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.6	1500	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process is as follows:

Rag Remover / Bar Screen – Wet Well – Two (2) Oxidation Ditches – Clarifiers – UV Disinfection – Outfall 001

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	10/04/2012: A routine inspection was conducted. It was noted that all treatment units were operating properly, and the plant effluent was clear. 10/03/2014: A routine inspection was conducted. At the time of inspection only one of the two oxidation ditches was in use. It was noted that the clarifiers looked good, and the effluent was clear. 02/01/2016: A routine inspection was conducted. It was noted that all units were online, and no issues or violations were observed. 12/14/2017: A routine inspection was conducted. All treatment units were online. No effluent violations were documented from the samples taken during the inspection. It was noted that the plant effluent appeared clear with very low suspended solids. 8/23/2018: A routine partial inspection was conducted. The Public Works Director, Mr. Mike Palm, noted that prior to the inspection the primary flow meter became inoperable due to high rainfall events. It was recommended to install a temporary flow meter until the new meter could be installed. A walkthrough of the facility was conducted. Some floating scum was visible on both clarifiers. The outfall was observed and appeared clear with no evidence of solids. 7/15/2019: A routine inspection was conducted. The supernatant from the clarifiers appeared cloudy. Field and lab samples were collected, and were within permit limits. The effluent appeared slightly cloudy with fine suspended solids. No other issues were noted.

Other Comments: There are currently no open violations associated with the permittee or the facility.

Compliance History

DMR Data for Outfall 001 (from July 1, 2018 to June 1, 2019)

Parameter	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19	FEB-19	MAR-19	APR-19	MAY-19	JUN-19
Flow (MGD) Average Monthly	0.2885	0.3223	0.3366	0.2574	0.4842	0.8331	0.4717	0.4641	0.5056	0.4104	0.4777	0.4453
Flow (MGD) Daily Maximum	0.3520	0.9944	0.6840	0.3569	0.8729	0.4691	0.8729	0.6424	1.0294	0.6244	0.9781	1.0966
pH (S.U.) Minimum	7.32	7.34	7.26	7.32	7.31	7.26	6.7	7.13	6.96	7.16	7.17	7.10
pH (S.U.) Maximum	7.68	7.60	7.61	7.58	7.52	7.44	7.4	7.41	7.74	7.45	7.58	7.52
DO (mg/L) Minimum	5.1	5.0	5.0	5.4	5.7	6.4	6.3	6.6	5.0	5.6	5.3	5.1
CBOD5 (lbs/day) Average Monthly	10.6	5.4	7.2	5.9	10.4	10.1	11.9	9.7	7.8	7.2	7.7	9.1
CBOD5 (lbs/day) Weekly Average	16.9	7	13	9.4	14.9	11.7	26.1	12.5	8.8	9.4	9.7	12.5
CBOD5 (mg/L) Average Monthly	4.2	2.5	2.5	3.0	2.6	3.0	3.1	2.5	2.1	2.2	2.0	2.3
CBOD5 (mg/L) Weekly Average	6.8	3.0	3.1	5.5	4.0	3.9	6.6	3.5	2.5	2.4	2.1	2.7
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	414	228	219	341	266	393	493	497	417	292	425	577
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	527	360	287	508	468	479	784	678	566	432	781	1154
BOD5 (mg/L) Raw Sewage Influent Average Monthly	162	107	83	161	64	118	136	125	115	91	111	136
TSS (lbs/day) Average Monthly	21.9	24.3	33.7	14.9	58.5	31.4	32.4	34	23.5	19	24.7	41.9
TSS (lbs/day) Raw Sewage Influent Average Monthly	422	280	290	337	256	350	318	401	366	302	465	548

