Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083551**
Facility Type	**Municipal**	APS ID	**849100**
Major / Minor	**Minor**	Authorization ID	**1506125**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Tyrone Township Adams County**	Facility Name	**Tyrone Twp STP at Walnut Grove MHP**
Applicant Address	5280 Old Harrisburg Road	Facility Address	1 Feister Drive
	York Springs, PA 17372		Gettysburg, PA 17325
Applicant Contact	Michael Mosley	Facility Contact	Michael Mosley
Applicant Phone	(717) 528-4012	Facility Phone	(717) 528-4012
Client ID	118244	Site ID	445326
Ch 94 Load Status	Not Overloaded	Municipality	Tyrone Township
Connection Status		County	Adams
Date Application Received	November 8, 2024	EPA Waived?	Yes
Date Application Accepted	November 12, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

Keller Engineers, Inc., on behalf of Tyrone Township Adams County, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was issued on August 25, 2020, became effective on September 1, 2020, and expires on August 31, 2025.

The Tyrone Township Sewage System is located in Tyrone Township, Adams County. The facility is owned and operated by Tyrone Township. The average annual design flow and hydraulic design capacity is 0.064 MGD, and the organic loading capacity is 128.1 lbs BOD_5/day.

WQM Part II No. 0188402 original was issued 11/4/1988, the first amendment 0188402 T-2 was issued on 5/19/2015 to transfer ownership from North Caroline Associates Partnership to Tyrone Township, the amendment No. 0188402 A-2 was issued on 11/22/2016, and the amendment No. 0188402 A-3 was issued on 3/3/2017 for construction of a mechanical screening unit installed upstream of the equalization tank.

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

Changes from the previous permit: The E. Coli monitoring and report requirements will be added to the proposed permit.

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.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	July 18, 2025
X		*Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	August 26, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.064
Latitude	39º 56' 28.91"	Longitude	-77º 9' 15.31"
Quad Name	Biglerville	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Conewago Creek (WWF)	Stream Code	09045
NHD Com ID	57471221	RMI	0.71
Drainage Area	1.9 mi.^{2}	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	0.12	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	525.67	Slope (ft/ft)	
Watershed No.	7-F	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	
Nearest Downstream Public Water Supply Intake	Wrightsville Borough Municipal Authority, York County		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	29 miles	Distance from Outfall (mi)	Approximate 73 miles

Changes Since Last Permit Issuance:

Drainage Area

The discharge is to Unnamed Tributary of Conewago Creek at RMI 0.71 miles. A drainage area upstream of the discharge is estimated to be 1.9 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow

According to StreamStats, the discharge point on Unnamed Tributary of Conewago Creek has a Q_{7-10} of 0.12 cfs and a drainage area of 1.9 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.06 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):

$$Q_{7-10} = 0.12 \text{ cfs}$$
$$\text{Low Flow Yield} = 0.12 \text{ cfs} / 1.9 \text{ mi.}^2 \approx 0.06 \text{ cfs/mi.}^2$$
$$Q_{30-10} = 1.36 * 0.12 \text{ cfs} \approx 0.16 \text{ cfs}$$
$$Q_{1-10} = 0.64 * 0.12 \text{ cfs} \approx 0.08 \text{ cfs}$$

The resulting Q_{7-10} dilution ratio is: $Q_{stream} / Q_{discharge}$ = 0.12 cfs / [0.064 MGD * (1.55 cfs/MGD)] = 1.2:1

Unnamed Tributary of Conewago Creek

25 Pa Code § 93.9n classifies Unnamed Tributary of Conewago Creek as Warm Water Fishes (WWF) surface water. Based on the 2024 Integrated Report, Conewago Creek, assessment unit ID 17562, 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 nearest downstream public water supply intake is the Wrightsville Borough Municipal Authority on the Susquehanna River in York County, approximately 73 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary

Treatment Facility Name: Tyrone Township STP At Walnut Grove MHP

WQM Permit No.	Issuance Date
0188402	11/4/1988
0188402 T-2	5/19/2015
0188402 A-2	11/22/2016
188402 A-3	3/3/2017

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.064

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.064	128.1	Not Overloaded		

Changes Since Last Permit Issuance:

Other Comments:
The WWTP train is as follows:

Grease trap (1) ⇒ Equalization Tanks (3) ⇒ Extended Aeration (2) ⇒ Clarification (2) ⇒ Chlorine Contact Tank (1) ⇒ Dechlorination (1) ⇒ Discharge (outfall)

The system incorporates chemical addition in the form of sodium hypochlorite (for disinfection) and sodium bisulfate (for dechlorination).

Biosolids:
Liquid Biosolids are hauled off site by Pecks Septic Service.

Compliance History	
Summary of DMRs:	DMRs reported last 12 months are summarized in next page.
Summary of Inspections:	1/9/2023: Mr. Hoy, DEP WQS, conducted compliance evaluation inspection. There were no violations noted during inspection. The field sample test results were within the permit limits. DEP's Recommendations were 1. Ensure the alarm is operation and test the alarm on weekly basis. 2. Investigate the source of the skimmer problem and ensure that the skimmer is operation. 3. Keep copies of sludge hauling record on-site. DEP's Request was the influent supplemental report is completed, submitted to eDMR, and kept on-site.
Other Comments:	There are currently no open violations associated with the permittee or the facility.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	0.028162	0.023693	0.025236	0.025577	0.024178	0.023375	0.022574	0.0230471	0.024072	0.028615	0.023588	0.02728
Flow (MGD) Daily Maximum	0.060058	0.043863	0.042285	0.039453	0.036963	0.033725	0.031541	0.034413	0.038318	0.066993	0.038087	0.044214
pH (S.U.) Daily Minimum	7.0	7.3	7.2	7.6	7.2	7.3	7.4	7.1	7.1	7.0	6.4	7.1
pH (S.U.) Daily Maximum	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.1	8.3	8.2	7.8	8.3
DO (mg/L) Daily Minimum	6.8	6.7	8.3	7.6	7.8	6.9	6.3	6.7	6.0	5.8	5.7	6.9
TRC (mg/L) Average Monthly	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04
TRC (mg/L) Instantaneous Maximum	0.07	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07
CBOD5 (lbs/day) Average Monthly	1.3	1.0	< 0.5	< 0.5	0.07	0.7	< 0.5	< 0.5	< 0.4	1.1	0.6	1.3
CBOD5 (lbs/day) Weekly Average	1.5	1.4	0.7	0.6	0.9	1.0	0.5	< 0.6	0.4	1.8	0.9	1.9
CBOD5 (mg/L) Average Monthly	3.0	5	< 3	< 3	4	4	< 3	< 2	< 3	3	4	6
CBOD5 (mg/L) Weekly Average	4.0	6	3	3	5	5	3	< 2	3	4	5	6
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	60	46	45	48	39	48	39	36	30	77	43	55
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	63	48	46	55	47	66	40	48	30	116	46	73
BOD5 (mg/L) Raw Sewage Influent Average Monthly	164	231	229	242	242	243	217	173	204	250	268	242
TSS (lbs/day) Average Monthly	1.5	1.6	1.6	1.3	1.0	0.5	1.2	0.8	0.7	1.6	0.9	1.7
TSS (lbs/day) Raw Sewage Influent Average Monthly	85	61	65	48	44	73	56	59	37	86	43	72

TSS (lbs/day) Raw Sewage Influent Daily Maximum	88	72	68	59	53	109	67	75	38	135	53	75
TSS (lbs/day) Weekly Average	1.5	2.0	1.8	1.7	1.3	0.7	1.4	0.8	0.7	1.8	1.3	2.8
TSS (mg/L) Average Monthly	4	8	9	7	7	3.0	7	4	5	8	6	7
TSS (mg/L) Raw Sewage Influent Average Monthly	234	294	330	242	274	366	310	173	252	270	258	366
TSS (mg/L) Weekly Average	5	8	11	8	9	3.0	8	5	5	12	7	8
Fecal Coliform (No./100 ml) Geometric Mean	< 5	< 9	< 1	< 8	< 1	3	< 1	2	< 1	3	< 2	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	26	76	< 1	579	< 1	9	1	3	< 1	10	4	1
Nitrate-Nitrite (mg/L) Average Monthly	< 50.4	< 41.4	< 15.4	< 25.4	< 38.4	< 46.4	< 33.4	< 37.4	< 46.4	< 47.4	< 28.4	< 28.4
Nitrate-Nitrite (lbs) Total Monthly	< 439	< 205	< 79	< 132	212	< 229	< 173	< 272	< 203	< 668	< 158	< 297
Total Nitrogen (mg/L) Average Monthly	< 50.9	< 44.7	< 20.4	< 25.9	< 38.9	< 48.2	< 33.9	< 37.9	< 46.9	< 47.9	< 28.9	< 28.9
Total Nitrogen (lbs) Total Monthly	< 443	< 221	< 105	< 134	< 214	< 238	< 175	< 275	< 205	< 675	< 161	< 303
Total Nitrogen (lbs) Total Annual						< 2812						
Ammonia (lbs/day) Average Monthly	< 0.04	< 0.02	0.3	< 0.03	< 0.02	< 0.2	< 0.02	< 0.02	< 0.01	< 0.03	< 0.02	< 0.03
Ammonia (mg/L) Average Monthly	< 0.01	< 0.1	2.0	< 0.1	< 0.1	< 0.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TKN (mg/L) Average Monthly	< 0.5	3.3	< 5.0	< 0.5	< 0.5	1.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TKN (lbs) Total Monthly	< 4	16	< 26	< 3	< 3	9	< 3	< 4	< 2	< 7	< 3	< 5
Total Phosphorus (mg/L) Average Monthly	8.5	7.5	3.4	3	5.5	5.5	6.5	5.5	6.5	7.5	7	4.9
Total Phosphorus (lbs) Total Monthly	74	37	17	16	30	27	34	40	28	106	39	< 51
Total Phosphorus (lbs) Total Annual						456						

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	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.19	XXX	0.61	1/day	Grab
CBOD5 Nov 1 – Apr 30	13.3	21.4 Wkly Ave	XXX	25.0	40.0	50.0	2/month	8-Hr Composite
CBOD5 May 1 – Oct 31	10.7	16.0 Wkly Ave	XXX	20.0	30.0	40.0	2/month	8-Hr Composite
TSS	16.0	24.0 Wkly Ave	XXX	30.0	45.0	60.0	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10,000	2/month	Grab
Ammonia May 1 – Oct 31	1.3	XXX	XXX	2.5	XXX	5.0	2/month	8-Hr Composite
Ammonia Nov 1 – Apr 30	4.0	XXX	XXX	7.5	XXX	15.0	2/month	8-Hr Composite
TKN	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.19	XXX	0.61	1/day	Grab
CBOD5 Nov 1 - Apr 30	13.3	21.4	XXX	25.0	40.0	50.0	2/month	8-Hr Composite
CBOD5 May 1 - Oct 31	10.7	16.0	XXX	20.0	30.0	40.0	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	16.0	24.0	XXX	30.0	45.0	60.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia Nov 1 - Apr 30	4.0	XXX	XXX	7.5	XXX	15.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	1.3	XXX	XXX	2.5	XXX	5.0	2/month	8-Hr Composite
TKN	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Nitrate-Nitrite	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (Total Load, lbs) (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XX	1/year	Calculation
Total Phosphorus	Report Total Mo	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus (Total Load, lbs) (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.064
Latitude 39º 56' 28.91" **Longitude** -77º 9' 15.31"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

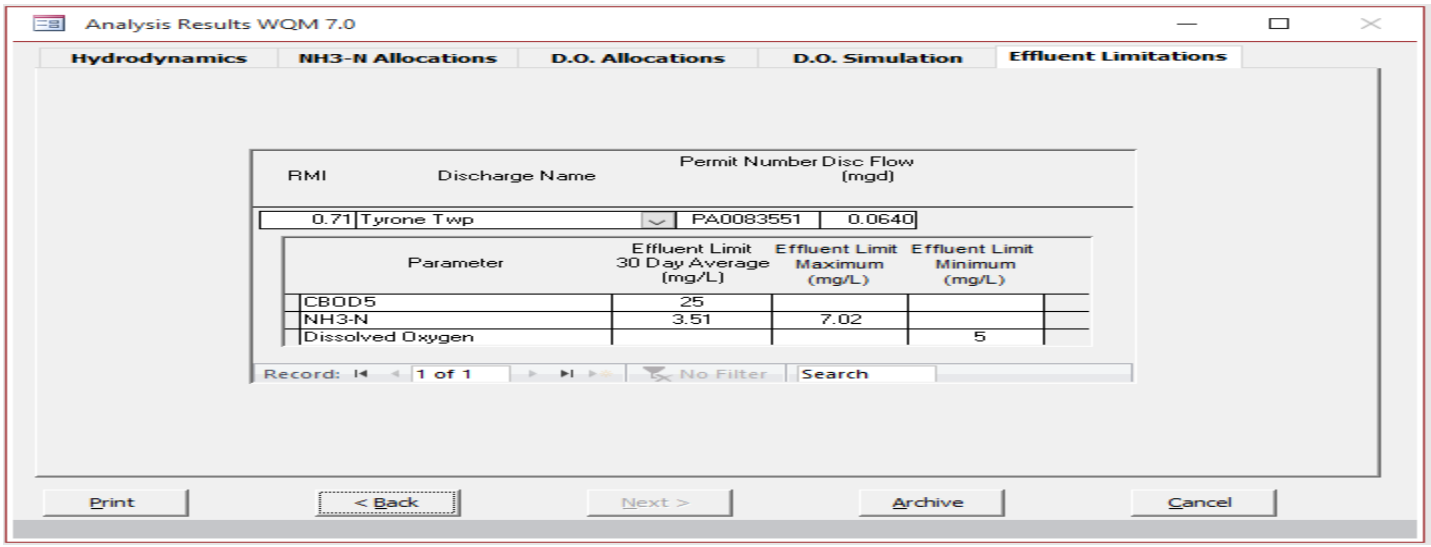
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.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

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (Document 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 per 391-2000-007)
- Discharge Temperature 25°C (Default per 391-2000-007)
- Stream pH 7.0 (Default per 391-2000-006)
- Stream Temperature 25°C (Default for WWF per 391-2000-003)
- Background NH_3-N 0 mg/L (Assumed since no upstream WWTPs)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 3.51 mg/L as a monthly average and 7.02 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. Due to anti-backsliding policy, the existing NH_3-N summer limits more stringent of 2.5 mg/L monthly average and 5.0 mg/L instantaneous maximum and winter limits of 7.5 mg/L average monthly and 15.0 mg/L instantaneous maximum will remain in the proposed permit. Recent DMR and inspection data indicate that the facility is consistently meeting these limits.

The load limitations are calculated as follows:

Summer average monthly mass limit: 2.5 mg/L x 0.064 MGD x 8.34 = 1.3 lbs/day
Winter average monthly mass limit: 7.5 mg/L x 0.064 MGD x 8.34 = 4.0 lbs/day

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The existing permit limits of 25.0 mg/L average monthly, 40.0 mg/L weekly average, and 50.0 mg/L instantaneous maximum for the winter season will remain in the proposed permit. Summer limits of 20.0 mg/L average monthly, 3.00 mg/L weekly average and 40.0 mg/L instantaneous maximum will also remain in the proposed permit. The load limitations are calculated as follows:

Summer average monthly mass limit: 20.0 mg/L x 0.064 MGD x 8.34 = 10.7 lbs/day
Summer average weekly mass limit: 30.0 mg/L x 0.064 MGD x 8.34 = 16.0 lbs/day

Winter average monthly mass limit: 25.0 mg/L x 0.064 MGD x 8.34 = 13.3 lbs/day
Winter average weekly mass limit: 40.0 mg/L x 0.064 MGD x 8.34 = 21.4 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(1).

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/quarter will be included in the permit to be consistent with the recommendation from this SOP.

Total Suspended Solids (TSS):
The existing permit limits of 30.0 mg/L average monthly, 45.0 mg/L weekly average, and 60 mg/L instantaneous maximum will remain in the proposed permit. The load limitations are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.064 MGD x 8.34 = 16.0 lbs/day
Average weekly mass limit: 45.0 mg/L x 0.064 MGD x 8.34 = 24.0 lbs/day

Total Phosphorus:
Per the Department's guidance document No. 391-2000-018, a conservative estimate for the phosphorus load contributed by this facility to the lower Susquehanna River is:

10.0 mg/L x 0.064 MGD x 8.34 = 5.34 lbs/day

This load represents 0.14% (5.34 lbs/day / 3,814 lbs/day x 100%) of the total estimated load to the lower Susquehanna River, which is below the minimum requirement of 0.25% required for the establishment of Phosphorus limits. Therefore, the Phosphorus limits are not needed in the proposed permit.

Stormwater:
There is no known stormwater outfalls associated with this facility.

Toxics:
This is a minor sewage facility receiving domestic wastewater only and the current application does not require sampling of toxic pollutants (or heavy metals) for those facilities with design flows less than 0.1 MGD. Therefore, no reasonable potential analysis for toxic pollutants has been performed for this permit renewal.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equations and calculations as presented in the Department's 2003 Implementation Guidance for Residual Chlorine (TRC) (ID # 391-2000-015) for developing chlorine limitations. The attached printout indicates that an average monthly water quality limit of 0.19 mg/L and IMAX of 0.61 mg/L would be needed to prevent toxicity concerns. This is consistent with the existing permit. Recent DMR data indicates that the facility has been consistently achieving concentrations below these more stringent limits.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.12	= Q stream (cfs)	0.5	= CV Daily
0.064	= 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)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.406	1.3.2.iii	WLA cfc = 0.388
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.151	5.1d	LTA_cfc = 0.226

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.186	AFC
		INST MAX LIMIT (mg/l) = 0.608	

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)

Chesapeake Bay Strategy:
This facility falls in Phase 5 of the Pennsylvania's Chesapeake Bay Tributary Strategy Point Source Implementation Plan. At this time, the Department is not requiring a total maximum annual Phosphorus or Nitrogen loading cap. However, monitoring for TN and TP is being recommended to be performed for all Phase 5 facilities in order to collect more extensive data for the Chesapeake Bay TMDL. Monitoring requirements will be placed in this permit that are consistent with the current requirements of the Department's Standard Operating Procedure for "Establishing Effluent Limitations for Individual Sewage Permits" (SOP No. BPNPSM-PMT-033).

The existing permit 1/month Total Kjeldahl Nitrogen, Nitrate-Nitrite as Nitrogen, TN, and TP "Report & Monitoring" requirements will remain in the proposed permit in order to satisfy the requirements of the Chesapeake Bay Strategy.

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.

303(d) Listed Streams:
This discharge is not located on a 303(d) listed stream segment.

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

WQM 7.0 Data:

DO Goal: 5.0 mg/L

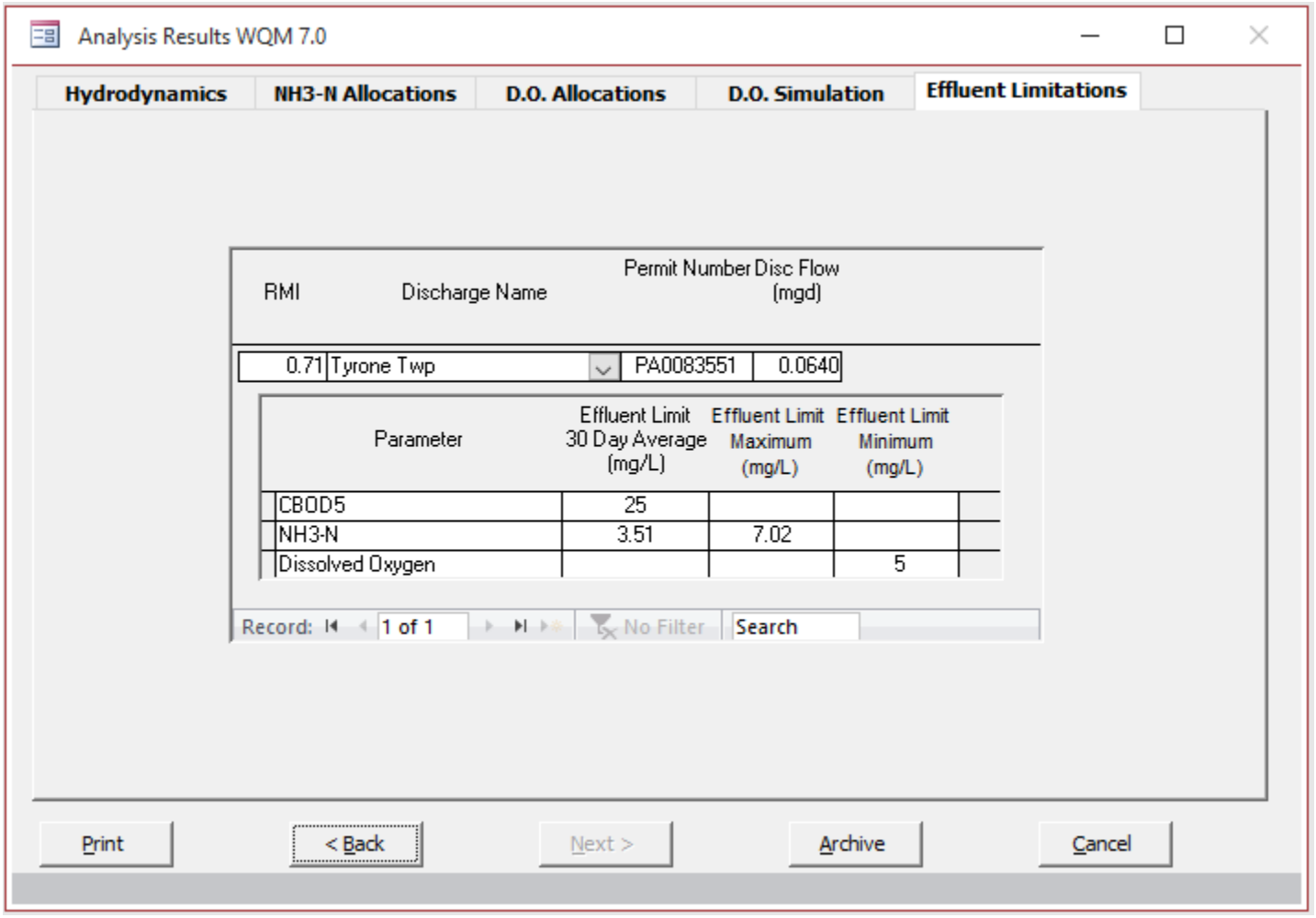
- Discharge pH 7.0 (Default per 391-2000-007)
- Discharge Temperature 25°C (Default per 391-2000-007)
- Stream pH 7.0 (Default per 391-2000-006)
- Stream Temperature 25°C (Default for WWF per 391-2000-003)
- Background NH3-N 0 mg/L (Assumed since no upstream WWTPs)

Node 1: Outfall 001 on UNT Conewago Creek (09045)

Elevation:	525.67 ft (USGS National Map Viewer)
Drainage Area:	1.9 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.71 mile (PA DEP eMapPA)
Low Flow Yield:	0.06 $cfs/mi.^2$
Discharge Flow:	0.064 MGD

Node 2: Just before confluence with UNT 09046

Elevation:	515.58 ft (USGS National Map Viewer)
Drainage Area:	1.97 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	0.33 mile (PA DEP eMapPA)
Low Flow Yield:	0.06 $cfs/mi.^2$
Discharge Flow:	0.0 MGD



rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	9045	Trib 09045 to Conewago 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)
0.710	Tyrone Twp	PA0083551	0.064	CBOD5	25		
				NH3-N	3.51	7.02	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	9045	Trib 09045 to Conewago 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
0.710	Tyrone Twp	11.07	19.23	11.07	19.23	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
0.710	Tyrone Twp	1.37	3.51	1.37	3.51	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
0.71	Tyrone Twp	25	25	3.51	3.51	5	5	0	0

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rptDOSim

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07F	9045	Trib 09045 to Conewago Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.710	0.064	25.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WDRatio	Reach Velocity (fps)
6.991	0.397	17.615	0.077
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
12.69	1.205	1.60	1.029
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
6.736	24.185	Owens	5
Reach Travel Time (days)			
0.302			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.030	12.06	1.58	6.76
0.060	11.46	1.53	6.81
0.091	10.90	1.49	6.87
0.121	10.36	1.44	6.93
0.151	9.84	1.40	6.99
0.181	9.36	1.35	7.06
0.212	8.89	1.31	7.12
0.242	8.45	1.27	7.17
0.272	8.03	1.23	7.23
0.302	7.64	1.19	7.28

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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/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		

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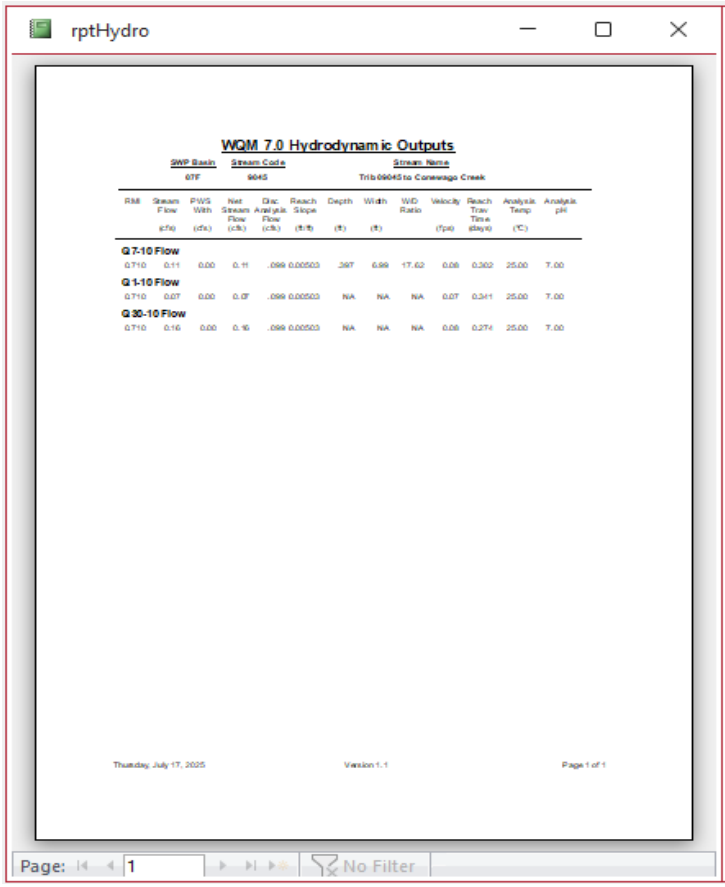
rptHydro
WQM 7.0 Hydrodynamic Outputs
SWP Basin
Stream Code
Stream Name
07F
9045
Trib 09045 to Conewago Creek
RMI
Stream Flow (cfs)
PWS With (cfs)
Net Stream Flow (cfs)
Disc Analysis Flow (cfs)
Reach Slope (ft/ft)
Depth (ft)
Width (ft)
WD Ratio
Velocity (fps)
Reach Trav Time (days)
Analysis Temp (°C)
Analysis pH
Q7-10 Flow
Q1-10 Flow
Q30-10 Flow
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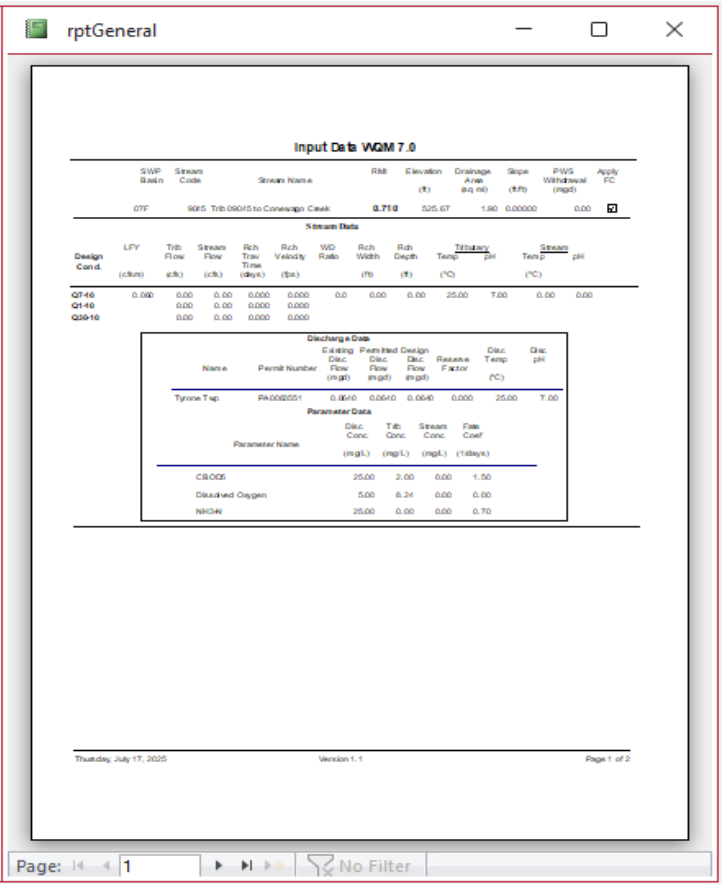
rptGeneral
Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
07F
9045 Trib 09045 to Conewago Creek
0.710
525.67
1.90
0.00000
0.00
Stream Data
Design Cond.
LFY (cfsm)
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (°C)
Tributary pH
Stream Temp (°C)
Stream pH
Q7-10
Q1-10
Q30-10
Discharge Data
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (°C)
Disc pH
Tyrone Twp
PA0082651
Parameter Data
Parameter Name
Disc Conc (mg/L)
Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/days)
CBOD5
Dissolved Oxygen
NH3-N
Thursday, July 17, 2025
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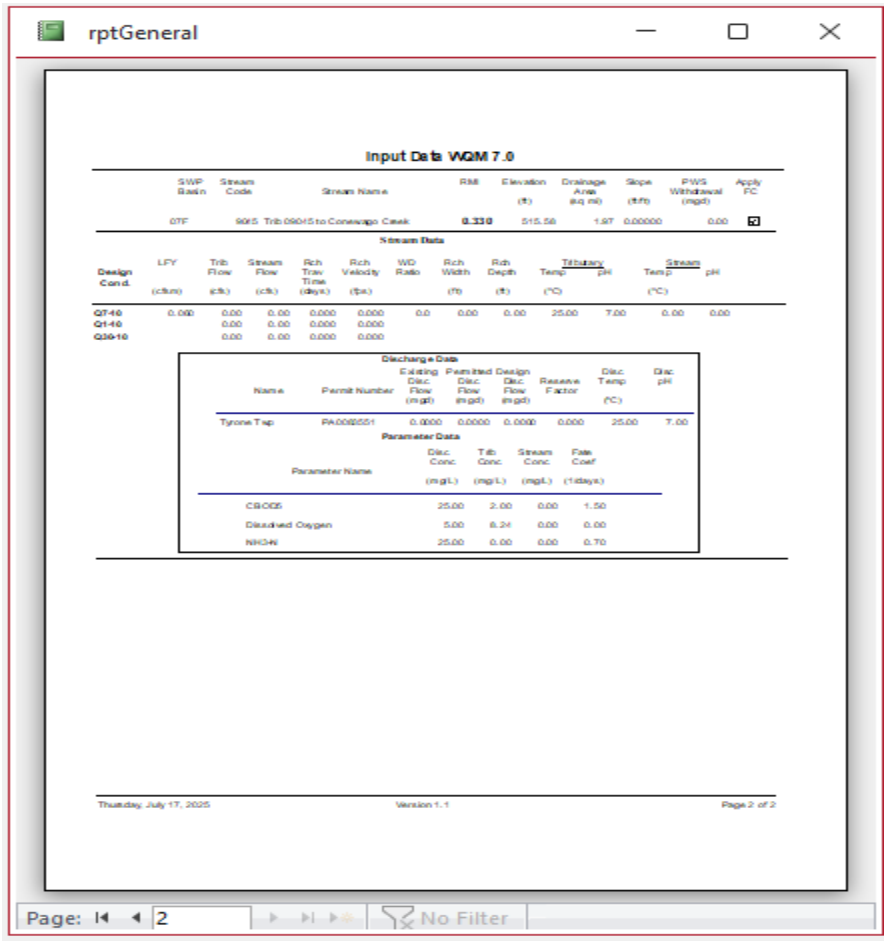
rptGeneral
Input Data WQM 7.0
SWP Basin
Stream Code
Stream Name
RMI
Elevation (ft)
Drainage Area (sq mi)
Slope (ft/ft)
PWS Withdrawal (mgd)
Apply FC
07F
9045 Trib 09045 to Conewago Creek
0.330
515.58
1.97
0.00000
0.00
Stream Data
Design Cond.
LFY (cfsm)
Trib Flow (cfs)
Stream Flow (cfs)
Rch Trav Time (days)
Rch Velocity (fps)
WD Ratio
Rch Width (ft)
Rch Depth (ft)
Tributary Temp (°C)
Tributary pH
Stream Temp (°C)
Stream pH
Q7-10
Q1-10
Q30-10
Discharge Data
Name
Permit Number
Existing Disc Flow (mgd)
Permitted Disc Flow (mgd)
Design Disc Flow (mgd)
Reserve Factor
Disc Temp (°C)
Disc pH
Tyrone Twp
PA0082651
Parameter Data
Parameter Name
Disc Conc (mg/L)
Trib Conc (mg/L)
Stream Conc (mg/L)
Fate Coef (1/days)
CBOD5
Dissolved Oxygen
NH3-N
Thursday, July 17, 2025
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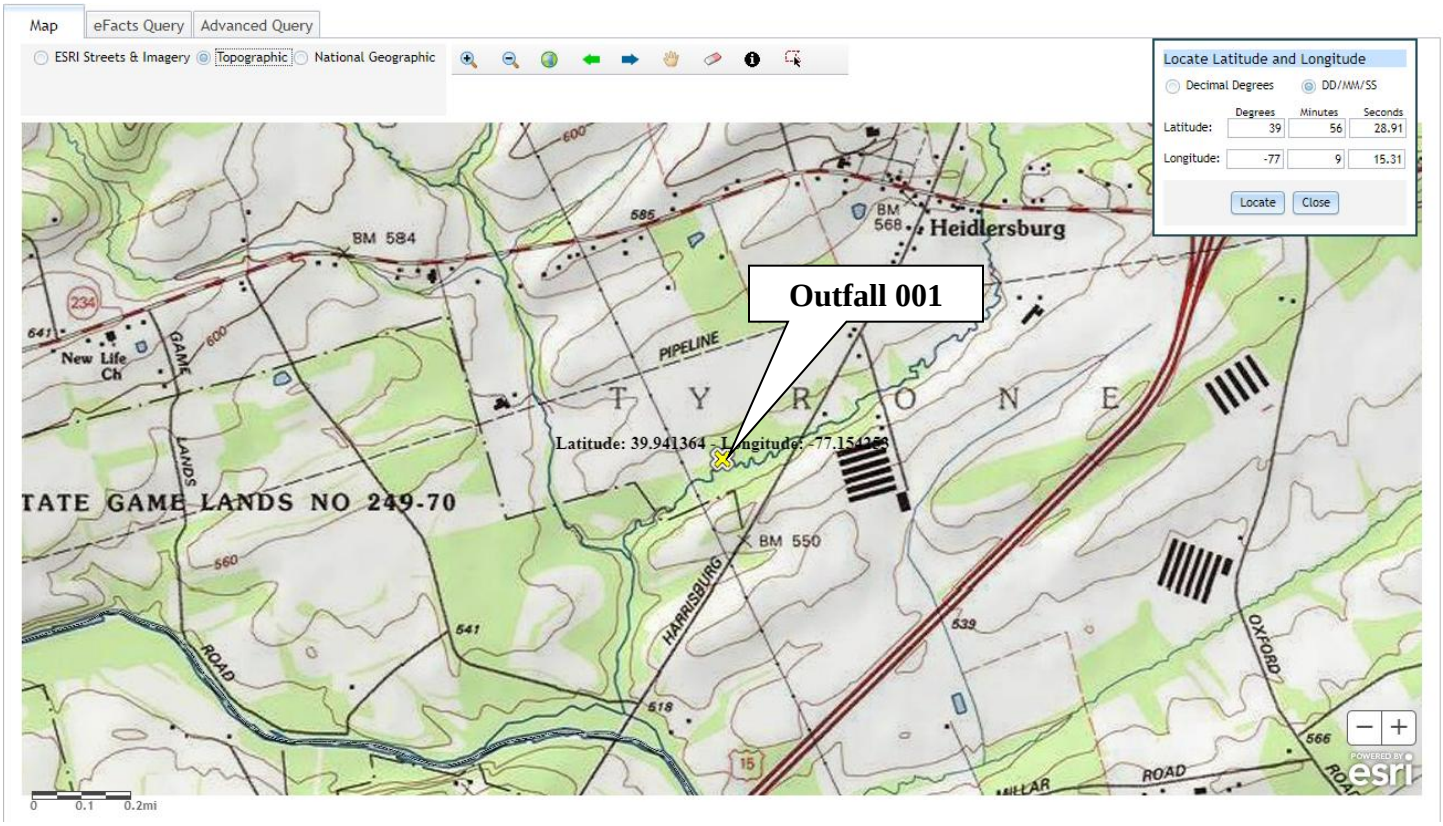
Page: 2
No Filter


Map
eFacts Query
Advanced Query
ESRI Streets & Imagery
Topographic
National Geographic
Locate Latitude and Longitude
Decimal Degrees
DD/MM/SS
Degrees
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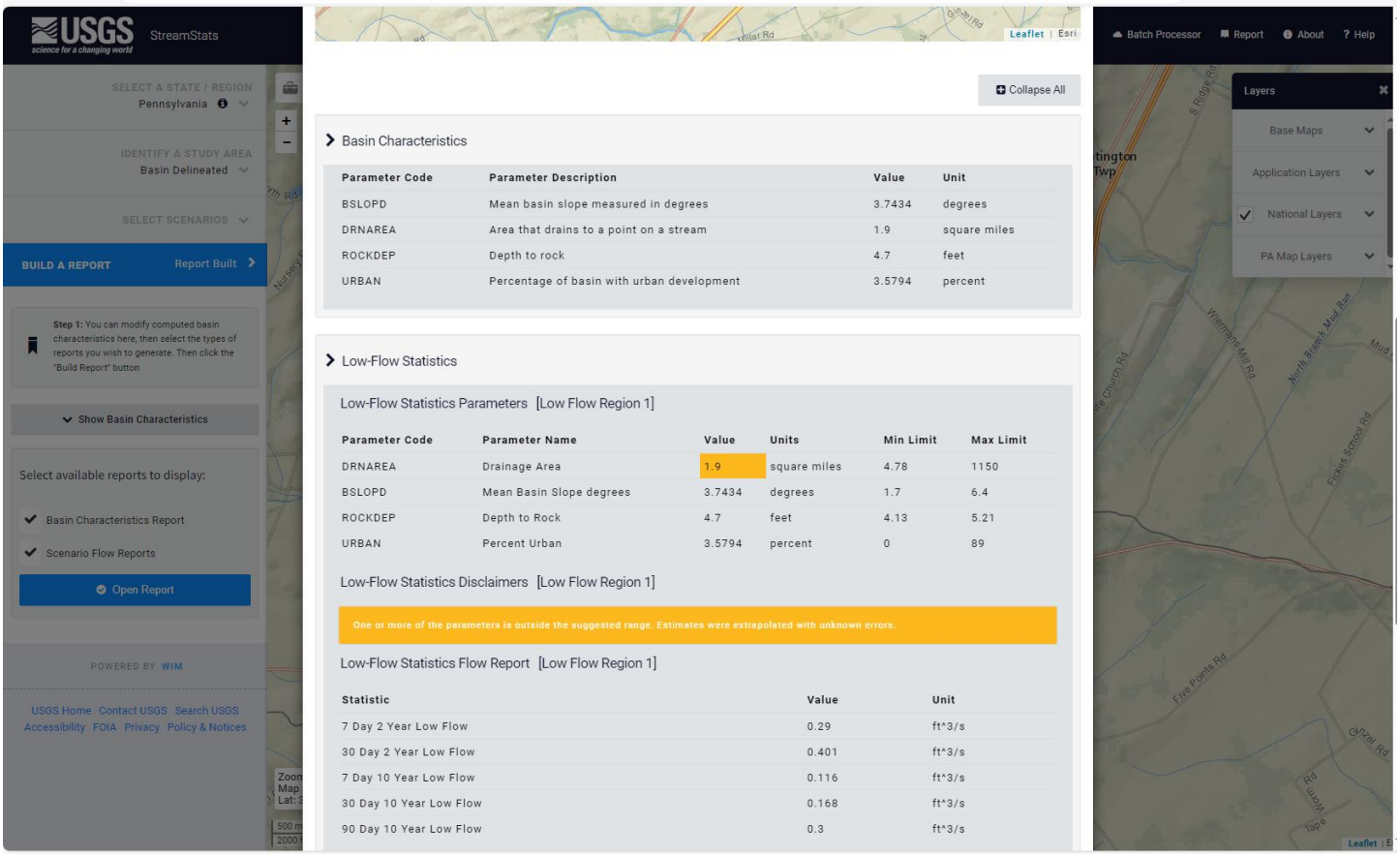
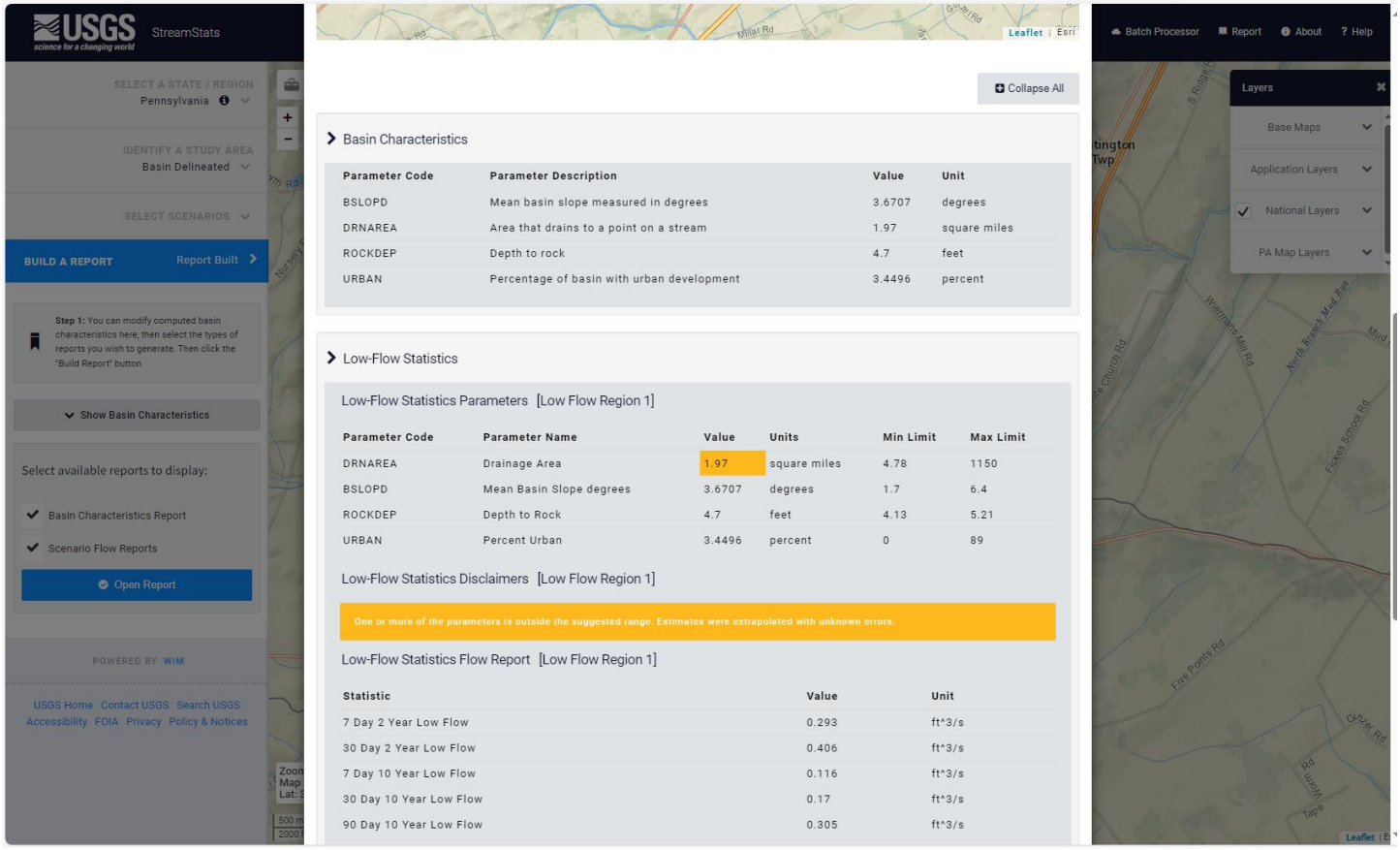
Seconds
Latitude: 39 56 28.91
Longitude: -77 9 15.31
Locate
Close
Outfall 001
Latitude: 39.941364 - Longitude: -77.154266
BM 584
BM 568
Heidlersburg
PIPELINE
T Y R O N E
TATE GAME LANDS NO 249-70
BM 550
HARRISBURG ROAD
OXFORD ROAD
New Life Ch
GAME LANDS
MILLAR ROAD
0 0.1 0.2mi
esri


USGS
StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
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
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 3.7434 | degrees
DRNAREA | Area that drains to a point on a stream | 1.9 | square miles
ROCKDEP | Depth to rock | 4.7 | feet
URBAN | Percentage of basin with urban development | 3.5794 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 1.9 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.7434 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.7 | feet | 4.13 | 5.21
URBAN | Percent Urban | 3.5794 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
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 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.29 | ft^3/s
30 Day 2 Year Low Flow | 0.401 | ft^3/s
7 Day 10 Year Low Flow | 0.116 | ft^3/s
30 Day 10 Year Low Flow | 0.168 | ft^3/s
90 Day 10 Year Low Flow | 0.3 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Leaflet


USGS
science for a changing world
StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
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
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 3.6707 | degrees
DRNAREA | Area that drains to a point on a stream | 1.97 | square miles
ROCKDEP | Depth to rock | 4.7 | feet
URBAN | Percentage of basin with urban development | 3.4496 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 1.97 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.6707 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.7 | feet | 4.13 | 5.21
URBAN | Percent Urban | 3.4496 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
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 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.293 | ft^3/s
30 Day 2 Year Low Flow | 0.406 | ft^3/s
7 Day 10 Year Low Flow | 0.116 | ft^3/s
30 Day 10 Year Low Flow | 0.17 | ft^3/s
90 Day 10 Year Low Flow | 0.305 | ft^3/s
Batch Processor
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Leaflet

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: