Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Application Type	**Renewal**	Application No.	**PA0002534**
Facility Type	**Industrial**	APS ID	**1118064**
Major / Minor	**Minor**	Authorization ID	**1545510**

Applicant and Facility Information

Applicant Name	**Morgan Advanced Materials**	Facility Name	**Morgan Advanced Materials**
Applicant Address	441 Hall Avenue	Facility Address	441 Hall Avenue
	Saint Marys, PA 15857-1400		St Marys, PA 15857
Applicant Contact	Timothy Gall	Facility Contact	Timothy Gall
Applicant Phone	(814) 274-6113	Facility Phone	(814) 274-6113
Client ID	42191	Site ID	242507
SIC Code	3624	Municipality	Saint Marys City
SIC Description	Manufacturing - Carbon And Graphite Products	County	Elk
Date Application Received	July 2, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	
Purpose of Application	NPDES Permit Renewal.		

Summary of Review

Morgan Advanced Materials (MAM) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on December 27, 2019 and became effective on January 1, 2020. The permit expired on December 31, 2024 but the terms and conditions of the permit have been extended since that time.

Based on the review, 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.

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	October 9, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	October 31, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	41º 25' 56"	Longitude	-78º 33' 7"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		

Outfall No.	003	Design Flow (MGD)	0
Latitude	41º 25' 56"	Longitude	-78º 33' 7"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		

Receiving Waters	Unnamed Tributary to Elk Creek (CWF)	Stream Code	50459
NHD Com ID	134396194	RMI	0.946
Drainage Area	2.43	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	**0.136**	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	777	Slope (ft/ft)	
Watershed No.	17-A	Chapter 93 Class.	CWF
Existing Use	none	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, METALS		
Source(s) of Impairment	ACID MINE DRAINAGE, SOURCE UNKNOWN		
TMDL Status	Final	Name	Elk Creek TMDL (Elk County) 50459

Nearest Downstream Public Water Supply Intake	PA American Water		
PWS Waters	Clarion River	Flow at Intake (cfs)	90.7
PWS RMI	33.3	Distance from Outfall (mi)	71.7

MAM currently operates two (2) outfalls for stormwater; Outfall 002 and Outfall 003. Outfall 001 was receiving industrial wastewater (NCCW) but was eliminated after installation of a closed loop cooling system in 2017. Both Outfall 002 and 003 receives stormwater draining from the site. The discharge from these outfalls is to an unnamed tributary to Elk Creek. A drainage area upstream of the discharge point is estimated to be 2.43 sq.mi with the Q7-10 flow of 0.136 cfs according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

The entire watershed of Elk Creek is designated as cold water fishery; no special protection water is impacted by this discharge. DEP's latest integrated water quality report finalized in 2024 indicates that Elk Creek watershed is impaired for metals as a result of acid mine drainage activities. A Total Maximum Daily Load (TMDL) was developed in 2006 to address impairments resulted from acid drainage from abandoned coal mines. This will be further discussed later in this fact sheet.

The fact sheet developed for the last permit renewal indicates that the nearest downstream public water supply intake is PA American Water located on Clarion River approximately 71 miles from the discharge. Given the nature and distance, the discharge is not expected to affect this water supply intake.

Treatment Facility Summary

MAM is a manufacture of carbon/graphite seals, bearing and specialty components for mechanical devices (SIC Code 3624). Outfall 002 receives stormwater draining from parking lots and areas covering dust collection systems and trash compactor (drainage area = 71447 sq.ft. with 98% impervious area). Outfall 003 receives stormwater draining from steel and rubber roofing (drainage area = 91921 sq.ft. with 100 % impervious area).

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	04/08/2022: DEP conducted a routine inspection; no significant violations were identified at the time of inspection.
Other Comments:	Since the last permit reissuance, the facility had no permit violations. Additionally, DEP's database shows there is no open violation associated with this facility or permittee.

Effluent Data

DMR Data for Outfall 002 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
pH (S.U.) Semi-Annual Average			8.05						7.44			
TSS (mg/L) Semi-Annual Average			4						48			
Oil and Grease (mg/L) Semi-Annual Average			< 2.51						9.50			
Total Aluminum (mg/L) Semi-Annual Average			0.16						0.81			
Total Cadmium (mg/L) Semi-Annual Average			0.1						0.35			
Total Copper (mg/L) Semi-Annual Average			0.04						0.08			
Total Iron (mg/L) Semi-Annual Average			0.22						1.16			
Total Lead (mg/L) Semi-Annual Average			< 0.003						< 0.02			
Total Manganese (mg/L) Semi-Annual Average			0.02						0.04			
Total Silver (mg/L) Semi-Annual Average			0.66						5.53			
Total Zinc (mg/L) Semi-Annual Average			0.18						0.40			

DMR Data for Outfall 003 (from September 1, 2024 to August 31, 2025)

Parameter	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24
pH (S.U.) Semi-Annual Average			8.05						6.24			
TSS (mg/L) Semi-Annual Average			< 3						5.00			
Oil and Grease (mg/L) Semi-Annual Average			< 2.51						16.3			
Total Aluminum (mg/L) Semi-Annual Average			0.03						0.12			

Total Cadmium (mg/L) Semi-Annual Average			0.22						0.41			
Total Copper (mg/L) Semi-Annual Average			0.1						0.07			
Total Iron (mg/L) Semi-Annual Average			0.08						0.12			
Total Lead (mg/L) Semi-Annual Average			< 0.003						< 0.02			
Total Manganese (mg/L) Semi-Annual Average			0.02						0.03			
Total Silver (mg/L) Semi-Annual Average			4.92						3.24			
Total Zinc (mg/L) Semi-Annual Average			1.09						5.77			

Existing Permit Requirements

The table below summarizes the stormwater monitoring requirements specified in the current permit (both Outfall 002 and 003 have identical requirements)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum [(1)] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Aluminum, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Cadmium, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Copper, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Iron, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Lead, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Manganese, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Silver, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Zinc, Total	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0
Latitude 41º 25' 56.00" **Longitude** -78º 33' 7.00"
Wastewater Description: Stormwater

Outfall No. 003 **Design Flow (MGD)** 0
Latitude 41º 25' 56.00" **Longitude** -78º 33' 7.00"
Wastewater Description: Stormwater

There is no ELG associated with stormwater. A reasonable potential analysis has not performed as flow is controlled based on the amount of precipitation and a number of rain events. In general, DEP establishes, using BPJ, the monitoring requirements specified in the NPDES PAG-03 Industrial Stormwater General Permit when there is no applicable ELG for stormwater associated with such industrial activities. Based on the facility's SIC code of 3624, Appendix J of PAG-03 General Permit is applicable this facility. Accordingly, Specific Best Management Practices and Monitoring Requirements for Appendix J of PAG-03 General Permit will apply to these outfalls.

The current Appendix J includes monitoring of Total Nitrogen, Total Phosphorus, Total Suspended Solids, Oil and Grease, pH and COD. DEP's SOP no. BCW-PMT-032 recommends the state industrial effluent standards found in 25 Pa Code 95.2 to be considered. 25 Pa Code 95.2(1) requires pH between 6.0-9.0 S.U. for all industrial wastes. Additionally, given the nature of industrial activities performed at this site, stormwater may potentially contain oil and grease; thus, the daily average limit of 30 mg/L and maximum limit of 30 mg/L of Oil and Grease will be included in the permit per 25 Pa Code 95.2(2). For those existing parameters that are not in Appendix J, a further data analysis was performed as follows:

Outfall 002	Data Analysis Based on Data collected since January 2020 (Semi-Annual)				
Parameter (mg/L)	**Average**	**Maximum**	**Minimum**	**Median**	**Ch.93 Criteria**
Aluminum	0.386	0.84	0.075	0.309	0.750
Cadmium	<0.36333	0.64	<0.0002	<0.002	0.002
Copper	0.06	0.15	0.02	0.04	0.013
Iron	0.5214	1.16	0.116	0.44	1.5
Lead	<0.02	<0.02	<0.02	<0.02	0.065
Manganese	<0.0382	0.099	0.012	<0.0305	1.0
Silver	<2.1977	5.53	<0.002	<1.84	0.0032
Zinc	0.42	1.02	0.08	0.39	0.12

Outfall 003	Data Analysis Based on Data collected since January 2020 (Semi-Annual)				
Parameter (mg/L)	**Average**	**Maximum**	**Minimum**	**Median**	**Ch.93 Criteria**
Aluminum	0.109	0.19	0.03	0.12	0.750
Cadmium	<0.31857	0.44	0.22	<0.32	0.002
Copper	0.08	0.34	0.01	0.05	0.013
Iron	<0.1158	0.23	0.05	<0.09	1.5
Lead	<0.02	<0.02	<0.02	<0.02	0.065
Manganese	<0.0355	0.082	0.012	<0.025	1.0
Silver	<2.4096	4.92	0.0005	<3.03	0.032
Zinc	2.53	5.77	0.68	1.58	0.12

DEP's SOP no. BCW-PMT-032 recommends effluent limits to be established if stormwater concentration exceeds 100 times the most stringent Chapter 93 criterion or exceed 100 mg/L for parameters without criteria. Based on the data analysis, none of existing parameters have exceeded 100 times its criteria, except for Silver in which the maximum value exceeded 100 times for both outfalls; however, the data shows some of sample results were non-detected and most of sample results were lower than 100 times the criteria. Additional monitoring is needed to further characterize Total Silver.

Aluminum, Manganese, and Iron will continue to be monitored without effluent limits since effluent concentrations are below 100 times the criteria. The TMDL was developed for Elk Creek to specifically address primary metals including aluminum, manganese and iron and a continuation of monitoring for these parameters will allow DEP to further review stormwater discharge to ensure that it does not additionally contribute to the impairments. This approach is supported by 25 Pa Code 92a.61.

Total Lead has been consistently non-detected; therefore, it is recommended to remove from the monitoring requirement from both outfalls. Additionally, Total Cadmium has been non-detected most of times with the low detection levels; therefore, it is recommended to remove from the monitoring requirement from both outfalls.

For Total Copper and Total Zinc, while concentrations are below 100 times its criteria, these parameters have been consistently detected in stormwater discharge on both outfalls. It is recommended that monitoring of these parameters continue to be included in the permit.

	Summary of Stormwater Monitoring Requirements		
Parameters (mg/L)	**Existing Permit**	**Upcoming Permit**	**Basis**
pH (S.U.)	Monitor	6.0 – 9.0	25 Pa Code 95.2(1)
Oil and Grease	Monitor	15 mg/L (Daily Avg) 30 mg/L (Maximum)	25 Pa Code 95.2(2)
Total Suspended Solids	Monitor	Monitor	Appendix J of PAG-03 General Permit
Total Nitrogen		Monitor	Appendix J of PAG-03 General Permit
Total Phosphorus		Monitor	Appendix J of PAG-03 General Permit
Chemical Oxygen Demand		Monitor	Appendix J of PAG-03 General Permit
Aluminum, Total	Monitor	Monitor	Elk Creek TMDL and 25 Pa Code 92a.61
Iron, Total	Monitor	Monitor	Elk Creek TMDL and 25 Pa Code 92a.61
Manganese, Total	Monitor	Monitor	Elk Creek TMDL and 25 Pa Code 92a.61
Cadmium, Total	Monitor		non-detected results with low concentration levels
Lead, Total	Monitor		non-detected Results
Copper, Total	Monitor	Monitor	25 Pa Code 92a.61
Silver, Total	Monitor	Monitor	25 Pa Code 92a.61
Zinc, Total	Monitor	Monitor	25 Pa Code 92a.61

Part C of the permit will also contain specific BMPs and other requirements associated with stormwater.

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	15	30 Daily Max	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Silver	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

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

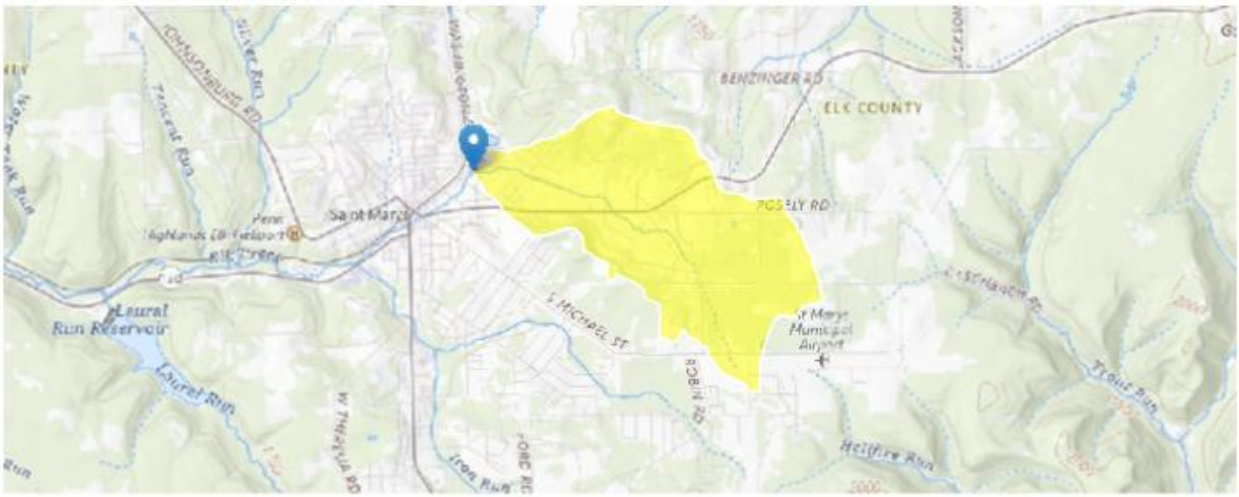
Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Semi-Annual Average	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	15	30 Daily Max	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Copper	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Silver	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Zinc	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

StreamStats Report

Region ID: PA
Workspace ID: PA20251008232907646000
Clicked Point (Latitude, Longitude): 41.43205, -78.55225
Time: 2025-10-08 19:29:28 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.43	square miles
ELEV	Mean Basin Elevation	1803	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.43	square miles	2.33	1720
ELEV	Mean Basin Elevation	1803	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

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	0.309	ft^3/s	43	43
30 Day 2 Year Low Flow	0.453	ft^3/s	38	38
7 Day 10 Year Low Flow	0.136	ft^3/s	54	54
30 Day 10 Year Low Flow	0.187	ft^3/s	49	49

Statistic	Value	Unit	SE	ASEp
90 Day 10 Year Low Flow	0.277	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: 4.29.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Outfall 002																			
Jan-20	Aluminum, Total	0.075	Cadmium, Total	< 0.002	Copper, Total	0.02	Iron, Total	0.116	Lead, Total	< 0.002	Manganese, Total	0.012	Silver, Total	< 0.002	Zinc, Total	0.12			
Jul-20	Aluminum, Total	0.309	Cadmium, Total	< 0.002	Copper, Total	0.03	Iron, Total	0.337	Lead, Total	< 0.005	Manganese, Total	0.031	Silver, Total	< 0.002	Zinc, Total	0.68			
Jan-21	Aluminum, Total	0.224	Cadmium, Total	< 0.002	Copper, Total	0.12	Iron, Total	0.402	Lead, Total	< 0.005	Manganese, Total	0.099	Silver, Total	< 0.002	Zinc, Total	0.8			
Jul-21	Aluminum, Total	0.49	Cadmium, Total	0.64	Copper, Total	0.03	Iron, Total	0.47	Lead, Total	< 0.02	Manganese, Total	0.02	Silver, Total	1.44	Zinc, Total	1.02			
Jan-22	Aluminum, Total	0.44	Cadmium, Total	< 0.0002	Copper, Total	0.03	Iron, Total	0.53	Lead, Total	< 0.02	Manganese, Total	0.02	Silver, Total	0.0013	Zinc, Total	0.19			
Jul-22	Aluminum, Total	0.84	Cadmium, Total	< 0.20	Copper, Total	0.07	Iron, Total	1.12	Lead, Total	< 0.02	Manganese, Total	0.03	Silver, Total	2.03	Zinc, Total	0.29			
Jan-23	Aluminum, Total	0.21	Cadmium, Total	< 0.20	Copper, Total	0.08	Iron, Total	0.3	Lead, Total	< 0.02	Manganese, Total	0.04	Silver, Total	2.61	Zinc, Total	0.48			
Jul-23	Aluminum, Total	0.29	Cadmium, Total	< 2.0	Copper, Total	0.02	Iron, Total	0.44	Lead, Total	< 0.02	Manganese, Total	< 0.02	Silver, Total	1.65	Zinc, Total	0.08			
Jan-24	Aluminum, Total	0.4	Cadmium, Total	< 0.20	Copper, Total	0.15	Iron, Total	0.64	Lead, Total	< 0.02	Manganese, Total	0.07	Silver, Total	3.66	Zinc, Total	0.39			
Jul-24	Aluminum, Total	0.81	Cadmium, Total	0.35	Copper, Total	0.08	Iron, Total	1.16	Lead, Total	< 0.02	Manganese, Total	0.04	Silver, Total	5.53	Zinc, Total	0.4			
Jan-25	Aluminum, Total	0.16	Cadmium, Total	0.1	Copper, Total	0.04	Iron, Total	0.22	Lead, Total	< 0.003	Manganese, Total	0.02	Silver, Total	0.66	Zinc, Total	0.18			
	AVG	0.386		0.36333		0.06		0.5214		#DIV/0!		0.0382		2.1977		0.42			
	Max	0.84		0.64		0.15		1.16		0		0.099		5.53		1.02			
	Min	0.075		0.1		0.02		0.116		0		0.012		0.0013		0.08			
	Median	0.309		0.35		0.04		0.44		#NUM!		0.0305		1.84		0.39			
Outfall 003																			
Jan-20	Aluminum, Total	0.031	Cadmium, Total	< 0.002	Copper, Total	0.01	Iron, Total	< 0.075	Lead, Total	< 0.002	Manganese, Total	< 0.005	Silver, Total	< 0.002	Zinc, Total	0.68			
Jul-20	Aluminum, Total	0.148	Cadmium, Total	< 0.002	Copper, Total	0.05	Iron, Total	0.168	Lead, Total	< 0.005	Manganese, Total	0.012	Silver, Total	0.006	Zinc, Total	1.07			
Jan-21	Aluminum, Total	0.142	Cadmium, Total	< 0.002	Copper, Total	0.34	Iron, Total	0.09	Lead, Total	< 0.005	Manganese, Total	0.082	Silver, Total	< 0.002	Zinc, Total	4.69			
Jul-21	Aluminum, Total	< 0.1	Cadmium, Total	0.23	Copper, Total	0.04	Iron, Total	0.09	Lead, Total	< 0.02	Manganese, Total	0.02	Silver, Total	4.27	Zinc, Total	2.42			
Jan-22	Aluminum, Total	< 0.1	Cadmium, Total	< 0.0002	Copper, Total	0.02	Iron, Total	0.05	Lead, Total	< 0.02	Manganese, Total	< 0.02	Silver, Total	0.0005	Zinc, Total	1.09			
Jul-22	Aluminum, Total	< 0.10	Cadmium, Total	0.32	Copper, Total	0.03	Iron, Total	0.09	Lead, Total	< 0.02	Manganese, Total	0.02	Silver, Total	3.03	Zinc, Total	3.15			
Jan-23	Aluminum, Total	0.19	Cadmium, Total	0.44	Copper, Total	0.12	Iron, Total	0.23	Lead, Total	< 0.02	Manganese, Total	0.04	Silver, Total	2.26	Zinc, Total	5.01			
Jul-23	Aluminum, Total	< 0.10	Cadmium, Total	0.33	Copper, Total	0.01	Iron, Total	0.07	Lead, Total	< 0.02	Manganese, Total	< 0.02	Silver, Total	0.93	Zinc, Total	1.28			
Jan-24	Aluminum, Total	0.1	Cadmium, Total	0.28	Copper, Total	0.12	Iron, Total	0.17	Lead, Total	< 0.02	Manganese, Total	0.06	Silver, Total	3.03	Zinc, Total	1.58			
Jul-24	Aluminum, Total	0.12	Cadmium, Total	0.41	Copper, Total	0.07	Iron, Total	0.12	Lead, Total	< 0.02	Manganese, Total	0.03	Silver, Total	3.24	Zinc, Total	5.77			
Jan-25	Aluminum, Total	0.03	Cadmium, Total	0.22	Copper, Total	0.1	Iron, Total	0.08	Lead, Total	< 0.003	Manganese, Total	0.02	Silver, Total	4.92	Zinc, Total	1.09			
	AVG	0.109		0.31857		0.08		0.1158		#DIV/0!		0.0355		2.4096		2.53			
	Max	0.19		0.44		0.34		0.23		0		0.082		4.92		5.77			
	Min	0.03		0.22		0.01		0.05		0		0.012		0.0005		0.68			
	Median	0.12		0.32		0.05		0.09		#NUM!		0.025		3.03		1.58			