Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0101087**
Facility Type	**Non-Municipal**	APS ID	**1154495**
Major / Minor	**Minor**	Authorization ID	**1556008**

Applicant and Facility Information

Applicant Name	**Overlook Holdings LLC**	Facility Name	**Twilight MHP**
Applicant Address	PO Box 254	Facility Address	Route 551
	Edinburg, PA 16116-0254		Edinburg, PA 16116
Applicant Contact	Timothy St John	Facility Contact	Timothy St John
Applicant Phone	(724) 333-2801	Facility Phone	(724) 333-2801
Client ID	396136	Site ID	262956
Ch 94 Load Status	Not Overloaded	Municipality	Mahoning Township
Connection Status	No Limitations	County	Lawrence
Date Application Received	January 22, 2026	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of Minor Sewage Facility NPDES Permit for a Mobile Home Park

Summary of Review

The Department received a renewal application for NPDES Individual Permit No. PA0101087 on January 22, 2026. The permit is for a Mobile Home Park with one outfall (Outfall 001) that discharges to Tributary 35853 to Shenango River (WWF).

This renewal also includes a transfer from Twilight Mobile Home Park LLC to Overlook Holdings LLC. The transferred WQM Permit will be issued in conjunction with the final NPDES permit.

Act 14 notifications were submitted and received.

The facility is currently in the eDMR system.

The last inspection was conducted on August 20, 2025. Violations were noted.

There are no open violations in WMS for the subject Client ID (396136) as of February 3, 2026.

Proposed Changes:

- Addition of E. Coli monitoring
- More stringent Total Residual Chlorine (TRC) limits are proposed
- More stringent Ammonia-Nitrogen limits are proposed

Approve	Deny	Signatures	Date
X		Carlee Wilson Carlee Wilson / Environmental Engineering Specialist	February 10, 2026
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	March 5, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0175
Latitude	41º 2' 55.14"	Longitude	-80º 26' 5.16"
Quad Name	Edinburg	Quad Code	41080A4
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Shenango River (WWF)	Stream Code	35853
NHD Com ID	130025482	RMI	0.25
Drainage Area	0.18	Yield (cfs/mi^2)	0.005
Q_{7-10} Flow (cfs)	0.001	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1107	Slope (ft/ft)	-
Watershed No.	20-A	Chapter 93 Class.	WWF
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)	7.0	Default
Temperature (°F)	68	Default
Hardness (mg/L)	100	Default
Other:	-	-

Nearest Downstream Public Water Supply Intake	PA American Water Company, New Castle		
PWS Waters	Shenango	Flow at Intake (cfs)	16.2
PWS RMI	5.1	Distance from Outfall (mi)	5.49

Changes Since Last Permit Issuance: Q7-10 Flow was adjusted using StreamStats data from USGS. Elevation was changed 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: Twilight MHP

WQM Permit No.	Issuance Date
3773412 T-4	May 22, 2024
3773412 A-1	December 31, 2009
3773412 T-3	June 8, 1983
3773412 T-2	December 23, 1980
3773412 T-1	October 23, 1980
377341	December 26, 1973
367-S-034	February 23, 1968

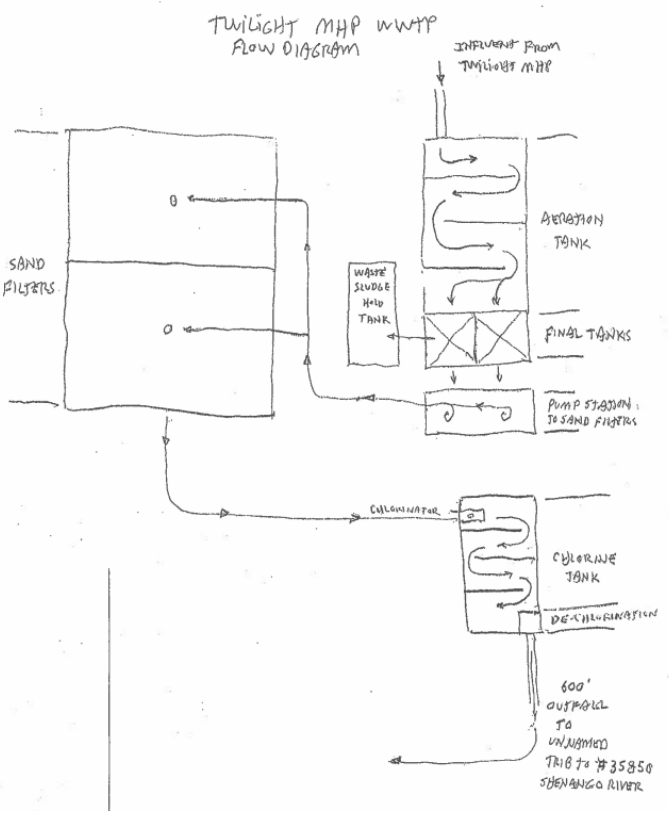
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Activated Sludge	Hypochlorite	0.0175

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0175	35.4	Not Overloaded	Aerobic Digestion	

Changes Since Last Permit Issuance: None

Other Comments: Treatment consists of 3 aeration tank bays, a clarifier tank, a sludge holding tank, a wet well, two accessible sand filters, then a chlorine contact tank w/tablet chlorinator.

Sludge use and disposal description and location(s): New Castle Sanitation Authority



Compliance History

DMR Data for Outfall 001 (from January 1, 2025, to December 31, 2025)

Parameter	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25
Flow (MGD) Average Monthly	0.0006	0.0008	0.001	0.0004	0.0009	0.001	0.0012	0.0013	FF	0.0001	0.0001	0.0006
pH (S.U.) Instantaneous Minimum	7.2	6.9	6.8	6.8	6.9	7.2	7.0	6.8	E	7.4	7.0	6.8
pH (S.U.) Instantaneous Maximum	7.8	7.8	7.8	7.9	8.2	8.4	7.9	8.2	E	7.8	7.6	7.6
DO (mg/L) Instantaneous Minimum	7.6	7.9	5.6	5.3	6.7	5.5	6.3	6.1	E	8.9	8.9	8.1
TRC (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02	E	< 0.02	< 0.01	0.02
TRC (mg/L) Instantaneous Maximum	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	E	0.03	0.04	0.03
CBOD5 (mg/L) Average Monthly	4.6	16.1	4.9	< 4.9	7.7	5.7	< 3.1	3.3	E	E	4.4	< 3.6
TSS (mg/L) Average Monthly	< 4	< 11	< 4.0	< 5	< 5	20	< 4	< 4	E	E	10	4
Fecal Coliform (No./100 ml) Geometric Mean	63	5	< 1	< 4	> 9	> 16	> 18	< 6	E	< 1	34	< 10
Total Nitrogen (mg/L) Average Monthly	21.2	28.1	33.1	35.3	35.6	28.1	19	26.3	E	E	18.2	19.8
Ammonia (mg/L) Average Monthly	13.2	10.3	3.4	4.4	17.5	23.8	1.66	3.04	E	E	< 0.13	< 0.19
Total Phosphorus (mg/L) Average Monthly	1.6	2.9	2.7	1.56	0.76	1.43	< 0.19	1.38	E	E	0.44	0.82

Compliance History

Effluent Violations for Outfall 001, from: February 1, 2025, To: December 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Ammonia	08/31/25	Avg Mo	17.5	mg/L	2.0	mg/L
Ammonia	07/31/25	Avg Mo	23.8	mg/L	2.0	mg/L
Ammonia	05/31/25	Avg Mo	3.04	mg/L	2.0	mg/L
Ammonia	09/30/25	Avg Mo	4.4	mg/L	2.0	mg/L
Ammonia	10/31/25	Avg Mo	3.4	mg/L	2.0	mg/L
Ammonia	11/30/25	Avg Mo	10.3	mg/L	6.0	mg/L
Ammonia	12/31/25	Avg Mo	13.2	mg/L	6.0	mg/L
Total Phosphorus	07/31/25	Avg Mo	1.43	mg/L	1.0	mg/L
Total Phosphorus	11/30/25	Avg Mo	2.9	mg/L	1.0	mg/L
Total Phosphorus	09/30/25	Avg Mo	1.56	mg/L	1.0	mg/L
Total Phosphorus	10/31/25	Avg Mo	2.7	mg/L	1.0	mg/L
Total Phosphorus	12/31/25	Avg Mo	1.6	mg/L	1.0	mg/L
Total Phosphorus	05/31/25	Avg Mo	1.38	mg/L	1.0	mg/L

Other Comments: Effluent violations are considered significant.

Table 1. 5-Year Inspection Summary

Client	Facility Name	Inspection Date	Inspection Type	Inspection Result	Inspector	No. of Violations
NORMAN J CUTRI D/B/A TWILIGHT MHP	TWILIGHT MHP	02/03/2021	Administrative/File Review	Violation(s) Noted	OPILA, TAMI	1
NORMAN J CUTRI D/B/A TWILIGHT MHP	TWILIGHT MHP	03/15/2023	Compliance Evaluation	Violation(s) Noted	PUDLICK, DAN	3
NORMAN J CUTRI D/B/A TWILIGHT MHP	TWILIGHT MHP	06/07/2022	Administrative/File Review	Violation(s) Noted	BLOOM, KRYSTAL	1
TWILIGHT MHP LLC	TWILIGHT MHP	12/28/2023	Administrative/File Review	Violation(s) Noted	KING, WILLIAM	1
TWILIGHT MHP LLC	TWILIGHT MHP	09/11/2024	Administrative/File Review	Violation(s) Noted	KICHER, ERIC	2
TWILIGHT MHP LLC	TWILIGHT MHP	08/06/2024	Administrative/File Review	Violation(s) Noted	OPILA, TAMI	1
TWILIGHT MHP LLC	TWILIGHT MHP	08/20/2025	Administrative/File Review	Violation(s) Noted	RIOS MARTINEZ, WANDA	1

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0175
Latitude 41º 2' 54.56" **Longitude** -80º 26' 5.36"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

Table 2. Minimum Technology-Based and BPJ Standards for Individual Sewage Permits

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.

E. Coli monitoring is established at 1/year as stated in the SOP for facilities with design flows between 0.002 and 0.5 MGD in this renewal.

A phosphorous limit of 1.0 mg/l will be retained in this renewal from the previous permit.

Water Quality-Based Limitations

Table 3. Input Parameters

Outfall 001	River Mile Index (RMI)	0.25
	Elevation (ft)	1107
	Drainage Area	0.18
	Yield	0.005
	Q7-10 Flow	0.001
Endpoint	River Mile Index (RMI)	0
	Elevation (ft)	1038
	Drainage Area	0.21
	Yield	0.006
	Q7-10 Flow	0.001

Table 4. WQM 7 and TRC Spreadsheet Results

Parameter	Limit (mg/l)	SBC	Model
CBOD5	25	Average Monthly	WQM 7
	50	IMAX	
NH3 - N	1.46	Average Monthly	
	2.92	Instantaneous Maximum	
DO	5	Daily Minimum	
TRC	0.014	Average Monthly	TRC Spreadsheet
	0.046	IMAX	

The parameters in Table 3 were found using Google Earth, StreamStats, and eMapPA. These parameters are used in the Department's Water Quality Modeling program (WQM 7) and TRC Spreadsheet to determine limits for CBOD5, NH3-N, Dissolved Oxygen, and TRC. Table 4 displays the results of these evaluations.

CBOD5

The attached results of the WQM 7.0 stream model (Attachment 5) indicate that a monthly average limit (AML) of 25 mg/L CBOD5 for summer months is required to protect the water quality of the stream. The recommended limits are consistent with the existing permit limits and will be retained in this renewal.

NH3-N

The attached results of the WQM 7.0 stream model (Attachment 5) are displayed above in Table 4. As per the Department's Permit Writer's Manual, rounding guidelines for conventional pollutants between 1.0 and 10.0 shall be rounded down to the nearest 0.5. Therefore, an average monthly limit (AML) of 1.0 mg/l and an IMAX limit of 2.5 mg/l are proposed in this renewal. A seasonal multiplier of 3 is applied to find a winter AML of 3.0 mg/L and an IMAX of 7.5 mg/L for the months of November through April. These limits are more stringent than the existing limits, and since the DMR reports indicate the facility currently cannot meet the new limits consistently, a 3-year compliance schedule has been implemented into the permit.

DO

The attached results of the WQM 7.0 stream model (Attachment 5) indicate that a minimum concentration of DO of 5 mg/l is required to protect water quality. The recommended limit is consistent with the existing permit limit and will be retained in this renewal.

TRC

The results of the TRC Spreadsheet are presented in Attachment 6 which indicate an AML of 0.014 mg/l and an IMAX limit of 0.046 mg/l. As per the Department's Permit Writer's Manual, rounding guidelines for pollutants between 0.01 and 0.1 shall be rounded down to the nearest 0.01. Therefore, an AML of 0.01 mg/l and an IMAX limit of 0.04 mg/l are proposed in this renewal. These limits are more stringent than the current permit limits (Table 5) and since the permittee does not demonstrate its ability to achieve these new limits a 3-year compliance schedule has been implemented into the permit.

These proposed AML is lower than the Quantitation Limit (QL), as defined in 25 Pa. Code § 252.1, of the most sensitive existing EPA-approved (40 CFR Part 136) test method or other DEP-approved method. A Part C condition has been added into the permit where if the sensitivity of the specified method improves or a more sensitive test method becomes available, DEP may modify the permit to require use of the more sensitive method. For the purpose of compliance, a statistical value reported on the DMR that is less than the QL (0.02 mg/l) will be considered to be in compliance.

Anti-Backsliding

Table 5. 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	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
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
TRC	XXX	XXX	XXX	0.02	XXX	0.06	1/day	Grab

Comments: More stringent limits are proposed for the highlighted items above. All other permit limitations, monitoring requirements, and conditions will be retained in 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" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Three Years After Permit Effective 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
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.02	XXX	0.06	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	6.0	XXX	12	2/month	8-Hr Composite
Ammonia-Nitrogen 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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection

Proposed Effluent Limitations and Monitoring Requirements

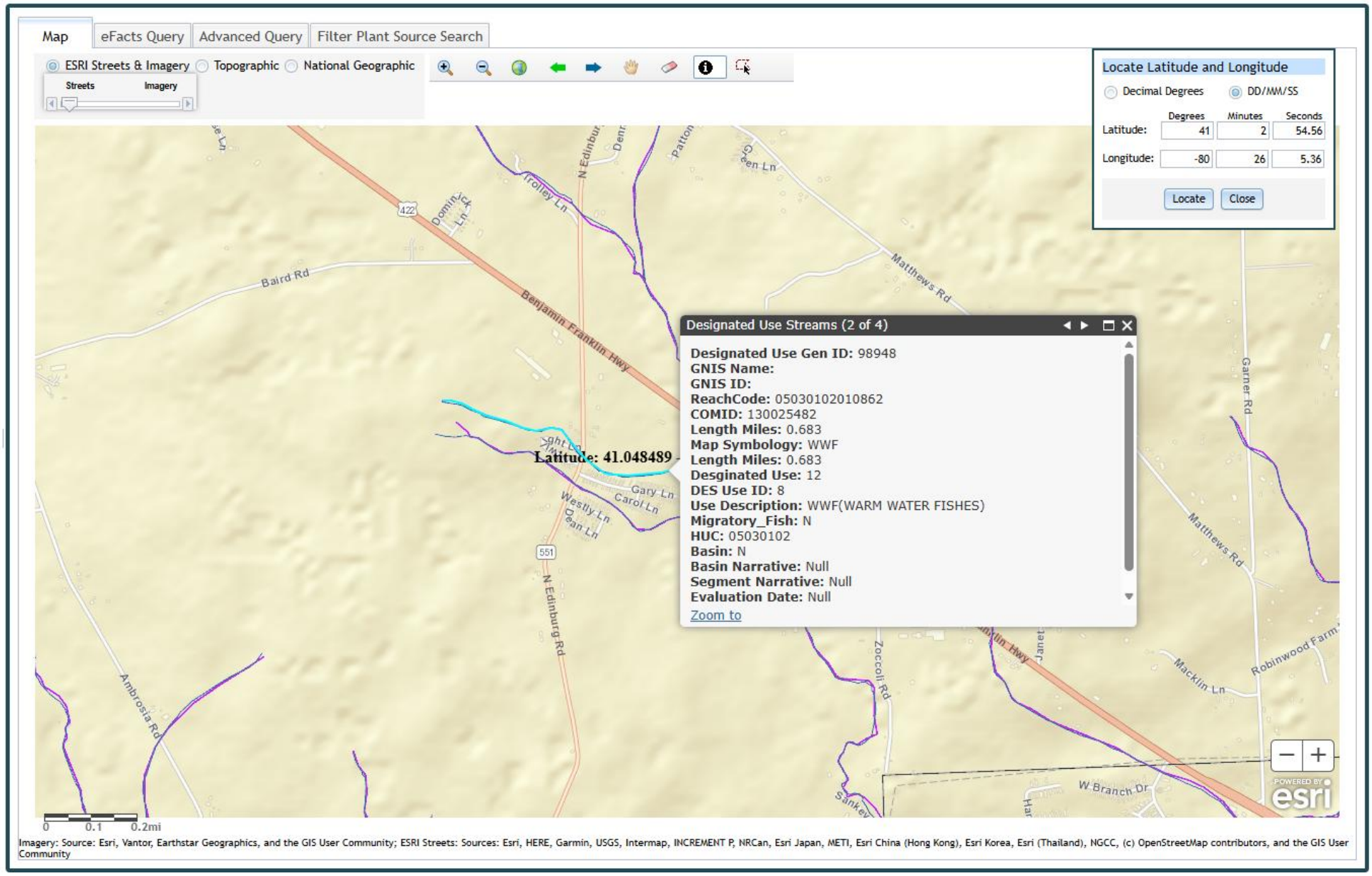
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

Outfall 001, Effective Period: Three Years After 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	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
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.01	XXX	0.04	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	2.0	XXX	7.5	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	1.0	XXX	2.5	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	1.0	XXX	2	2/month	8-Hr Composite
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection

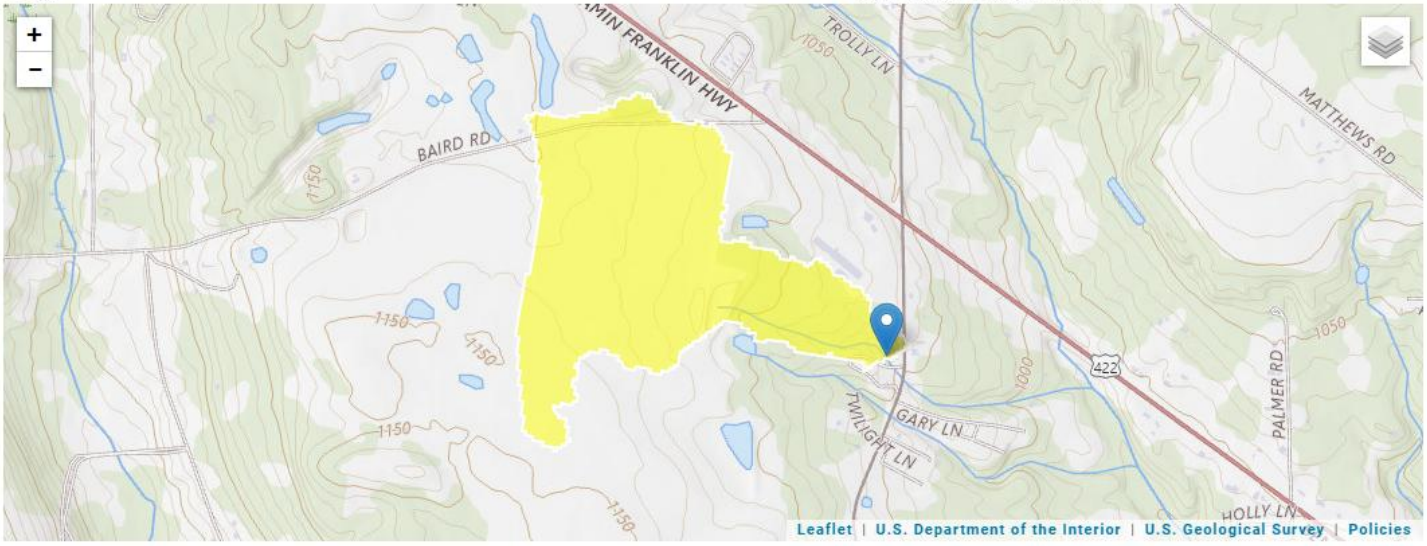
Attachment 1
eMapPA – Receiving Stream Designation and Location



Attachment 2
StreamStats Report – Outfall 001

StreamStats Report

Region ID:	PA
Clicked Point (Latitude, Longitude):	41.04953, -80.43981
Time:	2026-02-09 13:21:41 -0500



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.18	square miles	2.26	1400
ELEV	Mean Basin Elevation	1153.4	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	0.00385	ft^3/s
30 Day 2 Year Low Flow	0.00803	ft^3/s
7 Day 10 Year Low Flow	0.000969	ft^3/s
30 Day 10 Year Low Flow	0.00235	ft^3/s
90 Day 10 Year Low Flow	0.00519	ft^3/s

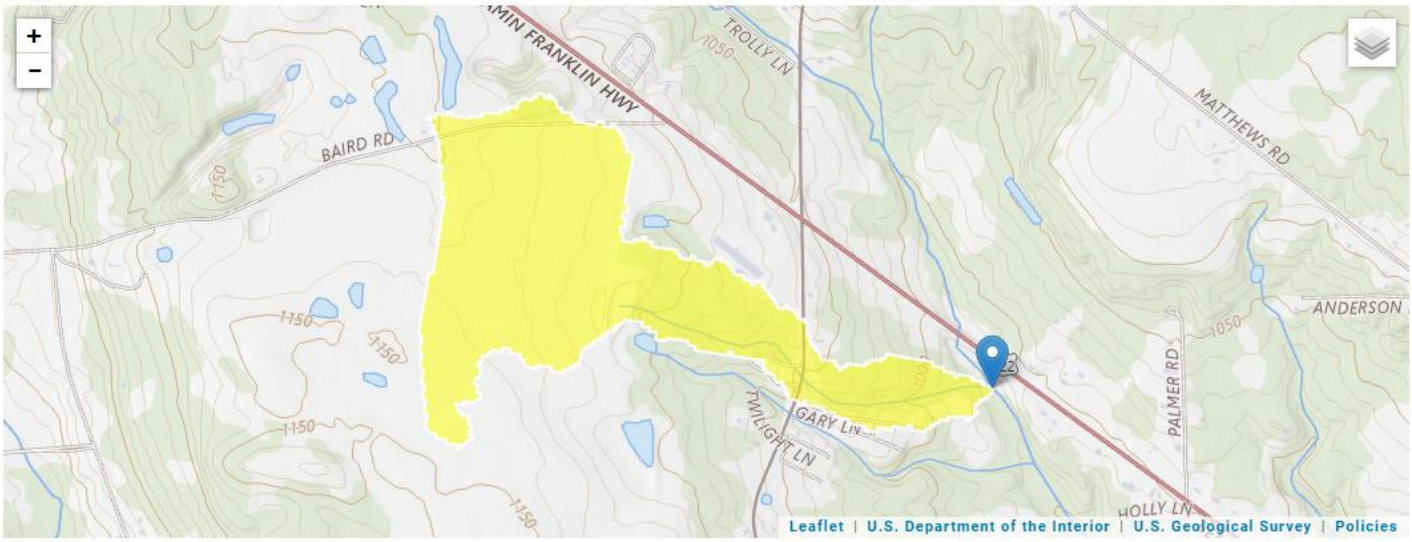
Low-Flow Statistics Citations

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 3
StreamStats Report - Endpoint

StreamStats Report

Region ID:	PA
Clicked Point (Latitude, Longitude):	41.04874, -80.43316
Time:	2026-02-05 08:27:50 -0500



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	1134.6	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	0.00453	ft^3/s
30 Day 2 Year Low Flow	0.00936	ft^3/s
7 Day 10 Year Low Flow	0.00116	ft^3/s
30 Day 10 Year Low Flow	0.00278	ft^3/s
90 Day 10 Year Low Flow	0.00606	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 4
Google Earth – Aerial Site View

Attachment 5
WQM 7

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	35853	Trib 35853 of Shenango River	**0.250**	1107.00	0.18	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	0.005	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
Twilight MHP	PA0101087	0.0175	0.0175	0.0175	0.000	25.00	7.00

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20A	35853	Trib 35853 of Shenango River	**0.000**	1038.00	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	35853	Trib 35853 of 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												
0.250	0.00	0.00	0.00	.0271	0.05227	.303	1.84	6.06	0.05	0.304	24.82	7.00
Q1-10 Flow												
0.250	0.00	0.00	0.00	.0271	0.05227	NA	NA	NA	0.05	0.306	24.88	7.00
Q30-10 Flow												
0.250	0.00	0.00	0.00	.0271	0.05227	NA	NA	NA	0.05	0.301	24.76	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	35853	Trib 35853 of 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
0.250	Twilight MHP	11.18	11.44	11.18	11.44	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
0.250	Twilight MHP	1.39	1.46	1.39	1.46	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)		
0.25	Twilight MHP	25	25	1.46	1.46	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	35853	Trib 35853 of Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.250	0.018	24.822	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.838	0.303	6.060	0.050
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.18	1.494	1.41	1.015
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.116	29.839	Owens	5
Reach Travel Time (days)			
0.304			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.030	22.85	1.36	5.64
0.061	21.59	1.32	5.93
0.091	20.41	1.28	6.11
0.121	19.28	1.24	6.26
0.152	18.22	1.21	6.38
0.182	17.22	1.17	6.49
0.212	16.27	1.13	6.59
0.243	15.38	1.10	6.69
0.273	14.53	1.07	6.78
0.304	13.73	1.03	6.86

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	35853	Trib 35853 of 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)
0.250	Twilight MHP	PA0101087	0.018	CBOD5	25		
				NH3-N	1.46	2.92	
				Dissolved Oxygen			5

Attachment 6
TRC Spreadsheet

TRC EVALUATION

0.001	= Q stream (cfs)	0.5	= CV Daily
0.0175	= 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)
☒	TRC Model Spreadsheet (see Attachment 6)