Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0103870**
Facility Type	**Non-Municipal**	APS ID	**1145789**
Major / Minor	**Minor**	Authorization ID	**1541454**

Applicant and Facility Information

Applicant Name	**Greenville Holding LLC**	Facility Name	**Greenville MHP**
Applicant Address	374 N Perry Highway	Facility Address	347 Hadley Road
	Mercer, PA 16137-5056		Greenville, PA 16125
Applicant Contact	Patty Tatomirovich	Facility Contact	Patty Tatomirovich
Applicant Phone	(714) 813-8124	Facility Phone	(714) 813-8124
Client ID	332012	Site ID	264200
Ch 94 Load Status	Not Overloaded	Municipality	Hempfield Township
Connection Status	No Limitations	County	Mercer
Date Application Received	September 10, 2025	EPA Waived?	Yes
Date Application Accepted		If No, Reason	--

Purpose of Application: Renewal application for Minor Sewage Facility

Summary of Review

On September 10, 2025, the Department received a renewal application for Individual Permit No. PA0103870 from Greenville Holding LLC. Greenville Holding LLC is a Mobile Home Park with a population of 150. The system discharges to Tributary 36227 to Little Shenango River (TSF).

Act 14 notifications were submitted and received.

The facility is currently in the eDMR system.

The last inspection conducted was an administrative inspection on May 16, 2025 (Table 1).

There are 3 open violations in WMS for the Subject Client ID (332012) as of October 23, 2025. (Table 2)

Proposed Changes:

- Addition of E. Coli Monitoring
- More stringent Dissolved Oxygen limit
- Increase in monitoring frequency from 3/week to 1/day for pH, Dissolved Oxygen, and Total Residual Chlorine
- More stringent limits for Total Residual Chlorine (compliance schedule implemented)

Approve	Deny	Signatures	Date
X		Carlee Wilson Carlee Wilson / Environmental Engineering Trainee	October 24, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	November 4, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.021
Latitude	41º 25' 5.63"	Longitude	-80º 20' 17.27"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Little Shenango River (TSF)	Stream Code	36227
NHD Com ID	130027145	RMI	0.48
Drainage Area	0.21	Yield (cfs/mi^2)	0.006
Q_{7-10} Flow (cfs)	0.0012	Q_{7-10} Basis	USGS-StreamStats
Elevation (ft)	1215	Slope (ft/ft)	-
Watershed No.	20-A	Chapter 93 Class.	TSF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-

Background/Ambient Data		Data Source
pH (SU)	7	Default
Temperature (°F)	68	Default
Hardness (mg/L)	100	Default
Other:	-	-

Nearest Downstream Public Water Supply Intake		Greenville Municipal Water Authority	
PWS Waters	Little Shenango River	Flow at Intake (cfs)	10.6
PWS RMI	8.0	Distance from Outfall (mi)	4.6

Changes Since Last Permit Issuance: Drainage Area and Q_{7-10} Flow were updated using StreamStats data from USGS. Elevation was adjusted using Google Earth.

Public Participation

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

Treatment Facility Summary

Treatment Facility Name: Greenville MHP

WQM Permit No.	Issuance Date
4389413 T-2	5/08/2017
4378402	5/08/2017
4389413 T-1	5/23/2008
4389416	6/11/2002

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration with Solids Removal	Hypochlorite	0.021

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.021		Not Overloaded		Other WWTP

Changes Since Last Permit Issuance: None

Other Comments:

WQM 4389413 T-2

A flow diversion chamber, a comminutor with bypass screen, a 10,000-gallon aerated flow equalization tank with an effluent pump, and Alum addition for phosphorus control.

WQM 4378402

A comminutor with bypass screen, a 21,000-gallon extended aeration tank, a 3,896-gallon settling tank, an approximately 2,870-gallon dosing tank, two intermittent 915 square foot (30.25’ X 30.25’) surface sand filters, and chlorine disinfection with an 1,834-gallon contact tank.

Compliance History

DMR Data for Outfall 001 (from September 1, 2024, to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
Flow (MGD) Average Monthly	0.007	0.009	0.02	0.008	0.004	0.02	0.01	0.01	0.01	0.014	0.01	0.014
pH (S.U.) Instantaneous Minimum	7.43	7.32	6.87	6.99	7.35	7.19	7.03	6.98	6.89	7.18	6.48	6.47
pH (S.U.) Instantaneous Maximum	7.8	7.67	7.1	7.38	7.64	7.88	7.27	7.78	7.11	7.51	7.03	7.11
DO (mg/L) Instantaneous Minimum	5.28	5.24	5.05	5.68	7.19	6.12	6.03	6.7	5.37	5.19	5.39	5.38
TRC (mg/L) Average Monthly	0.14	0.07	0.09	0.07	0.04	0.07	0.06	0.06	0.05	0.07	0.08	0.06
TRC (mg/L) Instantaneous Maximum	0.2	0.09	0.11	0.09	0.05	0.09	0.08	0.08	0.08	0.09	0.09	0.08
CBOD5 (mg/L) Average Monthly	< 2.4	< 2.4	< 2.4	< 2.3	< 2.4	< 2.2	< 2.4	< 2.5	< 2.4	< 2.4	< 2.4	< 2.4
TSS (mg/L) Average Monthly	2.9	< 3.4	< 3.3	3.8	2.8	< 3.0	< 2.5	< 2.5	< 2.8	< 2.5	3.3	< 3.0
Fecal Coliform (No./100 ml) Geometric Mean	< 3.0	< 1.0	< 1.0	1.0	< 2.0	< 1.0	< 1.0	< 2.0	< 4.0	20.0	8	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	9.8	2.0	1.0	2.0	3.0	< 1.0	< 1.0	4.1	14.8	193.5	67.6	< 1.0
Total Nitrogen (mg/L) Average Monthly	< 4.8841	< 7.182	6.6124	< 6.791	4.2	< 7.305	4.455	< 3.804	< 2.7279	< 3.148	< 4.927	< 4.439
Ammonia (mg/L) Average Monthly	0.5	< 0.1	1.0	< 1.1	< 0.1	< 0.1	1.6	< 0.9	< 0.4	< 0.1	0.6	< 0.1
Total Phosphorus (mg/L) Average Monthly	2.5	1.6	1.5	1.4	0.4	0.8	0.6	0.5	0.6	0.2	0.9	0.4

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2024, To: August 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Phosphorus	06/30/25	Avg Mo	1.5	mg/L	1.0	mg/L
Total Phosphorus	05/31/25	Avg Mo	1.4	mg/L	1.0	mg/L
Total Phosphorus	08/31/25	Avg Mo	2.5	mg/L	1.0	mg/L
Total Phosphorus	07/31/25	Avg Mo	1.6	mg/L	1.0	mg/L

Comments: These violations are not considered to be chronic or significant.

Summary of Inspections:

Table 1. Inspection Summary of Greenville Mobile Home Park in the Last 5 Years

Site Name	Inspected Date	Inspection Type	Inspection Results	Inspector	Number of Violations
GREENVILLE MHP	08/29/2021	Sanitary Sewage Overflow	Violation(s) Noted	SINGER, SEAN	1
GREENVILLE MHP	07/27/2022	Compliance Evaluation	No Violations Noted	PUDLICK, DAN	0
GREENVILLE MHP	05/16/2025	Administrative/File Review	Violation(s) Noted	KICHER, ERIC	1
GREENVILLE MHP	11/22/2022	Administrative/File Review	Violation(s) Noted	KICHER, ERIC	1
GREENVILLE MHP	08/03/2021	Administrative/File Review	Violation(s) Noted	OPILA, TAMI	1

Summary of Violations:

Table 2. Open Violations for Client ID (332012)

Facility	Inspection Program	Violation Date	Violation
GREENVILLE MHP	Safe Drinking Water	09/21/2023	FAILURE TO COMPLY WITH UNINTERRUPTED SYSTEM SERVICE PLAN REQUIREMENTS
GREENVILLE MHP	Safe Drinking Water	09/21/2023	FAILURE TO MEET DESIGN AND CONSTRUCTION STANDARDS
GREENVILLE MHP	Safe Drinking Water	09/21/2023	FAILURE TO COMPLY WITH UNINTERRUPTED SYSTEM SERVICE PLAN REQUIREMENTS

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .021
Latitude 41º 25' 5.59" **Longitude** -80º 19' 56.13"
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)
Total Nitrogen	Report	Average Monthly	-	92a.61
Total Phosphorous	Report	Average Monthly	-	92a.61
E. Coli	Report	IMAX	-	92a.61

The above limits are minimum technology-based and BPJ standards for individual sewage permits which are found in the Department's "*Establishing Effluent Limitations for Individual Sewage Permits"* document (SOP. No. BCW-PMT-033). The limits for pH are technology-based on Chapter 93.7. The limits for Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus are based on Chapter 92a.61.

The current permit has sampling frequencies for pH, DO, and TRC as 3/week. However, as stated in Table 6-3 of the Department's "*Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits*" document (362-0400-001) the minimum monitoring frequencies for these parameters should be 1/day. It was acknowledged in the previous permit renewal that these sampling frequencies would increase with the next renewal - "Based on current DEP policy, the monitoring frequency for Dissolved Oxygen, pH, and Total Residual Chlorine can be set as 3/week, with the understanding that the testing frequency for Dissolved Oxygen, pH, and Total Residual Chlorine are proposed to be collected at a frequency of 1/day in the next NPDES Permit renewal."

Water Quality-Based Limitations

Table 3. Water Quality Modeling Results

Parameter	Limit (mg/l)	SBC
CBOD5	25	Average Monthly
NH3-N	2.37	Average Monthly
DO	5	Instantaneous Minimum

The Department's Toxics Management Spreadsheet was not used for this case since no sampling other than sewage-related parameters was performed for this facility with the renewal application. The above parameters were evaluated using WQM 7 (Attachment 6 & 7). This model is used to determine and/or establish WQBELs to protect water quality. In this evaluation, a dry stream reach degradation analysis was conducted in order to take into consideration degradation until the discharge reaches protected waters. The table above displays the results of the analysis. The existing limits for CBOD5 and NH3-N are equal to or more stringent than the WQM results therefore, the current limits will be retained. The dissolved oxygen limit is proposed to change from 4 mg/l to 5 mg/l which is desired for CWF, WWF, and TSF streams.

Total Residual Chlorine

Using the Department's Total Residual Chlorine (TRC) Spreadsheet, it is proposed to establish more stringent limits of 0.009 mg/l (average monthly) and 0.029 mg/l (IMAX) for TRC in the permit (Attachment 6). Since the permittee does not demonstrate its ability to comply with these new limits at least 75% of the time, a compliance schedule has been implemented into the permit with a three-year timeline to provide time for the new limits to be attained (SOP No. BCW-PMT-002).

The calculated limits for TRC as specified in **Part A** of the permit are the limits necessary to comply with state water quality standards. These effluent limits are lower than the Quantitation Limit (0.02), as defined in 25 Pa. Code § 252.1, of the most sensitive existing EPA-approved test method or other DEP-approved method. Therefore, a Part C condition "TRC Effluent Limitations Below Quantitation Limits" has been added to the permit.

Anti-Backsliding

Table 4. Current Permit Effluent Limitations for Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	3/week	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	3/week	Grab
TRC	XXX	XXX	XXX	0.2	XXX	0.5	3/week	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite

Comments: More stringent limits and or monitoring requirements are proposed for the highlighted items above. All other permit limitations, monitoring, requirements, and conditions will be retained into the next permit with the addition of E. Coli monitoring.

