Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021229**
Facility Type	**Municipal**	APS ID	**12197**
Major / Minor	**Major**	Authorization ID	**1520580**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Littlestown Borough Authority Adams County**	Facility Name	**Littlestown STP**
Applicant Address	41 South Columbus Avenue	Facility Address	2136 Whitehall Rd.,
	Littlestown, PA 17340-1612		Littlestown, PA 17340
Applicant Contact	Charles Kellar	Facility Contact	Gene Shields
Applicant Phone	(717) 359-5101	Facility Phone	(717) 524-8966
Client ID	28459	Site ID	250981
Ch 94 Load Status	Not Overloaded	Municipality	Littlestown Borough
Connection Status	No Limitations	County	Adams
Date Application Received	March 21, 2025	EPA Waived?	No
Date Application Accepted	March 25, 2025	If No, Reason	Major Facility, Significant CB Discharge
Purpose of Application	NPDES permit renewal.		

Summary of Review

Herbert, Rowland & Grubic, Inc., on behalf of the Littlestown Borough Authority (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on July 21, 2020, and became effective on August 1, 2020. The permit expired on July 31, 2025.

The annual average flow is 1.0 MGD. The design hydraulic capacity is 1.3 MGD. The design organic capacity is 1700 lbs BOD_5/day. The application states the following flow contribution sources: Littlestown Borough (84%), Union Township (15%), and Germany Township (1%).

The discharge is to Unnamed Tributary to Alloway Creek. The Alloway Creek discharges are into Monocacy in Maryland and the Potomac River in Maryland prior to eventually draining into the Chesapeake Bay.

WQM No. 0195407 & 0198405 were issued on 10/30/1995 & 8/17/1998. WQM No. 0118401 was issued on 7/12/2018 for replacement of the South Queen Street Pump Station (SQSPS) and replacement and expansion of the Piney Creek Interceptor (PCI). WQM No. 0183401 amendment was issued on 4/3/2000, amendment 0183401 11-1 was issued on 6/1/2012, and 0183401 A-3 was issued on 4/30/2024 to replace the existing influent screen located in the STP Headworks Building with a new influent screening system composed of a mechanical bar screen and washer/compactor and installation of a Dual Auger Screening System in the STP influent flow channel.

Sludge use and disposal description and location(s): N/A because sludge is hauled by facility's contractor.

Changes from the previous permit:

- The E. Coli monitoring and report requirements will add to the proposed permit.
- The Free Cyanide quarterly monitor and report requirement is removed from the proposed permit.
- Total Aluminum, Total Copper, Total Lead, and Total Zinc weekly monitor and report requirements will add to the proposed permit.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	June 27, 2025
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	July 3, 2025

Summary of Review

- Permit Part C removed Section IV-Requirements Applicable to Stormwater Outfalls from the proposed permit.
- Permit Part C - Section II - Whole Effluent Test (WET), pages 23 – 27, item A (3):

  The permittee shall perform testing using the following dilution series: 23%, 47%, 93%, 97%, and 100% effluent, with a control, where 93 is the facility-specific Target In-Stream Waste Concentration (TIWC).

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	1.0
Latitude	39º 45' 20.24"	Longitude	-77º 5' 31.09"
Quad Name	McSherrystown	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Alloway Creek (WWF)	Stream Code	58849
NHD Com ID	53320860	RMI	0.05
Drainage Area	0.38 mi.^{2}	Yield (cfs/mi^2)	0.3
Q_{7-10} Flow (cfs)	0.12	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	559	Slope (ft/ft)	
Watershed No.	13-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Not Assessed		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	City of Frederick, MD		
PWS Waters	Monocacy River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 40.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to UNT of Alloway Creek at RMI 0.05 mile. A drainage area upstream of the discharge is estimated to be 0.38 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to USGS StreamStats, the point of first use at the UNT of Alloway Creek 58849 has a Q_{7-10} of 0.12 cfs and a drainage area of 0.38 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.03 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 0.12 cfs
Low Flow Yield = 0.12 cfs / 0.38 mi.^{2} = 0.3 cfs/mi.^{2}
Q_{30-10} = 1.36 * 0.12 cfs = 0.16 cfs
Q_{1-10} = 0.64 * 0.12 cfs = 0.08 cfs

UNT of Alloway Creek
25 Pa. Code § 93.9z classifies UNT of Alloway Creek as warm water fishes and migratory fishes surface water. Based on the 2024 Integrated Report, Alloway Creek, assessment unit ID 12946, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The closest water supply intake is located downstream from the discharge in the City of Frederick, MD approximately 40.0 miles from the point of discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary

Treatment Facility Name: Littlestown STP

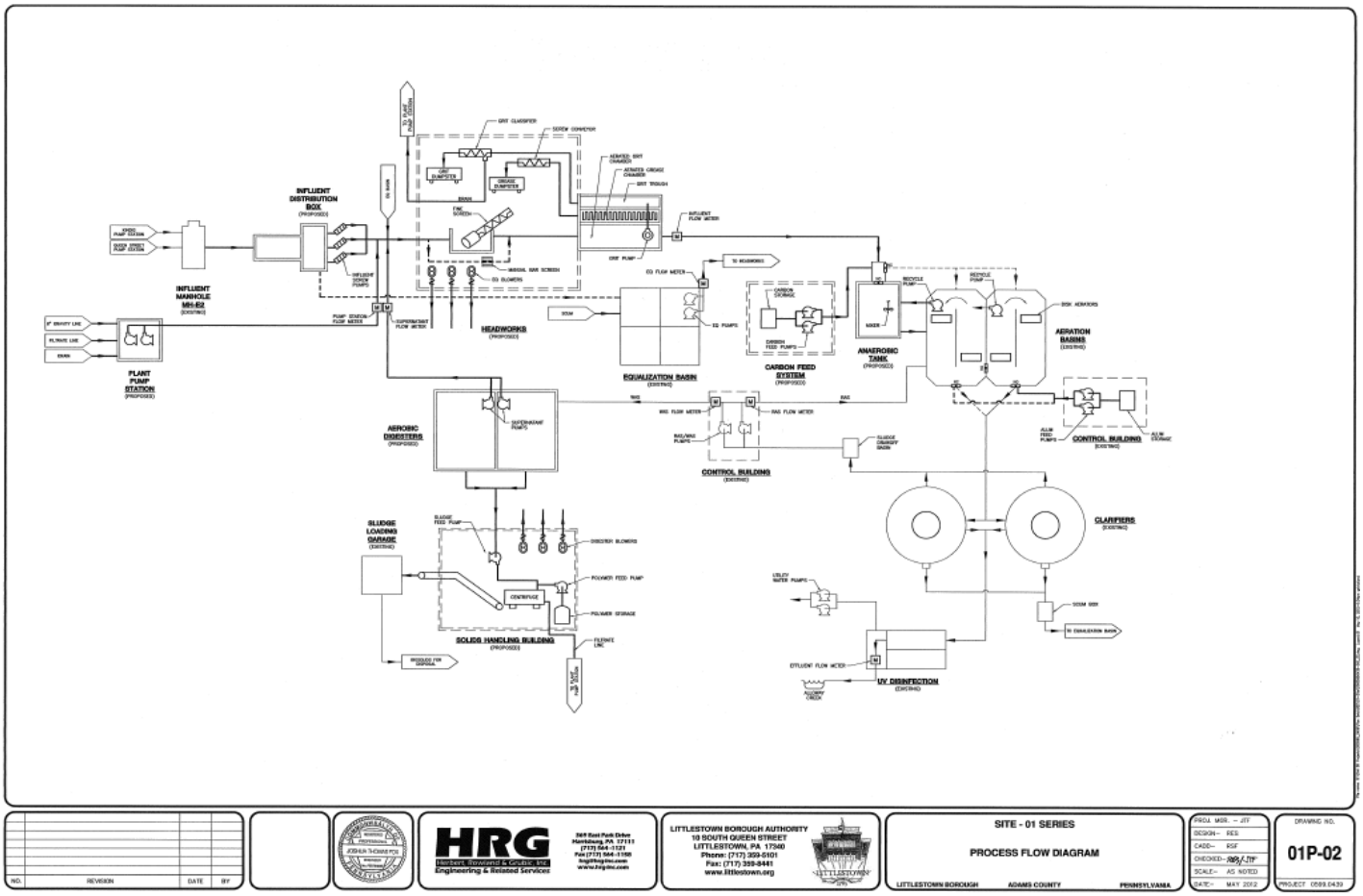
WQM Permit No.	Issuance Date
0195407	10/30/1995
0198405	8/17/1998
0118401	7/12/2018
0183401	4/3/2000
0183401 11-1	6/1/2012
0183401 A-3	4/30/2024

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Oxidation Ditch	Ultraviolet	1.0

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.3	1700	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance:

Other Comments:
The subject facility treats wastewater using an equalization tank, an anaerobic tank, two oxidation ditches, two clarifiers, and a UV disinfection unit prior to discharge through the outfall. Sludge is processed through two anaerobic digesters, a centrifuge, and a sludge storage. A flow diagram for the treatment facility is attached.



Industrial/Commercial Users:
Littlestown Foundry, address at 150 Charles Street, Littlestown, PA 17340. There is only domestic wastewater going to Littlestown Boro's sewer system; no industrial wastewater is conveyed to Littlestown Boro's sewer system.

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

- Alum for coagulation
- Polymer for dewatering

Biosolids:
The total sewage sludge/biosolids production within the facility for the previous year was 64 dry tons.

Compliance History	
Summary of DMRs:	DMRs reported last 12 months are summarized in the next page.
Summary of Inspections:	1/7/2025: Mr. Hoy, DEP Environmental Trainee, conducted compliance evaluation inspection. There were violations noted during inspection. The effluent at Outfall 001 appeared clear. Field test results were within the permit limits. Recommendations were 1. Calibrating or replacing the NIST thermometers annually to ensure temperature accuracy. 2. Calibrating pump station flow meters at a frequency manufacturer's recommended. 3. Replacing the pH 10 buffer as soon as possible. Requests were 1. Filling in the "Sewage Sludge/Biosolids and Incinerator Ash Disposal and Beneficial Use Information" section of the Sewage Sludge supplemental report form as required by NPDES Permit No. PA0021229 Part A III.B.5. 2. The effluent flume is modified where the effluent flow meter is able to measure effluent flow continuously as required by NPDES Permit No. PA0021229 Part A -EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENT and 25 Pa Code 94.13. 10/20/2022: Mr. Hoy, DEP Environmental Trainee, conducted compliance evaluation inspection. There were no violations noted during inspection. The effluent at Outfall 001 appeared clear. Field test results were within the permit limits. Recommendations were 1. Calibrate the influent flow meter as soon as possible. 2. Replace both NIST thermometers. 3. Modify the Fecal Coliform collection procedure to ensure sample meets the six-hour hold time. 4. To file The "Sewage Sludge / Biosolids and Incinerator Ash Disposal and Beneficial Use Information" on the "Sewage Sludge / Biosolids Production and Disposal Supplemental Report" form.
Other Comments:	There are no open violations associated with this facility or permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from May 1, 2024 to April 30, 2025)

Parameter	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24
Flow (MGD) Average Monthly	0.447	0.403	0.445	372	0.402	0.338	0.396	0.393	0.558	0.375	0.453	0.53
Flow (MGD) Raw Sewage Influent Average Monthly	0.447	0.403	0.445	0.372	0.402	0.338	0.396	0.393	0.558	0.375	0.453	0.529
Flow (MGD) Daily Maximum	0.657	0.526	0.718	440	0.837	0.401	0.590	0.493	1.604	0.513	0.757	0.698
Flow (MGD) Raw Sewage Influent Daily Maximum	0.657	0.526	0.718	0.440	0.837	0.401	0.590	0.493	1.604	0.513	0.757	0.698
pH (S.U.) Instantaneous Minimum	7.4	7.3	7.3	7.4	7.4	7.3	7.4	7.4	7.4	7.3	7.4	7.0
pH (S.U.) Instantaneous Maximum	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5	7.6	7.7	7.6
DO (mg/L) Instantaneous Minimum	5.4	5.5	5.6	5.5	5.3	5.4	5.2	5.3	5.2	5.4	5.4	5.2
CBOD5 (lbs/day) Average Monthly	< 8	< 8	< 7	< 6	< 7	< 6	< 7	< 7	< 9	< 6	< 8	< 11.0
CBOD5 (lbs/day) Weekly Average	< 10	< 13	9	< 7	< 8	< 6	< 9	< 7	< 11	< 8	< 8	< 16.0
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.4	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.1	< 2.3
CBOD5 (mg/L) Weekly Average	< 2.2	< 3.9	< 2.1	< 2.2	< 2.0	< 2.1	< 2.0	< 2.1	< 2.0	< 2.1	< 2.2	< 3.5
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	685	703	671	729	745	741	781	768	899	718	607	626
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	832	970	844	930	966	1102	1143	917	1251	1044	893	960
BOD5 (mg/L) Raw Sewage Influent Average Monthly	188	207	190	234	227	265	238	232	208	232	168	139
TSS (lbs/day) Average Monthly	< 15	< 14	< 14	< 13	< 13	< 11.0	< 13	< 13	< 22	< 13	< 15	< 19

TSS (lbs/day) Raw Sewage Influent Average Monthly	791	777	687	849	822	890	957	1072	1264	905	814	690
TSS (lbs/day) Raw Sewage Influent Daily Maximum	978	1531	1324	1057	960	1487	1281	1447	1654	1186	1381	1075
TSS (lbs/day) Weekly Average	< 18	< 16	< 17	< 15	< 15	< 12.0	< 9	< 14	< 18	< 15	< 16	< 22
TSS (mg/L) Average Monthly	< 4	< 4	< 4	< 4	< 4.0	< 4.0	4.0	< 4.0	< 4.0	< 4	< 4	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	218	229	194	274	252	312	289	321	290	292	226	152
TSS (mg/L) Weekly Average	< 4	< 5	< 4	< 4	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4	< 4	< 4
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 2	< 2	< 1	< 1	< 1	< 2.0	< 2	3	< 2	< 3	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	6	4	8	4	3	5	32	8	550	20	13	33
UV Transmittance (%) Instantaneous Minimum	47	34	34	29	42	45	53	58	57	56	57	53
Nitrate-Nitrite (mg/L) Average Monthly	0.1	< 4.09	4.13	5.44	4.52	4.21	3.82	3.97	4.21	5.06	4.41	5.08
Nitrate-Nitrite (lbs) Total Monthly	< 11	430	431	533	15	360	13	396	608	496	487	724
Total Nitrogen (mg/L) Average Monthly	< 5.54	4.87	< 4.9	< 6.29	< 5.34	< 5.12	4.66	< 4.77	< 5.01	< 6.01	< 6.42	< 5.94
Total Nitrogen (lbs) Effluent Net Total Monthly	< 614	512	< 507	616	< 536	< 437	471	< 475	< 727	< 590	685	< 845
Total Nitrogen (lbs) Total Monthly	< 614	512	< 507	616	< 536	< 437	471	< 475	< 727	< 590	< 685	< 845
Total Nitrogen (lbs) Effluent Net Total Annual								10276				
Total Nitrogen (lbs) Total Annual								< 9220				
Ammonia (lbs/day) Average Monthly	< 0.4	0.3	< 0.4	< 0.3	< 0.3	< 0.1	0.3	< 0.3	< 0.5	< 0.3	< 0.4	< 0.1
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.3	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Ammonia (lbs) Total Monthly	< 11	< 11	10	10	< 10	< 9	< 10	< 10	< 14	< 10	< 11	< 14
Ammonia (lbs) Total Annual								< 161				
TKN (mg/L) Average Monthly	0.76	< 0.78	< 0.75	< 0.85	< 0.76	< 0.91	< 0.85	< 0.8	< 0.81	< 0.95	< 2.01	< 0.86
TKN (lbs) Total Monthly	< 84	< 82	< 76	< 83	< 77	< 78	< 85	< 79	< 118	< 95	< 198	< 121
Total Phosphorus (lbs/day) Average Monthly	2	0.9	0.9	0.5	0.5	0.8	2	2	3	3	6	8
Total Phosphorus (mg/L) Average Monthly	0.53	0.27	0.25	0.16	0.16	0.28	0.63	0.6	0.85	0.89	1.59	1.69
Total Phosphorus (mg/L) Daily Maximum	0.73	0.45	0.57	0.20	0.26	0.41	1.23	3.7	1.0	4.9	2.57	3.44
Total Phosphorus (lbs) Effluent Net Total Monthly	59	29	26	16	16.0	24	69	63	104	87	180	253
Total Phosphorus (lbs) Total Monthly	59	29	26	16	16.0	24	69	63	104	87	180	253
Total Phosphorus (lbs) Effluent Net Total Annual								1099				
Total Phosphorus (lbs) Total Annual								1099				
Free Cyanide (mg/L) Average Quarterly		< 0.005			< 0.005			< 0.005			< 0.005	
Chronic WET - Ceriodaphnia Survival (TUc) Daily Maximum		0.001			0.001			0.001			1.11	
Chronic WET - Ceriodaphnia Reproduction (TUc) Daily Maximum		0.001			0.001			0.001			1.11	

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
Flow (MGD) Raw Sewage Influent	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
$CBOD_5$ Nov 1 - Apr 30	208	334	XXX	25.0	40.0	50	2/week	24-Hr Composite
$CBOD_5$ May 1 - Oct 31	141	212	XXX	17.0	25.5	34	2/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	250	375	XXX	30	45	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	25.0	XXX	XXX	3.0	XXX	6	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	8.0	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite
Cyanide, Free	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Toxicity, Chronic - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.11 Daily Max	XXX	See Permit	24-Hr Composite

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		
Toxicity, Chronic - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.11 Daily Max	XXX	See Permit	24-Hr Composite

Chesapeake Bay Outfall 001

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	18265	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2435	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.0
Latitude 39º 45' 20.24" **Longitude** -77º 5' 31.09"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

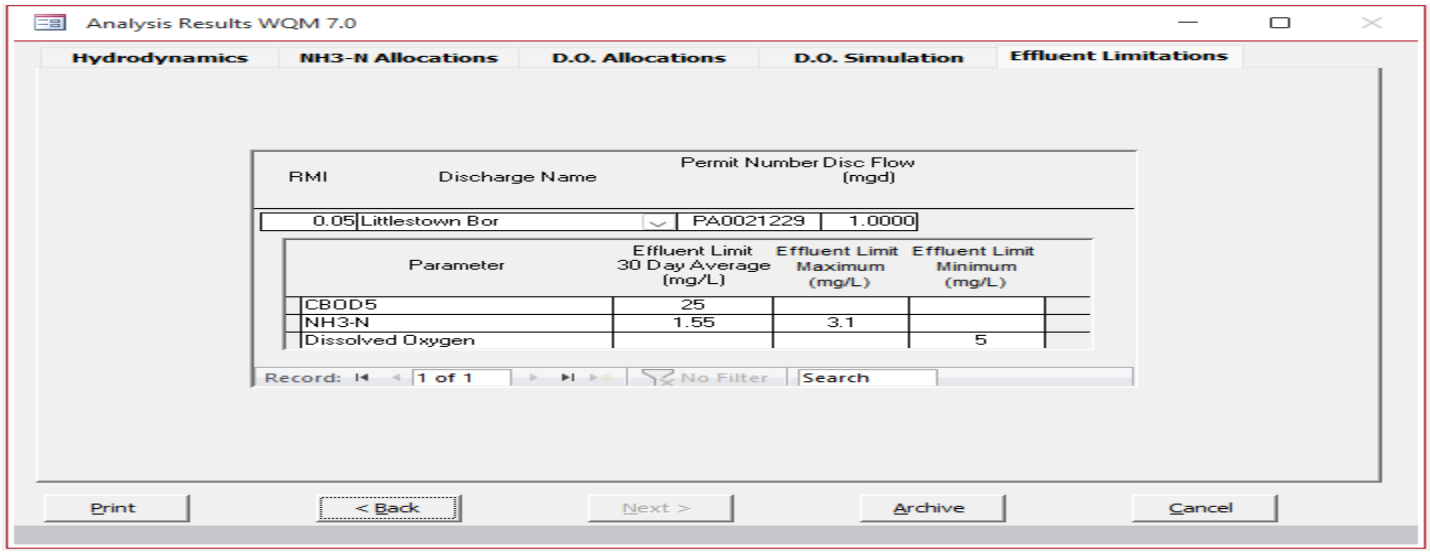
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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)

Comments: The facility utilizes UV for disinfection.

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were first based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

Discharge pH	=	7.0	(Default)
Discharge Temperature	=	25°C	(Default)
Stream pH	=	7.0	(Default)
Stream Temperature	=	20ºC	(Default)
Background NH_3-N	=	0	(Default)



The model input data and results are attached. The printout of the WQM 7.0 output indicates that at a discharge of 1.0 MGD, limits (rounded according to the NPDES Technical Guidance 362-0400-001) of 1.55 mg/L NH_3-N as a monthly average and 3.1 mg/L NH_3-N instantaneous maximum are necessary to protect the aquatic life from toxicity effects. The existing summer limits of 1.0 mg/L and 2.0 mg/L are more stringent and will remain in the proposed permit. Mass limits are calculated as follows:

Average monthly summer mass limit: 1.0 mg/L x 1.00 MGD x 8.34 = 8.34 (8.0) lbs/day

The winter effluent limit will be set at three-times the summer limits; therefore, the average monthly winter limit for NH_3-N will be 3.0 mg/L (1.0 mg/L x 3). For the same reason, the instantaneous maximum limit for the winter season will be 6.0 mg/L (2.0 mg/L x 3). Recent DMRs and inspection reports indicate that these limits are being attained easily.

Average monthly winter mass limit: 3 mg/L x 3.00 MGD x 8.34 = 25.02 (25.0) lbs/day

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. The existing summer limits of 17.0 mg/L average monthly (AML), 25.5 mg/L average weekly limit (AWL), and 34.0 mg/L instantaneous maximum are more stringent and will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer Average monthly mass limit: 17.0 mg/L x 1.00 MGD x 8.34 = 141.78 (141.0) lbs/day
Average weekly mass limit: 25.5 mg/L x 1.00 MGD x 8.34 = 212.67 (212.0) lbs/day

The existing winter limits of 25.0 mg/L average monthly (AML), 40.0 mg/L average weekly limit (AWL), and 50.0 mg/L instantaneous maximum will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Winter Average monthly mass limit: 25.0 mg/L x 1.00 MGD x 8.34 = 208.5 (208.0) lbs/day
Average weekly mass limit: 40.0 mg/L x 1.00 MGD x 8.34 = 333.6 (334.0) lbs/day

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. This is consistent with the previous permit and current Department criteria.

pH:
The effluent discharge pH should remain above 6 and below 9 standard units according to 25 Pa Code § 95.2(2).

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100 ml and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean and an instantaneous maximum not greater than 10,000/100 ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/month will be included in the permit to be consistent with the recommendation from this SOP.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. A limit of 30.0 mg/L AML will be required based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1), AWL of 45.0 mg/L and IMAX 60.0 mg/L per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2). Past DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 1.00 MGD x 8.34 = 250.2 (250.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 1.00 MGD x 8.34 = 375.3 (375.0) lbs/day

Toxics:
The 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. Spreadsheet results are attached to this fact sheet (page 32-41). The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and 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.

Pollutant testing results on the current (2021) application were reviewed in comparison with DEP's Toxic Management Spreadsheet, version 1.4, May 2023, output recommends a routine monitoring and/or effluent limit requirements for Total Aluminum (Al), Total Copper (Cu), Total Lead, and Total Zinc, but not Free Cyanide. Therefore, weekly monitoring/ effluent limitation requirements for these parameters are added in the proposed permit as follows:

- Total Aluminum weekly monitoring and report concentration & mass of average monthly & daily maximum requirements will be added in the proposed permit. During the next permit renewal cycle, the need for Aluminum monitoring in the permit will be re-evaluated.

- Total Copper weekly monitoring and report concentration & mass of average monthly & daily maximum requirements will be added in the proposed permit. During the next permit renewal cycle, the need for Copper monitoring in the permit will be re-evaluated.

- Total Lead weekly monitoring and report concentration & mass of average monthly & daily maximum requirements will be added in the proposed permit. During the next permit renewal cycle, the need for Lead monitoring in the permit will be re-evaluated.

- Total Zinc weekly monitoring and report concentration & mass of average monthly & daily maximum requirements will be added in the proposed permit. During the next permit renewal cycle, the need for Zinc monitoring in the permit will be re-evaluated.

- Free Cyanide monitoring and report concentration & mass of average quarterly requirements is removed from the proposed permit.

☑ ***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 Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	24.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	12.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	287	AFC	Discharge Conc > 10% WQBEL (no RP)

UV:
The UV system daily monitor and report the UV light transmittance (%) will remain in the proposed permit.

Chesapeake Bay Strategy:
In the Phase 3 WIP Wastewater Supplement revised on July 29, 2022, Table 5 of this document shows that Littlestown Borough has been allocated 18,265 lbs/year of TN and 2,435 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL, based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient existing limitations and monitoring requirements will remain in the proposed permit.

This facility is currently a significant discharger. Therefore, the facility's waste load allocation (WLA) will be tracked under an individual WLA as a significant discharger in the Phase 3 WIP Wastewater Supplement. Monitoring frequency for TN constituents will remain in the proposed permit.

Phase 3 WIP Wastewater Supplement
Revised, July 29, 2022

Table 5: Significant Chesapeake Bay Sewage NPDES Permits Issued

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
PA0020036	3	Blossburg Borough	6/2/2022	6/30/2027	10/1/2012	7,306	-	974	0.521	0.339
PA0020214	3	Mount Union Borough	4/17/2017	4/30/2022	10/1/2013	20,091	-	2,679	0.790	0.351
PA0020249	3	Roaring Spring Borough	1/31/2020	1/31/2025	1/1/2016	12,785	-	1,705	0.713	0.519
PA0020273	2	Milton Regional Sewage Authority	9/25/2017	9/30/2022	10/1/2009	72,217	-	10,049	0.816	.0461
PA0020320	1	Lititz Sewer Authority	7/19/2019	6/30/2023	10/1/2010	70,319	-	9,376	0.593	0.581
PA0020338	3	Kulpmont-Marion Heights Joint Municipal Authority	6/29/2022	6/30/2027	10/1/2011	9,132	-	1,218	0.693	0.386
PA0020486	1	Bellefonte Borough	6/1/2019	5/31/2024	10/1/2010	58,812	-	7,842	0.647	0.333
PA0020508	3	McConnellsburg Borough	1/14/2021	1/30/2026	10/1/2012	10,959	-	1,461	0.700	0.550
PA0020567	3	Northumberland Borough	1/17/2018	9/31/2023	10/1/2012	20,548	-	2,740	0.807	0.462
PA0020583	2	Middleburg Municipal Authority	7/16/2020	7/31/2025	10/1/2012	8,219	-	1,096	0.768	0.322
PA0020621	2	Waynesboro Borough	9/14/2018	9/30/2023	10/1/2013	29,223	-	3,896	0.864	0.725
PA0020664	1	Middletown STP	2/16/2021	2/28/2026	10/1/2011	40,182	-	5,358	0.837	0.503
PA0020800	3	White Deer Township	2/10/2021	2/28/2026	10/1/2011	10,959	-	1,461	0.789	0.448
PA0020818	2	Glen Rock Sewer Authority	9/29/2021	9/30/2026	10/1/2012	10,959	-	1,461	0.750	0.397
PA0020826	1	Dover Township Sewer Authority	6/2/2017	6/30/2022	10/1/2010	146,117	-	19,482	0.543	0.185
PA0020834	2	Franklin County Authority – Greencastle	5/21/2021	5/31/2026	10/1/2012	17,351	-	2,314	0.971	0.742
PA0020885	1	Mechanicsburg Borough Municipal Authority	4/27/2017	4/30/2022	10/1/2012	37,990	-	5,065	0.831	0.492
PA0020893	1	Manheim Borough Authority	3/16/2022	3/31/2027	10/1/2011	20,822	-	2,776	0.819	0.477
PA0020915	2	Pine Grove Borough Authority	3/21/2022	3/31/2027	10/1/2012	27,397	-	3,653	0.511	0.403
PA0020923	1	New Oxford Municipal Authority	11/15/2021	11/30/2026	10/1/2011	32,657	-	4,354	0.631	0.189
PA0021067	1	Mount Joy Borough	2/18/2021	2/28/2026	10/1/2010	27,945	-	3,726	0.698	0.477
PA0021229	3	Littlestown Borough	7/21/2020	7/31/2025	10/1/2014	18,265	-	2,435	0.570	0.720

- 6 -

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the proposed permit per 40 CFR § 122.44(i)(1)(ii).

Influent Monitoring
As a result of negotiation with EPA, influent monitoring of TSS and BOD_5 are required for any POTWs; therefore, influent sampling of BOD_5 and TSS will be included in the draft permit. A 24-hr composite sample type will be required to be consistent with the proposed sampling frequency for TSS and $CBOD_5$ in the effluent.

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 is necessary under the following 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 1.0 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.*

The facility has no record of routine monitoring of these pollutants. However, the application data reports a maximum influent concentration of 692.0 mg/L for TDS. The effluent concentration is not expected to exceed 1,000 mg/L. No monitoring is necessary.

Stormwater

There is no known stormwater outfalls associated with this facility. Therefore, the permit Part C, Section IV-Requirement Applicable To Stormwater Outfalls will be removed from the proposed permit.

Antidegradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing in-stream 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.

Class A Wild Trout Fisheries

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

303d Listed Streams

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. The designated use has been classified as protected waters for warm water fishes and migratory fishes.

Whole Effluent Toxicity Testing (WETT)

The permittee submitted four (4) WET Test results during the submission of the renewal application. The details are under WET section below of this fact sheet. In summary, all four (4) WETT results are "Passing" which do not necessitate the inclusion of WET parameters; however, WETT requirement will remain in the proposed permit to submit four (4) WETT results during next permit renewal. The dilution series is updated.

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%, 95%, 90%, 45%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 90.

Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

	***Ceriodaphnia* Results (% Effluent)**			***Pimephales* Results (% Effluent)**			
Test Date	**NOEC Survival**	**NOEC Reproduction**	**LC50**	**NOEC Survival**	**NOEC Growth**	**LC50**	**Pass? ***
2/9/2021	100	100	>100	100	100	>100	Yes
9/17/2022	100	100	>100	100	100	>100	Yes
10/24/2023	100	95	>100	95	100	>100	Yes
4/22/2024	100	90	>100	100	90	>100	Yes

***** *A "passing" result is that which is greater than or equal to the TIWC 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:

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

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

1. Determine IWC – Acute (IWCa):

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

[(1.0 MGD x 1.547) / ((0.12 cfs x 1.0) + (1.0 MGD x 1.547))] x 100 = **92.8%**

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:

Type of Test for Permit Renewal: N/A

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

TIWCa = IWCa / 0.3 = **%**

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

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

[(1.0 MGD x 1.547) / ((0.12 cfs x 1.0) + (1.0 MGD x 1.547))] x 100 = **92.8%**

3. Determine Dilution Series

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

The proposed NPDES permit shall utilize a chronic instream waste concentration of 93. The complete dilution series will be 100%, 97%, 93%, 47%, and 23%.

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

Notice: The WET, Chronic-Ceriodaphnia Survival & Reproduction effluent limitation concentrations daily max report shall not be greater than 1.11 TUc, will remain in the proposed permit.

WET Summary and Evaluation

Facility Name	Littlestown Boro
Permit No.	PA0021229
Design Flow (MGD)	1
Q_{7-10} Flow (cfs)	0.12
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/9/21	9/17/22	10/24/23	4/22/24
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/9/21	9/17/22	10/24/23	4/22/24
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/9/21	9/17/22	10/24/23	4/22/24
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	2/9/21	9/17/22	10/24/23	4/22/24
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**93** % Effluent
Dilution Series	**23, 47, 93, 97, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIVC (decimal)	1
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Littlestown Boro

Permit No.: PA0021229

Test Completion Date: 2/9/2021

Replicate No.	Control	TIVC
1	1	1
2	1	1
3		1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	0	1
11		
12		
13		
14		
15		
Mean	0.889	1.000
Std Dev.	0.333	0.000
# Replicates	9	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Test Completion Date: 9/17/2022

Replicate No.	Control	TIVC
1	1	1
2	1	1
3	0	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	0	1
10		1
11		
12		
13		
14		
15		
Mean	0.778	1.000
Std Dev.	0.441	0.000
# Replicates	9	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Test Completion Date: 10/24/2023

Replicate No.	Control	TIVC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Test Completion Date: 4/22/2024

Replicate No.	Control	TIVC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	1
No. Per Replicat	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Littlestown Boro

Permit No.: PA0021229

Test Completion Date 2/9/2021

Replicate No.	Control	TIWC
1	35	35
2	32	34
3		37
4	33	30
5	39	40
6	30	32
7	35	40
8	36	31
9	35	28
10	9	36
11		
12		
13		
14		
15		

Mean	31.556	34.300
Std Dev.	8.833	4.084
# Replicates	9	10

T-Test Result	4.1565
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

Test Completion Date 9/17/2022

Replicate No.	Control	TIWC
1	22	17
2	19	16
3	0	19
4	26	16
5	23	19
6	23	16
7	19	23
8	16	22
9	0	18
10	29	18
11		
12		
13		
14		
15		

Mean	17.700	18.400
Std Dev.	10.023	2.459
# Replicates	10	10

T-Test Result	2.0492
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	PASS

Test Completion Date 10/24/2023

Replicate No.	Control	TIWC
1	29	30
2	27	26
3	28	28
4	27	27
5	26	27
6	29	24
7	31	26
8	27	26
9	30	24
10	28	24
11		
12		
13		
14		
15		

Mean	28.200	26.200
Std Dev.	1.549	1.932
# Replicates	10	10

T-Test Result	7.0830
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	PASS

Test Completion Date 4/22/2024

Replicate No.	Control	TIWC
1	39	26
2	37	37
3	37	17
4	39	22
5	35	30
6	31	37
7	38	36
8	40	36
9	33	34
10	38	36
11		
12		
13		
14		
15		

Mean	36.700	31.100
Std Dev.	2.869	7.141
# Replicates	10	10

T-Test Result	1.5159
Deg. of Freedom	12
Critical T Value	0.8726
Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIVC (decimal)	1
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Littlestown Boro

Permit No.: PA0021229

Test Completion Date: 2/9/2021

Replicate No.	Control	TIVC
1	0.8	0.7
2	0.9	0.8
3	1	1
4	0.9	0.7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.900	0.800
Std Dev.	0.082	0.141
# Replicates	4	4

T-Test Result	4.1750
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	PASS

Test Completion Date: 9/17/2022

Replicate No.	Control	TIVC
1	0.9	0.9
2	1	1
3	1	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.975	0.950
Std Dev.	0.050	0.058
# Replicates	4	4

T-Test Result	12.7913
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date: 10/24/2023

Replicate No.	Control	TIVC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	4	4

T-Test Result	
Deg. of Freedom	
Critical T Value	
Pass or Fail	PASS

Test Completion Date: 4/22/2024

Replicate No.	Control	TIVC
1	10	10
2	10	10
3	10	8
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	10.000	9.500
Std Dev.	0.000	1.000
# Replicates	4	4

T-Test Result	3.6316
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	1
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name
Littlestown Boro

Permit No.
PA0021229

Test Completion Date 2/9/2021

Replicate No.	Control	TIWC
1	0.246	0.298
2	0.309	0.246
3	0.438	0.428
4	0.331	0.257
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.331	0.307
Std Dev.	0.080	0.084
# Replicates	4	4

T-Test Result 1.1476
Deg. of Freedom 5
Critical T Value 0.7267
Pass or Fail **PASS**

Test Completion Date 9/17/2022

Replicate No.	Control	TIWC
1	0.375	0.431
2	0.37	0.4733
3	0.403	0.44
4	0.369	0.429
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.379	0.443
Std Dev.	0.016	0.021
# Replicates	4	4

T-Test Result 13.3440
Deg. of Freedom 5
Critical T Value 0.7267
Pass or Fail **PASS**

Test Completion Date 10/24/2023

Replicate No.	Control	TIWC
1	0.374	0.386
2	0.361	0.357
3	0.362	0.434
4	0.362	0.434
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.365	0.403
Std Dev.	0.006	0.038
# Replicates	4	4

T-Test Result 6.7533
Deg. of Freedom 3
Critical T Value 0.7649
Pass or Fail **PASS**

Test Completion Date 4/22/2024

Replicate No.	Control	TIWC
1	0.362	0.403
2	0.452	0.406
3	0.418	0.242
4	0.5	0.399
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.433	0.363
Std Dev.	0.058	0.080
# Replicates	4	4

T-Test Result 0.8258
Deg. of Freedom 5
Critical T Value 0.7267
Pass or Fail **PASS**

WQM 7.0:

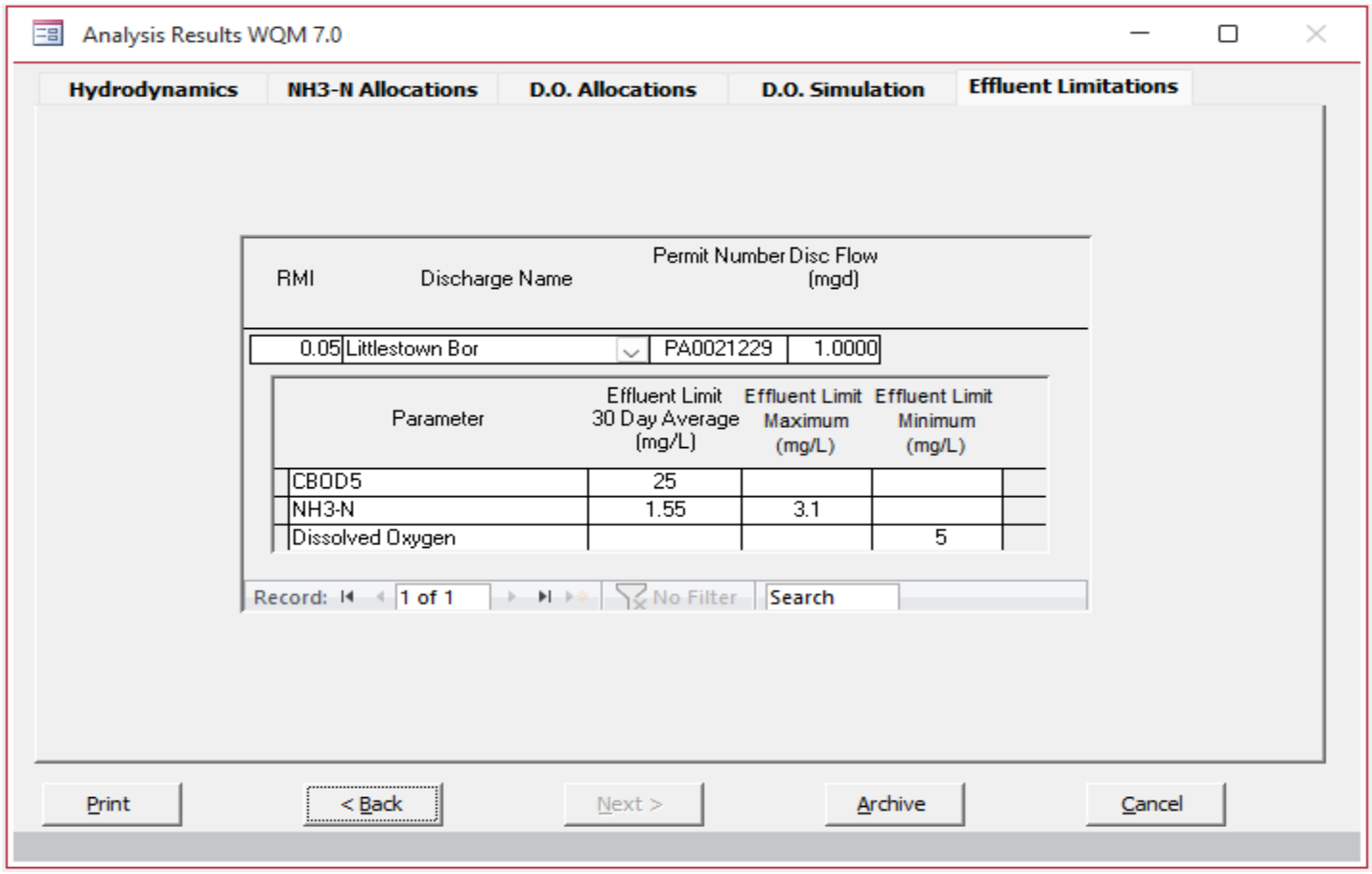
- Discharge pH = 7.0 (Default)
- Discharge Temperature = 25°C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20°C (Default)
- Background NH_3-N = 0 mg/L (Default)

Node 1: Outfall 001 on UNT of Alloway Creek 58849

Elevation:	559 ft (USGS National Map Viewer)
Drainage Area:	0.38 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.05 mile (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	1.0 MGD (NPDES Application)

Node 2: point at just Alloway Creek

Elevation:	544.0 ft (USGS National Map Viewer)
Drainage Area:	1.31 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.001 miles (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	0.000 MGD



rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13D	58649	ALLOWAY 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)
0.050	Littlestown Bor	PA0021229	1.000	CBOD5	25		
				NH3-N	1.55	3.1	
				Dissolved Oxygen			5

Tuesday, June 24, 2025 Version 1.1 Page 1 of 1

Page: 1 No Filter

rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13D	58649	ALLOWAY 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
0.050	Littlestown Bor	11.26	11.81	11.26	11.81	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
0.050	Littlestown Bor	1.41	1.55	1.41	1.55	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
0.05	Littlestown Bor	25	25	1.55	1.55	5	5	0	0

Tuesday, June 24, 2025 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptDOSim

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
13D	58649	ALLOWAY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.050	1.000	24.657	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/DRatio	Reach Velocity (fps)
6.214	0.632	9.836	0.423
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
23.42	1.491	1.44	1.002
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
5.223	260.401	Tsivoglou	5
Reach Travel Time (days)			
0.007			

Subreach Results

Trav Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	23.39	1.44	5.72
0.001	23.36	1.44	6.13
0.002	23.33	1.44	6.47
0.003	23.30	1.44	6.75
0.004	23.27	1.44	6.99
0.004	23.24	1.44	7.18
0.005	23.21	1.44	7.35
0.006	23.18	1.43	7.48
0.006	23.15	1.43	7.58
0.007	23.12	1.43	7.66

Tuesday, June 24, 2025 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptModelSpecs

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/QT-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/QT-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Tuesday, June 24, 2025 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13D	56649	ALLOWAY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.050	0.11	0.00	0.11	1.547	0.05798	.632	6.21	9.84	0.42	0.007	24.66	7.00
Q1-10 Flow												
0.050	0.07	0.00	0.07	1.547	0.05798	NA	NA	NA	0.42	0.007	24.77	7.00
Q30-10 Flow												
0.050	0.16	0.00	0.16	1.547	0.05798	NA	NA	NA	0.43	0.007	24.54	7.00

Tuesday, June 24, 2025 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptGeneral

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
13D	56649	ALLOWAY CREEK	0.050	559.00	0.36	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfs/mi)	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	0.300	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc. Flow (mgd)	Permitted Disc. Flow (mgd)	Design Disc. Flow (mgd)	Reserve Factor	Disc. Temp (°C)	Disc. pH
Littlestown Bor	PA0021229	1.0000	1.0000	1.0000	0.000	25.00	7.00

Parameter Data

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

Tuesday, June 24, 2025 Version 1.1 Page 1 of 2

Page: 1 No Filter

rptGeneral

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
13D	56649	ALLOWAY CREEK	0.001	544.00	1.31	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfs/mi)	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	0.300	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc. Flow (mgd)	Permitted Disc. Flow (mgd)	Design Disc. Flow (mgd)	Reserve Factor	Disc. Temp (°C)	Disc. pH
Littlestown Bor	PA0021229	0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

Tuesday, June 24, 2025 Version 1.1 Page 2 of 2

Page: 2 No Filter

Toxic:

- Discharge pH = 7.4 (average 2025 renewal application)
- Discharge Hardness = 282 mg/L (2025 renewal application)
- Stream pH = 7.0 (Default)
- Stream Hardness = 266 mg/L (2025 renewal application)
- Background NH_3-N = 0 mg/L (Default)

Node 1: Outfall 001 on UNT of Alloway Creek 58849

Elevation: 559 ft (USGS National Map Viewer)
Drainage Area: 0.38 mi.^{2} (USGS PA StreamStats)
River Mile Index: 0.05 mile (PA DEP eMapPA)
Low Flow Yield: 0.3 cfs/mi.^{2}
Discharge Flow: 1.0 MGD (NPDES Application)

Node 2: point at just Alloway Creek

Elevation: 544.0 ft (USGS National Map Viewer)
Drainage Area: 1.31 mi.^{2} (USGS PA StreamStats)
River Mile Index: 0.0001 miles (PA DEP eMapPA)
Low Flow Yield: 0.3 cfs/mi.^{2}
Discharge Flow: 0.000 MGD

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Littlestown Borough Authority Adams County NPDES Permit No.: PA0021229 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Unnamed Tributary of Alloway Creek

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1	282	7.4						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Strea m CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteri a Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		692									
	Chloride (PWS)	mg/L		243									
	Bromide	mg/L		0.2									
	Sulfate (PWS)	mg/L		66.4									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		94									
	Total Antimony	µg/L		0.5									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		26									
	Total Beryllium	µg/L	<	0.4									
	Total Boron	µg/L		147									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.1									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		5									
	Free Cyanide	µg/L	<	0.5									
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L	<	10									
	Total Iron	µg/L		71									
	Total Lead	µg/L		5									
	Total Manganese	µg/L		3									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L	<	0.005									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L		74									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<	1									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5										
	Chlorobenzene	µg/L		0.5										
	Chlorodibromomethane	µg/L	<	0.5										
	Chloroethane	µg/L	<	1										
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5										
	Chloroform	µg/L	<	0.5										
	Dichlorobromomethane	µg/L	<	0.5										
	1,1-Dichloroethane	µg/L	<	0.5										
	1,2-Dichloroethane	µg/L	<	0.5										
	1,1-Dichloroethylene	µg/L	<	0.5										
	1,2-Dichloropropane	µg/L	<	0.5										
	1,3-Dichloropropylene	µg/L	<	0.5										
	1,4-Dioxane	µg/L	<	0.0999										
	Ethylbenzene	µg/L	<	0.5										
	Methyl Bromide	µg/L	<	1										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L	<	0.5										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.5										
	Toluene	µg/L	<	0.5										
	1,2-trans-Dichloroethylene	µg/L	<	0.5										
	1,1,1-Trichloroethane	µg/L	<	0.5										
	1,1,2-Trichloroethane	µg/L	<	0.5										
	Trichloroethylene	µg/L	<	0.5										
	Vinyl Chloride	µg/L	<	0.5										
Group 4	2-Chlorophenol	µg/L	<	0.17										
	2,4-Dichlorophenol	µg/L	<	0.212										
	2,4-Dimethylphenol	µg/L	<	0.357										
	4,6-Dinitro-o-Cresol	µg/L	<	1.15										
	2,4-Dinitrophenol	µg/L	<	1.79										
	2-Nitrophenol	µg/L	<	0.218										
	4-Nitrophenol	µg/L	<	1.34										
	p-Chloro-m-Cresol	µg/L		0.304										
	Pentachlorophenol	µg/L	<	0.474										
	Phenol	µg/L	<	0.19										
	2,4,6-Trichlorophenol	µg/L	<	0.216										
Group 5	Acenaphthene	µg/L	<	0.334										
	Acenaphthylene	µg/L	<	0.332										
	Anthracene	µg/L	<	0.311										
	Benzidine	µg/L	<	0.58										
	Benzo(a)Anthracene	µg/L	<	0.257										
	Benzo(a)Pyrene	µg/L	<	0.237										
	3,4-Benzofluoranthene	µg/L	<	0.257										
	Benzo(ghi)Perylene	µg/L	<	0.391										
	Benzo(k)Fluoranthene	µg/L	<	0.318										
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.223										
	Bis(2-Chloroethyl)Ether	µg/L	<	0.256										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.256										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.5										
	4-Bromophenyl Phenyl Ether	µg/L	<	0.375										
	Butyl Benzyl Phthalate	µg/L	<	0.992										
	2-Chloronaphthalene	µg/L	<	0.335										
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.324										
	Chrysene	µg/L	<	0.485										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.389										
	1,2-Dichlorobenzene	µg/L	<	0.185										
	1,3-Dichlorobenzene	µg/L	<	0.406										
	1,4-Dichlorobenzene	µg/L	<	0.444										
	3,3-Dichlorobenzidine	µg/L	<	0.708										
	Diethyl Phthalate	µg/L	<	0.808										
	Dimethyl Phthalate	µg/L	<	0.486										
	Di-n-Butyl Phthalate	µg/L	<	2.57										
	2,4-Dinitrotoluene	µg/L	<	1.77										

	2,6-Dinitrotoluene	µg/L	<	0.426										
	Di-n-Octyl Phthalate	µg/L	<	0.35										
	1,2-Diphenylhydrazine	µg/L	<	0.501										
	Fluoranthene	µg/L	<	0.596										
	Fluorene	µg/L	<	0.295										
	Hexachlorobenzene	µg/L	<	0.397										
	Hexachlorobutadiene	µg/L	<	0.252										
	Hexachlorocyclopentadiene	µg/L	<	0.383										
	Hexachloroethane	µg/L	<	0.45										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.372										
	Isophorone	µg/L	<	0.244										
	Naphthalene	µg/L	<	0.5										
	Nitrobenzene	µg/L	<	0.231										
	n-Nitrosodimethylamine	µg/L	<	0.228										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.401										
	n-Nitrosodiphenylamine	µg/L	<	0.351										
	Phenanthrene	µg/L	<	0.4										
	Pyrene	µg/L	<	0.56										
	1,2,4-Trichlorobenzene	µg/L	<	0.259										
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												

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Littlestown Borough Authority Adams County, NPDES Permit No. PA0021229, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **UNT of Alloway Creek**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	058849	0.05	559	0.38			Yes
End of Reach 1	058849	0.001	544	1.31			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.05	0.3										266	7		
End of Reach 1	0.001	0.3													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.05														
End of Reach 1	0.001														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Littlestown Borough Authority Adams County, NPDES Permit No. PA0021229, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 280.9 Analysis pH: 7.36

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	805	
Total Antimony	0	0		0	1,100	1,100	1,181	
Total Arsenic	0	0		0	340	340	365	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	22,548	
Total Boron	0	0		0	8,100	8,100	8,697	
Total Cadmium	0	0		0	5.491	6.1	6.54	Chem Translator of 0.901 applied
Total Chromium (III)	0	0		0	1327.580	4,201	4,511	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	17.5	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	102	
Total Copper	0	0		0	35.563	37.0	39.8	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	23.6	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	194.743	304	326	Chem Translator of 0.641 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.77	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1121.868	1,124	1,207	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	19.008	22.4	24.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	69.8	
Total Zinc	0	0		0	281.135	287	309	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.22	

Acrylonitrile	0	0		0	650	650	698	
Benzene	0	0		0	640	640	687	
Bromoform	0	0		0	1,800	1,800	1,933	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,006	
Chlorobenzene	0	0		0	1,200	1,200	1,288	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	19,326	
Chloroform	0	0		0	1,900	1,900	2,040	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,105	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,053	
1,2-Dichloropropane	0	0		0	11,000	11,000	11,811	
1,3-Dichloropropylene	0	0		0	310	310	333	
Ethylbenzene	0	0		0	2,900	2,900	3,114	
Methyl Bromide	0	0		0	550	550	591	
Methyl Chloride	0	0		0	28,000	28,000	30,063	
Methylene Chloride	0	0		0	12,000	12,000	12,884	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,074	
Tetrachloroethylene	0	0		0	700	700	752	
Toluene	0	0		0	1,700	1,700	1,825	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,301	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,221	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,651	
Trichloroethylene	0	0		0	2,300	2,300	2,469	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	601	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,825	
2,4-Dimethylphenol	0	0		0	660	660	709	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	85.9	
2,4-Dinitrophenol	0	0		0	660	660	709	
2-Nitrophenol	0	0		0	8,000	8,000	8,590	
4-Nitrophenol	0	0		0	2,300	2,300	2,469	
p-Chloro-m-Cresol	0	0		0	160	160	172	
Pentachlorophenol	0	0		0	12.490	12.5	13.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	494	
Acenaphthene	0	0		0	83	83.0	89.1	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	322	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.54	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	32,211	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,832	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	290	
Butyl Benzyl Phthalate	0	0		0	140	140	150	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	880	
1,3-Dichlorobenzene	0	0		0	350	350	376	
1,4-Dichlorobenzene	0	0		0	730	730	784	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,295	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,684	
Di-n-Butyl Phthalate	0	0		0	110	110	118	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,718	
2,6-Dinitrotoluene	0	0		0	990	990	1,063	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.1	
Fluoranthene	0	0		0	200	200	215	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	10.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.37	
Hexachloroethane	0	0		0	60	60.0	64.4	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	10,737	
Naphthalene	0	0		0	140	140	150	
Nitrobenzene	0	0		0	4,000	4,000	4,295	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	18,253	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	322	
Phenanthrene	0	0		0	5	5.0	5.37	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	140	

☑ *CFC* CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): 280.9 Analysis pH: 7.36

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	236	
Total Arsenic	0	0		0	150	150	161	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,402	
Total Boron	0	0		0	1,600	1,600	1,718	
Total Cadmium	0	0		0	0.504	0.58	0.62	Chem Translator of 0.866 applied
Total Chromium (III)	0	0		0	172.691	201	216	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.2	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	20.4	
Total Copper	0	0		0	21.647	22.5	24.2	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	5.2	5.2	5.58	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,611	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	7.589	11.8	12.7	Chem Translator of 0.641 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.97	Chem Translator of 0.85 applied
Total Nickel	0	0		0	124.605	125	134	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.36	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	14.0	
Total Zinc	0	0		0	283.435	287	309	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.22	
Acrylonitrile	0	0		0	130	130	140	
Benzene	0	0		0	130	130	140	
Bromoform	0	0		0	370	370	397	
Carbon Tetrachloride	0	0		0	560	560	601	
Chlorobenzene	0	0		0	240	240	258	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,758	
Chloroform	0	0		0	390	390	419	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,328	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,611	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,362	
1,3-Dichloropropylene	0	0		0	61	61.0	65.5	
Ethylbenzene	0	0		0	580	580	623	
Methyl Bromide	0	0		0	110	110	118	
Methyl Chloride	0	0		0	5,500	5,500	5,905	
Methylene Chloride	0	0		0	2,400	2,400	2,577	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	225	
Tetrachloroethylene	0	0		0	140	140	150	
Toluene	0	0		0	330	330	354	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,503	
1,1,1-Trichloroethane	0	0		0	610	610	655	
1,1,2-Trichloroethane	0	0		0	680	680	730	
Trichloroethylene	0	0		0	450	450	483	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	118	
2,4-Dichlorophenol	0	0		0	340	340	365	
2,4-Dimethylphenol	0	0		0	130	130	140	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	17.2	
2,4-Dinitrophenol	0	0		0	130	130	140	
2-Nitrophenol	0	0		0	1,600	1,600	1,718	
4-Nitrophenol	0	0		0	470	470	505	

p-Chloro-m-Cresol	0	0		0	500	500	537	
Pentachlorophenol	0	0		0	9.582	9.58	10.3	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	97.7	
Acenaphthene	0	0		0	17	17.0	18.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	63.3	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	6,442	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	977	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	58.0	
Butyl Benzyl Phthalate	0	0		0	35	35.0	37.6	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	172	
1,3-Dichlorobenzene	0	0		0	69	69.0	74.1	
1,4-Dichlorobenzene	0	0		0	150	150	161	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	859	
Dimethyl Phthalate	0	0		0	500	500	537	
Di-n-Butyl Phthalate	0	0		0	21	21.0	22.5	
2,4-Dinitrotoluene	0	0		0	320	320	344	
2,6-Dinitrotoluene	0	0		0	200	200	215	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.22	
Fluoranthene	0	0		0	40	40.0	42.9	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.15	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.07	
Hexachloroethane	0	0		0	12	12.0	12.9	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,255	
Naphthalene	0	0		0	43	43.0	46.2	
Nitrobenzene	0	0		0	810	810	870	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,651	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	63.3	
Phenanthrene	0	0		0	1	1.0	1.07	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	27.9	

☑ *THH* CCT (min): 0.002 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.01	
Total Arsenic	0	0		0	10	10.0	10.7	
Total Barium	0	0		0	2,400	2,400	2,577	
Total Boron	0	0		0	3,100	3,100	3,328	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	4.29	
Dissolved Iron	0	0		0	300	300	322	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,074	
Total Mercury	0	0		0	0.050	0.05	0.054	
Total Nickel	0	0		0	610	610	655	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.26	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.22	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	107	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	6.12	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	35.4	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	73.0	

Methyl Bromide	0	0		0	100	100.0	107	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	61.2	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	107	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	10,737	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	32.2	
2,4-Dichlorophenol	0	0		0	10	10.0	10.7	
2,4-Dimethylphenol	0	0		0	100	100.0	107	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.15	
2,4-Dinitrophenol	0	0		0	10	10.0	10.7	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	4,295	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	75.2	
Anthracene	0	0		0	300	300	322	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	215	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.11	
2-Chloronaphthalene	0	0		0	800	800	859	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,074	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.52	
1,4-Dichlorobenzene	0	0		0	300	300	322	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	644	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,147	
Di-n-Butyl Phthalate	0	0		0	20	20.0	21.5	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	21.5	
Fluorene	0	0		0	50	50.0	53.7	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	4.29	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	36.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	10.7	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	21.5	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.075	

☑ *CRL* CCT (min): 0.056 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	

Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.1	
Benzene	0	0		0	0.58	0.58	1.	
Bromoform	0	0		0	7	7.0	12.0	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.69	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.38	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1.63	
1,2-Dichloroethane	0	0		0	9.9	9.9	17.0	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.55	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.46	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	34.4	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.34	
Tetrachloroethylene	0	0		0	10	10.0	17.2	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	0.95	
Trichloroethylene	0	0		0	0.6	0.6	1.03	
Vinyl Chloride	0	0		0	0.02	0.02	0.034	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.052	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.58	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	

3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.017	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.052	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.55	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.21	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.086	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.086	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.086	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.052	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.017	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.17	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.009	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	5.68	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)

Total Copper	Report	Report	Report	Report	Report	µg/L	24.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	12.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	287	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 Antimony	6.01	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,577	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,718	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.62	µg/L	Discharge Conc < TQL
Total Chromium (III)	216	µg/L	Discharge Conc < TQL
Hexavalent Chromium	11.2	µg/L	Discharge Conc < TQL
Total Cobalt	20.4	µg/L	Discharge Conc < TQL
Free Cyanide	4.29	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	322	µg/L	Discharge Conc < TQL
Total Iron	1,611	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,074	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.054	µg/L	Discharge Conc < TQL
Total Nickel	134	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	5.36	µg/L	Discharge Conc < TQL
Total Silver	22.4	µg/L	Discharge Conc < TQL
Total Thallium	0.26	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.1	µg/L	Discharge Conc < TQL
Benzene	1.	µg/L	Discharge Conc < TQL
Bromoform	12.0	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.69	µg/L	Discharge Conc < TQL
Chlorobenzene	107	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	1.38	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,758	µg/L	Discharge Conc < TQL
Chloroform	6.12	µg/L	Discharge Conc < TQL

Dichlorobromomethane	1.63	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	17.0	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	35.4	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.55	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.46	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	73.0	µg/L	Discharge Conc < TQL
Methyl Bromide	107	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	5,905	µg/L	Discharge Conc < TQL
Methylene Chloride	34.4	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.34	µg/L	Discharge Conc < TQL
Tetrachloroethylene	17.2	µg/L	Discharge Conc < TQL
Toluene	61.2	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	107	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	655	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	0.95	µg/L	Discharge Conc < TQL
Trichloroethylene	1.03	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.034	µg/L	Discharge Conc < TQL
2-Chlorophenol	32.2	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	10.7	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	107	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.15	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	10.7	µg/L	Discharge Conc < TQL
2-Nitrophenol	1,718	µg/L	Discharge Conc < TQL
4-Nitrophenol	505	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc ≤ 25% WQBEL
Pentachlorophenol	0.052	µg/L	Discharge Conc < TQL
Phenol	4,295	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2.58	µg/L	Discharge Conc < TQL
Acenaphthene	18.3	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	322	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.017	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.052	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	215	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.55	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	58.0	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.11	µg/L	Discharge Conc < TQL

2-Chloronaphthalene	859	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.21	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	172	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	7.52	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	161	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.086	µg/L	Discharge Conc < TQL
Diethyl Phthalate	644	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	537	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	21.5	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.086	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.086	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.052	µg/L	Discharge Conc < TQL
Fluoranthene	21.5	µg/L	Discharge Conc < TQL
Fluorene	53.7	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0001	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.017	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.07	µg/L	Discharge Conc < TQL
Hexachloroethane	0.17	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL
Isophorone	36.5	µg/L	Discharge Conc < TQL
Naphthalene	46.2	µg/L	Discharge Conc < TQL
Nitrobenzene	10.7	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.009	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	5.68	µg/L	Discharge Conc < TQL
Phenanthrene	1.07	µg/L	Discharge Conc < TQL
Pyrene	21.5	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.075	µg/L	Discharge Conc < TQL

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) Raw Sewage Influent	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$ Nov 1 - Apr 30	208	334	XXX	25.0	40.0	50.0	2/week	24-Hr Composite
$CBOD_5$ May 1 - Oct 31	141	212	XXX	17.0	25.5	34.0	2/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	250	375	XXX	30.0	45.0	60.0	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia Nov 1 - Apr 30	25.0	XXX	XXX	3.0	XXX	6.0	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	8.0	XXX	XXX	1.0	XXX	2.0	2/week	24-Hr Composite
Total Aluminum (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

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 (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Total Lead (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Total Zinc (ug/L)	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite
Chronic WET - Ceriodaphnia Survival (TUc)	XXX	XXX	XXX	XXX	1.11 Daily Max	XXX	See Permit	24-Hr Composite
Chronic WET - Ceriodaphnia Reproduction (TUc)	XXX	XXX	XXX	XXX	1.11 Daily Max	XXX	See Permit	24-Hr Composite

Compliance Sampling Location:

Other Comments:

Proposed Effluent Limitations and Monitoring Requirements

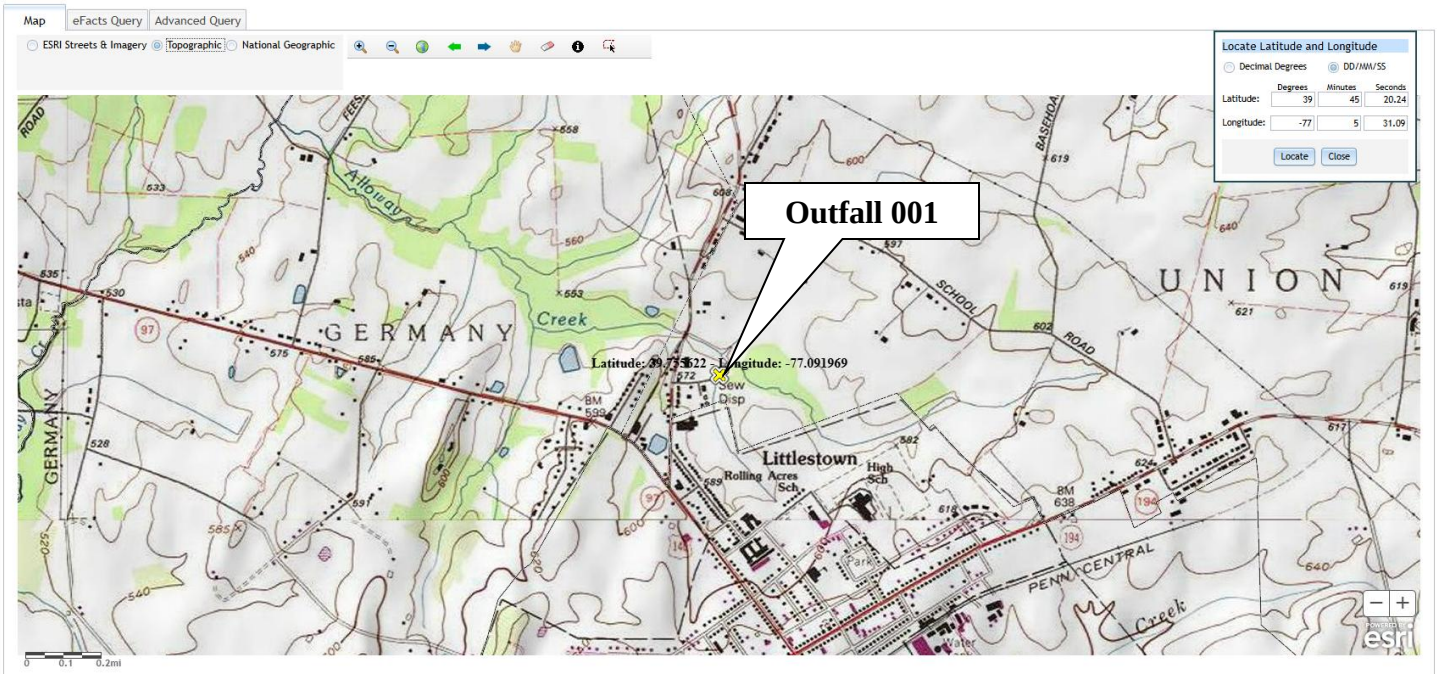
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

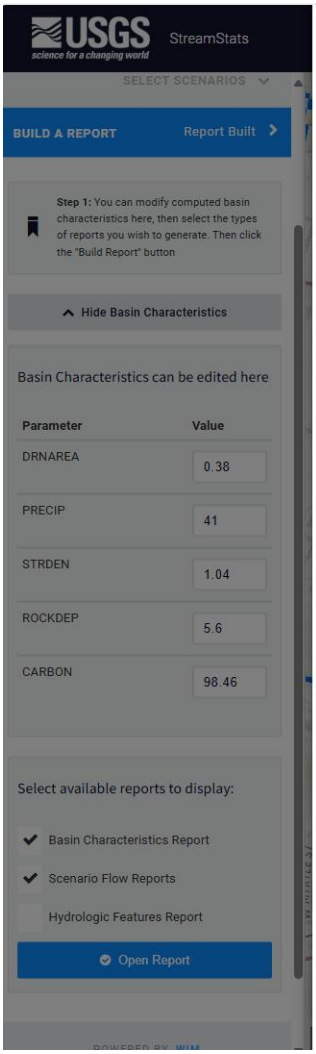
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	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	Repot	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	18,265	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2,435	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:





Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	98.46	percent
DRNAREA	Area that drains to a point on a stream	0.38	square miles
PRECIP	Mean Annual Precipitation	41	inches
ROCKDEP	Depth to rock	5.6	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.04	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

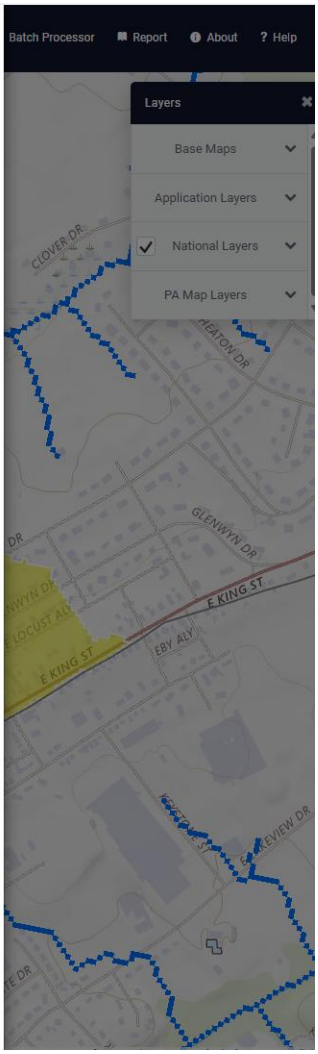
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	98.46	percent	0	99
DRNAREA	Drainage Area	0.38	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	41	inches	35	50.4
ROCKDEP	Depth to Rock	5.6	feet	3.32	5.65
STRDEN	Stream Density	1.04	miles per square mile	0.51	3.1

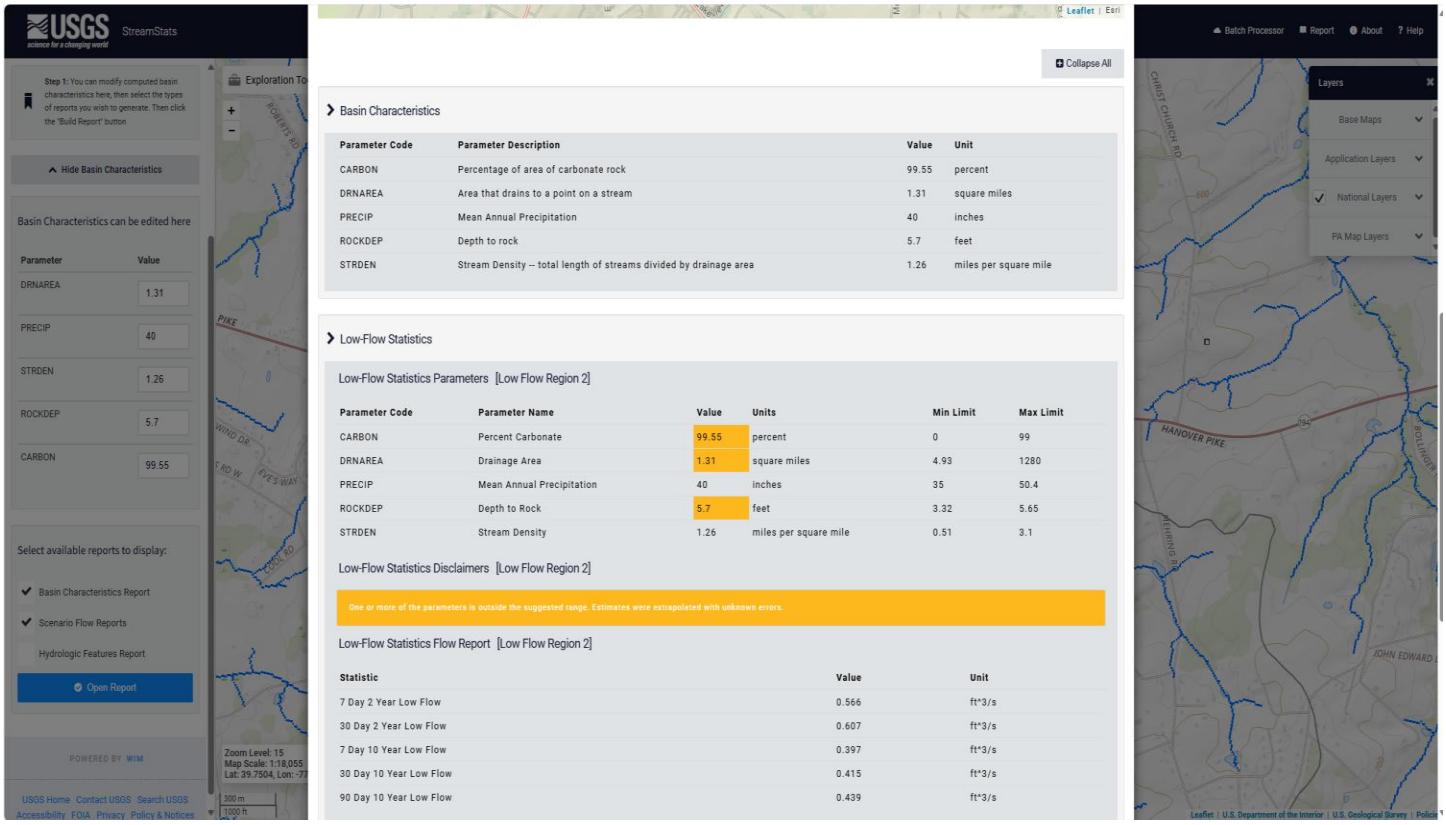
Low-Flow Statistics Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapoleted with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.182	ft^3/s
30 Day 2 Year Low Flow	0.198	ft^3/s
7 Day 10 Year Low Flow	0.118	ft^3/s
30 Day 10 Year Low Flow	0.126	ft^3/s
90 Day 10 Year Low Flow	0.139	ft^3/s




USGS StreamStats
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Hide Basin Characteristics
Basin Characteristics can be edited here
Parameter Value
DRNAREA 1.31
PRECIP 40
STRDEN 1.26
ROCKDEP 5.7
CARBON 99.55
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Hydrologic Features Report
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Zoom Level: 15
Map Scale: 1:18,055
Lat: 39.7504, Lon: -77
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 99.55 | percent
DRNAREA | Area that drains to a point on a stream | 1.31 | square miles
PRECIP | Mean Annual Precipitation | 40 | inches
ROCKDEP | Depth to rock | 5.7 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 1.26 | miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
CARBON | Percent Carbonate | 99.55 | percent | 0 | 99
DRNAREA | Drainage Area | 1.31 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 40 | inches | 35 | 50.4
ROCKDEP | Depth to Rock | 5.7 | feet | 3.32 | 5.65
STRDEN | Stream Density | 1.26 | miles per square mile | 0.51 | 3.1
Low-Flow Statistics Disclaimers [Low Flow Region 2]
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.
Low-Flow Statistics Flow Report [Low Flow Region 2]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.566 | ft^3/s
30 Day 2 Year Low Flow | 0.607 | ft^3/s
7 Day 10 Year Low Flow | 0.397 | ft^3/s
30 Day 10 Year Low Flow | 0.415 | ft^3/s
90 Day 10 Year Low Flow | 0.439 | ft^3/s
Batch Processor Report About Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
HANOVER PIKE
Leaflet | U.S. Department of the Interior | U.S. Geological Survey

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
☐	Other: