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	**1495131**

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 Swartzville 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	August 12, 2024	EPA Waived?	No
Date Application Accepted	August 14, 2024	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 existing permit was issued on February 27, 2020, and became effective on March 1, 2020, authorizing discharge of treated sewage from the facility into Little Muddy Creek. The existing permit expiration date was February 28, 2025, and the permit has been administratively extended since that time.

Changes in this renewal: A slightly more stringent $CBOD_5$ limit was added. A monitoring requirement has been added for Total Zinc. E. Coli monitoring has been added to the permit.

Sludge use and disposal description and location(s): Sludge holding tank with offsite disposal.

Supplemental information for this facility is provided at the end of this fact sheet.

Public Participation

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

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	June 4, 2025
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	July 1, 2025

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 (WWF)	Stream Code	7765
NHD Com ID	57461401	RMI	5.19
Drainage Area	9.1 mi^2	Yield (cfs/mi^2)	0.12
Q_{7-10} Flow (cfs)	1.1	Q_{7-10} Basis	USGS Gage # 01576500
Elevation (ft)	434	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	Habitat Alterations, Pathogens		
Source(s) of Impairment	Habitat Modification – Other Than Hydromodification, 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 9.1 mi^2 and a Q_{7-10} flow of 1.1 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 = 9.1 mi^2

The Q_{7-10} at the discharge point = 9.1 mi^2 x 0.12 cfs/mi^2 = 1.1 cfs

Other Comments: None

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 consists of: Rag Remover / Bar Screen, Wet Well, Two Oxidation Ditches, Two Clarifiers, UV Disinfection, Outfall 001 to Little Muddy Creek

Compliance History	
Summary of DMRs:	A summary of past DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	5/8/2020: An administrative inspection was conducted. All treatment units were online and operable, and there were no outstanding issues or needs. 3/11/2024: A routine inspection was conducted. The effluent from the UV system appeared clear. Field samples were within permitted limits. Outfall 001 was observed and appeared clear and free of solids.

Other Comments: There are currently no open violations associated with the Applicant.

Compliance History

DMR Data for Outfall 001 (from April 1, 2024 to March 31, 2025)

Parameter	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24
Flow (MGD) Average Monthly	0.3245	0.3162	0.2572	0.2778	0.2222	0.2217	0.2398	0.3332	0.3142	0.2842	0.321	0.5011
Flow (MGD) Daily Maximum	0.8054	0.7772	0.3051	0.5741	0.3333	0.263	0.3058	0.6813	0.5082	0.3067	0.3457	1.5458
pH (S.U.) Instantaneous Minimum	6.96	7.1	7.0	7.01	6.85	7.02	7.12	6.68	7.26	6.99	6.98	7.14
pH (S.U.) Instantaneous Maximum	7.34	7.28	7.25	7.27	7.36	7.32	7.51	7.55	7.66	7.39	7.42	7.36
DO (mg/L) Instantaneous Minimum	6.1	6.5	6.1	6.1	5.8	5.4	6.0	5.6	2.9	5.2	5.3	5.6
CBOD5 (lbs/day) Average Monthly	10	7	9	8	7	10	14	16	24	16	18	16
CBOD5 (lbs/day) Weekly Average	12	8	14	14	10	12	21	20	24	20	27	22
CBOD5 (mg/L) Average Monthly	4	3	4.0	3	4	3.8	6	6	9	7	6	4
CBOD5 (mg/L) Weekly Average	4	3	6	6	5	5.0	9	9	9	8	9	5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	447	512	566	416	334	569	620	426	393	410	334	409
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	722	718	744	465	424	1301	800	705	544	477	394	693
BOD5 (mg/L) Raw Sewage Influent Average Monthly	174	203	244	180	177.4	280	280	143.2	143.1	174	119	96.1
TSS (lbs/day) Average Monthly	18	15	12	14	8	8	9	10	17	11	18	26
TSS (lbs/day) Raw Sewage Influent Average Monthly	361	411	431	345	260	438	595	408	302	353	347	434

TSS (lbs/day) Raw Sewage Influent Daily Maximum	556	587	575	527	450	893	791	641	389	408	454	768
TSS (lbs/day) Weekly Average	28	20	14	28	10	10	13	15	17	13	23	56
TSS (mg/L) Average Monthly	7	6	5	6	4	3.4	4	3	7	4	6	6
TSS (mg/L) Raw Sewage Influent Average Monthly	142	162	186	149	138	217	267	139	111	151	123	101.7
TSS (mg/L) Weekly Average	9	7	6	10	5	7	5	4	8	5	9	7
Fecal Coliform (No./100 ml) Geometric Mean	< 1	1	2	< 1	< 1	< 1	< 2	< 4	< 46	50	< 8	11
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	2	3	2	1	1	7	14	8600	204	27	79
UV Transmittance (%) Instantaneous Minimum	4.9	4.7	4.8	5.3	7.4	0.1	6.5	5.9	4	9.7	8.8	7.4
Nitrate-Nitrite (mg/L) Average Monthly	3.56	< 1.98	< 1.51	3.51	6.87	6.17	8.63	18.6	< 1.91	1.35	2.33	3.09
Nitrate-Nitrite (lbs) Total Monthly	294	< 144	< 107	253	382	374	561	1679	< 163	99	201	377
Total Nitrogen (mg/L) Average Monthly	5	4.84	< 6.58	7.24	10.45	2.2	10	19.69	5.72	2.81	3.79	4.52
Total Nitrogen (lbs) Total Monthly	411	346	< 462	506	588	1.48	653	1782	467	207	327	562
Total Nitrogen (lbs) Effluent Net Total Annual							< 5971					
Total Nitrogen (lbs) Total Annual							< 6721					
Ammonia (lbs/day) Average Monthly	< 0.9	5	7	6	4	2.0	< 0.7	< 0.3	6	< 0.8	1	2
Ammonia (mg/L) Average Monthly	< 0.33	1.9	3.31	2.85	2.21	0.39	< 0.29	< 0.1	2.3	< 0.32	0.43	0.52
Ammonia (lbs) Total Monthly	< 26	136	228	192	128	50	< 20	< 9	182	< 23	37	69
Ammonia (lbs) Total Annual							< 880					

TKN (mg/L) Average Monthly	1.44	2.86	5.08	3.72	3.57	2.2	1.39	< 1.09	3.81	1.45	1.46	1.43
TKN (lbs) Total Monthly	117	202	354	254	206	133	92	< 104	304	108	126	185
Total Phosphorus (lbs/day) Average Monthly	< 0.3	< 0.3	< 0.03	< 0.2	< 0.2	< 0.2	< 0.3	< 0.4	0.8	< 0.3	0.6	< 0.9
Total Phosphorus (mg/L) Average Monthly	< 0.13	< 0.11	< 0.11	< 0.1	< 0.11	< 0.12	< 0.12	< 0.14	0.3	< 0.14	0.23	< 0.22
Total Phosphorus (lbs) Total Monthly	< 10	< 8	< 8	< 8	< 6	< 7	< 8	< 13	25	< 10	20	< 27
Total Phosphorus (lbs) Effluent Net Total Annual							< 190					
Total Phosphorus (lbs) Total Annual							< 190					
Total Copper (mg/L) Average Monthly	0.003	0.004	< 0.003	0.003	< 0.003	< 0.002	0.004	0.007	0.004	0.003	0.003	0.004

Compliance History

Effluent Violations for Outfall 001, from: May 1, 2024 To: March 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	07/31/24	Inst Min	2.9	mg/L	5.0	mg/L
Fecal Coliform	07/31/24	IMAX	8600	No./100 ml	1000	No./100 ml

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous 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
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Carbonaceous Biochemical Oxygen Demand (CBOD5)	125	200	XXX	25	40	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	150	225	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	45	XXX	XXX	9.0	XXX	18	2/week	24-Hr Composite
Ammonia-Nitrogen 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 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Total Phosphorus	10	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite
Copper, Total	XXX	XXX	XXX	0.035	XXX	0.087	1/week	24-Hr Composite

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

at Outfall 001

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs) [1]		Concentrations (mg/L)			Minimum [2] Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Instant. 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
Nitrate-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

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

at Outfall 001

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

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

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. 1.1b 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 renewal. 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 23.29 mg/l, an NH_3-N average monthly limit of 3 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The NH_3-N limit is the same as the existing limit, which will remain in the renewal. The $CBOD_5$ limit of 23 mg/l is slightly more stringent than the existing permit limit of 25 mg/l. The more stringent limit will be incorporated into the renewal NPDES permit. A review of past DMR data indicates that the facility will be able to meet the new permit limit.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.4 to develop appropriate permit requirements for toxic pollutants of concern. The Toxics Management Spreadsheet combines the functions of PENTOXSD and DEP's Toxics Screening Analysis. 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. Based on effluent sample results reported on the application, the Toxics Management Spreadsheet recommended monitoring for Total Zinc and a limit 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. The results are attached to this fact sheet. The Toxics Management Spreadsheet 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 were between 10%-50% of their respective WQBEL or exceeded 50% of the WQBEL, monitoring and limits are required. A Total Zinc monitoring requirement has been added to the permit, with a frequency of 1/month and sample type of 24-Hr Composite. The existing Total Copper limit is more stringent, and will remain in the permit.

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. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on July 29, 2022, and is the basis for the development of any Chesapeake Bay related permit parameters. 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 3 Supplement. The following Cap Loads specified in the current Phase 3 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	2/27/2020	2/28/2025	10/1/2013	10,959	-	1,461	0.530	0.563

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." This is consistent with the existing monitoring requirements. 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.

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.

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. These limits are consistent with the existing permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of >= 0.05 mgd and < 1 mgd will include E. Coli monitoring with a frequency of 1/quarter. This parameter has been added to the renewal permit.

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. 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. A monitoring requirement for UV Transmittance is included in the existing permit, and will remain in the renewal.

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.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

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. There is an aquatic life impairment due to habitat alterations from habitat modification – other than hydromodification.

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 are addressed by DEP in this fact sheet.

Whole Effluent Toxicity (WET)

For Outfall [ ], ☒ **Acute** ☐ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other: [ ]

The dilution series used for the tests was: 100%, 73%, 46%, 23%, and 12%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 46%.

Summary of Four Most Recent Test Results

TST Data Analysis

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

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
5/27/24-5/28/24	Pass	Pass	Pass	Pass

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments: DEP's Inspection Report dated 3/11/24 indicated that Adamstown had not been performing annual WET testing, and prompted them to begin testing and following the requirements in the NPDES permit. As a result, there is only one set of WET testing data from 2024, as listed above.

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

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

1. Determine IWC – Acute (IWCa):

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

[(0.6 MGD x 1.547) / ((1.1 cfs x 1) + (0.6 MGD x 1.547))] x 100 = **45.8%**

Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

N/A

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

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = 1 / 0.3 = 3.33 **%**

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

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

[(0.6 MGD x 1.547) / ((1.1 cfs x 1) + (0.6 MGD x 1.547))] x 100 = **45.8%**

3. Determine Dilution Series

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

Dilution Series = 100%, 73%, 46%, 23%, and 12%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

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

N/A

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous 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
CBOD5	115	200	XXX	23	40	46	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS 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
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	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
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	2/week	24-Hr Composite
Total Phosphorus	10	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Copper	XXX	XXX	XXX	0.035	XXX	0.087	1/week	24-Hr Composite
Total Zinc	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

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

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

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

Compliance Sampling Location: Outfall 001

Other Comments: None

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, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: BCW-PMT-033, BCW-PMT-002
☐	Other:

Adamstown Borough PA0021865 Outfall 001

Region ID: PA
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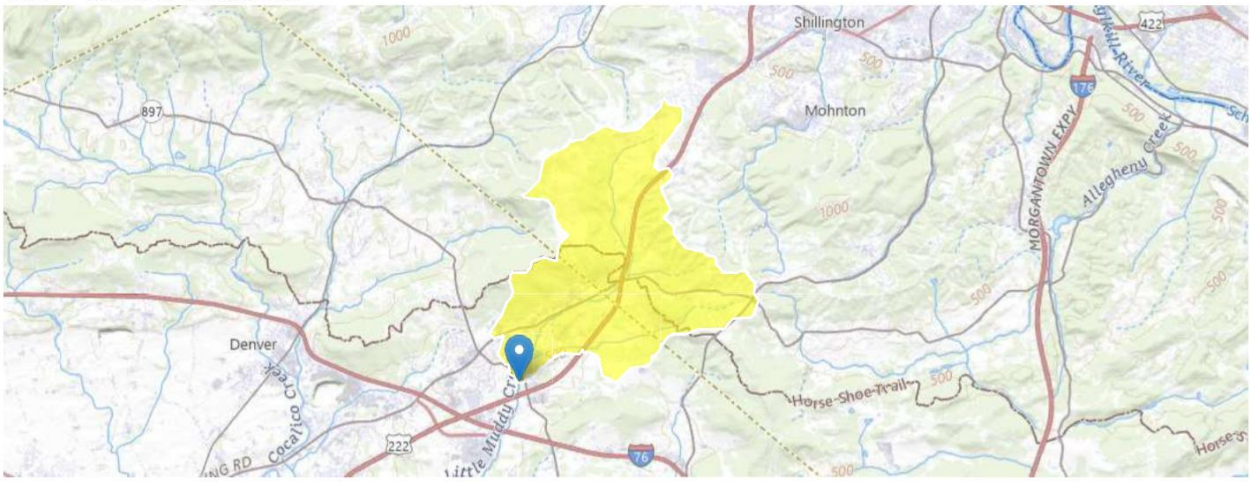
Time: 2025-05-28 15:12:08 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.6312	degrees
DRNAREA	Area that drains to a point on a stream	9.1	square miles
ROCKDEP	Depth to rock	4.3	feet
URBAN	Percentage of basin with urban development	4.7167	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	5.6312	degrees	1.7	6.4
DRNAREA	Drainage Area	9.1	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.3	feet	4.13	5.21
URBAN	Percent Urban	4.7167	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.64	ft^3/s	46	46
30 Day 2 Year Low Flow	2.16	ft^3/s	38	38
7 Day 10 Year Low Flow	0.758	ft^3/s	51	51
30 Day 10 Year Low Flow	1.03	ft^3/s	46	46

Statistic	Value	Unit	SE	ASEp
90 Day 10 Year Low Flow	1.56	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.29.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Adamstown Borough PA0021865 RMI = 2.55

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Workspace ID: PA20250528191711754000
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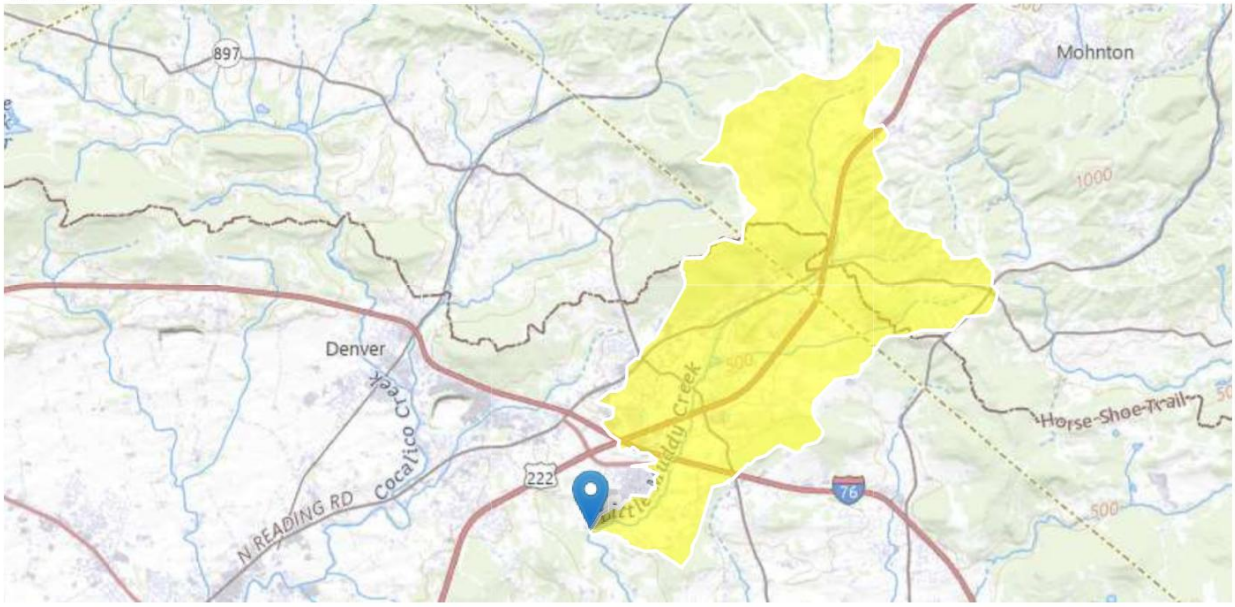
Time: 2025-05-28 15:17:36 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.8489	degrees
DRNAREA	Area that drains to a point on a stream	12.8	square miles
ROCKDEP	Depth to rock	4.2	feet
URBAN	Percentage of basin with urban development	6.383	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	4.8489	degrees	1.7	6.4
DRNAREA	Drainage Area	12.8	square miles	4.78	1150

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ROCKDEP	Depth to Rock	4.2	feet	4.13	5.21
URBAN	Percent Urban	6.383	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.79	ft^3/s	46	46
30 Day 2 Year Low Flow	2.46	ft^3/s	38	38
7 Day 10 Year Low Flow	0.783	ft^3/s	51	51
30 Day 10 Year Low Flow	1.12	ft^3/s	46	46
90 Day 10 Year Low Flow	1.83	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.29.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

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
07J	7765	LITTLE MUDDY CREEK	**5.190**	434.00	9.10	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	0.100	0.00	1.10	0.000	0.000	0.0	0.00	0.00	20.00	7.00	24.00	8.40
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
Adamstown	PA0021865	0.6000	0.6000	0.6000	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	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
07J	7765	LITTLE MUDDY CREEK	**4.850**	426.00	10.40	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	0.100	0.00	1.25	0.000	0.000	0.0	0.00	0.00	20.00	7.00	24.00	8.40
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
Gehmans School	PA0033553	0.0014	0.0014	0.0014	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	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
07J	7765	LITTLE MUDDY CREEK	**4.700**	423.00	10.70	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	0.100	0.00	1.28	0.000	0.000	0.0	0.00	0.00	20.00	7.00	24.00	8.40
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
Gehman School	PA0087131	0.0050	0.0050	0.0050	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	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
07J	7765	LITTLE MUDDY CREEK	**3.200**	400.00	12.70	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.100	0.00	1.52	0.000	0.000	0.0	0.00	0.00	20.00	7.00	24.00	8.40
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	Disc pH
Kramer Mill	PA0086266	0.0070	0.0070	0.0070	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	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
07J	7765	LITTLE MUDDY CREEK	**2.550**	388.00	12.80	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	0.100	0.00	1.54	0.000	0.000	0.0	0.00	0.00	20.00	7.00	24.00	8.40
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07J	7765	LITTLE MUDDY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (ºC)	Analysis pH
Q7-10 Flow												
5.190	1.10	0.00	1.10	.9282	0.00446	.566	18.85	33.33	0.19	0.109	24.46	7.32
4.850	1.25	0.00	1.25	.9304	0.00379	.575	19.97	34.76	0.19	0.048	24.43	7.35
4.700	1.28	0.00	1.28	.9381	0.00290	.58	20.54	35.42	0.19	0.492	24.42	7.35
3.200	1.52	0.00	1.52	.9489	0.00350	.589	21.68	36.82	0.19	0.205	24.38	7.39
Q1-10 Flow												
5.190	0.70	0.00	0.70	.9282	0.00446	NA	NA	NA	0.17	0.123	24.57	7.23
4.850	0.80	0.00	0.80	.9304	0.00379	NA	NA	NA	0.17	0.055	24.54	7.25
4.700	0.82	0.00	0.82	.9381	0.00290	NA	NA	NA	0.16	0.561	24.53	7.26
3.200	0.97	0.00	0.97	.9489	0.00350	NA	NA	NA	0.17	0.236	24.49	7.29
Q30-10 Flow												
5.190	1.50	0.00	1.50	.9282	0.00446	NA	NA	NA	0.21	0.099	24.38	7.39
4.850	1.69	0.00	1.69	.9304	0.00379	NA	NA	NA	0.21	0.044	24.35	7.42
4.700	1.74	0.00	1.74	.9381	0.00290	NA	NA	NA	0.21	0.443	24.35	7.42
3.200	2.07	0.00	2.07	.9489	0.00350	NA	NA	NA	0.22	0.184	24.31	7.47

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07J	7765	LITTLE MUDDY 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
5.190	Adamstown	9.05	15.92	9.05	15.92	0	0
4.850	Gehmans School	1.36	50	8.84	50	0	0
4.700	Gehman School	1.54	50	8.81	50	0	0
3.200	Kramer Mill	1.58	50	8.5	50	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
5.190	Adamstown	1.15	3	1.15	3	0	0
4.850	Gehmans School	.33	25	1.12	25	0	0
4.700	Gehman School	.34	25	1.12	25	0	0
3.200	Kramer Mill	.35	25	1.09	25	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)		
5.19	Adamstown	23.29	23.29	3	3	5	5	0	0
4.85	Gehmans School	25	25	25	25	5	5	0	0
4.70	Gehman School	25	25	25	25	5	5	0	0
3.20	Kramer Mill	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07J	7765	LITTLE MUDDY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
5.190	0.600	24.458	7.319
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
18.851	0.566	33.330	0.190
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
11.74	1.257	1.37	0.986
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.759	8.953	Tsivoglou	5
Reach Travel Time (days)			
0.109			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	11.55	1.36	6.57
0.022	11.36	1.34	6.41
0.033	11.17	1.33	6.27
0.044	10.98	1.31	6.14
0.055	10.80	1.30	6.03
0.066	10.62	1.29	5.94
0.076	10.44	1.27	5.86
0.087	10.26	1.26	5.79
0.098	10.09	1.25	5.74
0.109	9.92	1.23	5.69

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.850	0.601	24.428	7.346
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
19.974	0.575	34.761	0.190
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.41	1.222	1.17	0.984
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.862	7.577	Tsivoglou	5
Reach Travel Time (days)			
0.048			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	9.34	1.17	5.83
0.010	9.28	1.16	5.80
0.015	9.21	1.16	5.77
0.019	9.14	1.15	5.75
0.024	9.08	1.15	5.72
0.029	9.01	1.14	5.70
0.034	8.95	1.14	5.68
0.039	8.88	1.13	5.66
0.044	8.82	1.12	5.64
0.048	8.75	1.12	5.63

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07J	7765	LITTLE MUDDY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.700	0.606	24.423	7.351
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
20.537	0.580	35.418	0.186
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
8.70	1.131	1.18	0.984
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.665	5.708	Tsivoglou	5
Reach Travel Time (days)			
0.492			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.049	8.13	1.13	5.38
0.098	7.59	1.08	5.22
0.148	7.09	1.02	5.16
0.197	6.63	0.98	5.16
0.246	6.19	0.93	5.22
0.295	5.78	0.89	5.30
0.345	5.40	0.84	5.41
0.394	5.04	0.80	5.54
0.443	4.71	0.77	5.67
0.492	4.40	0.73	5.80

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.200	0.613	24.384	7.388
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
21.680	0.589	36.820	0.193
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.26	0.944	0.77	0.981
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.035	7.130	Tsivoglou	5
Reach Travel Time (days)			
0.205			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.021	4.16	0.75	6.16
0.041	4.06	0.74	6.28
0.062	3.97	0.72	6.38
0.082	3.87	0.71	6.47
0.103	3.78	0.69	6.56
0.123	3.69	0.68	6.64
0.144	3.61	0.66	6.71
0.164	3.52	0.65	6.77
0.185	3.44	0.64	6.83
0.205	3.36	0.63	6.89

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7765	LITTLE MUDDY 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)
5.190	Adamstown	PA0021865	0.600	CBOD5	23.29		
				NH3-N	3	6	
				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)
4.850	Gehmans School	PA0033553	0.001	CBOD5	25		
				NH3-N	25	50	
				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)
4.700	Gehman School	PA0087131	0.005	CBOD5	25		
				NH3-N	25	50	
				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)
3.200	Kramer Mill	PA0086266	0.007	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Adamstown Borough** NPDES Permit No.: **PA0021865** Outfall No.: **001**

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

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.6	100	7.57						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		376									
	Chloride (PWS)	mg/L		83.1									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		76									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L		0.167									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	mg/L		0.0006									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.03									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Adamstown Borough, NPDES Permit No. PA0021865, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Shenango River**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	007765	5.19	434	9.1			Yes
End of Reach 1	007765	2.55	388	12.8			Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.19	0.1	1.1									271	8.4		
End of Reach 1	2.55	0.1	1.5									271	8.4		

Q $_{h}$

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	5.19														
End of Reach 1	2.55														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Adamstown Borough, NPDES Permit No. PA0021865, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 6.044 PMF: 1 Analysis Hardness (mg/l): 192.74 Analysis pH: 7.84

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	24.939	26.0	56.8	Chem Translator of 0.96 applied
Total Lead	0	0		0	130.898	188	411	Chem Translator of 0.695 applied
Total Zinc	0	0		0	204.323	209	457	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 6.044 PMF: 1 Analysis Hardness (mg/l): 192.74 Analysis pH: 7.84

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	15.690	16.3	35.7	Chem Translator of 0.96 applied
Total Lead	0	0		0	5.101	7.34	16.0	Chem Translator of 0.695 applied
Total Zinc	0	0		0	205.994	209	457	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 6.044 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 6.180 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.18	0.28	0.036	0.056	0.089	mg/L	0.036	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.29	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Lead	0.016	mg/L	Discharge Conc ≤ 10% WQBEL

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Model Results