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 End of Interim Period 1.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.2	XXX	0.5	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 – after disinfection

Proposed Effluent Limitations and Monitoring Requirements

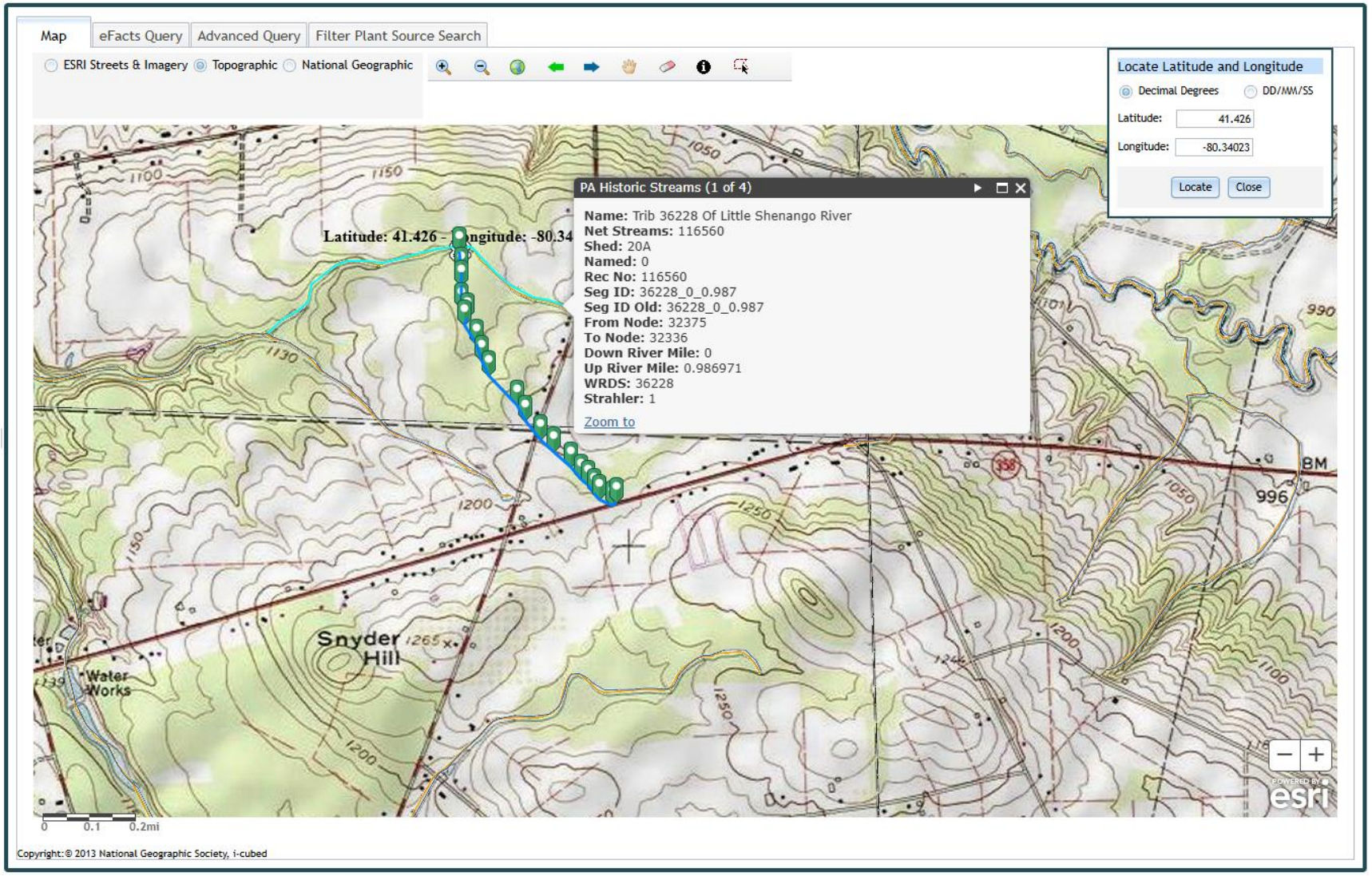
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

Outfall 001, Effective Period: End of Interim Period 1 through Permit Expiration Date.

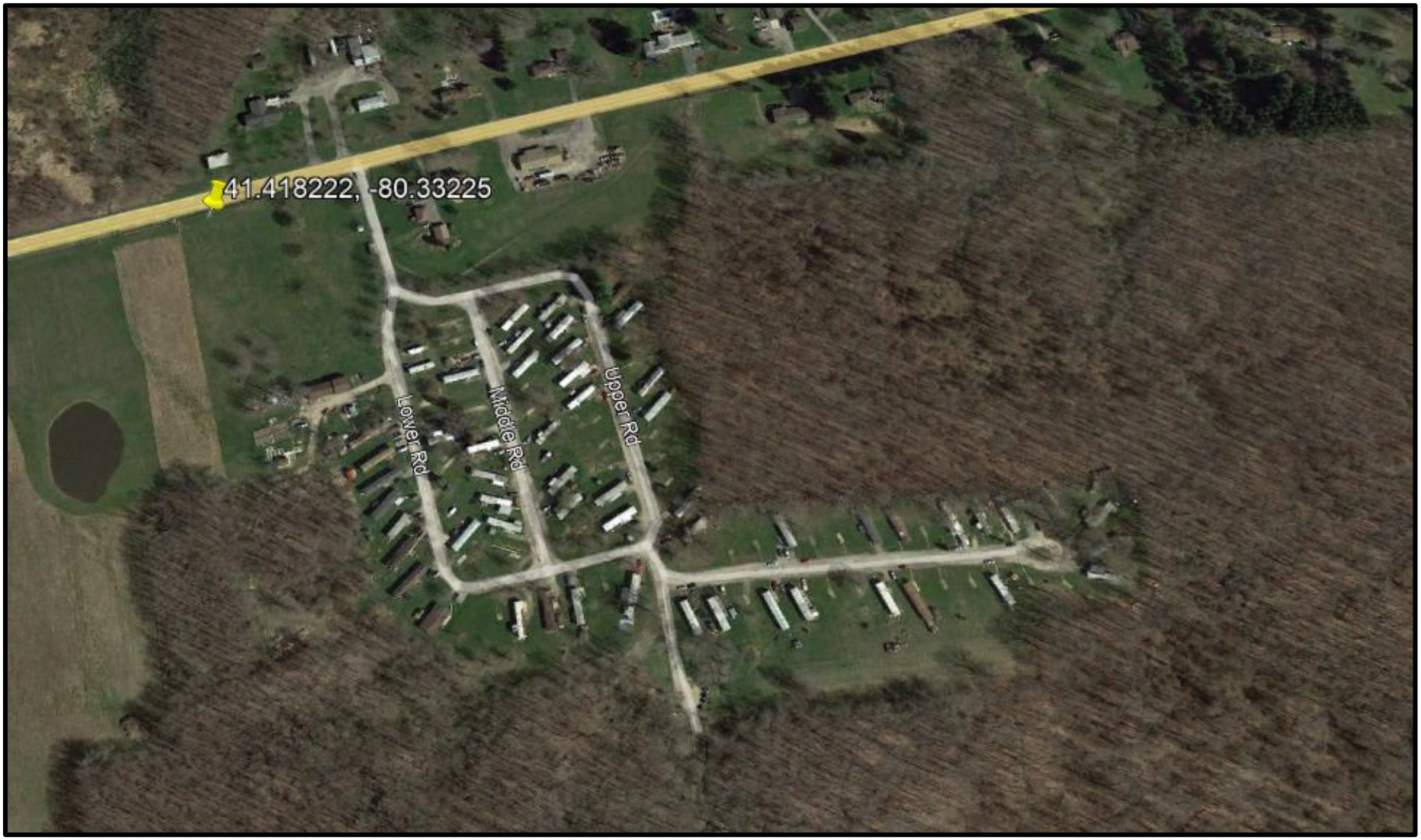
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.01	XXX	0.04	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001 - after disinfection