TSS (lbs/day) Raw Sewage Influent Daily Maximum	524	473	400	456	417	379	388	622	418	538	662	1023
TSS (lbs/day) Weekly Average	31	41.1	81.0	22.8	89.3	34.1	53.9	53	30.6	29.7	42.2	69.8
TSS (mg/L) Average Monthly	8.7	10.9	9.5	7.1	15.0	9.4	8.2	9.0	6.5	5.7	6.2	9.9
TSS (mg/L) Raw Sewage Influent Average Monthly	165	136	109	161	63	105	87	100	100	92	121	131
TSS (mg/L) Weekly Average	12.5	15.3	15.0	8.8	24	11.4	13.6	14.8	8.7	8	9.1	13.0
Fecal Coliform (CFU/100 ml) Geometric Mean	137	143	15	21	23	96	93	13	18	150	29	18
Nitrate-Nitrite (mg/L) Average Monthly	1.1	2.4	2.1	2.1	3.0	2.7	3.6	4.1	2.9	3.9	3.1	2.8
Nitrate-Nitrite (lbs) Total Monthly	84	149	207	143	378	282	419	490	338	387	363	348
Total Nitrogen (mg/L) Average Monthly	3.6	4.4	3.6	3.9	4.0	4.6	6.3	5.9	4.3	5.2	4.2	4.0
Total Nitrogen (lbs) Effluent Net Total Monthly	286	285	327	255	495	481	747.1	689	493	504	493	492
Total Nitrogen (lbs) Total Monthly	286	285	327	255	495	481	747.1	689	493	504	493	492
Total Nitrogen (lbs) Effluent Net Total Annual			4481									
Total Nitrogen (lbs) Total Annual			5231									
Ammonia (lbs/day) Average Monthly	4.4	1.5	0.9	1.3	0.6	2.0	4.9	1.1	1.0	0.5	0.5	0.4
Ammonia (mg/L) Average Monthly	1.72	0.73	0.56	0.64	0.15	0.56	1.24	0.3	0.28	0.16	0.13	0.10
Ammonia (lbs) Total Monthly	136.4	46.5	27	40.3	18	62	152	30.8	31	15	15.5	12
Ammonia (lbs) Total Annual			957									
TKN (mg/L) Average Monthly	2.6	2.1	1.5	1.8	1.0	1.9	2.7	1.8	1.4	1.2	1.1	1.2
TKN (lbs) Total Monthly	202	140	120	112	117	199	329	202	155	120	127.1	144

Total Phosphorus (lbs/day) Average Monthly	1.1	0.8	1.1	0.8	1.4	0.9	1	0.7	0.5	0.6	0.9	2.0
Total Phosphorus (mg/L) Average Monthly	0.44	0.36	0.36	0.38	0.35	0.26	0.25	0.18	0.13	0.19	0.23	0.48
Total Phosphorus (lbs) Effluent Net Total Monthly	34.1	24.8	33	24.8	42	27.9	31	19.6	15.5	18	27.9	60
Total Phosphorus (lbs) Total Monthly	34.1	24.8	33	24.8	42	27.9	31	19.6	15.5	18	27.9	60
Total Phosphorus (lbs) Effluent Net Total Annual			286									
Total Phosphorus (lbs) Total Annual			286									

Existing Effluent Limitations and Monitoring Requirements

The tables below summarize the effluent limits and monitoring requirements implemented in the existing NPDES permit.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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
Influent (BOD_5 and TSS)	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TSS	150	225	XXX	30	45	60	1/week	8-Hr Composite
CBOD5	125	200	XXX	25	40	50	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	15	XXX	XXX	3.0	XXX	6.0	1/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	45	XXX	XXX	9.0	XXX	18	1/week	8-Hr Composite
Total Phosphorus	10	XXX	XXX	2.0	XXX	4.0	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	XXX	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	XXX	1/week	Grab

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Load (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	1/week	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	1/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	1/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	1/week	8-Hr Composite
Net Total Nitrogen	Report	10,959	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	1,461	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.6
Latitude 40º 13' 35" **Longitude** 76º 4' 1.4"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The facility is regulated by standards found in 40 CFR § 133.102 and 25 Pa. Code § 92a.47(a). These standards are shown below:

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

Comments: The abovementioned technology-based limitations (TBELs) apply, subject to water quality analysis and BPJ where applicable.

Water Quality-Based Limitations

$CBOD_5$, NH_3-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.0b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N), and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit application.

The flow data used to run the model was acquired from USGS PA StreamStats and USGS Gage # 01576500 on the Conestoga River, and is included in the attachment. Stream pH and temperature inputs for this model run were based on data acquired from the National Water Quality Monitoring Council website. Data was analyzed from the Water Quality Network (WQN) Station ID 273 from October 2004 to December 2018. DEP's Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends using the 90th percentile of long-term data for background and discharge characteristics when using WQM 7.0. A 90th percentile analysis was performed on the data and resulted in a Stream pH of 8.4 and a Stream Temperature of 24.0°C. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 3.35 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. These limits are the same as the existing limits, which will remain in the permit.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Screening Analysis worksheet and PENTOXSD to develop appropriate permit requirements for toxic pollutants of concern. Based on effluent sample results reported on the application, Total Copper is a candidate for PENTOXSD modeling as this pollutant is discharged at a level that has the reasonable potential to cause excursions above the state water quality criteria. A stream hardness value of 271 mg/l was used in modeling. This value was based off a 90th percentile analysis of the stream hardness data from the WQN Station ID 273 from October 2004 to December 2018. A default discharge hardness of 100 mg/l was used in modeling. Additional Total Copper sampling data was requested Adamstown Borough to determine if Total Copper was truly a parameter of concern. Sampling results were received on August 20, 2019. The Total Copper data was input into DEP's TOXCONC Ver. 2.0, a Microsoft Excel spreadsheet that can be used to calculate site-specific effluent characteristics, such as an Average Monthly Effluent Characteristic (AMEC). The resulting AMEC output from this spreadsheet was put into PENTOXSD as the data input for the Total Copper discharge concentration.

The resulting WQBEL from PENTOXSD for Total Copper was 35.949 µg/l. When the WQBEL produced from PENTOXSD was entered into the Toxics Screening Analysis, the worksheet recommended establishing limits for Total Copper. This data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BPNPSM-PMT-033. PENTOXSD Model Results are attached to this fact sheet. The Toxics Screening Analysis uses the following logic:

a. Establish average monthly and instantaneous maximum (IMAX) limits in the draft permit where the maximum reported concentration 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.

Since the reported maximum concentrations for Total Copper was greater than 50% of its respective WQBEL, per DEP's SOP No. BPNPSM-PMT-033, limits will be established for this parameter. Accordingly, a Total Copper average monthly limit of 0.035 mg/l will be added to the permit.

Best Professional Judgement (BPJ) Limitations

Dissolved Oxygen
A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Total Phosphorus
For Total Phosphorus (TP), the current NPDES permit requires the permittee to comply with average monthly and IMAX limits of 2.0 mg/L and 4.0 mg/L, respectively. These existing limits will remain unchanged in the permit to protect the local watershed. The most recent year of DMR data indicate an average phosphorus concentration of 0.16 mg/l, which is below the average monthly limit.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

Adamstown Borough WWTP is a Phase 2 significant discharger. The facility's waste load allocation (WLA) is tracked under an individual WLA as a significant discharger in the Phase 2 Supplement. The following Cap Loads specified in the current Phase 2 Supplement will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0021865	2	Northern Lancaster County Authority	1/5/2010	1/31/2015	10/1/2013	10,959	-	1,461	0.891	0.436

These Cap Loads were based on the design flow of 0.60 mgd with a TN concentration of 6.0 mg/l and TP concentration of 0.8 mg/l. The Cap Loads are unchanged from the previous renewal. The Phase 2 Supplement states that "the minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for significant sewage dischargers will be 2/week." Therefore, the monitoring frequency for TN species and TP is being increased to 2/week. DEP'S SOP New and Reissuance Sewage Individual NPDES Permit Applications states that 24-hour composite sampling is recommended as a minimum for Chesapeake Bay sewage discharger nutrient requirements. This sample type will be included in the permit for all nutrient parameters.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 mgd, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 mgd or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

Adamstown Borough WWTP reported the maximum effluent TDS concentration of 440 mg/l, Bromide concentration of 1.0 mg/l, and Sulfate concentration of 101 mg/l. Based upon the data provided in the application, monitoring is not necessary for any of these parameters.

UV Monitoring

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. Presumably, this recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This is a reasonable approach and has been assigned to other facilities equipped with similar technology. Accordingly, a parameter for UV Transmittance will be included in the permit.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. The instantaneous maximum fecal coliform limits have been included in the permit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on the Best Professional Judgment (BPJ), Table 6-3, and/or Table 6-4 of DEP's Technical Guidance No. 362-0400-001.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.27 and 92a.61.

Influent BOD_5 and Total Suspended Solids (TSS) Monitoring

As a result of negotiation with US EPA, influent monitoring of TSS and BOD_5 are required for any publicly owned treatment works (POTWs); therefore, influent sampling of BOD_5 and TSS will remain in the permit. An 8-hr composite sample type will be required to be consistent with the existing sampling frequency for effluent TSS and $CBOD_5$.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment due to pathogens from an unknown source. The proposed effluent limits include a limit for fecal coliform.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	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	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
$CBOD_5$	125	200	XXX	25	40	50	1/week	8-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	150	225	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	45	XXX	XXX	9.0	XXX	18	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	15	XXX	XXX	3.0	XXX	6.0	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1,000	1/week	Grab
Total Phosphorus	10	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite
Total Copper	XXX	XXX	XXX	0.035	XXX	0.087	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrite-Nitrate as N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	10,959	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1,461	XXX	XXX	XXX	1/year	Calculation

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis 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:
☐	Other:

Supplemental Information: Adamstown Borough WWTP Sup