Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0240095**
Facility Type	**Municipal**	APS ID	**1102657**
Major / Minor	**Minor**	Authorization ID	**1465069**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mahoning Township Lawrence County**	Facility Name	**Mahoning Township WWTP**
Applicant Address	PO Box 99 Us Route 224	Facility Address	3692 W State Route Street
	Hillsville, PA 16132-0099		Edinburg, PA 16132
Applicant Contact	Vito Yeropoli	Facility Contact	Vito Yeropoli
Applicant Phone	(724) 667-8801	Facility Phone	(724) 667-8801
Client ID	74001	Site ID	703872
Ch 94 Load Status	Not Overloaded	Municipality	Mahoning Township
Connection Status	No Limitations	County	Lawrence
Date Application Received	November 30, 2023	EPA Waived?	Yes
Date Application Accepted	August 29, 2025	If No, Reason	

Purpose of Application: This is an application request for NPDES renewal.

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Mahoning Township located at 3692 W State St, Edinburg, PA 16116 in Lawrence County, municipality of Mahoning Township. The existing permit became effective on June 1, 2019 and expired on May 31, 2024. The application for renewal was received by DEP Northwest Regional Office (NWRO) on November 30, 2023.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.36 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 2) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to County Commissioners (Lawrence County Government Center) and Mahoning Township and the notice was received by the parties on October 23, 2023. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Mahoning River. The sequence of receiving streams that the Mahoning River discharges into are Beaver River, the Ohio River, and the

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	September 11, 2025
X		Adam Olesnanik, P.E. / Environmental Engineer Manager Adam Olesnanik	September 23, 2025

Summary of Review

Mississippi River which eventually drains into the Gulf of America. The receiving water has protected water usage for warm water fishes (WWF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Mahoning River is a Category 2 and 5 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports potable water supply. The receiving stream is (a) impaired for aquatic life due to an unknown source and unknown cause and (b) impaired for fish consumption due to PCBs from an unknown source. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Due to the EPA triennial review, monitoring shall be required for E. Coli.**
- **Monitoring shall be required for Total Copper.**
- **Effluent limits have been proposed for Total Zinc.**
- **The ammonia limit was removed.**

Sludge use and disposal description and location(s): Biosolids/sewage sludge disposed at Carbon Limestone Landfill in Lowellville, OH and New Castle Sanitation in New Castle, PA

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Northwest Regional Office (NWRO), 230 Chestnut Street, Meadville, PA 16335. To make an appointment for file review, contact the NWRO File Review Coordinator at 814.332.6945.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Mahoning Township
NPDES Permit #	PA0240095
Physical Address:	3692 W. State Street Edinburg, PA 16116
Mailing Address:	PO Box 99 Hillsville, PA 16132
Contact:	Vito Yeropoli Township Supervisor (724) 667-8801 yeropoli@comcast.net
Consultant:	Gregg DelPrincipe New Castle Engineers (724) 730-4674 gd@castleengineers.com

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Plan view drawing
- Influent Sample Data
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 3692 W. State Street, Edinburg, PA 16116. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

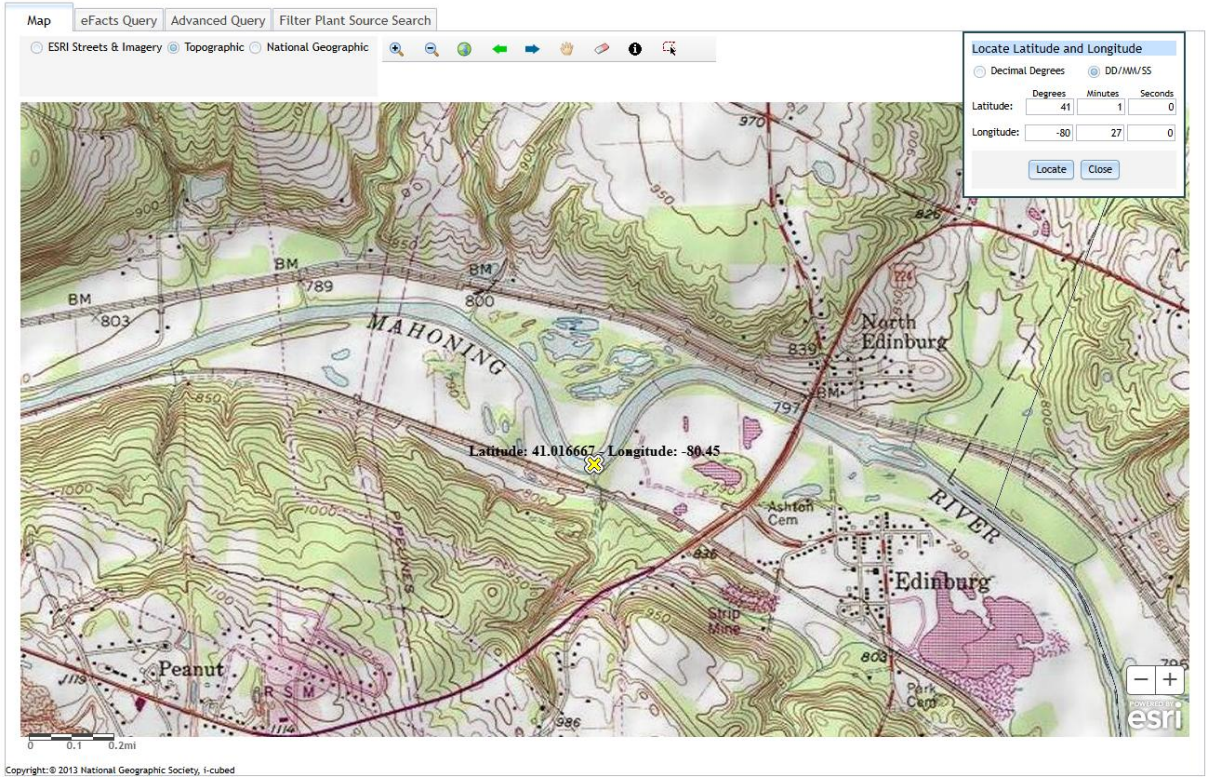
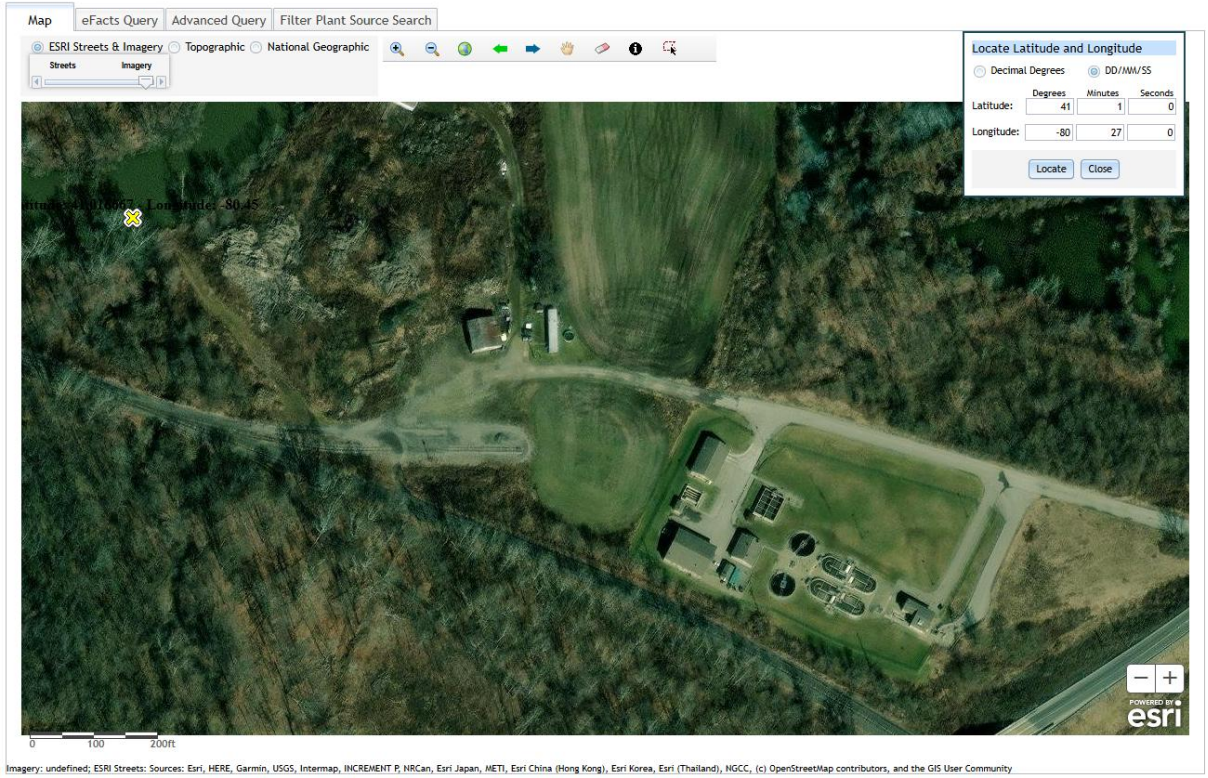


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The facility receives 100% of the flow contribution from Mahoning Township.

The facility does not have any bypasses or overflows of raw or partially treated sewage within the collection system or treatment facility.

The facility received sludge from Dalton LLC. The volume of sludge received was 1,184,000 gallons. At 2% solids, this amount was 99 tons.

The facility received hauled-in wastes in the last three years and also anticipates receiving hauled in wastes in the next five years.

The facility has industrial / commercial users. The following table summarizes the industrial / commercial users.

Industrial / Commercial Wastewater Contributions List

0014 Sealmaster
4551 W. State St.
Edinburg, Pa.16116

0015 Sealmaster
PO. Box 6774
Pittsburgh, Pa.15212

0019 Johnson Club
2392 Churchill Dr.
Hillsville, Pa. 16132

0075 Pete's Party Center
3671 W. Main St.
Hillsville, Pa. 16132

0092 Sky King Fireworks
612 Martin Kelly Spear Rd.
Edinburg, Pa. 16116

0163 BDH Enterprises
153 S. Main St.
Columbiana, Ohio 44408

0257 J.L. Romano Auto Parts
Rte. #224
Hillsville, Pa. 16132

0260 Biotec
3963 W. Main St.
Hillsville, Pa. 16132

0265 Keystone Properties
PO. Box 380
Hillsville, Pa. 16132

0288 Stanley Grzybowski
641 Kingswood Rd
New Castle, Pa. 16105

0309 Mahoning Twp. Pool
4538 W. State St.
Hillsville, Pa. 16132

0310 Mahoning Twp. Bldg.
4538 W. State St.
Hillsville, Pa. 16132

0311 Stone Quarry Banquet Center
4512 W. State St.
Hillsville, Pa. 16132

0329 Nite Trax
4095 W. State St
Edinburg, Pa. 16116

0344 Joseph Phieffer-Corvette
3749 W. State St.
Edinburg, Pa. 16116

0564 Edinburg Christian Church
186 Clay St.
Edinburg, Pa. 16116

0593 Hillsville Post Office
2562 Churchill Rd.
Hillsville, Pa. 16132

0622 Mahoning Twp. Fire Dept.
570 Jackson St.
Edinburg, PA. 16116

Industrial / Commercial Wastewater Contributions List

0630 Rex's Auto Service
124 North St.
Edinburg, Pa. 16116

0633 Marie Parady Tax Service
5383 Erie St.
Edinburg, Pa. 16116

0636 Dollar General Store
#18023 4160 W. State St.
Edinburg, Pa. 16116

0076 Valley Site Mobile Park
139 Jane Ln.
Edinburg, Pa. 16116

0055 Pezzuolo Investments
4126 W. State St.
Edinburg, Pa. 16116

0139 GP. Inc.
175 Martin Kelly Spear Rd
Hillsville, Pa. 16132

0162 GP Construction
2874 Churchill Rd.
Hillsville, Pa. 16132

0282 GP Construction Ware
184 Rich Ave.
Hillsville, Pa. 16132

0383 GP Inc.
209 Martin Kelly Spear Rd.
Hillsville, PA. 16132

2.2 Description of Wastewater Treatment Process

The subject facility is a 0.36 MGD design flow facility. The subject facility treats wastewater using an oxidation ditch, a secondary clarifier, and a chlorine contact tank prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, TDS, fecal coliform, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary

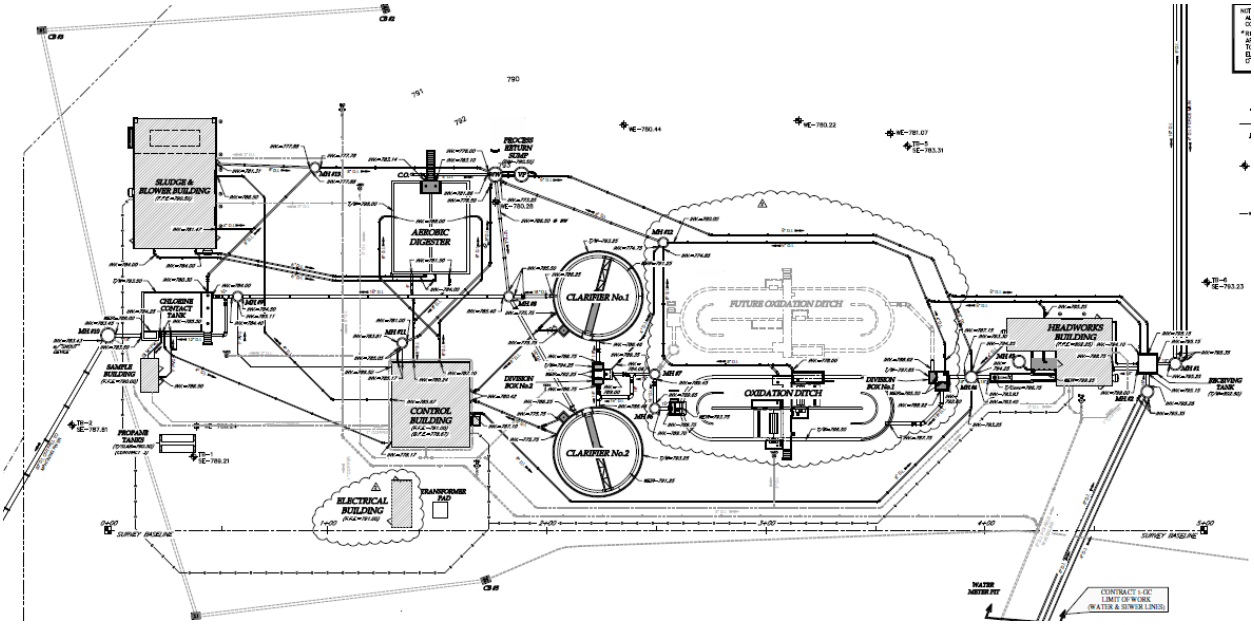
Treatment Facility Name: Mahoning Township WWTP

WQM Permit No.	Issuance Date
3708401	05/19/2008
3708401	02/28/2014

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Oxidation Ditch With Solids Removal	Chlorine With Dechlorination	0.36

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
	750	Not Overloaded		Combination of methods

A plan view schematic of the facility is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.36
Latitude	41º 1' 6.00"	**Longitude**	-80º 26' 27.00"
Wastewater Description:	Sewage Effluent		

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

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

- Hypochlorite for chlorination and filament control
- Sulfur dioxide for dechlorination
- Liquid sodium hydroxide for pH control

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. E. For Outfall 001 , **Latitude** 41º 1' 0.00" , **Longitude** 80º 26' 27.00" , **River Mile Index** 7.42 , **Stream Code** 35393

Receiving Waters: Mahoning River

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	75	120	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	90	135	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Dissolved Solids	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab

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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen	129.0	XXX	XXX	43.0	XXX	86	1/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001 (after disinfection)

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. D. For Outfall 001 , **Latitude** 41º 1' 0.00" , **Longitude** 80º 26' 27.00" , **River Mile Index** 7.42 , **Stream Code** 35393

Receiving Waters: Mahoning River

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **May 1, 2020** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Dissolved Oxygen	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001 (after disinfection)

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

01/08/2020:

- A Carbon Limestone Landfill leachate pretreatment system was in the process of being seeded. A planning module for a conveyance line to Mahoning Township WWTP will be submitted. Hauled-in leachate may decrease until the construction of the conveyance line. It is estimated that flow may be 0.08-0.1-MGD once the line is constructed.
- Hauled-in wastes from Covanta had reportedly not been accepted since the spring of 2019.
- Multiple complaint inspections have been conducted since the last compliance inspection.
- The waste treatment facility and pump stations experienced flooding at the end of June 2019.
- Flow meter calibration certifications for 2019 were not available. The Township is on a yearly contract with HCS Instrumentation, but the meters were not calibrated in 2019. The meters are scheduled to be calibrated on February 3, 2020.
- Lab documents for dewatered sludge % solids were not available. The % solids of dewaterd sludge can be analyzed on-site for process control purposes, but periodic analysis by an accredited lab is required for reporting purposes.

12/15/2021:

- In response to the inspection dated January 8, 2020, the facility engineer provided a written report outlining corrective actions taken. The report indicated that it was anticipated that pretreated landfill leachate will be conveyed directly to the facility and eliminate the need to pump groundwater into the north secondary clarifier effluent trough. The ground water was being used to prevent the chlorine contact tank from freezing.

- During the inspection, DEP discussed concerns of effluent dilution during NPDES Permit sampling with the addition of the groundwater and the status of the pretreated landfill leachate conveyance line. It was reported that the groundwater has not been used during the summer and was recently turned on due to freezing conditions.
- The facility was currently receiving 3,000 to 6,000-gallons of hauled in landfill leachate, 6-days per week. This is less than what was being received in the past and leachate production decreases in the winter. It was indicated that the pretreated landfill leachate will be conveyed to the township's State Line Lift Station (SR 224/Jane Lane). Mr. Yeropoli provided that the well pump capacity is 25 to 30-gpm. He also provided a status update from the facility engineer on the landfill leachate pretreatment and conveyance. It is anticipated that a Planned Changes to Wastestream Reporting Form will be submitted in the spring of 2022

12/18/2024:

- A Notice of Violation dated October 13, 2023 was sent to Mahoning Township for effluent violations reported between January 2022 and August 2023, and a response was received on November 13, 2023. Additional effluent violations were reported between November 2023 and June 2024.
- Hauled-in sludge was dumped at the headworks instead of the sludge digester.
- Equipment failures with the oxidation ditches were reported with the submissions.
- A significant amount of rag material and other influent debris was accumulated at the diversion structures, clarifiers, and chlorine contact tank. The operator reported this was a result of intermittent operational issues with the influent mechanical screen system.
- Equipment to rebuild the influent mechanical screen system was available on-site. Township Engineer Gregg DelPrincipe, P.E. confirmed that the original influent mechanical screen is being rebuilt and that he is in the process of finding a solution to ongoing design issues with the grit chamber. He also provided correspondence with the DEP documenting that a Planned Changes to Wastestream Reporting Form was received and under review in the beginning of May 2022 for a proposed connection to the Mahoning Township collection system to convey pretreated landfill leachate from Republic Services Carbon Limestone to the Mahoning Township WWTP.
- Groundwater from an on-site well is no longer being pumped into the north clarifier effluent trough. The operator reported the well pump stopped working approximately 2-years ago.

The following violations were cited during the inspection

1. 25 Pa. Code 252.4(a): Failure to update lab accreditation or registration. Submit an updated Lab Accreditation Form with current contract lab information and lab registration information for on-site analysis to eDMR; only resubmit if a change is made to the laboratory or methods used, and if parameters are added with the pending NPDES Permit renewal.
2. 25 Pa. Code 302.1201: Operator failed to develop or approve Standard Operating Procedures for non-certified operators to make process control decisions/changes. The SOPs have not been updated since February 12, 2020, under the previous operator in responsible charge.
3. 25 Pa. Code 92a.41(a)(10): Failure to use an NIST thermometer. Composite sampler temperatures are not being recorded on sample days. The influent composite sampler was at 10°C but not collecting samples at the time of inspection. Monitoring and recording temperatures on sample days will ensure proper holding temperatures are maintained.

4. 25 Pa. Code 92a.41(a)(10): Failure to check the TRC meter against standards. Colorimeter secondary gel standards were not available. Periodic colorimeter checks with secondary gel standards and daily (when in-use) 3-point pH meter calibration were discussed.
5. 25 Pa. Code 92a.47(c): Discharges from an SSO are prohibited. Unauthorized bypasses are being reported as required; immediate oral notification (within 4-hours), followed by Noncompliance Reporting Form submitted in eDMR (within 5-days), and supplemental information as requested.
6. 25 Pa. Code 92a.61(c): Failure to monitor pollutants as required by the NPDES permit. The influent and effluent composite samplers are not setup with the corresponding flow meters for flow-proportioned composite sampling; see 'Composite Sample' definition in the NPDES Permit. This was noted on the previous inspection report and reported to have been addressed in a letter dated February 12, 2020 submitted by R.A.R. engineering group, inc.
7. 25 Pa. Code 92a.61(f)(1): Failure to properly document monitoring activities and results. On-site bench sheets need updated to include the required information; sample/analysis date, sample grab and analysis times (to document 15-minute hold time), sample location, and sampler/analyst initials. An example bench sheet was provided to the operator following the inspection.
8. 25 Pa. Code 92a.61(f)(1): Failure to properly document monitoring activities and results. Quarterly NPDES Permit parameters are not being included on Daily Effluent Monitoring Supplement Reports.
9. P.L. 1987, No. 394, Sec 611: Failure to comply with the terms and conditions of a WQM permit Due to design issues the aerated grit chamber is not being aerated, the scum trough has been removed, and the airlift grit classifier is not in-use. The township engineer is working to resolve the issues. WQM permit requirements will be considered when plans are provided. It was also noted only one of two hypochlorite feed pumps for the chlorination system was connected and in-use .

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.1489 MGD in January 2025. The design capacity of the treatment system is 0.36 MGD.

The off-site laboratory used for the analysis of the parameters was CWM Environmental located at 101 Parkview Drive Extension, Kittaning, PA 16201

DMR Data for Outfall 001 (from July 1, 2024 to June 30, 2025)

Parameter	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24
Flow (MGD) Average Monthly	0.0911	0.0706	0.0995	0.0907	0.1401	0.1489	0.109	0.0741	0.0717	0.0659	0.0774	0.0723
Flow (MGD) Daily Maximum	0.2245	0.1437	0.1808	0.1966	0.2927	0.211	0.2296	0.132	0.1224	0.1458	0.1541	0.1942
pH (S.U.) Daily Minimum	7.2	6.9	7.0	7.2	7.3	7.4	7.1	7.3	7.3	7.2	7.3	7.0
pH (S.U.) Daily Maximum	7.9	7.6	7.4	7.6	7.6	7.6	7.6	7.7	7.7	7.6	7.7	7.6
DO (mg/L) Daily Minimum	4.0	4.2	4.3	5.0	4.9	4.7	4.6	4.3	4.3	4.1	4.2	4.0
TRC (mg/L) Average Monthly	0.3	0.6	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3
TRC (mg/L) Instantaneous Maximum	0.8	1.5	0.9	0.8	0.6	0.7	0.6	0.6	0.8	0.8	0.7	0.7
CBOD5 (lbs/day) Average Monthly	8	15	20	10.0	62	83	< 4	9	11	< 7	11	< 4
CBOD5 (lbs/day) Weekly Average	17	23	36	16.0	177	178	9	10	14	12	19	10
CBOD5 (mg/L) Average Monthly	21.6	25.9	31.0	19.7	50.6	68.3	< 5.0	16.6	18.4	< 9.9	14.9	< 6.2
CBOD5 (mg/L) Weekly Average	67.0	38.0	59.0	28.0	139.0	153.0	9.0	23.0	24.0	16.0	22.0	10.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	976	816	532	410	114	795	132	240	144	231	142	96
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	2064	1987	1327	833	207	1680	202	629	380	636	316	329
BOD5 (mg/L) Raw Sewage Influent Average Monthly	911	708	579	406	450	166	421	766	411	605	333	223
TSS (lbs/day) Average Monthly	7	11	11	10.0	25	20	< 4	9	6	6	9	< 3

TSS (lbs/day) Raw Sewage Influent Average Monthly	3507	2302	1126	432	173	294	910	236	86	379	735	66
TSS (lbs/day) Raw Sewage Influent Daily Maximum	7249	3767	3609	648	562	788	1677	668	270	764	1849	202
TSS (lbs/day) Weekly Average	12	14	18	12.0	43	50	7	14	7	8	14	6
TSS (mg/L) Average Monthly	15.0	20.0	16.0	22.0	24.0	16.0	< 6.0	16.0	10.0	12.0	11.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	3171	2794	1032	642	499	38	2909	705	238	1116	1653	156
TSS (mg/L) Weekly Average	19.0	38.0	26.0	34.0	36.0	40.0	9.0	18.0	15.0	16.0	13.0	6.0
Total Dissolved Solids (lbs/day) Average Quarterly	827			537.2			703.5			729		
Total Dissolved Solids (mg/L) Average Quarterly	1140			1130			990			1040		
Fecal Coliform (No./100 ml) Geometric Mean	1	1	1	1	1	< 5	1	1	1	2	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	2	3	4	1	1	2420	2	1	1	5	5	7
Total Nitrogen (mg/L) Daily Maximum	7.44			13			8.52			13.7		
Ammonia (lbs/day) Average Monthly	4.0	1.0	5.0	5.0	18.0	20.0	5.0	8.0	3.0	3.0	8.0	2.0
Ammonia (mg/L) Average Monthly	8.54	2.37	9.05	12.8	16.7	15.9	1.53	13.8	5.44	6.6	10.5	3.53
Total Phosphorus (mg/L) Daily Maximum	0.52			0.66			0.47			0.64		

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in June 1, 2019 to August 31 2025, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning June 1, 2019 and Ending August 31, 2025

NON_COMPLIANCE_DATE	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	DISCHARGE_COMMENTS	FACILITY_COMMENTS
7/25/2019	Effluent	Fecal Coliform	1256	>	200	No./100 ml	Geometric Mean		
7/25/2019	Effluent	Fecal Coliform	2420	>	1000	No./100 ml	Instantaneous Maximum		
8/20/2019	Effluent	Fecal Coliform	2072	>	200	No./100 ml	Geometric Mean		
8/20/2019	Effluent	Fecal Coliform	2420	>	1000	No./100 ml	Instantaneous Maximum		
9/25/2019	Effluent	Fecal Coliform	12910	>	1000	No./100 ml	Instantaneous Maximum		
2/20/2020	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	69.3	>	40.0	mg/L	Weekly Average		
3/23/2020	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	42.9	>	40.0	mg/L	Weekly Average		
3/23/2020	Effluent	Total Suspended Solids	36.0	>	30.0	mg/L	Average Monthly		
2/24/2022	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	70.0	>	40.0	mg/L	Weekly Average		
1/31/2022	Unauthorized Discharges							Pump shut off due to drive failure. No solids observed. Pump turned back on after 4 hours with temporary fix. Drive replaced 1/31/22 at 9AM. Station working properly as of 1/31/22 9AM	
3/23/2022	Effluent	Dissolved Oxygen	3.9	<	4.0	mg/L	Daily Minimum		Power outage caused the aerators to stop for 2 hours causing the DO levels to drop. The reading was 3.9 mg/L versus the limit of 4.0 mg/L. The outage occurred on a Sunday and was corrected in under 2 hours.
4/26/2022	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	43.0	>	40.0	mg/L	Weekly Average		
5/27/2022	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	32.2	>	25.0	mg/L	Average Monthly		
5/27/2022	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	47.0	>	40.0	mg/L	Weekly Average		
5/27/2022	Effluent	Dissolved Oxygen	3.9	<	4.0	mg/L	Daily Minimum		
6/22/2022	Effluent	Dissolved Oxygen	3.7	<	4.0	mg/L	Daily Minimum		
7/25/2022	Effluent	Dissolved Oxygen	3.5	<	4.0	mg/L	Daily Minimum		
8/27/2022	Effluent	Dissolved Oxygen	3.8	<	4.0	mg/L	Daily Minimum		
11/2/2022	Other Violations								
11/2/2022	Other Violations								
12/28/2022	Effluent	Dissolved Oxygen	3.9	<	4.0	mg/L	Daily Minimum		
1/23/2023	Effluent	Dissolved Oxygen	3.7	<	4.0	mg/L	Daily Minimum		
2/28/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	49.0	>	40.0	mg/L	Weekly Average		

4/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	139.0	>	40.0	mg/L	Weekly Average		
4/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	160	>	120	lbs/day	Weekly Average		
4/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	71.2	>	25.0	mg/L	Average Monthly		
4/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	98	>	75	lbs/day	Average Monthly		
3/27/2023	Unauthorized Discharges							Broken Pipe	
5/18/2023	Unauthorized Discharges							Pump failure at Lift station. Restarted pump in under an hour. Volume about 1000 gallon.	
7/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	32.7	>	25.0	mg/L	Average Monthly		
7/27/2023	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	65.0	>	40.0	mg/L	Weekly Average		
7/27/2023	Effluent	Dissolved Oxygen	3.6	<	4.0	mg/L	Daily Minimum		
7/27/2023	Effluent	Fecal Coliform	2420	>	1000	No./100 ml	Instantaneous Maximum		
9/25/2023	Effluent	Dissolved Oxygen	3.4	<	4.0	mg/L	Daily Minimum		Several Mechanical failures in August including Centrifuge, Chlorine pump.
9/25/2023	Effluent	Fecal Coliform	2420	>	1000	No./100 ml	Instantaneous Maximum		Several mechanical issues during the month of August. Most notable are the centrifuge and the chlorine pump. Both repaired but the parts came later than vendor promise dates. Due to the original promise date the countermeasure action plans were held. Unfortunately the actual delivery was later than promised causing non-conforming analyticals.
12/28/2023	Effluent	Total Suspended Solids	48.0	>	45.0	mg/L	Weekly Average		Hauler dumped incorrectly at headworks on the day of our once a week 24 hour composite. Gave hauler a warning to call for each sludge load to monitor correct dumping. Hauler notified that all sludge is to go into the digester. One sample per week caused the weekly average to slightly exceed limit.
6/27/2024	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	27.4	>	25.0	mg/L	Average Monthly		Oxidation ditches equipment failures. 3 of 4 spinners went down. 2 have since been repaired the other waiting on lead time for motor and milling of spindle. Expected in late June early July.
6/27/2024	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	73.0	>	40.0	mg/L	Weekly Average		Same as prior comment. The duration of repairs was under two weeks, large BOD haulers stopped but later than should have been due to expected quicker fix projection.

7/24/2024	Effluent	Dissolved Oxygen	3.9	<	4.0	mg/L	Daily Minimum		
2/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	153.0	>	40.0	mg/L	Weekly Average		
2/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	178	>	120	lbs/day	Weekly Average		
2/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	68.3	>	25.0	mg/L	Average Monthly		
2/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	83	>	75	lbs/day	Average Monthly		
3/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	139.0	>	40.0	mg/L	Weekly Average		Extreme temperatures combined with residual waste overload caused the non-compliance in January and into the first part of February. The relaxing of subfreezing temps and the reduction of hauled-in leachate has corrected the issue.
3/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	177	>	120	lbs/day	Weekly Average		Extreme temperatures combined with residual waste overload caused the non-compliance in January and into the first part of February. The relaxing of subfreezing temps and the reduction of hauled-in leachate has corrected the issue.
3/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	50.6	>	25.0	mg/L	Average Monthly		Extreme temperatures combined with residual waste overload caused the non-compliance in January and into the first part of February. The relaxing of subfreezing temps and the reduction of hauled-in leachate has corrected the issue.
5/27/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	31.0	>	25.0	mg/L	Average Monthly		The RAS pump was down for 5 days resulting a higher BOD during the sample for the week.
5/27/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	59.0	>	40.0	mg/L	Weekly Average		The RAS pupm failed and was down for 5 days during the month of April. The result was a higher than limits for one of the weekly samples.
6/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	25.9	>	25.0	mg/L	Average Monthly		Centrifuge down for 17 days during May. Equipment repaired in June.
6/28/2025	Effluent	Total Residual Chlorine (TRC)	0.6	>	.5	mg/L	Average Monthly		Chlorine pump malfunction. Manual injection of chlorine during 72 hour malfunction. Pump running properly now.
7/28/2025	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	67.0	>	40.0	mg/L	Weekly Average		Centrifuge down for 21 days in May and June. The part was on back order which made the repair take longer than expected. Solids were hauled out but difficulty maintaining the chemistry resulted in the first weekly sample high in BODs.

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in June 1, 2019 to August 31, 2025, the following were observed enforcement actions.

Summary of Enforcment Actions
Beginning June 1, 2019 and Ending August 31, 2025

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	VIOL CODE ID	VIOL PROGRAM NAME	VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
420748	NOV	Notice of Violation	10/13/2023	10/13/2023	17291	WPCNP	92A.44	Comply/Closed	02/26/2025
444473	NOV	Notice of Violation	07/18/2025	07/18/2025	17291	WPCNP	92A.44		
379113	NOV	Notice of Violation	09/25/2019	09/25/2019	17291	WPCNP	92A.44	Comply/Closed	12/22/2020
391113	CACP	Consent Assessment of Civil Penalty	01/05/2021	12/22/2020	17291	WPCNP	92A.44	Comply/Closed	12/22/2020

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2024
Sewage Sludge / Biosolids Production Information

	Hauled Off-Site					
2024	Gallons	% Solids	Dry Tons	Tons Dewatered	% Solids	Dry Tons
January				85.38	25.6	21.857
February				193.51	25.6	49.539
March	140,000	6	35.028	25.79	25.6	6.602
April				164.71	25.6	42.166
May				161.8	25.6	41.421
June				138.32	25.6	35.41
July				83.8	25.6	21.453
August				86.38	25.6	22.113
September				189.73	25.6	48.571
October				133.09	25.6	34.071
November				120.52	25.6	30.853
December				110.65	25.6	28.326

Notes:
Biosolids/sewage sludge disposed at Carbon Limestone Landfill in Lowellville, OH and New Castle Sanitation in New Castle, PA

3.5 Open Violations

As of August 2025, open violations existed. The final executed permit may be withheld until the open violations are remediated.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Mahoning River. The sequence of receiving streams that the Mahoning River discharges into are Beaver River, the Ohio River, and the Mississippi River which eventually drains into the Gulf of America.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Beaver Falls MA (PWS ID #5040012) located approximately 27 miles downstream of the subject facility on the Beaver River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2024 Integrated List of All Waters (303d Listed Streams):

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 and 5 waterbody. This stream is an attaining stream that supports potable water supply. The receiving stream is (a) impaired for aquatic life due to an unknown source and unknown cause and (b) impaired for fish consumption due to PCBs from an unknown source. The designated use has been classified as protected waters for warm water fishes (WWF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Beaver River station (WQN906). This WQN station is located approximately 14 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Beaver River station at Wampum, PA (USGS station number 3105500). This gauge station is located approximately 14 miles downstream of the subject facility.

For WQM modeling, default values for pH and stream water temperature data were used. The pH used was 7.0 and the stream water temperature used was 25 C.

A default hardness of the stream of 100 mg/l $CaCO_3$ was utilized.

The low flow yield and the Q710 for the subject facility was estimated using StreamStats.

The Q710 is 43.1 ft^3/s and the low flow yield is 0.039 $ft^3/s/mi^2$.

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.36
Latitude	41º 1' 6.48"	Longitude	-80º 26' 26.82"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Mahoning River (WWF)	Stream Code	35393
NHD Com ID	125566455	RMI	7.3
Drainage Area	1100	Yield (cfs/mi^2)	0.039
Q_{7-10} Flow (cfs)	43.1	Q_{7-10} Basis	Streamstats
Elevation (ft)	777	Slope (ft/ft)	
Watershed No.	20-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	25	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Beaver Falls MA		
PWS Waters	Beaver River	Flow at Intake (cfs)	
PWS RMI	5.52	Distance from Outfall (mi)	27

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	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)

5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity\left(\frac{lb}{day}\right) = (MGD)(Concentration)(8.34)$$

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1	*(Modeling Point #1)*	*(Modeling Point #2)*	*(Modeling Point #3)*	*Units*
Stream Code	35393	35393	35393	
River Mile Index	7.3	2.71	0	miles
Elevation	777	766	761	feet
Latitude	41.016667	40.984084	40.957968	
Longitude	-80.45	-80.394588	-80.379181	
Drainage Area	1100	1101	1140	sq miles
Low Flow Yield	0.0392	0.0392	0.040	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) a 30-day average concentration for CBOD5 in the discharge;
(c) a 30-day average concentration for the NH_3-N in the discharge;
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the following pollutants: TDS, Chloride, Bromide, Sulfate, Total Copper, Total Lead, and Total Zinc.

The NPDES application collected was three samples for TDS, Chloride, Bromide, and Sulfate. One sample was collected for Total Copper, Total Lead, and Total Zinc.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, (c) Toxics, and (d) Chapter 92a.61 targeted parameters

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Mahoning Township; PA0240095

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 4.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as an 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 75 lbs/day and 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 1x/wkas a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 90 lbs/day and 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD.
TRC	TBEL	Monitoring:	The monitoring frequency shall be on a daily basis as a grab sample (Table 6-3).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and/or 1.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the TBEL is more stringent than the WQBEL. The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.48(b)(2)	
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.36 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus

Based upon the DMR data from July 2024 to June 2025, the facility is able to meet the ammonia limit of 25 mg/l without issues. The ammonia limit of 43 mg/l was removed as it may have been included in the current permit as an error.

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Mahoning Township; PA0240095

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	BPJ	Monitoring:	The monitoring frequency shall be 1x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the Fact Sheet dated January 2019, monitoring shall continue. The facility receives septage and leachate which characteristically contains higher concentrations than domestic sewage.
Total Nitrogen	BPJ	Monitoring:	The monitoring frequency shall be 1x/quarter as a calculation
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the Fact Sheet dated January 2019, monitoring shall continue. The facility receives septage and leachate which characteristically contains higher concentrations than domestic sewage.
Total Phosphorus	BPJ	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the Fact Sheet dated January 2019, monitoring shall continue. The facility receives septage and leachate which characteristically contains higher concentrations than domestic sewage.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.36 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3 Toxics

TDS:

The maximum TDS reported in the NPDES renewal application wa 1,250 mg/l. A total of three samples were collected.

Consistent with the special study entitled "Determination of TDS WQBEL for New Castle POTW," dated September 12, 2011, monitoring shall be required for discharges in the watershed that exceed a TDS concentration of 2,000 mg/l and the DEP's guidance document entitled "Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10" (Doc. 385-2100-002) for when the effluent TDS concentration may exceed 1,000 mg/l often, or approach 2,000 mg/l on some occasions (Courtesy from Fact Sheet dated January 2019).

Quarterly monitoring for TDS shall continue in the permit.

Total Copper:

TMS recommended monitoring. Monitoring is being proposed to collect additional samples. Pending favorable results, monitoring may be reduced or eliminated in future renewals

Zinc:

For the NPDES renewal application, the sampling for zinc resulted in a concentration of 1.8 mg/l. Toxics Management Spreadsheet recommended effluent limits. Effluent limits have been proposed.

Summary of Proposed NPDES Parameter Details for Toxics

Mahoning Township; PA0240095

Parameter	Permit Limitation Required by[1]:	Recommendation	
TDS	Special Study:Determination of TDS WQBEL for New Castle POTW	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample
		Effluent Limit:	No effluent requirements
		Rationale:	Monitoring required due to special study entitled "Determination of TDS WQBEL for New Castle POTW," dated September 12, 2011 and Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10" (Doc. 385-2100-002)
Total Copper	WQBEL	Monitoring:	The monitoring frequency shall be 1x/quarter as a 24-hr composite sample
		Effluent Limit:	No effluent limit requirement.
		Rationale:	Toxics Management Spreadsheet (TMS) recommends monitoring. Monitoring is being proposed to collect additional samples. Pending favorable results, monitoring may be reduced or eliminated in future renewals
Total Zinc	WQBEL	Monitoring:	The monitoring frequency shall be 1x/month as a 24-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 2.45 lbs/day and 0.81 mg/l as an average monthly.
		Rationale:	Toxics Management Spreadsheet (TMS) recommends effluent limits.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.36 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth.

Based upon DEP policy directives the following pollutants shall be monitored:

- Consistent with DEP Management directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required. The monitoring frequency is based upon flow rate.

Summary of Proposed NPDES Parameter Details for polluants monitored under Chapter 92a.61
Mahoning Township; PA0240095

Parameter	Permit Limitation Required by[1]:	Recommendation	
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.36 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- Due to the EPA triennial review, monitoring shall be required for E. Coli.
- Monitoring shall be required for Total Copper.
- Effluent limits have been proposed for Total Zinc.
- The ammonia limit was removed.

6.3.1 Summary of Proposed NPDES Effluent Limits

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

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 41º 1' 6.00" , **Longitude** 80º 26' 27.00" , **River Mile Index** 7.3 , **Stream Code** 35393

Receiving Waters: Mahoning River (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **End of Interim Period 1**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Zinc, Total	Report	XXX	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001 , **Latitude** 41º 1' 6.00" , **Longitude** 80º 26' 27.00" , **River Mile Index** 7.3 , **Stream Code** 35393

Receiving Waters: Mahoning River (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Start of Final Period** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Zinc, Total	2.45	XXX	XXX	0.81	1.27 Daily Max	2.03	1/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. C. For Outfall 001 , **Latitude** 41° 1' 6.00" , **Longitude** 80° 26' 27.00" , **River Mile Index** 7.3 , **Stream Code** 35393

Receiving Waters: Mahoning River (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	75	120	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	90	135	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Dissolved Solids	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	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	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab
Total Nitrogen	Report Total Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	Report Total Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Copper, Total	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	Report Daily Max	XXX	1/quarter	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Hauled-in Waste Restrictions
- Solids Management for Non-Lagoon Treatment Systems

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:

Attachment A

Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
03102500	Little Shenango River at Greenville, Pa.	41.422	-80.376	104	N
03102850	Shenango River near Transfer, Pa.	41.354	-80.398	337	Y
03102950	Pymatuning Creek at Kinsman, Ohio	41.443	-80.588	96.7	N
03103000	Pymatuning Creek near Orangeville, Pa.	41.311	-80.478	169	N
03103500	Shenango River at Sharpsville, Pa.	41.266	-80.473	584	Y
03104000	Shenango River at Sharon, Pa.	41.232	-80.510	608	N
03104500	Shenango River at New Castle, Pa.	41.000	-80.356	792	Y
03104760	Harthegig Run near Greenfield, Pa.	41.186	-80.327	2.26	N
03105500	Beaver River at Wampum, Pa.	40.889	-80.337	2,235	Y
03106000	Connoquenessing Creek near Zelienople, Pa.	40.817	-80.242	356	N
03106300	Muddy Creek near Portersville, Pa.	40.963	-80.125	51.2	Y
03106500	Slippery Rock Creek at Wurtemburg, Pa.	40.884	-80.234	398	Y
03107500	Beaver River at Beaver Falls, Pa.	40.763	-80.315	3,106	Y
03108000	Raccoon Creek at Moffatts Mill, Pa.	40.628	-80.338	178	LF
03109500	Little Beaver Creek near East Liverpool, Ohio	40.676	-80.541	496	N
03110000	Yellow Creek near Hammondsville, Ohio	40.538	-80.725	147	N
03111150	Brush Run near Buffalo, Pa.	40.198	-80.408	10.3	N
03111500	Short Creek near Dillonvale, Ohio	40.193	-80.734	123	N
03111534	Ohio River at Martins Ferry, Ohio	40.105	-80.708	24,620	N
03111548	Wheeling Creek below Blaine, Ohio	40.067	-80.808	97.7	N
03112000	Wheeling Creek at Elm Grove, W.Va.	40.045	-80.661	281	Y
03114000	Captina Creek at Armstrongs Mills, Ohio	39.909	-80.924	134	N
04209000	Chagrin River at Willoughby, Ohio	41.631	-81.403	246	N
04212500	Ashtabula River near Ashtabula, Ohio	41.856	-80.762	121	N
04213000	Conneaut Creek at Conneaut, Ohio	41.927	-80.604	175	N
04213040	Raccoon Creek near West Springfield, Pa.	41.945	-80.447	2.53	N
04213075	Brandy Run near Girard, Pa.	41.992	-80.291	4.45	N
04221000	Genesee River at Wellsville, N.Y.	42.122	-77.957	288	N
04223000	Genesee River at Portageville, N.Y.	42.570	-78.042	984	N
04224775	Canaseraga Creek above Dansville, N.Y.	42.536	-77.704	88.9	N
04227000	Canaseraga Creek at Shakers Crossing, N.Y.	42.737	-77.841	335	N

[1]Refers to regulation of streamflow during period of record of streamgage; N, no regulation during period of record; Y, regulation during period of record; LF, regulation for low flows during period of record.

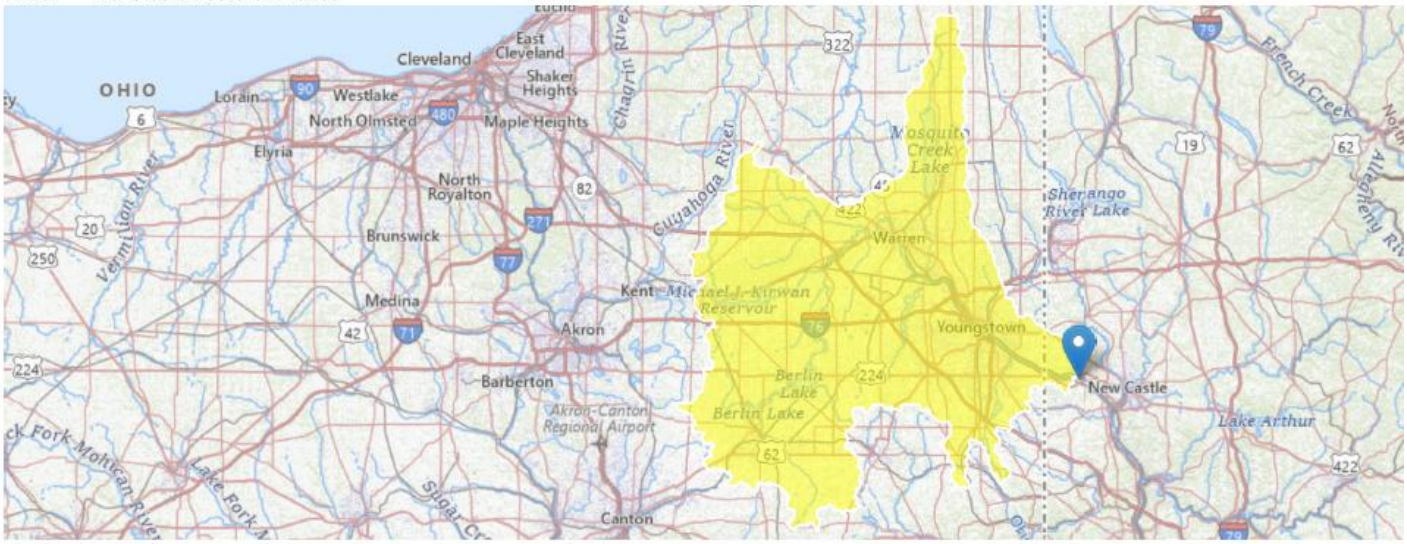
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
03086500	1943–1993	51	0	0	3.9	<.1	5.1	1.6
03090500	[2]1945–1992	48	0	1.0	17.5	3.0	39.9	21.3
03090500	[3]1933–1942	11	2.2	2.7	4.3	5.0	9.7	8.6
03091500	1931–2008	78	3.7	7.6	37.3	20.5	60.3	45.0
03092000	1943–1993	51	0	<.1	.1	.1	.3	.2
03092090	1967–1993	27	.3	.5	1.5	1.2	2.4	2.4
03092460	1971–1992	22	6.7	7.6	19.1	12.9	24.3	26.4
03092500	[2]1969–1982	14	9.7	11.0	22.8	14.5	30.2	29.8
03092500	[3]1929–1966	39	4.1	4.7	6.7	5.9	8.5	7.8
03093000	1928–2008	77	3.7	6.8	11.2	8.6	14.0	11.3
03094000	1942–2008	67	101	109	162	130	207	157
03095500	1945–1991	27	0	0	5.2	.9	6.4	2.3
03097550	1989–2008	20	189	200	247	227	316	268
03098000	1923–1982	60	64.2	75.4	168	90.3	203	115
03098500	1945–2000	27	.1	.2	.8	.8	2.4	2.4
03098600	1989–2008	20	200	217	285	255	378	314
03099500	1945–2000	46	198	217	312	245	382	304
03100000	1913–1922	10	3.1	3.6	5.8	5.2	9.5	7.3
03101500	1936–2008	73	2.2	3.5	19.2	8.4	35.7	25.2
03102000	[3]1921–1932	12	2.6	3.5	5.9	4.3	9.2	6.8
03102500	1915–2008	90	4.8	5.5	10.4	7.1	13.8	9.7
03102850	1967–2008	42	47.3	54.4	82.5	69.8	106	103
03102950	1967–1994	28	.2	.4	2.0	1.4	5.0	4.4
03103000	1915–1963	46	1.2	1.8	4.4	2.9	6.7	5.1
03103500	1939–1991	53	81.3	94.8	154	124	196	154
03104000	[3]1911–1932	22	13.1	14.8	29.9	19.6	41.5	28.8
03104500	[3]1911–1932	20	12.6	16.5	30.4	24.4	47.8	36.5
03104760	1970–1981	12	<.1	.1	.1	.1	.1	.2
03105500	1916–2008	77	266	295	617	355	736	427
03106000	1921–2008	88	10.0	11.9	24.5	16.2	35.6	25.7
03106300	[2]1971–2008	36	1.3	1.9	4.0	2.6	6.3	3.9
03106500	[3]1913–1969	57	—	30.4	44.6	38.8	59.3	49.2
03106500	[2]1971–2008	38	44.0	47.5	73.5	57.5	101	78.2
03107500	1958–2008	51	510	564	842	657	989	781
03108000	[3]1943–1956	14	6.2	7.7	11.2	10.4	17.4	16.6
03108000	[2]1958–2008	51	7.4	8.3	16.3	11.0	22.6	16.9
03109500	1917–2008	92	18.3	20.4	38.4	29.0	53.3	43.1
03110000	1942–2008	67	1.9	2.3	6.7	3.8	10.6	8.2
03111150	1962–1985	19	0	0	.1	0	.3	<.1
03111500	1943–2008	66	7.7	9.5	19.8	12.9	24.5	19.3
03111534	1980–1995	16	4,620	5,610	8,430	6,530	10,700	8,320
03111548	1983–2008	21	10.2	11.0	20.8	13.4	26.5	20.9
03112000	[2]1988–2008	21	.7	1.3	7.7	3.2	14.6	11.1
[5]03112000	[3]1942–1986	45	.4	.7	3.5	1.6	8.9	4.8
03114000	1928–2003	52	0	<.1	1.6	.5	5.6	3.6

StreamStats Report

Region ID: PA
Workspace ID: PA20250831095216923000
Clicked Point (Latitude, Longitude): 41.01677, -80.45033
NHD Stream GNIS Name of Click Point: Mahoning River
Time: 2025-08-31 05:52:40 -0400



Mahoning Township PA0240095 Modeling Point #1 August 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1100	square miles
ELEV	Mean Basin Elevation	1056	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1100	square miles	2.26	1400
ELEV	Mean Basin Elevation	1056	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	73.6	ft^3/s	43	43
30 Day 2 Year Low Flow	102	ft^3/s	38	38
7 Day 10 Year Low Flow	43.1	ft^3/s	66	66
30 Day 10 Year Low Flow	53.8	ft^3/s	54	54
90 Day 10 Year Low Flow	76.1	ft^3/s	41	41

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/)

NHD Features of Delineated Basin

NHD Streams Intersecting Basin Delineation Boundary

This functionality attempts to find the stream name at the delineation point. The name of the nearest intersecting National Hydrography Dataset (NHD) stream is selected by default to appear in the report above. NHD streams do not correspond to the StreamStats stream grid and may not be accurate. If you would like a different stream to appear in the above section, please make a selection below.

GNIS ID	GNIS Name	Distance from Clicked Point (ft)	Feature Type	Selected Stream Name
01066822	Mahoning River	8.94	Artificial Path	Mahoning River
01066617	Bull Creek	66,089.66	Perennial	Bull Creek

Watershed Boundary Dataset (WBD) HUC 8 Intersecting Basin Delineation Boundary

This functionality attempts to find the intersecting HUC 8 of the delineated watershed. HUC boundaries do not correspond to the StreamStats data and may not be accurate.

HUC 8	Name
05040001	Tuscarawas
04110002	Cuyahoga
05030101	Upper Ohio
05030102	Shenango
05030103	Mahoning
04110004	Grand

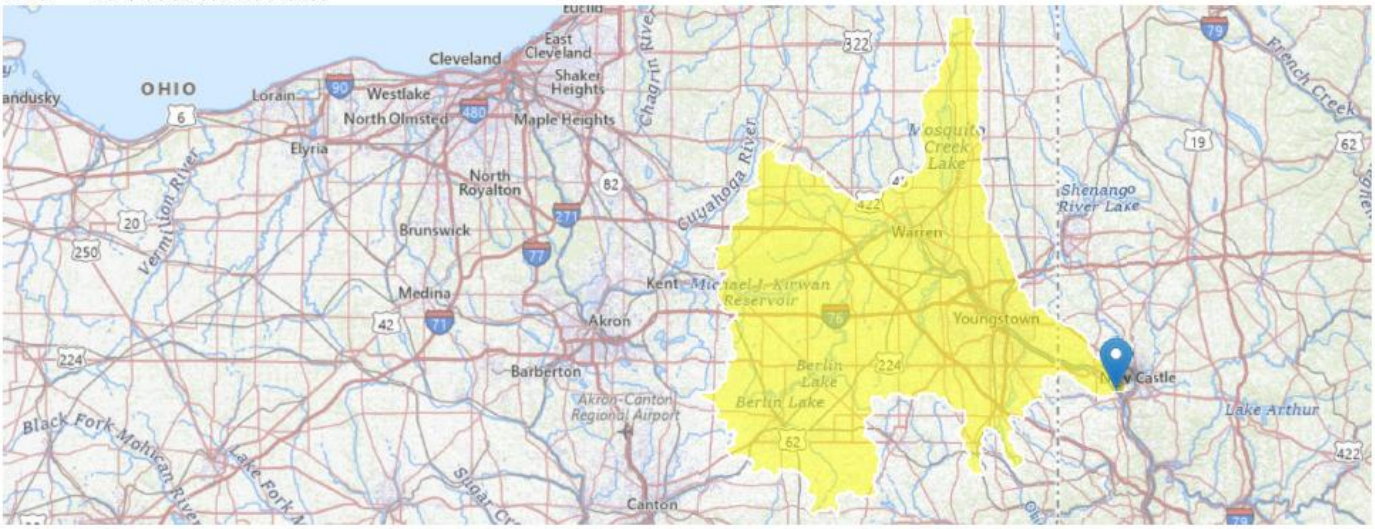
NHD Hydrologic Features Citations

U.S. Geological Survey, 2022, USGS TNM - National Hydrography Dataset, accessed July 21, 2022 at URL https://hydro.nationalmap.gov/arcgis/rest/services/nhd/MapServer/6. (https://hydro.nationalmap.gov/arcgis/rest/services/nhd/MapServer/6)
U.S. Geological Survey, 2022, USGS TNM - National Hydrography Dataset, accessed July 21, 2022 at URL https://hydro.nationalmap.gov/arcgis/rest/services/wbd/MapServer/4. (https://hydro.nationalmap.gov/arcgis/rest/services/wbd/MapServer/4)

Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250903094409559000
Clicked Point (Latitude, Longitude): 40.98416, -80.39460
Time: 2025-09-03 05:44:34 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1110	square miles
ELEV	Mean Basin Elevation	1055	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1110	square miles	2.26	1400
ELEV	Mean Basin Elevation	1055	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	74.3	ft^3/s	43	43
30 Day 2 Year Low Flow	103	ft^3/s	38	38
7 Day 10 Year Low Flow	43.6	ft^3/s	66	66
30 Day 10 Year Low Flow	54.4	ft^3/s	54	54
90 Day 10 Year Low Flow	76.8	ft^3/s	41	41

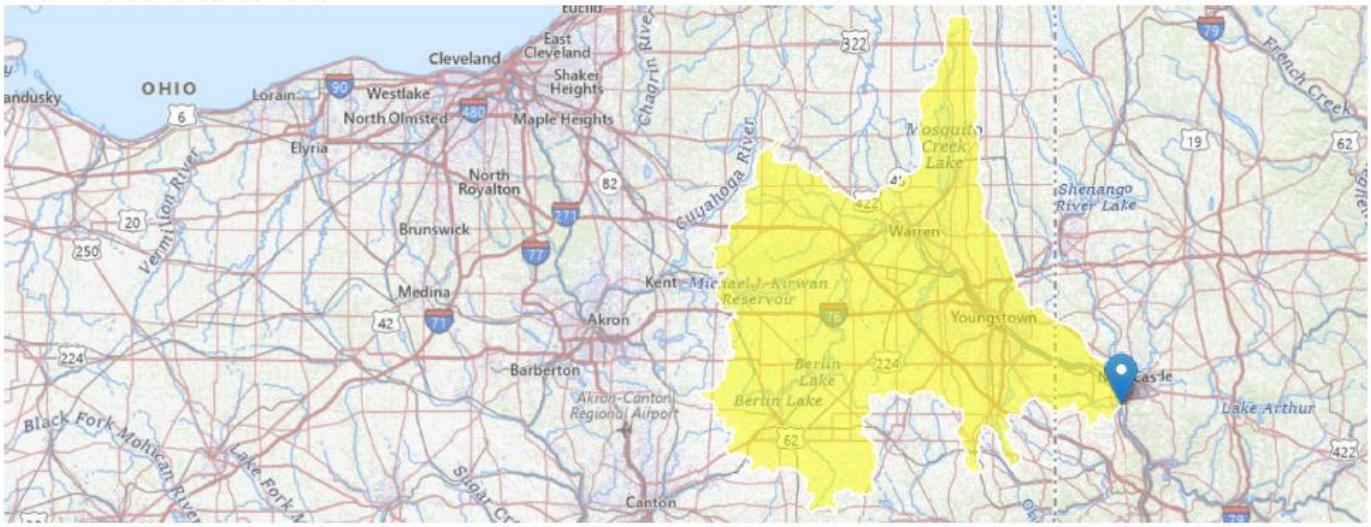
Low-Flow Statistics Citations

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/)

Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20250904094629474000
Clicked Point (Latitude, Longitude): 40.95809, -80.37945
Time: 2025-09-04 05:46:54 -0400



Mahoning Township PA0240095 Modeling Point #3 September 2025

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1140	square miles
ELEV	Mean Basin Elevation	1057	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1140	square miles	2.26	1400
ELEV	Mean Basin Elevation	1057	feet	1050	2580

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.7	ft^3/s	43	43
30 Day 2 Year Low Flow	106	ft^3/s	38	38
7 Day 10 Year Low Flow	45.1	ft^3/s	66	66
30 Day 10 Year Low Flow	56.2	ft^3/s	54	54
90 Day 10 Year Low Flow	79.3	ft^3/s	41	41

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/)

Application Version: 4.29.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

WQM 7.0 Modeling Output Values
Toxics Management Spreadsheet Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20B	35393	MAHONING RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
7.300	Mahoning Twp	PA0240095	0.360	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20B	35393	MAHONING RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
7.300	Mahoning Twp	11.02	50	11.02	50	0	0
2.710		NA	NA	11.02	NA	NA	NA

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
7.300	Mahoning Twp	1.37	25	1.37	25	0	0
2.710		NA	NA	1.37	NA	NA	NA

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)		
7.30	Mahoning Twp	25	25	25	25	4	4	0	0
2.71		NA	NA	NA	NA	NA	NA	NA	NA

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
20B	35393	MAHONING RIVER	7.300	777.00	1100.00	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	0.039	43.10	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Mahoning Twp	PA0240095	0.3600	0.3600	0.3600	0.000	25.00	7.40

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	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20B	35393	MAHONING RIVER	2.710	766.00	1101.00	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	0.039	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	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	3.00	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
20B	35393	MAHONING RIVER	**0.000**	761.00	1140.00	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	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20B	35393	MAHONING RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
7.300	0.360	25.000	7.003
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
130.400	1.098	118.731	0.305
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.29	0.105	0.32	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.189	0.727	Tsivoglou	5
Reach Travel Time (days)			
0.920			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.092	2.27	0.29	7.54
0.184	2.24	0.26	7.54
0.276	2.21	0.24	7.54
0.368	2.18	0.22	7.54
0.460	2.16	0.20	7.54
0.552	2.13	0.18	7.54
0.644	2.11	0.16	7.49
0.736	2.08	0.15	7.44
0.828	2.06	0.14	7.41
0.920	2.03	0.12	7.38

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.710	0.360	25.000	7.003
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
131.565	1.105	119.073	0.301
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.03	0.022	0.12	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.378	0.552	Tsivoglou	5
Reach Travel Time (days)			
0.551			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.055	2.03	0.12	7.37
0.110	2.02	0.11	7.37
0.165	2.02	0.10	7.37
0.220	2.02	0.10	7.37
0.275	2.02	0.09	7.37
0.331	2.01	0.09	7.37
0.386	2.01	0.08	7.37
0.441	2.01	0.08	7.38
0.496	2.00	0.07	7.39
0.551	2.00	0.07	7.39

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20B	35393	MAHONING RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
7.300	43.10	0.00	43.10	.5569	0.00045	1.098	130.4	118.73	0.30	0.920	25.00	7.00
2.710	43.14	0.00	43.14	.5569	0.00035	1.105	131.57	119.07	0.30	0.551	25.00	7.00
Q1-10 Flow												
7.300	27.58	0.00	27.58	.5569	0.00045	NA	NA	NA	0.24	1.177	25.00	7.01
2.710	27.61	0.00	27.61	.5569	0.00035	NA	NA	NA	0.24	0.705	25.00	7.01
Q30-10 Flow												
7.300	68.96	0.00	68.96	.5569	0.00045	NA	NA	NA	0.40	0.709	25.00	7.00
2.710	69.02	0.00	69.02	.5569	0.00035	NA	NA	NA	0.39	0.425	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.6	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Mahoning Township** NPDES Permit No.: **PA0240095** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage effluent**

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
0.36	100	7.4						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc		0.5 if left blank: Daily CV	Hourly CV	0 if left blank: Strea m CV	Fate Coeff	FOS	1 if left blank: Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1260									
	Chloride (PWS)	mg/L		424									
	Bromide	mg/L		0.1									
	Sulfate (PWS)	mg/L		273									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		20									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		20									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		1800									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										

Group 3	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										
	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										

	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
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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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Mahoning Township, NPDES Permit No. PA0240095, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Mahoning River**

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	035393	7.3	777	1100			Yes
End of Reach 1	035393	0	761	1140			Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	7.3	0.0392	43.1									100	7		
End of Reach 1	0	0.04										100	7		

Q $_{h}$

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	7.3														
End of Reach 1	0														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Mahoning Township, NPDES Permit No. PA0240095, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.124 Analysis Hardness (mg/l): 100 Analysis pH: 7.03

Pollutants	Stream Conc	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 Copper	0	0		0	13.439	14.0	149	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	867	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	1,272	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.861 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc	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 Copper	0	0		0	8.956	9.33	631	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	215	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	8,103	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.861 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	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 Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

Pollutants	Stream Conc	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 Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	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 Copper	Report	Report	Report	Report	Report	µg/L	95.3	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	2.45	3.82	815	1,272	2,038	µg/L	815	AFC	Discharge Conc ≥ 50% WQBEL (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 Lead	215	µg/L	Discharge Conc ≤ 10% WQBEL

Attachment C

TRC Evaluation

Mahoning Township
PA0240095

September 2025

TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

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

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	24.706	1.3.2.iii	WLA cfc =	24.079
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	9.206	5.1d	LTA_cfc =	13.999

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.635	

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)**