Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0037150**
Facility Type	**Municipal**	APS ID	**275717**
Major / Minor	**Major**	Authorization ID	**1380104**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Penn Township**	Facility Name	**Penn Township STP**
Applicant Address	20 Wayne Avenue	Facility Address	1020 Wilson Avenue
	Hanover, PA 17331-3313		Hanover, PA 17331-7961
Applicant Contact	Kristina Rodgers	Facility Contact	William Mahone
Applicant Phone	(717) 632-7366	Facility Phone	(717) 637-1561
Client ID	49887	Site ID	257976
Ch 94 Load Status	Not Overloaded	Municipality	**Penn Township**
Connection Status	Self-Imposed Connection Prohibition	County	York
Date Application Received	December 27, 2021	EPA Waived?	No
Date Application Accepted	January 14, 2022	If No, Reason	Major Facility, Significant CB Discharge

Purpose of Application: NPDES Renewal.

Summary of Review

Penn Township has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of a NPDES permit for the Penn Township STP. The permit was last reissued on June 1, 2017 with an effective date of July 1, 2017. The permit expired on June 30, 2022 but the terms and conditions of the permit have been administratively extended since that time.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted, and a notice of the draft permit be published in the *Pennsylvania Bulletin* for public comments for 30 days. A file review of documents associated with the discharge or permittee may be available at the PA DEP southcentral regional office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file reviews, contact the SCRO file review coordinator at 717.705.4700.

Sludge use and disposal description and location(s): Land Application (Paul A. Martin Farms and other locations)

Public Participation

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

Approve	Deny	Signatures	Date
x		*Aaron Baar* Aaron Baar / Project Manager	September 20, 2024
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	September 30, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	4.2
Latitude	39º 48' 43.50"	Longitude	-76º 57' 12.72"
Quad Name	Hanover	Quad Code	2030
Wastewater Description:	Sewage Effluent		

Receiving Waters	Oil Creek (WWF)	Stream Code	08213
NHD Com ID	57474847	RMI	5.69
Drainage Area	3.88 sq. mi.	Yield (cfs/mi^2)	0.1250
Q_{7-10} Flow (cfs)	0.485	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	537	Slope (ft/ft)	
Watershed No.	7-H	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	SILTATION		
Source(s) of Impairment	AGRICULTURE		
TMDL Status	EPA Approved (8/9/03)	Name	Oil Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)	7.82	Stream pH was determined by Hanover Foods in 1993
Temperature (°F)	25°C	Default for WWF per 391-2000-003
Hardness (mg/L)	219	2021 Renewal Application
Other:		

Nearest Downstream Public Water Supply Intake		Wrightsville Water Supply Co.	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	29	Distance from Outfall (mi)	41

Drainage Area

The discharge is to Oil Creek at RMI 5.69. A drainage area upstream of the discharge is determined to be 3.88 sq.mi. according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow

According to StreamStats, the watershed has a Q_{7-10} of 0.485 cfs. This information was used to obtain a LFY, a chronic 30-day (Q_{30-10}) and acute (Q_{1-10}) exposure stream flows for the discharge point as follows (Guidance No. 391-2000-023).

Q_{7-10} = 0.485 cfs
Q_{30-10} = 1.36 * 0.485 cfs = 0.6596 cfs
Q_{1-10} = 0.64 * 0.485 cfs = 0.3104 cfs
LFY = 0.485 cfs/1.36 mi^2 = 0.1250 cfs/mi^2

Oil Creek

25 Pa Code §93.9 classifies the receiving water, Oil Creek, with a WWF Existing Use designation. 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. The discharge is in a stream segment listed as not attaining use; the cause of the impairments have been identified as siltation and pathogens (see *Local Watershed TMDL* below).

Local Watershed Total Maximum Daily Loads (TMDLs)

According to PA's 2024 integrated water quality monitoring and assessment report, Oil Creek in the vicinity of the proposed point of discharge is impaired for aquatic life due to siltation from urban runoff/storm sewers and impaired for recreation due to an unknown source of pathogens. The aquatic life impairment is listed as Category 4a, which means the waters are impaired for one or more uses, not needing a TMDL because a TMDL has been completed. The recreation impairment is listed as Category 5 in the 2024 integrated report, indicating that the water is impaired for one or more uses by a pollutant that requires the development of a TMDL.

A TMDL was finalized on August 9, 2003 which addressed siltation The Penn Township discharge is not included in the TMDL.

Public Water Supply Intake

The nearest downstream public water supply intake is the Wrightsville Water Company, locate on the Susquehanna River approximately 29 miles from the point of discharge. Considering the nature of the discharge and distance, the discharge is not expected to impact the water supply.

Class A Wild Trout Streams

The receiving stream is not a Class A Wild Trout stream; therefore, no Class A Wild Trout Fishery is impacted by this discharge.

Treatment Facility Summary				
Treatment Facility Name: Penn Township STP				
WQM Permit No.	**Issuance Date**			
6791402 A-2	9/21/2018			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Activated Sludge	UV	4.2
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
4.2	12000	Not Overloaded	Anaerobic Digestion	Land Application

Penn Township owns and operates the wastewater treatment facility located at 20 Wayne Ave, Hanover, PA. The facility was last upgraded in 2018 and currently serves the areas of Penn Township (77%), Hanover Borough (14%), West Manheim Township (9%), and Heidelberg Township (<1%). Penn Township and Hanover Borough have a flow exchange agreement and flows from the Plum Creek drainage basin enter Hanover's sewage collection system. There are a total of 13 pump stations in Penn Township's collection system.

There are a total of eight industrial contributors tributary to the Penn Township STP:

1. Crown, Cork and Seal (production of seamless cans). Pre-treatment is provided. Flows are estimate as 40,000 gpd.
2. ESAB Group (a manufacturer of welding rods and wire). Pretreatment includes pH adjustment and settling. Flows are estimate as 23,000 gpd.
3. Hanover Foods Corporation (a vegetable processor). Pretreatment is provided. Flows are estimate as 681,000 gpd.
4. Packaging Corporation of America (a business which prints and stamps boxes). Pretreatment includes an ink splitter to remove color. Flows are estimate as 800 gpd.
5. The Sheridan Press (a graphic arts publisher of various publications). Pretreatment is provided. Photoprocessing chemical wastes are disposed offsite by private firm. Flows are estimate as 13,000 gpd.
6. SKF USA, Inc. (a manufacturer of roller bearings). Pretreatment is provided. Hazardous waste is separated and sent to permitted waste recovery or disposal facilities. Flows are estimate as 12,000 gpd.
7. Snyder's of Hanover (a snack food manufacturer). Pretreatment includes oil and grease separation and SBR use. Flows are estimate as 200,000 gpd.
8. Utz Quality Foods (a snack food manufacturer). Pretreatment includes equalization through settling tanks and pH adjustment. Flows are estimate as 19,000 gpd.

With an annual average design flow and hydraulic design capacity of 4.2 MGD, the Penn Township STP is an extended aeration package treatment facility. The treatment process is as follows:

Course Screen (1) ⇒ Grit and Grease Removal Unit (1) ⇒ Fine Screen (2) ⇒ Anoxic Tanks (4) ⇒ Aeration Tanks (4) ⇒ Clarifiers (2) ⇒ Cloth Media Filter System (2) ⇒ UV Disinfection (1) ⇒ Discharge

The system incorporates the chemical additions of polyaluminum chloride (phosphorus precipitation), Superfloc C496-HMW (coagulation), Zetag 8848FS (coagulation), Endimal (Sulfide and odor reduction) and Lime Kiln Dust (biosolids stabilization). Sludge digesters (2) and a sludge thickener are provided for solids handling. Solids generated from the facility are sent out for land application on various farms.

Compliance History	
Summary of DMRs:	DMR results for the past year are presented below.
Summary of Inspections:	Since the last renewal of the facility's NPDES permit, the following inspections have been logged: October 12, 2017: A routine CEI was conducted by Sheena Ripple. No violations were noted. September 24, 2019: A routine CEI was conducted by Austen randecker. No violations were noted. Recommendations were made to replace the time-paced influent sampler with a flow-paced sampler. June 22, 2021: A routine CEI was conducted by Brandon Bettinger. No violations were noted. August 10, 2023: A routine CEI was conducted by Shawn Lesitsky. No violations were noted. Recommendations were made to replace the time-paced influent sampler with a flow-paced sampler.

Other Comments: As of September 20, 2024, there are no open violations associated with this facility.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	76711 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	10228 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	875	1401	XXX	25	40	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	525	788	XXX	15	22.5	30	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	1050	1576	XXX	30	45	60	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	105	XXX	XXX	3.0	XXX	6	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	35	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	70	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Compliance History

DMR Data for Outfall 001 (from August 1, 2023 to July 31, 2024)

Parameter	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23
Flow (MGD) Average Monthly	2.008	2.065	2.173	3.121	2.833	2.403	2.717	2.191	1.759	1.847	1.925	1.938
Flow (MGD) Daily Maximum	2.639	2.646	2.511	7.641	4.848	3.394	4.916	4.346	2.788	2.200	2.766	2.786
pH (S.U.) Minimum	6.7	6.6	6.6	6.8	6.6	6.7	6.8	6.9	7.1	7.1	7.2	7.2
pH (S.U.) Instantaneous Maximum	7.7	7.4	7.7	7.7	7.8	7.8	7.9	7.7	7.6	7.7	7.7	7.7
DO (mg/L) Minimum	6.6	6.5	7.1	8.2	7.4	7.6	8.0	8.0	7.8	7.2	6.3	6.5
CBOD5 (lbs/day) Average Monthly	< 40	< 51	< 48	< 71	< 85	< 53	< 81	< 43	< 38	< 37	< 39	< 42
CBOD5 (lbs/day) Weekly Average	< 43	83	53	< 111	182	< 61	< 174	< 50	< 46	< 38	< 42	54
CBOD5 (mg/L) Average Monthly	< 2.4	< 3	< 2.7	< 3	< 4	< 3	< 3	< 2	< 2	< 2.4	< 2.4	< 2.6
CBOD5 (mg/L) Weekly Average	< 2.0	4.0	3.0	3	9	3	< 5	< 2	< 3	< 2.0	< 2.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	4475	4784	3922	4835	4125	4642	5664	5088	5910	5575	5204	5392
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	5798	7062	5987	6905	4884	5410	7380	5940	8233	11828	9707	9408
BOD5 (mg/L) Raw Sewage Influent Average Monthly	267	277	217	197	187	227	255	290	381	361	328	334
TSS (lbs/day) Average Monthly	34	63	40	67	68	44	139	26	32	48	34	51
TSS (lbs/day) Raw Sewage Influent Average Monthly	4414	3634	4189	4511	4658	3650	4607	3877	5009	4178	5171	6310

TSS (lbs/day) Raw Sewage Influent Daily Maximum	5834	4893	7253	5908	6761	4260	7216	4828	7348	6433	8718	10461
TSS (lbs/day) Weekly Average	74	98	84	93	161	62	471	32	73	77	42	84
TSS (mg/L) Average Monthly	2	4.0	2.0	3	3	2	4	1	2	3.0	2	3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	265	214	232	181	210	176	200	219	323	273	322	390
TSS (mg/L) Weekly Average	5	6.0	5.0	5	8	3	12	2	4	5.0	3	5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 3	< 2	< 4.0	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 1.0	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 2420	9	40	17	21	9	73	15	7	26	2	15
UV Transmittance (%) Minimum	60.9	55.7	59.9	67.9	54.15	65.8	62.6	58.6	62.0	57.9	59.8	64.18
Nitrate-Nitrite (mg/L) Average Monthly	< 4.24	< 3.65	< 5.04	< 4.04	< 5.95	< 2.75	< 2.4	< 3.2	< 3	< 3.8	< 3.2	< 3.81
Nitrate-Nitrite (lbs) Total Monthly	< 2208.4	< 1878.9	< 2790.2	< 3495.2	< 3948.1	< 1658	< 1673	< 1743.8	< 1366.9	< 1792.6	< 1549.3	< 1923
Total Nitrogen (mg/L) Average Monthly	< 5.4	< 5.25	< 6.57	< 4.92	< 10.21	< 3.9	< 4.04	< 4.37	< 4.4	< 5.32	< 4.705	< 5.58
Total Nitrogen (lbs) Effluent Net Total Monthly	< 2811.8	< 2721.5	< 3643.1	< 4164.7	< 6839	< 2353	< 2982.2	< 2408.7	< 2036.9	< 2534.7	< 2303.6	< 2818.4
Total Nitrogen (lbs) Total Monthly	< 2811.8	< 2721.5	< 3643.1	< 4164.7	< 6839	< 2353	< 2982.2	< 2408.7	< 2036.9	< 2534.7	< 2303.6	< 2818.4
Total Nitrogen (lbs) Effluent Net Total Annual											< 28611	
Total Nitrogen (lbs) Total Annual											< 28611	
Ammonia (lbs/day) Average Monthly	< 2	< 2	< 2.0	< 4.0	< 65	< 4.0	< 7	< 2	< 2	< 2.0	< 2	< 2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.11	< 0.14	< 2.95	< 0.2	< 0.31	< 0.1	< 0.1	< 0.11	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 51.9	< 51.6	< 62	< 134.4	< 2004.4	< 114	< 232.2	< 55.5	< 46.6	< 53.5	< 48.8	< 50.3

Ammonia (lbs) Total Annual											< 338	
TKN (mg/L) Average Monthly	1.16	1.6	1.53	< 0.88	< 4.26	1.15	< 1.61	1.22	1.41	1.55	1.51	1.77
TKN (lbs) Total Monthly	603.4	842.7	852.9	< 669.5	< 2890.9	695	< 1309.2	664.9	670	742	754.2	895.4
Total Phosphorus (lbs/day) Average Monthly	< 3	4	9.0	< 6	18	< 2.0	< 4	< 2	< 2	< 2.0	< 2	< 2
Total Phosphorus (mg/L) Average Monthly	< 0.21	0.21	0.52	< 0.17	0.87	< 0.11	< 0.15	< 0.1	< 0.1	< 0.16	< 0.14	< 0.14
Total Phosphorus (lbs) Effluent Net Total Monthly	< 106.7	110.6	290.2	< 165.3	566.7	< 65	< 114.1	< 55.5	< 47.3	< 76.5	< 66.8	< 68.6
Total Phosphorus (lbs) Total Monthly	< 106.7	110.6	290.2	< 165.3	566.7	< 65	< 114.1	< 55.5	< 47.3	< 76.5	< 66.8	< 68.6
Total Phosphorus (lbs) Effluent Net Total Annual											< 1569	
Total Phosphorus (lbs) Total Annual											< 1569	

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2023 To: July 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/24	IMAX	< 2420	No./100 ml	1000	No./100 ml

Other Comments: Stated cause for the fecal violation was reported as, “We believe it to be caused by sample handling, we ran a split sample on that day and was non-detect. On 7/11 our UVT sensor stopped working, UV system over compensates, so no direct correlation between the two.” Operations will determine if further action is needed or not.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 4.2
Latitude 39º 48' 45.36" **Longitude** -76º 57' 15.33"
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: These standards apply, subject to water quality analysis and BPJ where applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model was utilized using data derived by USGS StreamStats and the model output indicated that existing WQBELs for ammonia and CBOD5 are still protective of water quality

The model did determine that that the facility's existing DO limits of 5 mg/L is no longer protective of water quality. An update limit of 6.0 mg/L is proposed in this permit. A review of the facility's DMR over the last year indicates that the as-built facility is already capable of meeting the proposed higher DO limit.

Toxics

A reasonable potential (RP) analysis was done for the priority pollutants using the sampling results provided with the application. The Department's Toxics Management Spreadsheet (Version 1.3) was used to perform the RP analysis for these parameters at a pH of 7.5 and a discharge hardness of 100 mg/L. The initial analysis indicated that limits for Hexavalent Chromium and Hexachlorobutadiene were needed to be protective of water quality and monitoring requirements were recommended for Total Aluminum, Total Boron, Total Copper, Free Cyanide and Total Zinc.

Outfall No.	Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
001	Hexavalent Chromium	11.2	17.4	27.9
001	Hexachlorobutadiene	0.016	0.025	0.04
001	Total Aluminum	Report	Report	Report
001	Total Boron	Report	Report	Report
001	Total Copper	Report	Report	Report
001	Free Cyanide	Report	Report	Report
001	Total Zinc	Report	Report	Report

The STP was notified of the preliminary results on March 17, 2024; the facility requested an opportunity to perform additional sampling of these parameters in order to determine if they were necessary or not. Updated testing results were provided to the Department on September 12, 2024. Both old and new sampling result values were statistically evaluated using the Department's TOXCONC Model (Version 2.0) in order to determine appropriate average values and coefficient of variations for each parameter being re-evaluated. The Toxics Management Spreadsheet (Version 1.3) was updated with the new values and the results indicated that monitoring and reporting requirements for Total Aluminum, Total Boron, Total Copper, Free Cyanide and Total Zinc were still recommended. As such, biweekly monitoring and reporting requirements for Total Aluminum, Total Boron, Total Copper, Free Cyanide and Total Zinc are proposed in this renewal. This sampling frequency is in conformity with DEP's Technical Guidance for the Development and Specification of Effluent Limitations (PA Doc. No. 362-0400-001), Table 6-3 (plant design flow = 1.0 to 5.0 mgd).

All model inputs and outputs are included at the end of this fact Sheet.

E. Coli Monitoring

In conformity with the Department's *Establishing Effluent Limitations for Individual Sewage Permits* (SOP No. BCW-PMT-033) and as authorized by § 92a.61 of the PA Code, monthly E. Coli monitoring has been proposed in this permit. The collection method will be via grab sample.

Best Professional Judgment (BPJ) Limitations

Ultraviolet Disinfection

The existing UV system is equipped with a transmittance sensor; therefore, UV transmittance is proposed to be continued as the monitoring parameter for the UV system.

Total Phosphorus & Total Nitrogen

DEP's SOP no. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends monitoring requirements for Total Nitrogen for all sewage facilities. Therefore, routine monitoring for TKN, Nitrate-Nitrite, and TN are recommended to be continued in this permit. Sampling frequency for TKN, Nitrate-Nitrite, and TN, are currently required 2/week, which is consistent with Table 6.3 in Guidance Doc. 362-0400-001. No change is proposed.

Phosphorus limitations are based on the Department's "Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams," dated 10/27/97 (ID No. 391-2000-018). Total phosphorus loading from this discharge would be 8.34 x 10 mg/l x 4.2 MGD, or 350 lbs/day. Using the equation that was documented in EPA's Chesapeake Bay Management Report, Total P @ Y = Total P x 0.99^{Y}, where Y = stream miles to the Lower Susquehanna River, the actual loading to the critical part of the Susquehanna River would be 173 lbs/day at an estimated distance of 70 miles. This loading represents 173 lbs/day ÷ 3,814 lbs/day or 4.5% of the total phosphorus loading of all discharges in the Lower Susquehanna River Basin. According to the above phosphorus guidance, phosphorus removal is required if this percentage is > 0.25%. Historically, an average monthly Total Phosphorus limit of 2.0 mg/L was recommended in NPDES permits, per DEP phosphorus guidance 391-2000-018, to control phosphorus effluent levels for any facilities that are expected to contribute 0.25% or more of the total phosphorus loading of the entire basin. Therefore, phosphorus limitations are required. The existing average monthly limitation of 2.0 mg/L at a testing frequency of 2/week will remain in the permit.

Total Residual Chlorine (TRC)

The Analysis Results Tables provided with the application indicate that there is no detectable TRC in the influent to the STP, but average concentrations in the effluent of 0.02 mg TRC/L. The source of the chlorine within the treatment plant is not identified explicitly in the application. Modeling of the receiving water indicates that TRC in the effluent should be limited to 0.02 mg/L (average monthly) and 0.064 mg/L (instant max). Given that there appears to be a significant source of chlorine being introduced to the wastewater that has the potential to exceed effluent limits, TRC limits of 0.02 mg/L (average monthly) and 0.064 mg/L (instant max) are proposed in this permit to protect the receiving water.

Temperature

Effluent flows from the Hanover Foods Corporation's (HFC) facility in the vicinity of the Penn Township STP routinely discharges treated wastewater into Oil Creek that exceeds the assimilative capacity of the receiving water. The Department notes that HFC also directly discharges partially treated industrial wastewater from

Lagoon 1 directly to the Penn Township STP. Given that a significant percentage of the effluent from the Penn Township STP originates from the HFC direct discharge, the Department seeks temperature data from the Penn Township STP to better understand how high temperature influent flows are being modulated by the Penn Township STP treatment process before discharge. The analysis results table submitted with the application indicates that the effluent temperature is already being measured on a daily basis, so this monitoring and reporting requirement does not represent any additional testing that is not already occurring.

PFAS-Related Compounds

In conformity with the Department's Standard Operating Procedure for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BCW-PMT-033, Final November 9, 2012, Revised February 5, 2024, Version 2.0) monitoring for some PFAS compounds are proposed in this permit. Per the SOP and guidance from DEP's Central Office, major sewage facilities that receive wastewater from IWs engaged in metal finishing activities that have submitted their application before February 5, 2024, but have not been drafted yet, requires that quarterly monitoring of PFOA, PFOS, HFPO-DA and PFBS should be imposed. SKF USA, Inc, an IW tributary to the Penn township STP, is classified as an industry engaged in metal finishing, per the application. A footnote is included in the draft permit that states, "The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of "GG" on DMRs."

TDS / Sulfate / Chloride / Bromide / 1,4-Dioxane:

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Under the authority of § 92a.61, statewide guidance distributed by the Department's Central Office on January 23, 2014 stated the following:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- *Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.*

- *Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.*

- *Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.*

The table below compares the above thresholds for monitoring requirements with the concentrations documented in the current application:

Department Monitoring Thresholds and Expected Discharge Concentrations for TDS and Related Parameters

Parameter	Threshold for Discharges >0.1 MGD	Threshold for Discharges ≤0.1 MGD	Max. Concentration in Application
TDS	1,000 mg/L or 20,000 lbs/day	5,000 mg/L	682 mg/L / 17984 lbs/day
Sulfate	NA	NA	46.9 mg/L / 1501 lbs/day
Chloride	NA	NA	121 mg/L / 3840 lbs/day
Bromide	1 mg/L	10 mg/L	<1.00 mg/L
1,4-Dioxane	10 µg/L	100 µg/L	< 0.38 µg/L

Based on the sampling results in the application, no monitoring will be required for the above parameters of concern.

Additional Considerations

Flow Monitoring

The requirement to monitor the flow rate of the effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Chesapeake Bay TMDL

The Department formulated a strategy in April 2007, to comply with the EPA's and Chesapeake Bay Foundation's requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5 (below 0.2mdg) facilities were required to monitor and report TN and TP during permit renewal at a monitoring frequency following Table 6-3 of DEP's Technical Guidance for Development and Specification of effluent Limitations (No. 362-0400-001).

EPA published the Chesapeake Bay Total Maximum Daily Load (TMDL) in December of 2010. Despite extensive restoration efforts during the past 25 years, the TMDL was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries.

In order to address the TMDL, Pennsylvania developed, in addition to the Bay Strategy, a Chesapeake Watershed Implementation Plan (WIP) Phase 1 in January 2011, Phase 2 in March 2012 and Phase 3 in December 2019. In accordance with the Phase 3 WIP, re-issuing permits for significant dischargers follow the same phased approach formulated in the original Bay strategy, whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewal.

The Phase 3 WIP categorizes this facility as a Phase 1 sewage facility with the following cap loads:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0037150	1	Penn Township	6/1/2017	6/30/2022	10/1/2011	76,711	-	10,228	0.961	0.436

Monitoring Frequency and Sample Type

Unless discussed otherwise above, the permit's monitoring frequency and sample type for all parameters will remain unchanged from the last permit renewal.

Antidegradation Requirements

All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Stormwater

The facility has one stormwater outfall (Outfall 002). According to the application, Outfall 002 has a total drainage area of approximately 20,000 ft^2. The outfall receives runoff from grassy and paved areas. No chemicals are stored outdoors. No discharge monitoring requirements are necessary.

Anti-backsliding Requirement

All effluent limits proposed in this fact sheet are as stringent as effluent limits specified in the existing permit renewal unless noted otherwise above. This approach is in accordance with 40 CFR §122.44(l(1).

Annual Fees

An annual fee clause is continued in the permit in accordance with 25 Pa. Code § 92a.62. The facility covered by the permit is classified in the Minor Sewage Facility >=0.05 and <1 MGD fee category, which has an annual fee of $$3,750.

Mass Loading Limitations

Unless stated otherwise in this fact sheet, mass loading effluent limits are calculated based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34).

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

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

The dilution series used for the tests was: 100%, 96%, 92%, 46%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 0.92.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	**Reproduction**	**Survival**	**Growth**
See attached DEP WET Analysis Spreadsheet				

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

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

☐ **YES** ☒ **NO**

Comments: PMFa and PMFc from Toxic Management Spreadsheet results.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	76711 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	10228 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

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)	Required
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
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	6.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.02	XXX	0.064	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/day	In-Situ
CBOD5 Nov 1 - Apr 30	875	1401	XXX	25	40	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	525	788	XXX	15	22.5	30	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	1050	1576	XXX	30	45	60	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	105	XXX	XXX	3.0	XXX	6	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	35	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	70	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Aluminum (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite
Total Boron (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite
Total Copper (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite
Free Cyanide (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Zinc (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	2/week	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: Outfall 001

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:
☐	Other:

StreamStats Report

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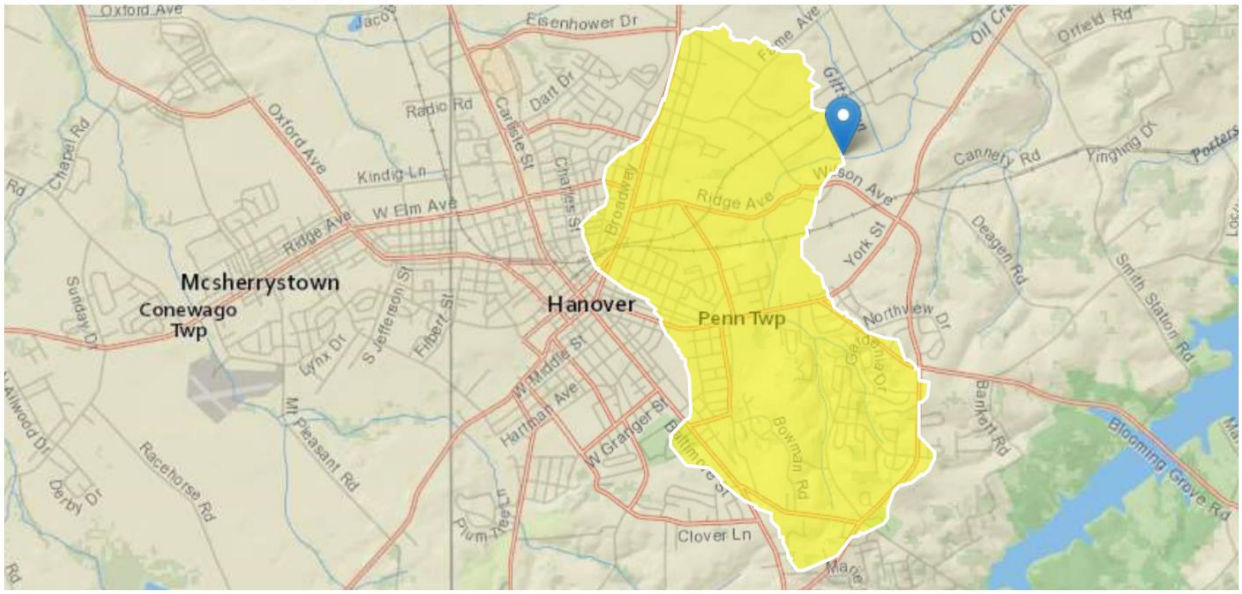

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.2115	degrees
DRNAREA	Area that drains to a point on a stream	3.88	square miles
ROCKDEP	Depth to rock	5.5	feet
URBAN	Percentage of basin with urban development	37.4689	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	3.88	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.2115	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.5	feet	4.13	5.21

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
URBAN	Percent Urban	37.4689	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	1.05	ft^3/s
30 Day 2 Year Low Flow	1.48	ft^3/s
7 Day 10 Year Low Flow	0.485	ft^3/s
30 Day 10 Year Low Flow	0.69	ft^3/s
90 Day 10 Year Low Flow	1.35	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. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report

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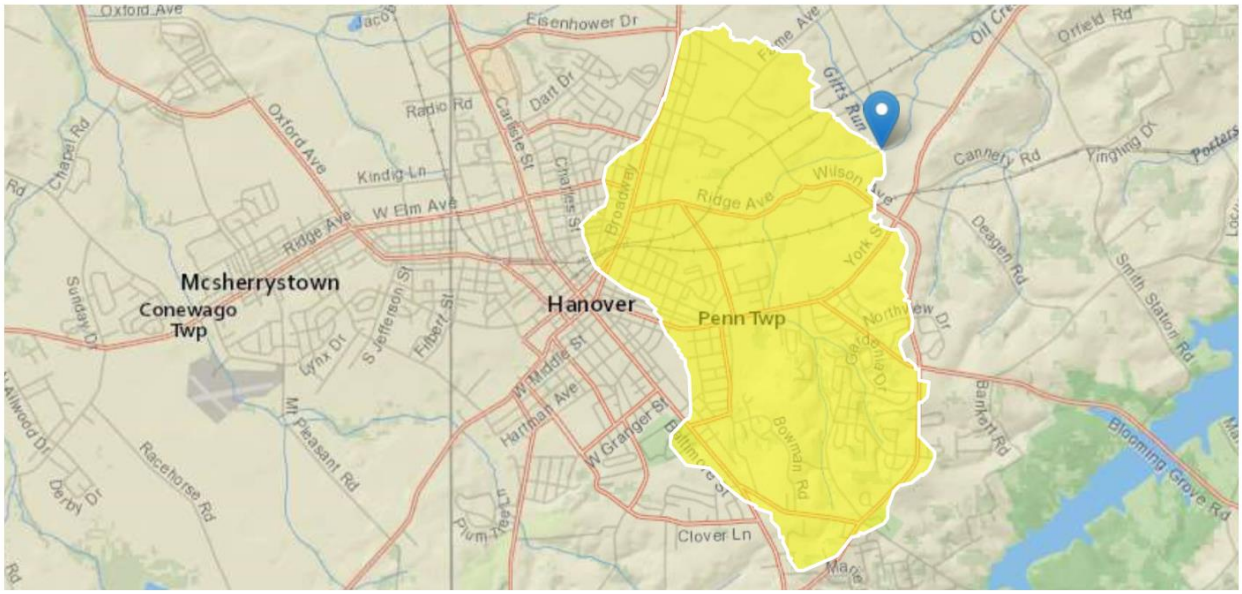

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.2535	degrees
DRNAREA	Area that drains to a point on a stream	4.4	square miles
ROCKDEP	Depth to rock	5.4	feet
URBAN	Percentage of basin with urban development	34.3668	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	4.4	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.2535	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.4	feet	4.13	5.21

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
URBAN	Percent Urban	34.3668	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	1.08	ft^3/s
30 Day 2 Year Low Flow	1.53	ft^3/s
7 Day 10 Year Low Flow	0.49	ft^3/s
30 Day 10 Year Low Flow	0.702	ft^3/s
90 Day 10 Year Low Flow	1.38	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. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report

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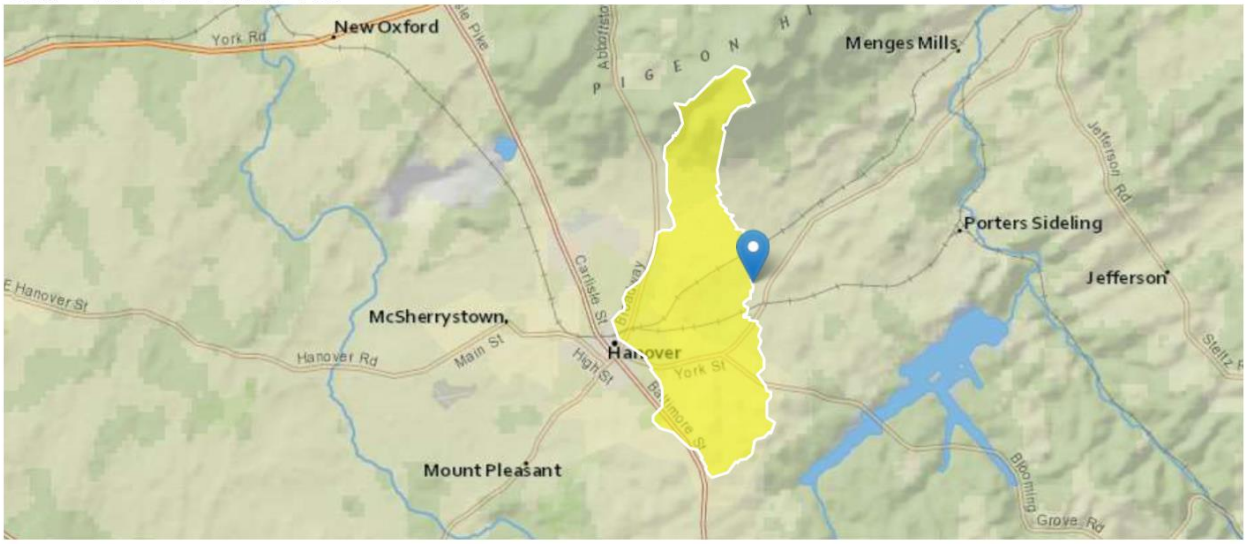

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.9195	degrees
DRNAREA	Area that drains to a point on a stream	6.26	square miles
ROCKDEP	Depth to rock	5.5	feet
URBAN	Percentage of basin with urban development	24.2311	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	6.26	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.9195	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.5	feet	4.13	5.21
URBAN	Percent Urban	24.2311	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	1.98	ft^3/s
30 Day 2 Year Low Flow	2.61	ft^3/s
7 Day 10 Year Low Flow	0.976	ft^3/s
30 Day 10 Year Low Flow	1.3	ft^3/s
90 Day 10 Year Low Flow	2.23	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. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report

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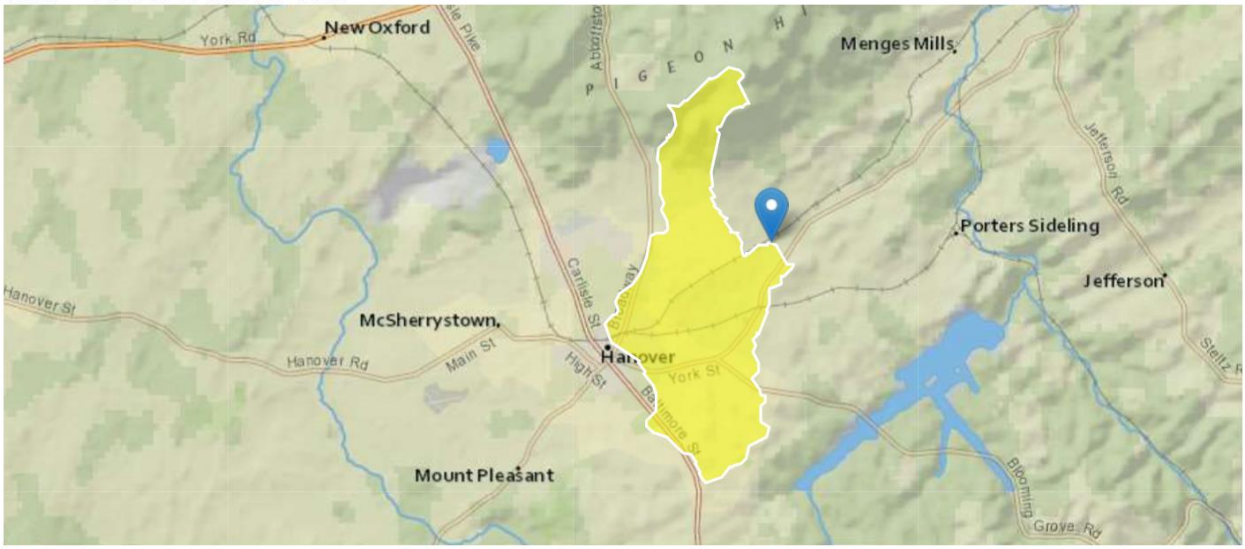

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	2.9225	degrees
DRNAREA	Area that drains to a point on a stream	6.71	square miles
ROCKDEP	Depth to rock	5.5	feet
URBAN	Percentage of basin with urban development	23.2852	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	6.71	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.9225	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.5	feet	4.13	5.21
URBAN	Percent Urban	23.2852	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	2.09	ft^3/s
30 Day 2 Year Low Flow	2.76	ft^3/s
7 Day 10 Year Low Flow	1.03	ft^3/s
30 Day 10 Year Low Flow	1.37	ft^3/s
90 Day 10 Year Low Flow	2.35	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. (http://pubs.usgs.gov/sir/2006/5130/)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07H	8213	OIL CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
5.690	Penn Township	PA0037150	4.200	CBOD5	18.59		
				NH3-N	1.09	2.18	
				Dissolved Oxygen			6

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
5.410	Hanover Foods	PA0044741	0.840	CBOD5	15.55		
				NH3-N	1.01	2.02	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07H	8213	OIL CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
5.690	Penn Township	6.01	6.29	6.01	6.29	0	0
5.430		NA	NA	6.01	NA	NA	NA
5.410	Hanover Foods	1.74	2.57	5.17	2.57	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
5.690	Penn Township	.99	1.09	.99	1.09	0	0
5.430		NA	NA	.99	NA	NA	NA
5.410	Hanover Foods	.5	1.01	.9	1.01	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
5.69	Penn Township	18.59	18.59	1.09	1.09	6	6	0	0
5.43		NA	NA	NA	NA	NA	NA	NA	NA
5.41	Hanover Foods	15.55	15.55	1.01	1.01	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8213	OIL CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
5.690	4.200	25.000	7.516
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.293	0.669	34.796	0.448
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
17.44	1.106	1.02	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.156	16.053	Tsivoglou	6
Reach Travel Time (days)			
0.035			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	17.35	1.01	6.14
0.007	17.27	1.01	6.12
0.011	17.18	1.00	6.10
0.014	17.10	1.00	6.09
0.018	17.01	1.00	6.08
0.021	16.93	0.99	6.07
0.025	16.85	0.99	6.06
0.028	16.76	0.99	6.05
0.032	16.68	0.98	6.04
0.035	16.60	0.98	6.03

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
5.430	4.200	25.000	7.516
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.804	0.667	35.700	0.440
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.59	1.106	0.98	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.036	17.840	Tsivoglou	6
Reach Travel Time (days)			
0.003			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.000	16.58	0.98	6.04
0.001	16.58	0.98	6.04
0.001	16.57	0.98	6.04
0.001	16.56	0.98	6.04
0.001	16.56	0.98	6.04
0.002	16.55	0.98	6.04
0.002	16.54	0.98	6.04
0.002	16.54	0.98	6.04
0.002	16.53	0.98	6.04
0.003	16.53	0.98	6.04

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8213	OIL CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
5.410	5.040	25.444	7.590
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
27.856	0.688	40.505	0.458
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
15.58	1.071	0.93	1.064
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.010	16.548	Tsivoglou	6
Reach Travel Time (days)			
0.113			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	15.33	0.92	6.03
0.023	15.10	0.90	6.05
0.034	14.86	0.89	6.07
0.045	14.63	0.88	6.10
0.057	14.41	0.87	6.12
0.068	14.18	0.86	6.15
0.079	13.96	0.85	6.18
0.091	13.75	0.84	6.20
0.102	13.54	0.83	6.23
0.113	13.33	0.82	6.26

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	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07H	8213	OIL CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
5.690	0.49	0.00	0.49	6.4974	0.00335	.669	23.29	34.8	0.45	0.035	25.00	7.52
5.430	0.49	0.00	0.49	6.4974	0.00379	.667	23.8	35.7	0.44	0.003	25.00	7.52
5.410	0.98	0.00	0.98	7.7969	0.00334	.688	27.86	40.51	0.46	0.113	25.44	7.59
Q1-10 Flow												
5.690	0.31	0.00	0.31	6.4974	0.00335	NA	NA	NA	0.44	0.036	25.00	7.51
5.430	0.31	0.00	0.31	6.4974	0.00379	NA	NA	NA	0.43	0.003	25.00	7.51
5.410	0.62	0.00	0.62	7.7969	0.00334	NA	NA	NA	0.45	0.116	25.46	7.58
Q30-10 Flow												
5.690	0.66	0.00	0.66	6.4974	0.00335	NA	NA	NA	0.45	0.035	25.00	7.52
5.430	0.67	0.00	0.67	6.4974	0.00379	NA	NA	NA	0.45	0.003	25.00	7.52
5.410	1.33	0.00	1.33	7.7969	0.00334	NA	NA	NA	0.47	0.111	25.43	7.60

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
07H	8213	OIL CREEK	**5.690**	537.00	3.88	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.49	0.000	0.000	0.0	0.00	0.00	25.00	7.82	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
Penn Township	PA0037150	4.2000	4.2000	4.2000	0.000	25.00	7.50

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
07H	8213	OIL CREEK	**5.430**	532.40	4.40	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.49	0.000	0.000	0.0	0.00	0.00	25.00	7.82	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	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	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
07H	8213	OIL CREEK	**5.410**	532.00	6.26	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.98	0.000	0.000	0.0	0.00	0.00	25.00	7.82	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
Hanover Foods	PA0044741	0.8400	0.8400	0.8400	0.000	28.00	8.40

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
07H	8213	OIL CREEK	**4.560**	517.00	6.71	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	1.03	0.000	0.000	0.0	0.00	0.00	25.00	7.82	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	0.00	7.00

Parameter Data

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

	Penn Township	HFC	HFC
	pH	pH	Temp
7/1/2022	7.5	8.27	85
7/2/2022	7.5		
7/3/2022	7.5		
7/4/2022	7.5		
7/5/2022	7.5	8.15	79
7/6/2022	7.6	8.3	81
7/7/2022	7.5	8.25	82
7/8/2022	7.5	8.21	83
7/9/2022	7.5		
7/10/2022	7.5		
7/11/2022	7.5	8.24	80
7/12/2022	7.6	8.35	82
7/13/2022	7.6	8.26	83
7/14/2022	7.6	8.25	84
7/15/2022	7.7	8.25	84
7/16/2022	7.6	8.24	83
7/17/2022	7.6		
7/18/2022	7.5	8.38	81
7/19/2022	7.5	8.26	85
7/20/2022	7.6	8.24	87
7/21/2022	7.6	8.26	88
7/22/2022	7.6	8.24	89
7/23/2022	7.6	8.26	89
7/24/2022	7.6		
7/25/2022	7.5	7.97	85
7/26/2022	7.6	8.34	85
7/27/2022	7.6	8.33	87
7/28/2022	7.6	8.37	88
7/29/2022	7.6	8.31	85
7/30/2022	7.8	8.39	84
7/31/2022	7.7	8.32	84
8/1/2022	7.4	8.26	85
8/2/2022	7.5	8.27	87
8/3/2022	7.6	8.23	87
8/4/2022	7.6	8.25	90
8/5/2022	7.6	8.26	89
8/6/2022	7.6		
8/7/2022	7.5		
8/8/2022	7.5	7.93	86
8/9/2022	7.5	8.31	88
8/10/2022	7.4	8.31	89
8/11/2022	7.4	8.3	88
8/12/2022	7.5	8.4	86

8/13/2022	7.5		
8/14/2022	7.5		
8/15/2022	7.4	8.31	78
8/16/2022	7.5	8.25	82
8/17/2022	7.5	8.26	82
8/18/2022	7.5	8.32	81
8/19/2022	7.5	8.44	82
8/20/2022	7.5	8.44	83
8/21/2022	7.5		
8/22/2022	7.4	8.37	80
8/23/2022	7.5	8.4	83
8/24/2022	7.5	8.4	83
8/25/2022	7.5	8.4	83
8/26/2022	7.5	8.43	84
8/27/2022	7.5	8.48	84
8/28/2022	7.5	8.45	84
8/29/2022	7.4	8.48	84
8/30/2022	7.5	8.51	85
8/31/2022	7.5	8.5	83
9/1/2022	7.5	8.54	81
9/2/2022	7.5	8.57	81
9/3/2022	7.5		
9/4/2022	7.5		
9/5/2022	7.4		
9/6/2022	7.475	8.55	81
9/7/2022	7.575	8.44	81
9/8/2022	7.55	8.38	80
9/9/2022	7.6	8.35	82
9/10/2022	7.6	8.51	80
9/11/2022	7.6	8.56	81
9/12/2022	7.5	8.47	81
9/13/2022	7.5	8.37	81
9/14/2022	7.525	8.46	77
9/15/2022	7.525	8.44	76
9/16/2022	7.5	8.46	74
9/17/2022	7.5	8.45	74
9/18/2022	7.6		
9/19/2022	7.45	8.56	74
9/20/2022	7.4	8.5	77
9/21/2022	7.4	8.47	77
9/22/2022	7.425	8.47	77
9/23/2022	7.4	8.44	72
9/24/2022	7.4	8.45	70
9/25/2022	7.4	8.42	71
9/26/2022	7.4	8.31	71

9/27/2022	7.525	8.34	70
9/28/2022	7.525	8.44	68
9/29/2022	7.55	8.45	70
9/30/2022	7.575	8.55	69
7/1/2023	7.6		
7/2/2023	7.5		
7/3/2023	7.7		
7/4/2023	7.7		
7/5/2023	7.5	8.36	80
7/6/2023	7.4	8.87	83
7/7/2023	7.4	8.95	85
7/8/2023	7.4		
7/9/2023	7.4		
7/10/2023	7.3	8.52	82
7/11/2023	7.5	8.31	87
7/12/2023	7.4	8.39	90
7/13/2023	7.5	8.37	91
7/14/2023	7.5	8.45	90
7/15/2023	7.5	8.63	87
7/16/2023	7.5		
7/17/2023	7.5	8.39	89
7/18/2023	7.4	8.37	97
7/19/2023	7.5	8.37	95
7/20/2023	7.3	8.4	93
7/21/2023	7.4	8.38	89
7/22/2023	7.3	8.41	86
7/23/2023	7.2	8.59	86
7/24/2023	7.5	8.36	89
7/25/2023	7.5	8.37	92
7/26/2023	7.3	8.31	94
7/27/2023	7.6	8.44	90
7/28/2023	7.4	8.28	95
7/29/2023	7.6	8.33	91
7/30/2023	7.5	8.72	88
7/31/2023	7.5	8.25	92
8/1/2023	7.3	8.32	80
8/2/2023	7.4	8.5	80
8/3/2023	7.4	8.54	79
8/4/2023	7.3	8.5	78
8/5/2023	7.4	8.84	82
8/6/2023	7.4		
8/7/2023	7.4	8.53	81
8/8/2023	7.2	8.4	80
8/9/2023	7.3	8.41	81
8/10/2023	7.5	8.36	81

8/11/2023	7.5	8.27	83
8/12/2023	7.2	8.31	82
8/13/2023	7.5		
8/14/2023	7.5	8.67	82
8/15/2023	7.7	8.37	85
8/16/2023	7.6	8.38	85
8/17/2023	7.7	8.4	85
8/18/2023	7.5	8.41	84
8/19/2023	7.4	8.41	79
8/20/2023	7.5	8.41	80
8/21/2023	7.3	8.37	85
8/22/2023	7.5	8.65	82
8/23/2023	7.5	8.67	81
8/24/2023	7.5	8.41	87
8/25/2023	7.5	8.54	90
8/26/2023	7.5	8.78	95.2
8/27/2023	7.5		
8/28/2023	7.5	8.13	79
8/29/2023	7.5	8.8	84
8/30/2023	7.6	8.56	93
8/31/2023	7.4	8.54	89
9/1/2023	7.4	8.66	88
9/2/2023	7.4	8.66	82
9/3/2023	7.3		
9/4/2023	7.2		
9/5/2023	7.3	8.24	79
9/6/2023	7.5	8.43	81
9/7/2023	7.5	8.49	83
9/8/2023	7.4	8.47	83
9/9/2023	7.5	8.95	84
9/10/2023	7.5		
9/11/2023	7.4	8.19	79
9/12/2023	7.5	8.31	81
9/13/2023	7.5	8.42	82
9/14/2023	7.5	8.48	80
9/15/2023	7.7	8.54	78
9/16/2023	7.6	8.69	76
9/17/2023	7.7		
9/18/2023	7.4	8.27	73
9/19/2023	7.4	8.38	75
9/20/2023	7.6	8.32	76
9/21/2023	7.4	8.31	77
9/22/2023	7.5	8.47	76
9/23/2023	7.7		
9/24/2023	7.5		

9/25/2023	7.7	8.37	68	
9/26/2023	7.4	8.47	68	
9/27/2023	7.5	8.47	70	
9/28/2023	7.5	8.53	71	
9/29/2023	7.5	8.46	72	
9/30/2023	7.4			
median	7.50	8.40	83.00	°F
			28.3	°C

Facility:	Penn Township STP													
NPDES #:	PA0037150													
Outfall No:	001													
n (Samples/Month):	4													
Reviewer/Permit Engineer:	Aaron Baar													
Parameter Name	Total Aluminum	Boron	romium, Hexaval	Total Copper	Cyanide, Free	Zinc	exachlorobutadiene							
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L							
Detection Limit	10	200	1	4	1	5	0.5							
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*													
10/29/2021	166	180		3.78	0.95	51.6	<0.45							
11/3/2021	191	150	0.049	4.13	0.94	44	<0.45							
11/10/2021	220	170	<0.014	3.9	1.5	35	<0.51							
4/3/2024	130	<200	<0.25	4	<1	20	<0.5							
4/19/2024	140	<200	<0.25	2	2	30	<0.5							
5/1/2024	140	300	<0.25	4	<1	42	<0.5							
5/10/2024	130	200	<0.25	2	<	30	<0.5							

Reviewer/Permit Engineer: Aaron Baar

Facility: Penn Township STP
NPDES #: PA0037150
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Aluminum (µg/L)	Lognormal	0.2074489	202.3671351
Boron (µg/L)	Delta-Lognormal	0.2279854	255.9746993
hromium, ,Hexavalent (µg/	Delta-Lognormal	#DIV/0!	#DIV/0!
Total Copper (µg/L)	Lognormal	0.3440141	5.0512981
Cyanide, Free (µg/L)	Delta-Lognormal	0.3597011	1.7411094
Zinc (µg/L)	Lognormal	0.3232517	52.2411439
lexachlorobutadiene (µg/L	Delta-Lognormal	#NAME?	#DIV/0!

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Penn Township STP** NPDES Permit No.: **PA0037150** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Residential Sewage, Commercial & Industri**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
4.2	100	7.5						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		682									
	Chloride (PWS)	mg/L		121									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		46.9									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		202.367135			0.2074						
	Total Antimony	µg/L	<	0.42									
	Total Arsenic	µg/L	<	0.5									
	Total Barium	µg/L		14.9									
	Total Beryllium	µg/L	<	0.13									
	Total Boron	µg/L		255.974			0.228						
	Total Cadmium	µg/L	<	0.16									
	Total Chromium (III)	µg/L		1.15									
	Hexavalent Chromium	µg/L		0.049									
	Total Cobalt	µg/L	<	0.83									
	Total Copper	µg/L		5.0512981			0.344						
	Free Cyanide	µg/L		1.7411094			0.3597						
	Total Cyanide	µg/L		4									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		39									
	Total Lead	µg/L	<	0.33									
	Total Manganese	µg/L		6.3									
	Total Mercury	µg/L		0.0028									
	Total Nickel	µg/L		2.72									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2									
	Total Selenium	µg/L	<	0.66									
	Total Silver	µg/L	<	0.33									
	Total Thallium	µg/L	<	0.32									
	Total Zinc	µg/L		52.2411439			0.3233						
	Total Molybdenum	µg/L		3.23									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.12									
	Bromoform	µg/L	<	0.37									

Group 3	Carbon Tetrachloride	µg/L	<	0.23									
	Chlorobenzene	µg/L		0.25									
	Chlorodibromomethane	µg/L	<	0.25									
	Chloroethane	µg/L	<	0.47									
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1									
	Chloroform	µg/L		0.32									
	Dichlorobromomethane	µg/L	<	0.18									
	1,1-Dichloroethane	µg/L	<	0.05									
	1,2-Dichloroethane	µg/L	<	0.12									
	1,1-Dichloroethylene	µg/L	<	0.13									
	1,2-Dichloropropane	µg/L	<	0.26									
	1,3-Dichloropropylene	µg/L	<	0.47									
	1,4-Dioxane	µg/L	<	0.36									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L		0.59									
	Methyl Chloride	µg/L	<	0.33									
	Methylene Chloride	µg/L	<	0.14									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38									
	Tetrachloroethylene	µg/L	<	0.27									
	Toluene	µg/L	<	0.24									
	1,2-trans-Dichloroethylene	µg/L	<	0.08									
	1,1,1-Trichloroethane	µg/L	<	0.12									
	1,1,2-Trichloroethane	µg/L	<	0.13									
	Trichloroethylene	µg/L	<	0.29									
	Vinyl Chloride	µg/L	<	0.33									
Group 4	2-Chlorophenol	µg/L	<	0.4									
	2,4-Dichlorophenol	µg/L	<	0.46									
	2,4-Dimethylphenol	µg/L	<	0.49									
	4,6-Dinitro-o-Cresol	µg/L	<	1.3									
	2,4-Dinitrophenol	µg/L	<	2.9									
	2-Nitrophenol	µg/L	<	0.4									
	4-Nitrophenol	µg/L	<	1.4									
	p-Chloro-m-Cresol	µg/L	<	0.4									
	Pentachlorophenol	µg/L	<	1.8									
	Phenol	µg/L	<	0.26									
	2,4,6-Trichlorophenol	µg/L	<	0.49									
Group 5	Acenaphthene	µg/L	<	0.41									
	Acenaphthylene	µg/L	<	0.4									
	Anthracene	µg/L	<	0.41									
	Benzidine	µg/L	<	2.6									
	Benzo(a)Anthracene	µg/L	<	0.42									
	Benzo(a)Pyrene	µg/L	<	0.37									
	3,4-Benzofluoranthene	µg/L	<	0.41									
	Benzo(ghi)Perylene	µg/L	<	0.43									
	Benzo(k)Fluoranthene	µg/L	<	0.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.46									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.39									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.46									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.84									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.47									
	Butyl Benzyl Phthalate	µg/L	<	0.6									
	2-Chloronaphthalene	µg/L	<	0.41									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.41									
	Chrysene	µg/L	<	0.43									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.44									
	1,2-Dichlorobenzene	µg/L	<	0.37									
	1,3-Dichlorobenzene	µg/L	<	0.43									
	1,4-Dichlorobenzene	µg/L	<	0.43									
	3,3-Dichlorobenzidine	µg/L	<	1.1									
	Diethyl Phthalate	µg/L	<	0.58									
	Dimethyl Phthalate	µg/L	<	0.43									
	Di-n-Butyl Phthalate	µg/L	<	0.59									
	2,4-Dinitrotoluene	µg/L	<	0.47									

	2,6-Dinitrotoluene	µg/L	<	0.42									
	Di-n-Octyl Phthalate	µg/L	<	0.91									
	1,2-Diphenylhydrazine	µg/L	<	0.39									
	Fluoranthene	µg/L	<	0.44									
	Fluorene	µg/L	<	0.39									
	Hexachlorobenzene	µg/L	<	0.44									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	0.76									
	Hexachloroethane	µg/L	<	0.38									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.41									
	Isophorone	µg/L	<	0.44									
	Naphthalene	µg/L	<	0.41									
	Nitrobenzene	µg/L	<	0.54									
	n-Nitrosodimethylamine	µg/L	<	1.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.43									
	n-Nitrosodiphenylamine	µg/L	<	0.51									
	Phenanthrene	µg/L	<	0.4									
	Pyrene	µg/L	<	0.43									
	1,2,4-Trichlorobenzene	µg/L	<	0.43									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Penn Township STP, NPDES Permit No. PA0037150, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Oil Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	008213	5.69	537	3.88			Yes
End of Reach 1	008213	5.43	532.4	4.4			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.69	0.1	0.485									219	7		
End of Reach 1	5.43	0.1	0.49												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	5.69														
End of Reach 1	5.43														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Penn Township STP, NPDES Permit No. PA0037150, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.113 PMF: 1 Analysis Hardness (mg/l): 108.27 Analysis pH: 7.44

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	806	
Total Antimony	0	0		0	1,100	1,100	1,182	
Total Arsenic	0	0		0	340	340	365	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	22,568	
Total Boron	0	0		0	8,100	8,100	8,705	
Total Cadmium	0	0		0	2.175	2.31	2.49	Chem Translator of 0.941 applied
Total Chromium (III)	0	0		0	608.055	1,924	2,068	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	17.5	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	102	
Total Copper	0	0		0	14.483	15.1	16.2	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	23.6	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	70.407	90.3	97.1	Chem Translator of 0.779 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.77	Chem Translator of 0.85 applied
Total Nickel	0	0		0	500.777	502	539	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.688	4.34	4.66	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	69.9	
Total Zinc	0	0		0	125.337	128	138	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.22	

Acrylonitrile	0	0		0	650	650	699	
Benzene	0	0		0	640	640	688	
Bromoform	0	0		0	1,800	1,800	1,934	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,009	
Chlorobenzene	0	0		0	1,200	1,200	1,290	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	19,344	
Chloroform	0	0		0	1,900	1,900	2,042	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,120	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,060	
1,2-Dichloropropane	0	0		0	11,000	11,000	11,821	
1,3-Dichloropropylene	0	0		0	310	310	333	
Ethylbenzene	0	0		0	2,900	2,900	3,116	
Methyl Bromide	0	0		0	550	550	591	
Methyl Chloride	0	0		0	28,000	28,000	30,090	
Methylene Chloride	0	0		0	12,000	12,000	12,896	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,075	
Tetrachloroethylene	0	0		0	700	700	752	
Toluene	0	0		0	1,700	1,700	1,827	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,308	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,224	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,654	
Trichloroethylene	0	0		0	2,300	2,300	2,472	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	602	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,827	
2,4-Dimethylphenol	0	0		0	660	660	709	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	86.0	
2,4-Dinitrophenol	0	0		0	660	660	709	
2-Nitrophenol	0	0		0	8,000	8,000	8,597	
4-Nitrophenol	0	0		0	2,300	2,300	2,472	
p-Chloro-m-Cresol	0	0		0	160	160	172	
Pentachlorophenol	0	0		0	13.564	13.6	14.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	494	
Acenaphthene	0	0		0	83	83.0	89.2	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	322	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.54	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	32,239	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,836	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	290	
Butyl Benzyl Phthalate	0	0		0	140	140	150	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	881	
1,3-Dichlorobenzene	0	0		0	350	350	376	
1,4-Dichlorobenzene	0	0		0	730	730	784	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,299	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,687	
Di-n-Butyl Phthalate	0	0		0	110	110	118	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,719	
2,6-Dinitrotoluene	0	0		0	990	990	1,064	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.1	
Fluoranthene	0	0		0	200	200	215	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	10.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.37	
Hexachloroethane	0	0		0	60	60.0	64.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	10,746	
Naphthalene	0	0		0	140	140	150	
Nitrobenzene	0	0		0	4,000	4,000	4,299	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	18,269	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	322	
Phenanthrene	0	0		0	5	5.0	5.37	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	140	

☑ ***CFC*** CCT (min): 0.113 PMF: 1 Analysis Hardness (mg/l): 108.27 Analysis pH: 7.44

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	236	
Total Arsenic	0	0		0	150	150	161	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,406	
Total Boron	0	0		0	1,600	1,600	1,719	
Total Cadmium	0	0		0	0.260	0.29	0.31	Chem Translator of 0.906 applied
Total Chromium (III)	0	0		0	79.095	92.0	98.8	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.2	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	20.4	
Total Copper	0	0		0	9.585	9.98	10.7	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	5.2	5.2	5.59	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,612	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.744	3.52	3.78	Chem Translator of 0.779 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.97	Chem Translator of 0.85 applied
Total Nickel	0	0		0	55.621	55.8	60.0	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.36	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	14.0	
Total Zinc	0	0		0	126.362	128	138	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.22	
Acrylonitrile	0	0		0	130	130	140	
Benzene	0	0		0	130	130	140	
Bromoform	0	0		0	370	370	398	
Carbon Tetrachloride	0	0		0	560	560	602	
Chlorobenzene	0	0		0	240	240	258	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,761	
Chloroform	0	0		0	390	390	419	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,331	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,612	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,364	
1,3-Dichloropropylene	0	0		0	61	61.0	65.6	
Ethylbenzene	0	0		0	580	580	623	
Methyl Bromide	0	0		0	110	110	118	
Methyl Chloride	0	0		0	5,500	5,500	5,911	
Methylene Chloride	0	0		0	2,400	2,400	2,579	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	226	
Tetrachloroethylene	0	0		0	140	140	150	
Toluene	0	0		0	330	330	355	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,505	
1,1,1-Trichloroethane	0	0		0	610	610	656	
1,1,2-Trichloroethane	0	0		0	680	680	731	
Trichloroethylene	0	0		0	450	450	484	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	118	
2,4-Dichlorophenol	0	0		0	340	340	365	
2,4-Dimethylphenol	0	0		0	130	130	140	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	17.2	
2,4-Dinitrophenol	0	0		0	130	130	140	
2-Nitrophenol	0	0		0	1,600	1,600	1,719	
4-Nitrophenol	0	0		0	470	470	505	

p-Chloro-m-Cresol	0	0		0	500	500	537	
Pentachlorophenol	0	0		0	10.406	10.4	11.2	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	97.8	
Acenaphthene	0	0		0	17	17.0	18.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	63.4	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	6,448	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	978	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	58.0	
Butyl Benzyl Phthalate	0	0		0	35	35.0	37.6	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	172	
1,3-Dichlorobenzene	0	0		0	69	69.0	74.2	
1,4-Dichlorobenzene	0	0		0	150	150	161	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	860	
Dimethyl Phthalate	0	0		0	500	500	537	
Di-n-Butyl Phthalate	0	0		0	21	21.0	22.6	
2,4-Dinitrotoluene	0	0		0	320	320	344	
2,6-Dinitrotoluene	0	0		0	200	200	215	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.22	
Fluoranthene	0	0		0	40	40.0	43.0	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.15	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.07	
Hexachloroethane	0	0		0	12	12.0	12.9	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,257	
Naphthalene	0	0		0	43	43.0	46.2	
Nitrobenzene	0	0		0	810	810	870	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,654	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	63.4	
Phenanthrene	0	0		0	1	1.0	1.07	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	27.9	

☑ ***THH*** CCT (min): 0.113 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.02	
Total Arsenic	0	0		0	10	10.0	10.7	
Total Barium	0	0		0	2,400	2,400	2,579	
Total Boron	0	0		0	3,100	3,100	3,331	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	4.3	
Dissolved Iron	0	0		0	300	300	322	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,075	
Total Mercury	0	0		0	0.050	0.05	0.054	
Total Nickel	0	0		0	610	610	656	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.26	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.22	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	107	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	6.13	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	35.5	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	73.1	

Methyl Bromide	0	0		0	100	100.0	107	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	61.3	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	107	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	10,746	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	32.2	
2,4-Dichlorophenol	0	0		0	10	10.0	10.7	
2,4-Dimethylphenol	0	0		0	100	100.0	107	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.15	
2,4-Dinitrophenol	0	0		0	10	10.0	10.7	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	4,299	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	75.2	
Anthracene	0	0		0	300	300	322	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	215	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.11	
2-Chloronaphthalene	0	0		0	800	800	860	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,075	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.52	
1,4-Dichlorobenzene	0	0		0	300	300	322	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	645	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,149	
Di-n-Butyl Phthalate	0	0		0	20	20.0	21.5	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	

2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	21.5	
Fluorene	0	0		0	50	50.0	53.7	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	4.3	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	36.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	10.7	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	21.5	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.075	

☑ ***CRL*** CCT (min): 2.568 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.096	
Benzene	0	0		0	0.58	0.58	0.93	
Bromoform	0	0		0	7	7.0	11.3	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.64	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.29	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1.53	
1,2-Dichloroethane	0	0		0	9.9	9.9	15.9	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.45	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.43	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	32.2	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.32	
Tetrachloroethylene	0	0		0	10	10.0	16.1	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	0.88	
Trichloroethylene	0	0		0	0.6	0.6	0.96	
Vinyl Chloride	0	0		0	0.02	0.02	0.032	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.048	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.41	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	

3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.016	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.048	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.51	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.19	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.08	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.08	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.08	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.048	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0001	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.016	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.16	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.001	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.008	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	5.3	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

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

Total Boron	Report	Report	Report	Report	Report	µg/L	1,719	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	10.7	CFC	Discharge Conc > 10% WQBEL (no RP)
Free Cyanide	Report	Report	Report	Report	Report	µg/L	4.3	THH	Discharge Conc > 25% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	128	AFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,579	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	0.31	µg/L	Discharge Conc < TQL
Total Chromium (III)	98.8	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	11.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	20.4	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	322	µg/L	Discharge Conc < TQL
Total Iron	1,612	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	3.78	µg/L	Discharge Conc < TQL
Total Manganese	1,075	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.054	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	60.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	5.36	µg/L	Discharge Conc < TQL
Total Silver	4.34	µg/L	Discharge Conc < TQL
Total Thallium	0.26	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.096	µg/L	Discharge Conc < TQL
Benzene	0.93	µg/L	Discharge Conc < TQL
Bromoform	11.3	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.64	µg/L	Discharge Conc < TQL
Chlorobenzene	107	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	1.29	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.485	= Q stream (cfs)		0.5	= CV Daily	
5	4.2	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.043		1.3.2.iii	WLA cfc = 0.034
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.016		5.1d	LTA_cfc = 0.020
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.020		AFC	
18			INST MAX LIMIT (mg/l) = 0.064			

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)

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.92
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name

Penn Township STP

Permit No.

PA0037150

Test Completion Date 9/24/2018

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	0
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	**PASS**	

Test Completion Date 9/30/2019

Replicate No.	Control	TIWC
1	1	1
2	0	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	0.900	1.000
Std Dev.	0.316	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	**PASS**	

Test Completion Date 9/28/2020

Replicate No.	Control	TIWC
1	1	1
2	0	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	0.900	1.000
Std Dev.	0.316	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	**PASS**	

Test Completion Date 10/5/2021

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

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.92
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name

Penn Township STP

Permit No.

PA0037150

Test Completion Date: 9/24/2018

Replicate No.	Control	TIWC
1	31	31
2	30	17
3	15	37
4	25	0
5	29	32
6	32	32
7	34	28
8	30	16
9	13	15
10	16	38
11		
12		
13		
14		
15		
Mean	25.500	24.600
Std Dev.	7.849	12.131
# Replicates	10	10

T-Test Result	1.2840
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	**PASS**

Test Completion Date: 9/30/2019

Replicate No.	Control	TIWC
1	39	41
2	19	35
3	41	38
4	36	37
5	34	41
6	39	39
7	16	44
8	31	23
9	33	34
10	39	39
11		
12		
13		
14		
15		
Mean	32.700	37.100
Std Dev.	8.629	5.763
# Replicates	10	10

T-Test Result	4.5889
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

Test Completion Date: 9/28/2020

Replicate No.	Control	TIWC
1	16	21
2	16	40
3	28	33
4	27	26
5	28	32
6	25	35
7	25	36
8	33	21
9	22	32
10	31	29
11		
12		
13		
14		
15		
Mean	25.100	30.500
Std Dev.	5.705	6.276
# Replicates	10	10

T-Test Result	4.8606
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	**PASS**

Test Completion Date: 10/5/2021

Replicate No.	Control	TIWC
1	42	47
2	36	39
3	26	36
4	29	38
5	30	37
6	37	36
7	47	37
8	34	38
9	36	29
10	41	41
11		
12		
13		
14		
15		
Mean	35.800	37.800
Std Dev.	6.426	4.492
# Replicates	10	10

T-Test Result	5.2560
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.92
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Penn Township STP

Permit No.

PA0037150

Test Completion Date: 9/25/2018

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

	Control	TIWC
Mean	9.750	9.750
Std Dev.	0.500	0.500
# Replicates	4	4

T-Test Result	6.7314
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 10/1/2019

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

	Control	TIWC
Mean	10.000	9.000
Std Dev.	0.000	0.816
# Replicates	4	4

T-Test Result	3.1346
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

Test Completion Date: 9/29/2020

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

	Control	TIWC
Mean	10.000	8.750
Std Dev.	0.000	1.500
# Replicates	4	4

T-Test Result	1.5976
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

Test Completion Date: 10/5/2021

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

	Control	TIWC
Mean	10.000	9.500
Std Dev.	0.000	0.577
# Replicates	4	4

T-Test Result	5.7714
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	**PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.92
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name

Penn Township STP

Permit No.

PA0037150

Test Completion Date: 9/25/2018

Replicate No.	Control	TIWC
1	0.711	0.822
2	0.746	0.637
3	0.775	0.744
4	0.758	0.786
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.748	0.747
Std Dev.	0.027	0.080
# Replicates	4	4

T-Test Result	4.5161
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	**PASS**

Test Completion Date: 10/1/2019

Replicate No.	Control	TIWC
1	0.776	0.671
2	0.7	0.683
3	0.801	0.635
4	0.728	0.708
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.751	0.674
Std Dev.	0.046	0.030
# Replicates	4	4

T-Test Result	4.8420
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 9/29/2020

Replicate No.	Control	TIWC
1	0.62	0.575
2	0.841	0.668
3	0.645	0.563
4	0.702	0.695
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.702	0.625
Std Dev.	0.099	0.066
# Replicates	4	4

T-Test Result	1.9893
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

Test Completion Date: 10/5/2021

Replicate No.	Control	TIWC
1	0.894	0.713
2	0.785	0.786
3	0.761	0.815
4	0.873	0.807
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.828	0.780
Std Dev.	0.065	0.046
# Replicates	4	4

T-Test Result	4.7191
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	**PASS**

WET Summary and Evaluation

Facility Name	Penn Township STP
Permit No.	PA0037150
Design Flow (MGD)	4.2
Q_{7-10} Flow (cfs)	0.485
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/24/18		9/28/20	10/5/21
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/24/18	9/30/19	9/28/20	10/5/21
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/25/18	10/1/19	9/29/20	10/5/21
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	9/25/18		9/29/20	10/5/21
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

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