Attachment 1
eMapPA – Receiving Stream Location and Data



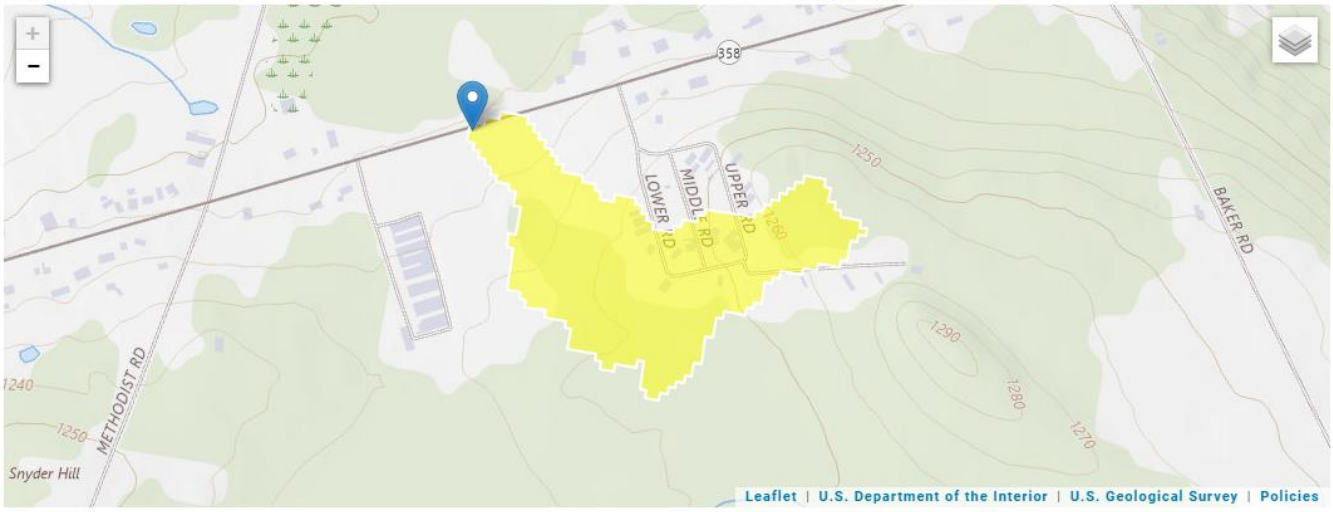
Attachment 2
Google Earth - Aerial Site



Attachment 3
StreamStats (Dry Stream Reach)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251029171040536000
Clicked Point (Latitude, Longitude):	41.41795, -80.33377
Time:	2025-10-29 13:11:05 -0400



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.037	square miles	2.26	1400
ELEV	Mean Basin Elevation	1248	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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

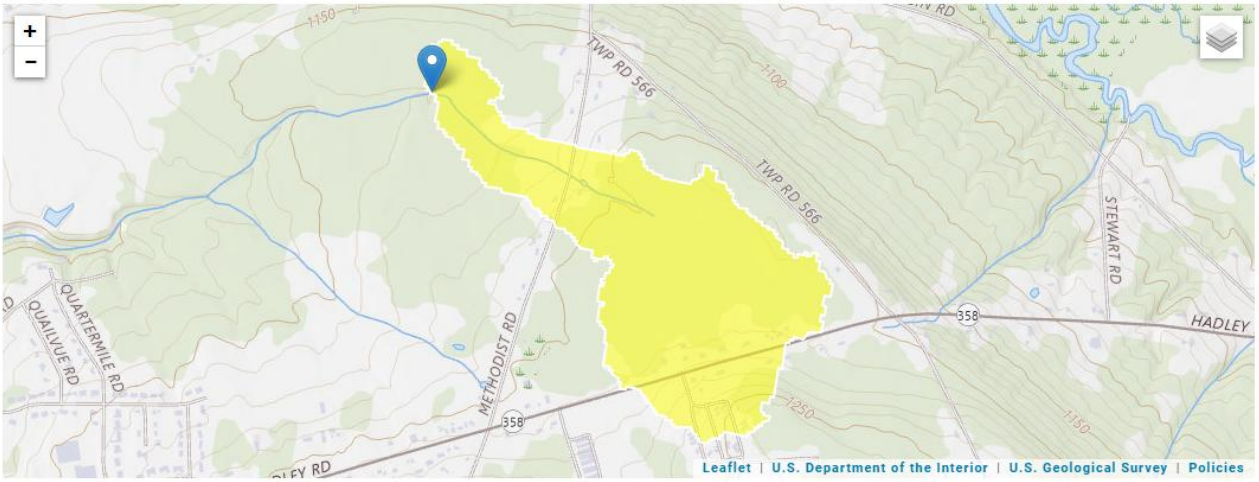
Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.000678	ft^3/s
30 Day 2 Year Low Flow	0.00153	ft^3/s
7 Day 10 Year Low Flow	0.000144	ft^3/s
30 Day 10 Year Low Flow	0.000397	ft^3/s
90 Day 10 Year Low Flow	0.000961	ft^3/s

Attachment 4
StreamStats (Perennial Reach)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251029172551414000
Clicked Point (Latitude, Longitude):	41.42616, -80.34029
Time:	2025-10-29 13:26:13 -0400



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.21	square miles	2.26	1400
ELEV	Mean Basin Elevation	1207	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

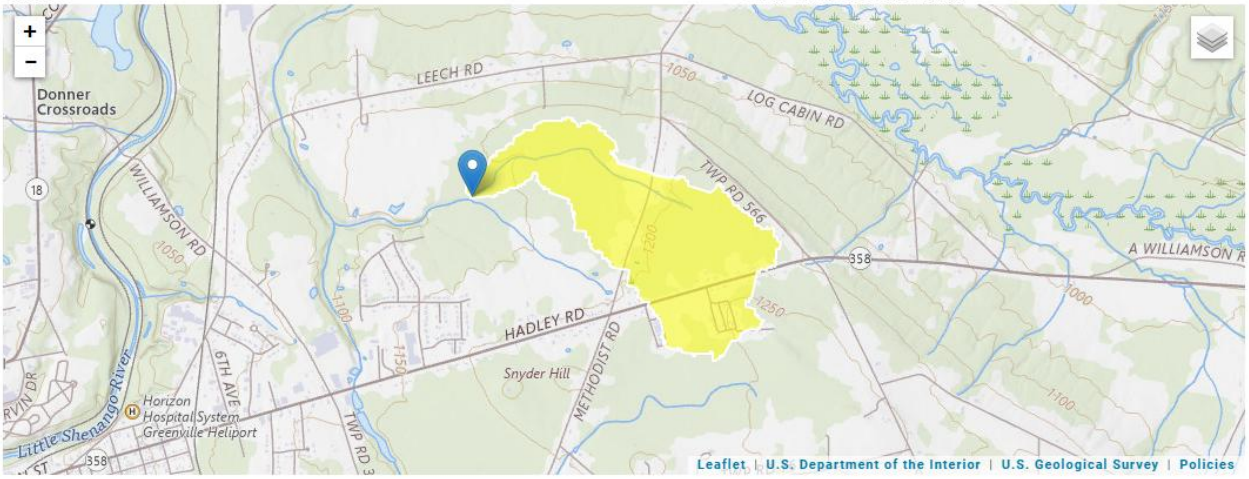
Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00477	ft^3/s
30 Day 2 Year Low Flow	0.00989	ft^3/s
7 Day 10 Year Low Flow	0.0012	ft^3/s
30 Day 10 Year Low Flow	0.0029	ft^3/s
90 Day 10 Year Low Flow	0.0064	ft^3/s

Low-Flow Statistics Citations

Attachment 5
StreamStats (Endpoint)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251029181642518000
Clicked Point (Latitude, Longitude):	41.42347, -80.34834
Time:	2025-10-29 14:17:04 -0400



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.45	square miles	2.26	1400
ELEV	Mean Basin Elevation	1199	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0113	ft^3/s
30 Day 2 Year Low Flow	0.0226	ft^3/s
7 Day 10 Year Low Flow	0.00307	ft^3/s
30 Day 10 Year Low Flow	0.00698	ft^3/s
90 Day 10 Year Low Flow	0.0148	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Attachment 6
WQM 7 (Dry Stream Reach)

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
20A	36228	Trib 36228 of Little Shenango River	**1.180**	1213.00	0.04	0.00000	0.00	☐

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.004	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
Greenville MHP	PA0103870	0.0315	0.0315	0.0315	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	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20A	36228	Trib 36228 of Little Shenango River	**0.480**	1163.00	0.21	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.006	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
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.180	0.00	0.00	0.00	.0487	0.01353	.372	1.51	4.06	0.09	0.492	24.99	7.00
Q1-10 Flow												
1.180	0.00	0.00	0.00	.0487	0.01353	NA	NA	NA	0.09	0.492	24.99	7.00
Q30-10 Flow												
1.180	0.00	0.00	0.00	.0487	0.01353	NA	NA	NA	0.09	0.492	24.98	7.00

WQM 7.0 Modeling Specifications

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

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

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
1.180	Greenville MHP	NA	50	11.08	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.180	Greenville MHP	NA	25	1.37	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.18	Greenville MHP	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.180	0.032	24.985	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.511	0.372	4.063	0.087
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.93	1.499	24.93	1.027
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.010	29.618	Owens	NA
Reach Travel Time (days)			
0.492			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.049	22.72	23.70	2.93
0.098	20.71	22.53	2.74
0.148	18.88	21.42	2.98
0.197	17.20	20.36	3.29
0.246	15.68	19.36	3.60
0.295	14.29	18.40	3.90
0.344	13.02	17.50	4.18
0.394	11.87	16.63	4.44
0.443	10.82	15.81	4.68
0.492	9.86	15.03	4.90

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

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)
1.180	Greenville MHP	PA0103870	0.032	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

Attachment 7
WQM 7 (Perennial Reach)

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
20A	36228	Trib 36228 of Little Shenango River	**0.480**	1163.00	0.21	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.006	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
Greenville MHP	PA0103870	0.0315	0.0315	0.0315	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	9.86	2.00	0.00	1.50
Dissolved Oxygen	4.90	8.24	0.00	0.00
NH3-N	15.03	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20A	36228	Trib 36228 of Little Shenango River	**0.000**	1156.00	0.45	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.007	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
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.480	0.00	0.00	0.00	.0487	0.00276	.337	2.81	8.35	0.05	0.557	24.88	7.00
Q1-10 Flow												
0.480	0.00	0.00	0.00	.0487	0.00276	NA	NA	NA	0.05	0.560	24.92	7.00
Q30-10 Flow												
0.480	0.00	0.00	0.00	.0487	0.00276	NA	NA	NA	0.05	0.555	24.84	7.00

WQM 7.0 Modeling Specifications

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

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

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
0.480	Greenville MHP	11.14	11.32	11.14	11.32	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
0.480	Greenville MHP	1.38	1.43	1.38	1.43	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.48	Greenville MHP	9.86	9.86	1.43	1.43	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.480	0.032	24.880	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.814	0.337	8.346	0.053
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.67	1.487	1.39	1.019
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.078	25.319	Owens	5
Reach Travel Time (days)			
0.557			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.056	8.72	1.32	6.64
0.111	7.86	1.24	7.11
0.167	7.09	1.18	7.30
0.223	6.39	1.11	7.41
0.279	5.76	1.05	7.51
0.334	5.19	0.99	7.55
0.390	4.68	0.94	7.55
0.446	4.22	0.88	7.55
0.502	3.80	0.84	7.55
0.557	3.43	0.79	7.55

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36228	Trib 36228 of Little Shenango River

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)
0.480	Greenville MHP	PA0103870	0.032	CBOD5	9.86		
				NH3-N	1.43	2.86	
				Dissolved Oxygen			5

Comments: Model Discharge Flow = 0.021*24/16 = 0.0315 MGD

Since the CBOD5 limit is the same as the input data from the dry stream evaluation, no further calculations are required. BPJ limits for CBOD5 will remain.

	Ct = (Co)e^-kt
	NH3-N
Ct	1.43
k	1.027
t	0.492
Co	unknown
e^-(1.027*0.492) =	0.603334204
1.43/0.6033 =	2.370162325
	Co = 2.37 mg/l

Comments: This ammonia-nitrogen limit is greater than the existing permit limit, therefore, the existing permit limit will be retained.

Attachment 8
TRC Spreadsheet

TRC EVALUATION

0.0012	= Q stream (cfs)	0.5	= CV Daily
0.021	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= %Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.031	1.3.2.iii	WLA cfc = 0.022
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.011	5.1d	LTA_cfc = 0.013

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.014	AFC
		INST MAX LIMIT (mg/l) = 0.046	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **5**)
☐	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:
☐	Other: