

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0000914
APS ID 1155531
Authorization ID 1557698

Applicant and Facility Information



Applicant Name	<u>Naval Reactors Laboratory Field Office</u>	Facility Name	<u>Bettis Atomic Power Laboratory</u>
Applicant Address	<u>PO Box 109</u> <u>West Mifflin, PA 15122-0109</u>	Facility Address	<u>814 Pittsburgh McKeesport Boulevard</u> <u>West Mifflin, PA 15122-2849</u>
Applicant Contact	<u>Thomas Stuhldreher</u>	Facility Contact	<u>Thomas Stuhldreher</u>
Applicant Phone	<u>(412) 476-5386</u>	Facility Phone	<u>(412) 476-5386</u>
Client ID	<u>296736</u>	Site ID	<u>250735</u>
SIC Code	<u>8733</u>	Municipality	<u>West Mifflin Borough</u>
SIC Description	<u>Services - Noncommercial Research Organizations</u>	County	<u>Allegheny</u>
Date Application Received	<u>January 30, 2026</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>February 5, 2026</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of Individual NPDES Permit</u>		

Summary of Review

The Department received an NPDES permit renewal application for coverage of the Naval Reactors Laboratory Field Office - Bettis Atomic Power Laboratory facility on 1/30/2026. The prior permit was issued on 7/20/2021, effective on 8/1/2021, and expires 7/31/2026. Minor amendment A-1 for updating the location of Outfall 001 was issued on 11/24/2025. The Bettis Atomic Power Laboratory (Bettis) is owned by the U. S. Department of Energy (DOE) and operated by Fluor Marine Propulsion, LLC under the jurisdiction of the Naval Reactors Laboratory Field Office (NRLFO). Bettis is fully dedicated to the design, development, testing, and operational follow of nuclear reactor propulsion plants for naval submarines and surface ships for the Naval Nuclear Propulsion Program (NNPP). Bettis is a generator of hazardous waste, and the D Building is classified as a hazardous waste storage site (PA0890090004). All hazardous waste is transported off-site for disposal.

The first non-agrarian use of this site location was as a private airfield, named the Bettis Airfield, which was operated from 1926 to 1948. Bettis was organized in 1948 through the joint efforts of the Westinghouse Electric Corporation, the US Navy, and the US Atomic Energy Commission. Westinghouse acquired title to the airfield property (approximately 146 acres) and associated buildings in 1949. Additional property was acquired in 1952 and the 201.7-acre site was deeded to the Federal Government in 1957. Additional property was acquired in 2002 and again in 2008 to bring the site to its present size. In February 2009, Bechtel was contracted to operate the site. Following a contract bid, Fluor Marine Propulsion became the operator in October 2019.

Stormwater and treated spring water are the only discharges from the site currently. All relevant outfalls and associated drainage areas are shown in Figure 1. Outfall 001 previously discharged stormwater and blowdown wastewater from nine cooling towers, but the blowdown wastewater component has been rerouted to the West Mifflin Sanitary Sewer Municipal Authority sanitary sewer; in addition, the Outfall 001 drainage area is now equipped with an extended dry detention basin per WQM # 0223206 issued 4/24/2024. So, Outfall 001 now only discharges stormwater collected from the most intensely

Approve	Deny	Signatures	Date
X		 Jace W. Marsh / Environmental Engineering Specialist	May 29, 2026
X		 Michael E. Fifth, P.E. / Environmental Engineer Manager	June 1, 2026

Summary of Review

developed portion of the site containing heavy machinery and laydown areas, roadways, parking lots, roof areas, aboveground fuel storage tanks, waste/material storage containers, a vehicle maintenance area, and green space. Outfall 003 and Outfall 005 discharge stormwater from small portions of a parking lot and roadways. Outfall 006 discharges stormwater from heavy machinery and laydown areas, roadways, roof areas, and green space. Outfall 007 discharges spring water treated for chlorinated volatile organic compound (CVOC) contamination, discussed in greater detail in a following paragraph. Outfall 008 discharges stormwater from heavy machinery and laydown areas, roadways, parking lots, roof areas, and green space. The Outfall 008 drainage area previously collected stormwater in a basic detention basin, but that basin been retrofitted to an extended dry detention basin consistent with WQM # 0223206 like Outfall 001.

Bettis Atomic Power Laboratory Site Plan

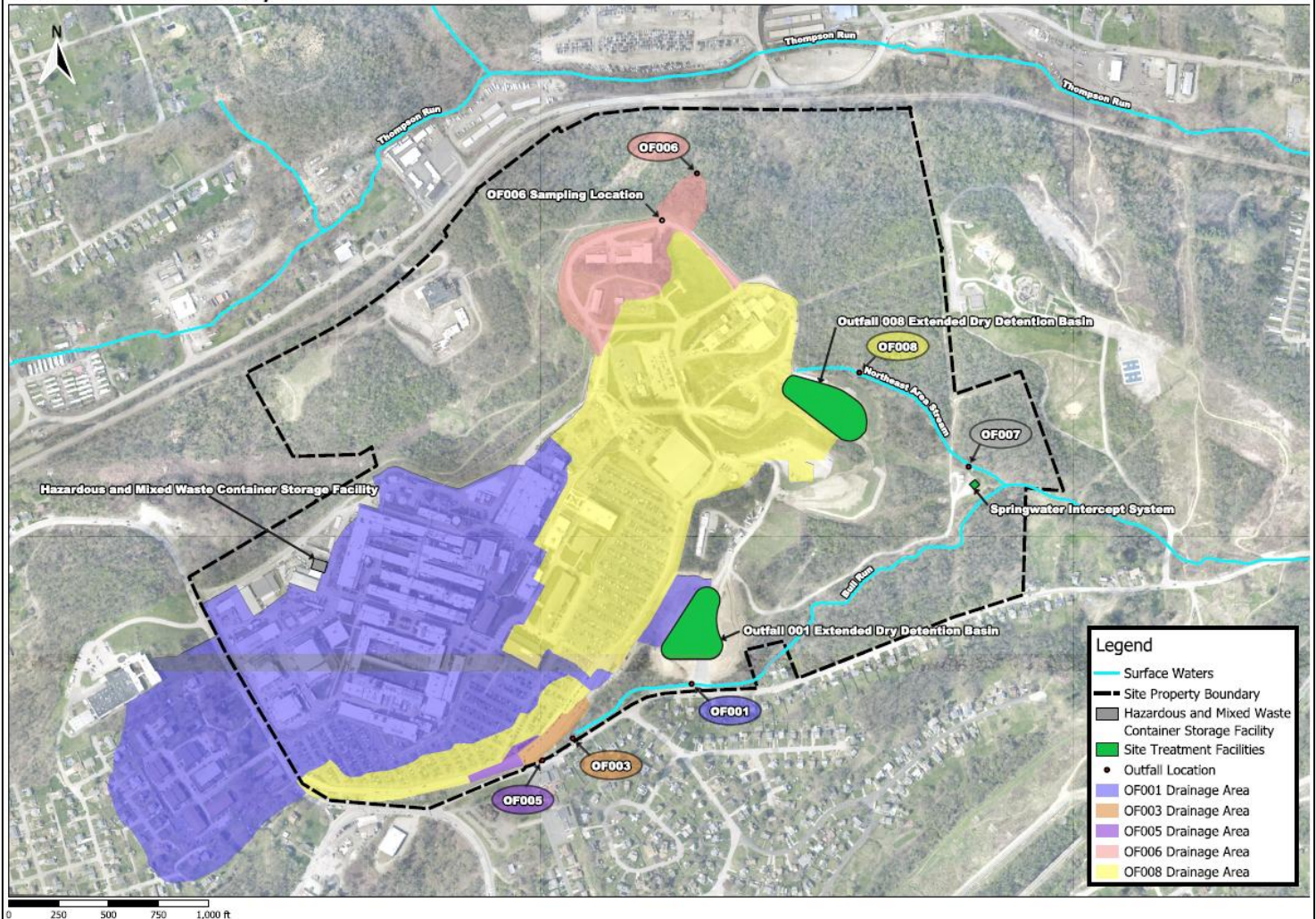


Figure 1. Bettis Atomic Power Laboratory outfall locations and drainage areas

Outfalls 001, 003, and 005 discharge to Unnamed Tributary (UNT) of Thompson Run “Bull Run” and Outfall 007 and Outfall 008 discharge to UNT of Thompson Run “Northeast Area Stream”. These names are not officially recorded in eMap or the 2024 Integrated Report, which both erroneously show these as UNTs of the Monongahela River (Figure 2). Cited in the prior permit renewal, on 7/9/2018 DEP personnel walked down Bull Run to its mouth on Thompson Run, confirming that both streams are part of the Thompson Run watershed. Outfall 006 discharges overland to Thompson Run. All three receiving streams have a 25 PA Code Chapter 93 Warm Water Fishes designation. Bull Run and the Northeast Area Stream are not considered impaired, but Thompson Run is impaired for metals from acid mine drainage (source: 2024 Integrated Report). Also cited in the prior permit renewal, the point of first use considered in this Draft fact sheet is the confluence of Northeast Area Stream and Bull Run.

Summary of Review

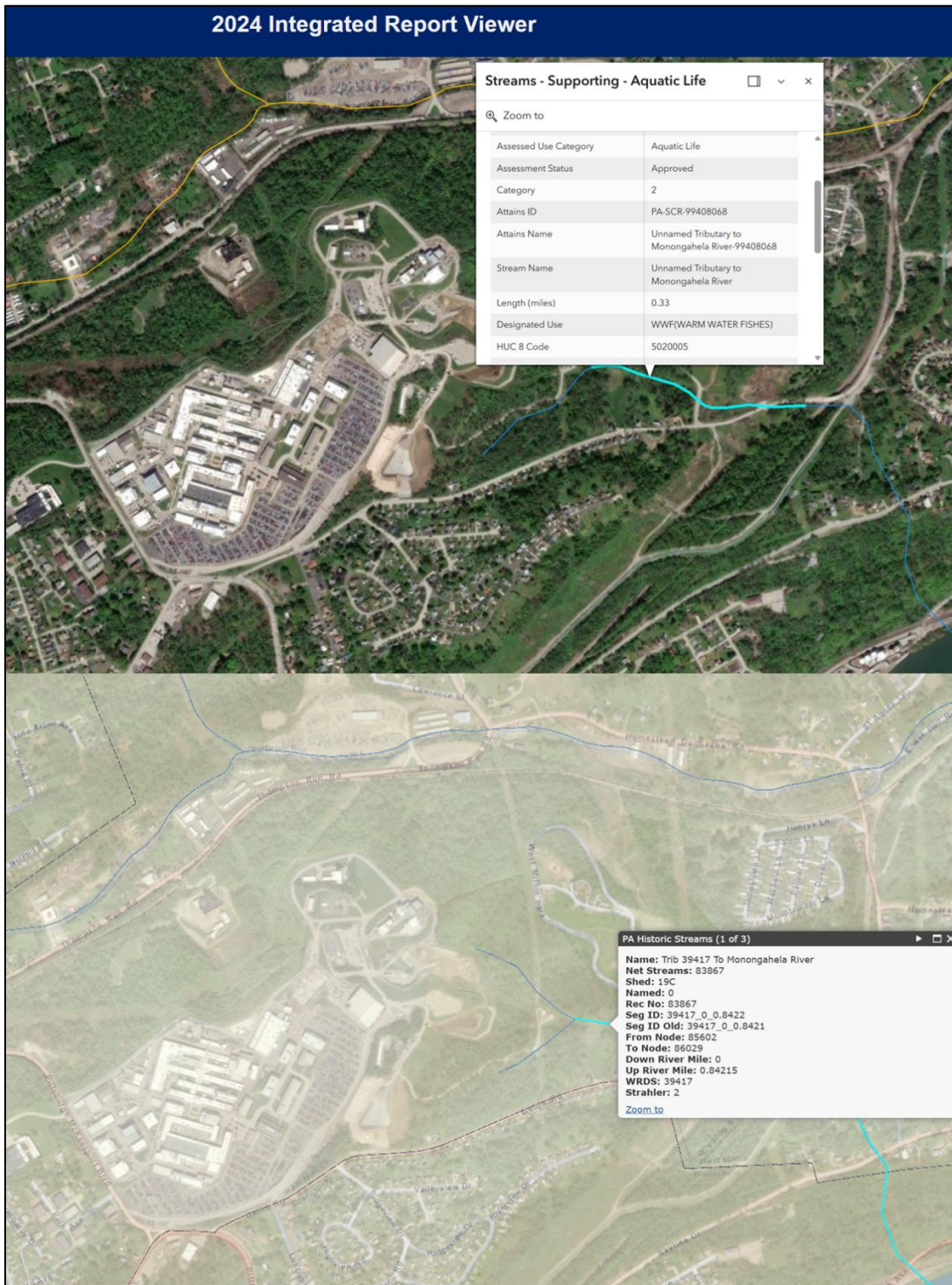


Figure 2. Incorrect Bull Run stream reach in the 2024 Integrated Report and eMap

Section 120 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) mandated that Federal facilities undertake evaluations, reviewed by the U. S. Environmental Protection Agency (EPA) to determine and rank any hazards. For the Bettis site, a preliminary assessment was completed by January 1990, entitled “Preliminary Assessment and Site Inspection Report for the Bettis Atomic Power Laboratory.” This evaluation identified a number of former waste oil tank locations and two chemically contaminated areas. The latter two were identified as the “Inactive Waste Site” (IWS) and the Bettis Landfill.

Summary of Review

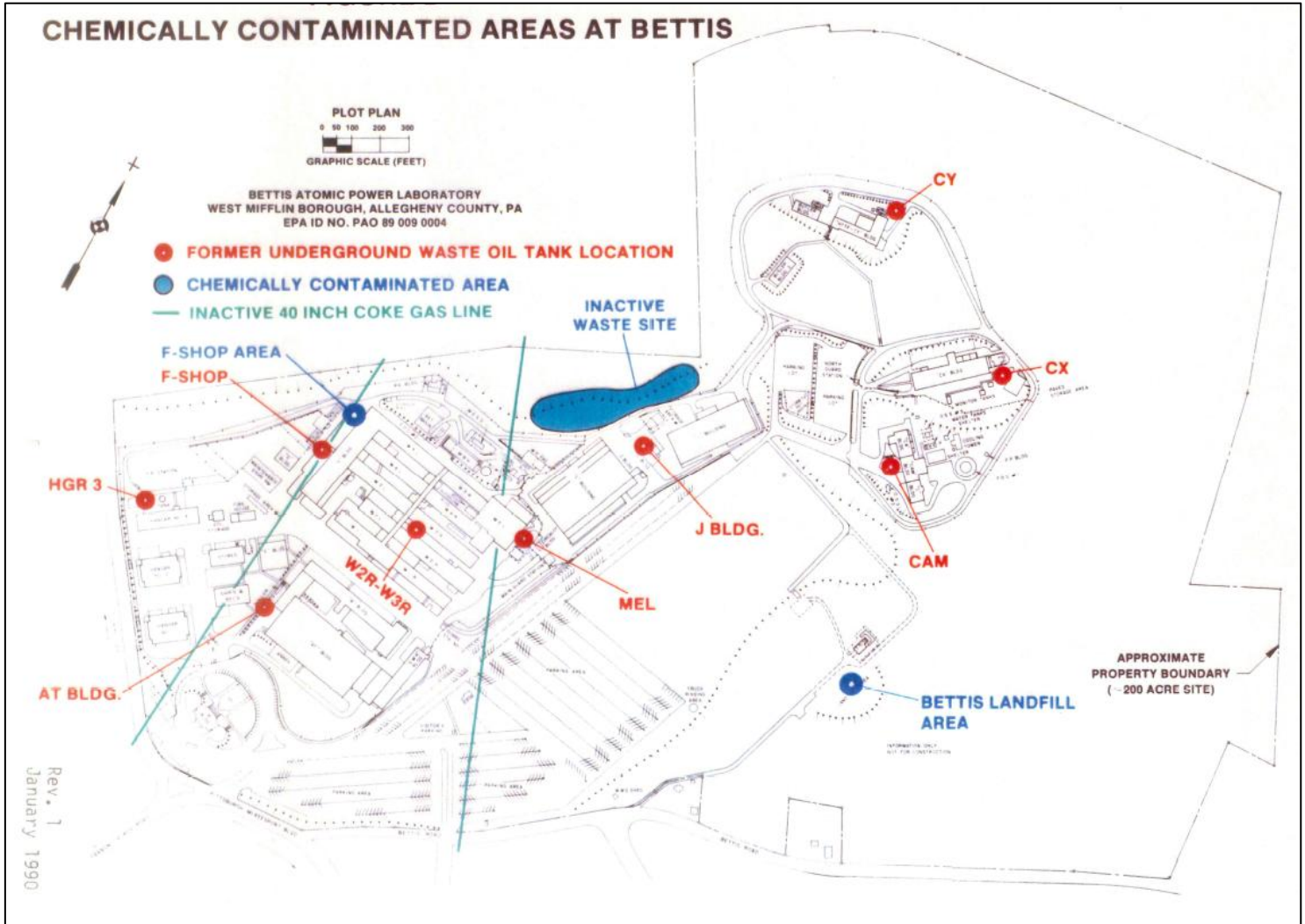


Figure 3. Chemically contaminated areas at Bettis prior to 1990

Included in this report is a description of the two contaminated areas shown in blue in Figure 3. Both areas, each originally covering approximately one acre apiece, are believed to have been used to dispose of plant rubbish and/or excavation materials. For the IWS deposition occurred from the late 1950s to approximately 1964. Interviews with employees, documented in the report, indicated that oils and other chemicals like solvents and sludges may have also been included as well as asbestos containing materials. For the Bettis Landfill, deposition occurred from 1960 to 1987. Soil analyses of borings in this area revealed the presence of tetrachloroethylene, and smaller amounts of trichloroethylene, trans-1,2-dichloroethylene and polychlorinated biphenyls (PCBs). Note that no documentation has been found that either of the areas designated as closed landfills were ever permitted under Commonwealth programs.

Following the EPA assessment, pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA: 42 USC Section 6928(h)), EPA issued an Administrative Order on Consent to Bettis on September 28, 1990. After a series of studies, EPA, Region III issued their "Final Decision and Response to Comments (FDRTC) for the Bettis Atomic Power Laboratory" which was received by the Department on October 6, 1997. In November 1997, EPA terminated their Consent Order with Bettis.

The portion of the FDRTC most relevant to this NPDES permit is the construction of a combined spring/seep collection system with the subsequent treatment and discharge of collected and treated groundwater. Several springs are present on this site, the largest being Buono Spring (Buono Farm Spring), as well as the RH Spring, RQ-20 Spring, and Northeast Spring. These are located on the undeveloped east side of the site and are downgradient from the historic Bettis Landfill.

Summary of Review

In parallel with the EPA driven studies, follow-on actions progressed including the initiation in 1997 of construction of the Springwater Intercept System (SIS) to collect these springs and other seepage from two collection manholes (MH-6 and MH-7) to treat groundwater impacted by the closed onsite landfills. The original construction and subsequent revisions to the SIS were permitted under WQM, Part II permit number 0297202. Originally issued on April 29, 1997, this permit was amended on September 3, 1998 (A-1), May 27, 2004 (A-2), and December 7, 2016 (A-3 T-1). The SIS treatment system is designed to remove CVOCs including tetrachloroethylene, trichloroethylene, and trans-1, 2-dichloroethylene which have been observed in prior years. The system includes four identical, parallel units employing processes of bag filtration and air stripping of CVOCs. Each skid mounted unit can treat up to 135 GPM each and they are activated based on demand requirements. Extracted CVOCs are vented to the atmosphere and the Allegheny County Health Department has confirmed in writing that this activity does not require an air permit. The system is equipped with an emergency shutdown button and alarms to alert the operator to power loss or other operational malfunctions. No backwash is generated during treatment. The bag filters utilized are disposed of as residual waste. No wastewater is generated from cleaning the system. The air stripper units utilize removable aeration trays that are cleaned off-site using ice blasting to remove scale buildup. Effluent from the SIS is discharged to the Northeast Area Stream via Outfall 007.

The permittee has no open violations. A compliance evaluation inspection was last performed by Jim Stewart on 5/11/2021 with no violations noted. In the past year of discharge monitoring report data there have been two effluent limit exceedances, both for Total Suspended Solids at Outfall 001. The current permit has a 59-month (4 years, 11 months) compliance schedule discussed in more detail in the "Compliance History" section on Page 17 of this Draft fact sheet

Draft permit issuance is recommended.

Public Participation

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

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0
Latitude	40° 21' 28.80"	Longitude	-79° 53' 36.71"
Quad Name	Glassport	Quad Code	1606
Wastewater Description: Stormwater discharge from extended dry detention basin			
Receiving Waters	UNT of Thompson Run, "Bull Run"	Stream Code	39417
NHD Com ID	99408092	RMI	0.98
Drainage Area	0.3 mi ²	Yield (cfs/mi ²)	0.006
Q ₇₋₁₀ Flow (cfs)	0.003 (adjusted from 0.00182)	Q ₇₋₁₀ Basis	USGS StreamStats
Elevation (ft)	1025	Slope (ft/ft)	0.085 (mean basin slope)
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	Final	Name	Thompson Run
Nearest Downstream Public Water Supply Intake	PA American Water Company - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1230
PWS RMI	4.6	Distance from Outfall (mi)	10.9

Changes Since Last Permit Issuance: This outfall is now stormwater only (along with non-polluting non-stormwater discharges allowed by the Permit).

Other Comments: Like the prior permit issuance, flow and drainage area for both Bull Run and the Northeast Area Stream is modeled at the point of first use (POFU) after the confluence of the Northeast Area Stream and Bull Run. The minimum drainage area for acceptable known error in the USGS StreamStats model is 2.26 mi². Drainage area at the POFU is only 0.3 mi² so a different approach is needed to estimate Q₇₋₁₀ flow than the raw output from USGS StreamStats. A downstream node approximately 0.83 miles downstream of the POFU was selected at the confluence of Bull Run and Thompson Run which provides a modeled drainage area of 3.45 mi². Drainage character, represented through parameter hydrologic yield (cfs/mi²) of the 3.45 mi² watershed was calculated to be 0.0105 cfs/mi² at Q₇₋₁₀ flows. Taking an "as above, so below" approach, it is assumed that the drainage character of the upper Thompson Run watershed reflects the drainage character of the POFU watershed thus Q₇₋₁₀ yield of the 3.45 mi² portion of the Thompson Run watershed is multiplied by the drainage area of the smaller 0.3 mi² POFU watershed to obtain an adjusted Q₇₋₁₀ flow of 0.003 cfs. See Attachment A for USGS StreamStats model outputs referenced.

$$Q_{7-10} \text{ Yield of Upper Thompson Run Watershed} = \frac{Q_{7-10} \text{ Flow}}{\text{Drainage Area}} = \frac{0.0363 \text{ cfs}}{3.45 \text{ mi}^2} = 0.0105 \text{ cfs}/\text{mi}^2$$

$$\begin{aligned} \text{Adjusted } Q_{7-10} \text{ Flow at POFU} &= Q_{7-10} \text{ Yield of Upper Thompson Run Watershed} \times \text{POFU Drainage Area} \\ &= 0.0105 \text{ cfs}/\text{mi}^2 \times 0.3 \text{ mi}^2 = \mathbf{0.003 \text{ cfs}} \end{aligned}$$

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>003</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 25.10"</u>	Longitude	<u>-79° 53' 44.80"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>UNT of Thompson Run, "Bull Run"</u>	Stream Code	<u>39417</u>
NHD Com ID	<u>99408092</u>	RMI	<u>0.98</u>
Drainage Area	<u>0.3 mi²</u>	Yield (cfs/mi ²)	<u>0.006</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.003 (adjusted from 0.00182)</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>1025</u>	Slope (ft/ft)	<u>0.085 (mean basin slope)</u>
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1230</u>
PWS RMI	<u>4.6</u>	Distance from Outfall (mi)	<u>10.9</u>

Changes Since Last Permit Issuance:

Other Comments: See "Other Comments" for Outfall 001.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>005</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 24.60"</u>	Longitude	<u>-79° 53' 46.10"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>UNT of Thompson Run, "Bull Run"</u>	Stream Code	<u>39417</u>
NHD Com ID	<u>99408092</u>	RMI	<u>0.98</u>
Drainage Area	<u>0.3 mi²</u>	Yield (cfs/mi ²)	<u>0.006</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.003 (adjusted from 0.00182)</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>1025</u>	Slope (ft/ft)	<u>0.085 (mean basin slope)</u>
Watershed No.	<u>19-C</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1230</u>
PWS RMI	<u>4.6</u>	Distance from Outfall (mi)	<u>10.9</u>

Changes Since Last Permit Issuance:

Other Comments: See "Other Comments" for Outfall 001.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>006</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 51.20"</u>	Longitude	<u>-79° 53' 39.20"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Thompson Run</u>	Stream Code	<u>37449</u>
NHD Com ID	<u>99408014</u>	RMI	<u>3.0</u>
Drainage Area	<u>2.33 mi²</u>	Yield (cfs/mi ²)	<u>0.00970</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.0226</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>971</u>	Slope (ft/ft)	<u>0.11 (mean basin slope)</u>
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Metals</u>		
Source(s) of Impairment	<u>Acid Mine Drainage</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1230</u>
PWS RMI	<u>4.6</u>	Distance from Outfall (mi)	<u>10.8</u>

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>007</u>	Design Flow (MGD)	<u>0.039</u>
Latitude	<u>40° 21' 39.30"</u>	Longitude	<u>-79° 53' 18.80"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description:	<u>Discharge from treatment system for spring water contaminated with chlorinated volatile organic compounds</u>		
Receiving Waters	<u>UNT of Thompson Run, "Northeast Area Stream"</u>	Stream Code	<u>39418</u>
NHD Com ID	<u>99408064</u>	RMI	<u>0.05</u>
Drainage Area	<u>0.3 mi²</u>	Yield (cfs/mi ²)	<u>0.006</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.003 (adjusted from 0.00182)</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>1025</u>	Slope (ft/ft)	<u>0.085 (mean basin slope)</u>
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1230</u>
PWS RMI	<u>4.6</u>	Distance from Outfall (mi)	<u>10.9</u>

Changes Since Last Permit Issuance:

Other Comments: See "Other Comments" for Outfall 001.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>008</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 43.10"</u>	Longitude	<u>-79° 53' 27.50"</u>
Quad Name	<u>Glassport</u>	Quad Code	<u>1606</u>
Wastewater Description: <u>Stormwater discharge from extended dry detention basin</u>			
Receiving Waters	<u>UNT of Thompson Run, "Northeast Area Stream"</u>	Stream Code	<u>39418</u>
NHD Com ID	<u>99408064</u>	RMI	<u>0.11</u>
Drainage Area	<u>0.3 mi²</u>	Yield (cfs/mi ²)	<u>0.006</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.003 (adjusted from 0.00182)</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u>1025</u>	Slope (ft/ft)	<u>0.085 (mean basin slope)</u>
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>Final</u>	Name	<u>Thompson Run</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company - Pittsburgh</u>		
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1230</u>
PWS RMI	<u>4.6</u>	Distance from Outfall (mi)	<u>10.9</u>

Changes Since Last Permit Issuance:

Other Comments: See "Other Comments" for Outfall 001.

Compliance History

DMR Data for Outfall 001 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
Flow (MGD) Average Monthly	0.004	0.014	0.017	0.006	0.036	0.023	0.061	0.068	0.104	0.101	0.041	0.095
Flow (MGD) Daily Maximum	0.032	0.136	0.167	0.100	0.244	0.164	0.473	0.287	0.731	0.506	0.241	0.637
pH (S.U.) Instantaneous Minimum	8.0	7.7	7.9	7.6	8.2	8.1	7.4	7.7	7.6	7.5	7.3	7.4
pH (S.U.) Instantaneous Maximum	8.0	8.1	8.1	7.8	8.3	8.1	7.8	7.8	7.7	7.7	7.9	7.5
TRC (mg/L) Average Monthly	0.03	0.04	< 0.1	< 0.001	0.03	0.04	0.02	0.09	0.09	0.08	0.06	0.51
TRC (mg/L) Daily Maximum	0.03	0.08	< 0.1	< 0.001	0.06	0.06	0.03	0.11	0.13	0.12	0.12	0.87
Temperature (°F) Instantaneous Maximum	47	53	50	66	70	70	68	60	60	51	49	49
TSS (mg/L) Average Monthly	3.4	8.1	5.9	56.6	15.5	7.1	1.3	2.6	4.8	9.5	5.6	2.3
TSS (mg/L) Daily Maximum	3.8	12.0	6.4	110.0	27.0	11.0	1.4	4.2	7.1	17.0	6.4	3.1
Oil and Grease (mg/L) Average Monthly	< 5.1	< 5.1	< 5.1	< 5.1	< 5.1	< 4.9	< 5.0	< 5.9	< 5.1	< 6.2	< 5.0	< 7.0
Oil and Grease (mg/L) Instantaneous Maximum	< 5.2	< 5.1	< 5.1	< 5.1	5.2	5.0	< 5.0	6.8	< 5.3	7.5	< 5.1	8.9
Total Aluminum (mg/L) Average Monthly	0.160	0.315	< 0.280	1.230	< 0.043	0.114	0.067	< 0.035	0.058	< 0.057	< 0.050	< 0.100
Total Aluminum (mg/L) Daily Maximum	0.210	0.520	0.530	1.800	0.056	0.180	0.092	0.039	0.064	0.063	0.050	0.15
Total Antimony (ug/L) Average Monthly	< 1.2	< 1.0	< 1.0	1.20	< 1.0	< 1.0	< 1.6	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Total Antimony (ug/L) Daily Maximum	1.3	< 1.0	< 1.0	1.40	< 1.0	< 1.0	2.1	< 1.0	1.0	< 2.0	< 2.0	< 2.0

NPDES Permit Fact Sheet
Bettis Atomic Power Laboratory

NPDES Permit No. PA0000914

Total Arsenic (ug/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.1	3.8	5.5	3.3	< 5.0	< 5.0	< 5.0
Total Arsenic (ug/L) Daily Maximum	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.2	3.9	6.3	3.5	< 5.0	< 5.0	< 5.0
Hexavalent Chromium (ug/L) Average Monthly	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 11	< 10	< 10	< 10
Hexavalent Chromium (ug/L) Daily Maximum	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	11	< 10	< 10	< 10
Total Copper (ug/L) Average Monthly	2.4	2.8	2.7	5.6	52	57	11.1	8.3	44.1	16.9	32	12.4
Total Copper (ug/L) Daily Maximum	2.5	2.9	3.3	6.6	58	80	13	8.6	81	27	39	16
Dissolved Iron (mg/L) Average Monthly	< 0.052	< 0.096	< 0.052	< 0.051	< 0.100	0.281	< 0.050	< 0.050	< 0.074	< 0.10	< 0.10	< 0.10
Dissolved Iron (mg/L) Daily Maximum	< 0.052	0.140	< 0.052	< 0.052	0.150	0.50	< 0.050	< 0.050	0.098	< 0.10	< 0.10	< 0.10
Total Iron (mg/L) Average Monthly	0.147	0.275	< 0.355	1.215	0.14	0.20	0.074	< 0.054	0.303	< 0.20	0.27	< 0.10
Total Iron (mg/L) Daily Maximum	0.200	0.420	0.660	2.000	0.14	0.29	0.091	0.058	0.53	0.29	0.30	< 0.10
Total Lead (ug/L) Average Monthly	< 0.50	< 0.69	< 0.72	2.05	< 0.50	< 1.65	< 0.50	< 0.50	< 0.90	< 1.0	< 1.0	< 1.0
Total Lead (ug/L) Daily Maximum	< 0.50	0.87	0.93	3.30	< 0.50	2.80	< 0.50	< 0.50	1.3	< 1.0	< 1.0	< 1.0
Total Zinc (ug/L) Average Monthly	< 10	15	< 15	32	230	160	100	84	210	280	280	165
Total Zinc (ug/L) Daily Maximum	10	18	19	52	310	190	110	86	280	370	310	180
Bromoform (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 7.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 3.8
Bromoform (ug/L) Daily Maximum	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	13	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 3.8
Chlorodibromo- methane (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Chlorodibromo- methane (ug/L) Daily Maximum	< 1.0	< 1.0	< 1.0	< 2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Dichlorobromo- methane (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.9

NPDES Permit Fact Sheet
Bettis Atomic Power Laboratory

NPDES Permit No. PA0000914

Dichlorobromo- methane (ug/L) Daily Maximum	< 1.0	< 1.0	< 1.0	< 2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.9
Chloroform (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.4
Chloroform (ug/L) Daily Maximum	< 1.0	< 1.0	< 1.0	< 2.5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.4

DMR Data for Outfall 006 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
pH (S.U.) Instantaneous Minimum		7.57			7.25			7.59			7.23	
pH (S.U.) Instantaneous Maximum		7.57			7.25			7.59			7.23	
TSS (mg/L) Daily Maximum		7.1			68			16			86	
Oil and Grease (mg/L) Daily Maximum		< 4.9			< 5.3			< 5.5			< 4.9	
Total Aluminum (mg/L) Daily Maximum		0.160			0.30			0.21			2.4	
Total Iron (mg/L) Daily Maximum		0.200			0.45			0.32			3.2	

DMR Data for Outfall 007 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
Flow (MGD) Average Monthly	0.035	0.038	0.040	0.031	0.018	0.011	0.038	0.037	0.038	0.041	0.024	0.041
Flow (MGD) Daily Maximum	0.063	0.076	0.090	0.113	0.084	0.018	0.146	0.070	0.122	0.122	0.048	0.111
pH (S.U.) Instantaneous Minimum	7.9	8.0	8.2	7.9	7.9	8.0	7.9	8.0	8.0	8.0	8.0	8.2
pH (S.U.) Instantaneous Maximum	8.1	8.1	8.2	8.3	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.3
TSS (mg/L) Average Monthly	0.9	0.8	< 1.0	< 0.8	< 0.8	0.8	1.3	2.4	1.2	1.6	1.3	1.0

NPDES Permit Fact Sheet
Bettis Atomic Power Laboratory

NPDES Permit No. PA0000914

TSS (mg/L) Instantaneous Maximum	0.9	0.9	< 1.0	< 1.0	< 1.0	0.8	1.8	3.7	1.3	2.0	1.5	1.1
Total Aluminum (mg/L) Average Monthly	< 0.030	< 0.030	< 0.058	< 0.030	< 0.030	< 0.050	< 0.030	< 0.030	< 0.030	< 0.050	< 0.050	< 0.050
Total Aluminum (mg/L) Daily Maximum	< 0.030	< 0.030	0.086	< 0.031	< 0.030	< 0.050	< 0.030	< 0.030	< 0.030	< 0.050	< 0.050	< 0.050
Dissolved Iron (mg/L) Instantaneous Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Iron (mg/L) Average Monthly	< 0.050	< 0.050	< 0.071	< 0.051	< 0.050	< 0.10	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
Total Iron (mg/L) Daily Maximum	< 0.050	< 0.050	0.092	< 0.052	< 0.050	< 0.10	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.10
trans-1,2- Dichloroethylene (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 0.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.6
trans-1,2- Dichloroethylene (ug/L) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.6
Tetrachloro-ethylene (ug/L) Average Monthly	< 1.0	1.3	< 1.1	< 1.2	< 1.0	< 1.4	2.0	< 1.6	< 1.0	< 2.1	1.5	< 2.2
Tetrachloro-ethylene (ug/L) Instantaneous Maximum	1.0	1.4	1.2	1.6	< 1.0	1.8	2.0	2.2	< 1.0	2.8	1.5	< 2.2
Trichloroethylene (ug/L) Average Monthly	< 1.0	< 1.0	< 1.0	< 0.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.2
Trichloroethylene (ug/L) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.2

DMR Data for Outfall 008 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
pH (S.U.) Instantaneous Minimum		8.08			8.82			8.06			8.00	
pH (S.U.) Instantaneous Maximum		8.08			8.82			8.06			8.00	
TSS (mg/L) Daily Maximum		290			100			1.7			7600	
Oil and Grease (mg/L) Daily Maximum		< 5.0			< 5.0			< 4.8			< 5.6	
Total Aluminum (mg/L) Daily Maximum		3.400			2.8			0.29			100	
Total Iron (mg/L) Daily Maximum		4.900			2.4			0.19			110	

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2025 To: January 31, 2026

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	10/31/25	Avg Mo	56.6	mg/L	25.0	mg/L
TSS	10/31/25	Daily Max	110.0	mg/L	50.0	mg/L

Summary of Inspections: A compliance evaluation inspection was last performed by Jim Stewart on 5/11/2021 with no violations noted.

Other Comments: There is a 59-month (4 years, 11 months) compliance schedule in place to meet effluent limits for TRC, Aluminum, Copper, Iron, Zinc, Bromoform, Chlorodibromomethane, Dichlorobromomethane, Trichloroethylene at Outfalls 001, 006, 007 and 008 imposed by the current version of the permit, so some concentrations reported in the DMR data above would constitute effluent exceedances if it was not in place. The schedule of compliance is as follows:

Schedule Item	Due
The Permittee will submit an Annual Report on progress toward compliance with the final effluent limitations.	In the month following each anniversary of the permit effective date during the entire course of the 5-year permit term
Pollution Reduction study completion, begin installation of BMPs	2 years from the permit effective date
Initial treatment plan completion	2 years, 6 months from permit effective date
Start construction of treatment system(s)	3 years, 6 months from permit effective date
End construction, begin system(s) startup/testing	4 years, 8 months from permit effective date ^[1]
Compliance with effluent limitations	4 years, 11 months from permit effective date

[1] This date was extended to 4 years, 10 months, 2 weeks from permit effective date via email confirmation on 3/12/2026 to facilitate vegetative growth in the Outfall 008 extended dry detention basin.

Development of Effluent Limitations

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0</u>
Latitude	<u>40° 21' 28.80"</u>	Longitude	<u>-79° 53' 36.71"</u>
Wastewater Description: <u>Stormwater discharge from extended dry detention basin</u>			

001.A Technology-Based Limitations

The outfall is subject to 2022 PAG-03 General Stormwater permit conditions as a minimum requirement because it discharges stormwater associated with industrial activity. The SIC code for the facility is 8733—Noncommercial Research Organization which has no specific corresponding appendix in the PAG-03 so it is classified as Appendix J—Additional Facilities. The reporting requirements applicable to stormwater discharges under this appendix are shown in Table 1 below. Since the application mentions laydown areas, heavy equipment, aboveground fuel storage tanks, vehicle maintenance, and waste/material storage containers exposed to stormwater at the facility, PAG-03 Appendix L best management practices (BMPs) are included in Part C of the Draft Permit.

Table 1. 2022 PAG-03 Appendix J monitoring requirements

Parameter	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	XXX	1/6 Months	Grab
Total Phosphorus	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	100	1/6 Months	Grab
Oil & Grease	30	1/6 Months	Grab
pH (S.U.)	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	120	1/6 Months	Grab

001.B Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) stream conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from this outfall is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted.

Total Maximum Daily Load (TMDL)

Wastewater discharges from the facility are located within the Thompson Run Watershed for which the Department has developed a TMDL. Originally listed on the 1996 Pennsylvania Section 303(d) as impaired waters, Thompson Run was later included in an EPA, Region 3 TMDL on April 9, 2003. The Department’s TMDL supersedes that of the EPA and was finalized in January 2016. It establishes waste load allocations for the discharge of aluminum and iron within the segment associated with NRLFO. The facility permit, **PA0000914**, is listed in Table 3 for Instream Point 151, but only Outfall 006 is listed since, at that time, this was the outfall believed to discharge toward Thompson Run.

Section 303(d) of the Clean Water Act and the EPA’s Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state’s water resources (EPA 1991a). The TMDL includes consideration for each river segment and tributary within the watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.75 mg/L total recoverable aluminum and 1.5 mg/L total recoverable iron based on a 30-day average. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form

of a watershed allocation. TMDLs prescribe allocations that achieve water quality criteria using a stream’s assimilative capacity.

Aluminum: The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93.8(c). Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the allocated concentration is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed at 0.75 mg/L for both the AML and MDL.

Iron: The specific water quality criterion for iron is expressed as a 30-day average of 1.5 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that an MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA’s Technical Support Document for Water Quality-based Toxics Control if data is available to support the use of alternative multipliers. The 2x multiplier was chosen for the MDL. Accordingly, TMDL iron limits are proposed at 1.5 mg/L for the AML and 3.0 mg/L for the MDL.

Since this discharge consists solely of stormwater only the MDL is considered; these concentrations are in **bold**. Sampling will not be performed on a monthly basis, so a monthly average concentration is not appropriate.

Table 2. TMDL Limits for Outfall 001

Parameter	Concentration (ug/L)	
	Monthly Average	Daily Maximum
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0

001.C Anti-Backsliding

Typically, anti-backsliding policy outlined in 40 CFR 122.44(l)(2) is cited to require effluent limitations at least as stringent as the prior permit. As stated in the “Summary of Review” section, blowdown wastewater from nine cooling towers has been rerouted to the West Mifflin Sanitary Sewer Municipal Authority sanitary sewer; now that the discharge is stormwater only, most of the prior required parameters and associated effluent limitations are not relevant. This Draft permit renewal proposes to remove most of these parameters and associated effluent limitations according to an exception case outlined in 40 CFR 122.44(l)(2)(i):

- (i) *Exceptions—A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if—*
 - (A) *Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;*

Previous limits are shown in Table 3 for reference. Consistent with Section 001.A, TSS, Oil & Grease, and pH effluent limitations are carried over; consistent with the Section 001.B, Total Iron and Total Aluminum effluent limitations are carried over. These parameters are shown in **bold** in Table 3. Only the daily maximum and instantaneous maximum limits are used since quarterly monitoring is imposed in Section 001.D, negating an average monthly limitation. The instantaneous minimum of 6.0 is not utilized to avoid violations from acid rain conditions.

Table 3. Effluent limitations from previous permit

Parameter	Mass (pounds)		Concentration (mg/L)				Samples	
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	—	—	Continuous	Measured
pH (S.U.)	—	—	6.0	—	—	9.0	2/month	Grab
Total Residual Chlorine (TRC)	—	—	—	0.271	0.542	—	2/month	Grab
Temperature (°F)	—	—	—	—	—	110.0	2/month	I-S
Total Suspended Solids	—	—	—	25.0	50.0	—	2/month	Grab
Oil & Grease	—	—	—	15.0	—	30.0	2/month	Grab
Aluminum, Total	—	—	—	0.75	0.75	—	2/month	Grab
Antimony, Total (ug/L)	—	—	—	Report	Report	—	2/month	Grab
Arsenic, Total (ug/L)	—	—	—	Report	Report	—	2/month	Grab
Chromium, Hexavalent (ug/L)	—	—	—	Report	Report	—	2/month	Grab
Copper, Total (ug/L)	—	—	—	20.0	31.0	—	2/month	Grab
Iron, Dissolved	—	—	—	Report	Report	—	2/month	Grab
Iron, Total	—	—	—	1.5	3.0	—	2/month	Grab
Lead, Total (ug/L)	—	—	—	Report	Report	—	2/month	Grab
Zinc, Total (ug/L)	—	—	—	236.0	251.0	—	2/month	Grab
Bromoform (ug/L)	—	—	—	10.0	16.0	—	2/month	Grab
Chlorodibromomethane (ug/L)	—	—	—	1.0	1.5	—	2/month	Grab
Dichlorobromomethane (ug/L)	—	—	—	1.3	2.0	—	2/month	Grab
Chloroform (ug/L)	—	—	—	Report	Report	—	2/month	Grab

001.D Proposed Effluent Limitations and Monitoring Requirements

Effluent limits imposed at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 4. 1/quarter monitoring is imposed to assess performance of BMPs effectively.

Benchmark values are not effluent limits, and an exceedance of a benchmark value is not a violation. An exceedance of the benchmark provides permittees with an indication that the facility’s BMPs may not be sufficiently controlling pollutants in stormwater. A Part C condition is included in the Draft Permit requiring a Corrective Action Plan to evaluate site stormwater controls and BMPs when there are two consecutive exceedances of the benchmark values.

Table 4. Proposed effluent limits and monitoring requirements for Outfall 001

Parameter	Concentration (mg/L)			Samples	
	Benchmark Value	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
Total Nitrogen	—	Report	—	1/quarter	Grab
Total Phosphorus	—	Report	—	1/quarter	Grab
Total Suspended Solids (TSS)	—	50.0	—	1/quarter	Grab
Oil & Grease	—	—	30.0	1/quarter	Grab
pH (S.U.)	—	—	9.0	1/quarter	Grab
Chemical Oxygen Demand (COD)	120	Report	—	1/quarter	Grab
Total Iron	—	3.0	—	1/quarter	Grab
Total Aluminum	—	0.75	—	1/quarter	Grab

Development of Effluent Limitations

Outfall No. 003	Design Flow (MGD) 0
Latitude 40° 21' 25.10"	Longitude -79° 53' 44.80"
Wastewater Description: Stormwater	

Outfall No. 005	Design Flow (MGD) 0
Latitude 40° 21' 24.60"	Longitude -79° 53' 46.10"
Wastewater Description: Stormwater	

Outfall 003 and Outfall 005 did not have effluent limitations in the prior permit since they were determined to discharge uncontaminated stormwater. Sample data submitted with the renewal application (Table 5) does not support this as it shows elevated Chemical Oxygen Demand at both outfalls, so an effluent limitations development analysis is appropriate.

Table 5. Outfall 003 and Outfall 005 stormwater sample data

Outfall	Parameter	Sample Concentration (mg/L)
003	Oil & Grease	<5.0
	5-Day Biochemical Oxygen Demand (BOD5)	19
	Chemical Oxygen Demand (COD)	140
	Total Suspended Solids (TSS)	32
	Total Nitrogen	2.72
	Total Phosphorus	0.082
	pH (S.U.)	7.85
005	Oil & Grease	<4.9
	5-Day Biochemical Oxygen Demand (BOD5)	35
	Chemical Oxygen Demand (COD)	160
	Total Suspended Solids (TSS)	21
	Total Nitrogen	3.57
	Total Phosphorus	0.20
	pH (S.U.)	7.97

003.A Technology-Based Limitations

The outfalls are subject to 2022 PAG-03 General Stormwater permit conditions as a minimum requirement because they discharge stormwater associated with industrial activity. The SIC code for the facility is 8733—Noncommercial Research Organization which has no specific corresponding appendix in the PAG-03 so it is classified as Appendix J—Additional Facilities. The reporting requirements applicable to stormwater discharges under this appendix are shown in Table 6 below. Since the application mentions laydown areas, heavy equipment, aboveground fuel storage tanks, vehicle maintenance, and waste/material storage containers exposed to stormwater at the facility, PAG-03 Appendix L best management practices (BMPs) are included in Part C of the Draft Permit.

Table 6. 2022 PAG-03 Appendix J monitoring requirements

Parameter	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	XXX	1/6 Months	Grab
Total Phosphorus	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	100	1/6 Months	Grab
Oil & Grease	30	1/6 Months	Grab
pH (S.U.)	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	120	1/6 Months	Grab

003.B Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) stream conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from the outfalls are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted.

Total Maximum Daily Load (TMDL)

See Section 001.B for a discussion of the Thompson Run Watershed TMDL. Limits consistent with the reasoning in Section 001.B are applied to Outfall 003 and Outfall 005

Since these discharges consists solely of stormwater only the MDL is considered; these concentrations are in **bold**. Sampling will not be performed on a monthly basis, so a monthly average concentration is not appropriate.

Table 7. TMDL Limits for Outfall 003 and Outfall 005

Parameter	Concentration (ug/L)	
	Monthly Average	Daily Maximum
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0

003.C Anti-Backsliding

Anti-backsliding does not apply since these outfalls had no prior limits.

003.D Proposed Effluent Limitations and Monitoring Requirements

Effluent limits imposed at Outfall 003 and Outfall 005 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 8. 1/quarter monitoring is imposed to assess performance of BMPs effectively.

Benchmark values are not effluent limits, and an exceedance of a benchmark value is not a violation. An exceedance of the benchmark provides permittees with an indication that the facility's BMPs may not be sufficiently controlling pollutants in stormwater. A Part C condition is included in the Draft Permit requiring a Corrective Action Plan to evaluate site stormwater controls and BMPs when there are two consecutive exceedances of the benchmark values.

Table 8. Proposed effluent limits and monitoring requirements for Outfalls 003 and 005

Parameter	Concentration (mg/L)		Samples	
	Benchmark Value	Daily Maximum	Frequency	Sample Type
Total Nitrogen	—	Report	1/quarter	Grab
Total Phosphorus	—	Report	1/quarter	Grab
Total Suspended Solids (TSS)	100	Report	1/quarter	Grab
Oil & Grease	30	Report	1/quarter	Grab
pH (S.U.)	9.0	Report	1/quarter	Grab
Chemical Oxygen Demand (COD)	120	Report	1/quarter	Grab
Total Iron	—	3.0	1/quarter	Grab
Total Aluminum	—	0.75	1/quarter	Grab

Development of Effluent Limitations

Outfall No.	006	Design Flow (MGD)	0
Latitude	40° 21' 51.20"	Longitude	-79° 53' 39.20"
Wastewater Description: Stormwater			

006.A Technology-Based Limitations

The outfall is subject to 2022 PAG-03 General Stormwater permit conditions as a minimum requirement because it discharges stormwater associated with industrial activity. The SIC code for the facility is 8733—Noncommercial Research Organization which has no specific corresponding appendix in the PAG-03 so it is classified as Appendix J—Additional Facilities. The reporting requirements applicable to stormwater discharges under this appendix are shown in Table 9 below. Since the application mentions laydown areas, heavy equipment, aboveground fuel storage tanks, vehicle maintenance, and waste/material storage containers exposed to stormwater at the facility, PAG-03 Appendix L best management practices (BMPs) are included in Part C of the Draft Permit.

Table 9. 2022 PAG-03 Appendix J monitoring requirements

Parameter	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	XXX	1/6 Months	Grab
Total Phosphorus	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	100	1/6 Months	Grab
Oil & Grease	30	1/6 Months	Grab
pH (S.U.)	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	120	1/6 Months	Grab

006.B Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) stream conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from this outfall is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted.

Total Maximum Daily Load (TMDL)

See Section 001.B for a discussion of the Thompson Run Watershed TMDL. Limits consistent with the reasoning in Section 001.B are applied to Outfall 006.

Since this discharge consists solely of stormwater only the MDL is considered; these concentrations are in **bold**. Sampling will not be performed on a monthly basis, so a monthly average concentration is not appropriate.

Table 10. TMDL Limits for Outfall 006

Parameter	Concentration (ug/L)	
	Monthly Average	Daily Maximum
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0

006.C Anti-Backsliding

Previous limits can be used pursuant to EPA’s anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 11.

Table 11. Effluent limitations from previous permit

Parameter	Concentration (mg/L)			Samples	
	Instantaneous Minimum	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
pH (S.U.)	Report	—	Report	1/quarter	Grab
Total Suspended Solids	—	Report	—	1/quarter	Grab
Oil & Grease	—	Report	—	1/quarter	Grab
Aluminum, Total	—	0.75	—	1/quarter	Grab
Iron, Total	—	3.0	—	1/quarter	Grab

006.D Proposed Effluent Limitations and Monitoring Requirements

Effluent limits imposed at Outfall 006 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 12. 1/quarter monitoring is carried over from the prior permit.

Benchmark values are not effluent limits, and an exceedance of a benchmark value is not a violation. An exceedance of the benchmark provides permittees with an indication that the facility’s BMPs may not be sufficiently controlling pollutants in stormwater. A Part C condition is included in the Draft Permit requiring a Corrective Action Plan to evaluate site stormwater controls and BMPs when there are two consecutive exceedances of the benchmark values.

Table 12. Proposed effluent limits and monitoring requirements for Outfall 006

Parameter	Concentration (mg/L)		Samples	
	Benchmark Value	Daily Maximum	Frequency	Sample Type
Total Nitrogen	—	Report	1/quarter	Grab
Total Phosphorus	—	Report	1/quarter	Grab
Total Suspended Solids (TSS)	100	Report	1/quarter	Grab
Oil & Grease	30	Report	1/quarter	Grab
pH (S.U.)	9.0	Report	1/quarter	Grab
Chemical Oxygen Demand (COD)	120	Report	1/quarter	Grab
Total Iron	—	3.0	1/quarter	Grab
Total Aluminum	—	0.75	1/quarter	Grab

Development of Effluent Limitations

Outfall No. 007 Design Flow (MGD) 0
 Latitude 40° 21' 39.30" Longitude -79° 53' 18.80"
 Wastewater Description: Discharge from treatment system for spring water contaminated with chlorinated volatile organic compounds

007.A Technology-Based Limitations

Federal Effluent Limitation Guidelines

Bettis Atomic Power Laboratory is not subject to Federal Effluent Limitation Guidelines (ELGs).

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant with 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 13 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 13 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 13 below.

Table 13. Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	Instantaneous Maximum (IMAX)
Flow (MGD)	Monitor	Monitor	–
Iron, Dissolved	–	–	7.0 mg/L
pH (S.U.)	6.0-9.0 at all times		

Total Dissolved Solids (TDS)

This facility is exempt from 25 Pa. Code § 95.10 which outlines treatment requirements for new and expanding mass loadings of TDS and clarifies which facilities are exempt. The relevant section qualifying the exemption states:

(a) The following are not considered new and expanding mass loadings of TDS and are exempt from the treatment requirements in this section:

(1) Maximum daily discharge loads of TDS or specific conductivity levels that were authorized by the Department prior to August 21, 2010. These discharge loads will be considered existing mass loadings by the Department.

007.B Water Quality-Based Limitations

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

With few exceptions, annual sampling of PFAS, a group of emerging contaminants, is now a minimum requirement for all individual industrial waste discharges regardless of industry. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits (QLs) of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of “GG” on DMRs. This monitoring is imposed based on 25 Pa. Code § 92a.61(b) which states:

The Department may impose reasonable monitoring requirements on any discharge, including monitoring of the surface water intake and discharge of a facility or activity, other operational parameters that may affect effluent

quality, and of surface waters adjacent to or associated with the intake or discharge flow of a facility or activity. The Department may require submission of data related to the monitoring.

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are man-made chemicals, are resistant to heat, water, and oil and persist in the environment and the human body. PFAS are not found naturally in the environment, and can be found in air, soil, and water (both groundwater and surface water). They have been used to make cookware, carpets, clothing, fabrics for furniture, paper packaging for food, and other materials that are resistant to water, grease, or stains. They are also used in firefighting foams and in a number of industrial processes.

Total Maximum Daily Load (TMDL)

See Section 001.B for a discussion of the Thompson Run Watershed TMDL. Limits consistent with the reasoning in Section 001.B are applied to Outfall 007.

Since this discharge is sampled 2/month, both the AML and MDL are applicable.

Table 14. TMDL Limits for Outfall 007

Parameter	Concentration (ug/L)	
	Monthly Average	Daily Maximum
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0

Toxics Management Spread Sheet

The Department of Environmental Protection has developed the DEP Toxics Management Spreadsheet (“TMS”) to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The TMS is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The TMS is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 007 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the TMS. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the TMS. All 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 considered to be pollutants of concern. This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion. The TMS is run with the discharge and receiving stream characteristics shown in Table 15. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant’s maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the

maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL.

Since both Outfall 007 effluent and Bull Run flow are driven by seasonal groundwater fluctuations—Outfall 007 discharges treated spring water feeding the small tributary Bull Run—an analysis of Tetrachloroethylene concentration and flow of Outfall 007 over time is needed to assess what is an appropriate stream flow to utilize in the TMS for WQBEL development. The past two years of this data is graphed in Figure 4. Since higher concentrations of Tetrachloroethylene at Outfall 007 correspond to higher flows from Outfall 007, it can be assumed that peak concentrations of Tetrachloroethylene will not occur when Bull Run is at Q7-10 flows so, taken from the application, the lower average discharge flow of 0.025 MGD was used for modeling even though the maximum discharge flow was stated to be much higher at 0.338 MGD. Choosing the average flow lends a fair margin of safety for Q7-10 conditions in Bull Run while at the same time considering more realistic data-driven flow expectations. Effluent limitations recommended by the TMS are shown in Table 16. The Output from the TMS is included in Attachment C.

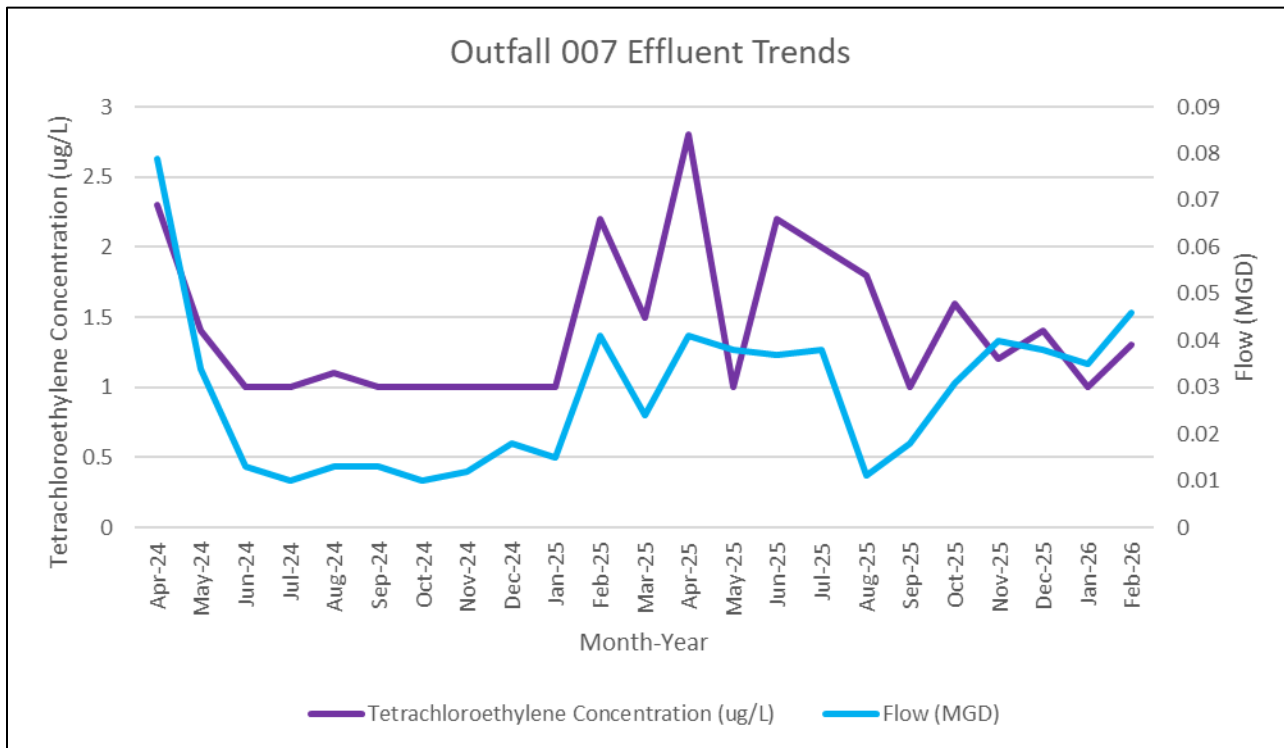


Figure 4. Outfall 007 Effluent Trends

Table 15. TMS Inputs for Outfall 007

Discharge Information	
Parameter	Value
River Mile Index	0.84
Discharge Flow (MGD)	0.025
Basin/Stream Information	
Parameter	Value
Drainage Area (mi ²)	0.3
Q ₇₋₁₀ (cfs)	0.003
Low-flow yield (cfs/mi ²)	0.0105
Elevation (ft)	1025

Table 16. WQBELs from TMS

Parameter	Concentration (ug/L)		
	Monthly Average	Daily Maximum	Instantaneous Maximum
Dissolved Iron	Report	Report	Report
Trichloroethylene	1.32	2.06	3.3

007.C Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 17.

Table 17. Effluent limitations from previous permit following completion of compliance schedule

Parameter	Mass (pounds)		Concentration (mg/L)				Samples	
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	—	—	Continuous	Measured
pH (S.U.)	—	—	6.0	—	—	9.0	2/month	Grab
Total Suspended Solids	—	—	—	30.0	—	75.0	2/month	Grab
Total Aluminum	—	—	—	0.75	0.75	—	2/month	Grab
Total Iron	—	—	—	1.5	3.0	—	2/month	Grab
trans-1,2-Dichloroethylene (ug/L)	—	—	—	5.0	—	12.5	2/month	Grab
Tetrachloroethylene (ug/L)	—	—	—	2.2	—	5.5	2/month	Grab
Trichloroethylene (ug/L)	—	—	—	1.41	2.19	3.51 ⁽¹⁾	2/month	Grab

(1) This limit is only for Department use during onsite sampling.

007.D Proposed Effluent Limitations and Monitoring Requirements

Effluent limits imposed at Outfall 007 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 18. The Trichloroethylene limitation became more stringent because its carcinogen risk level (CRL)-based criterion in 25 Pa. Code § 93.8c was lowered from 2.5 ug/L to 0.6 ug/L which lowers the calculated WQBEL in the TMS. The 0.6 ug/L Trichloroethylene CRL-based criterion was initially published October 21, 2017, adopted by the Environmental Quality Board on November 19, 2019, and published in final on July 11, 2020.

Table 18. Proposed effluent limits and monitoring requirements for Outfall 007

Parameter	Mass (pounds)		Concentration (mg/L)				Samples	
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	—	—	Continuous	Measured
pH (S.U.)	—	—	6.0	—	—	9.0	2/month	Grab
Total Suspended Solids	—	—	—	30.0	—	75.0	2/month	Grab
Total Aluminum	—	—	—	0.75	0.75	—	2/month	Grab
Total Iron	—	—	—	1.5	3.0	—	2/month	Grab
trans-1,2-Dichloroethylene (ug/L)	—	—	—	5.0	—	12.5	2/month	Grab
Tetrachloroethylene (ug/L)	—	—	—	2.2	—	5.5	2/month	Grab
Trichloroethylene (ug/L)	—	—	—	1.32	2.06	3.3	2/month	Grab
PFOA (ng/L)	—	—	—	—	Report	—	1/year	Grab
PFOS (ng/L)	—	—	—	—	Report	—	1/year	Grab
PFBS (ng/L)	—	—	—	—	Report	—	1/year	Grab
HFPO-DA (ng/L)	—	—	—	—	Report	—	1/year	Grab

Development of Effluent Limitations

Outfall No. 008 Design Flow (MGD) 0
 Latitude 40° 21' 43.10" Longitude -79° 53' 27.50"
 Wastewater Description: Stormwater discharge from extended dry detention basin

008.A Technology-Based Limitations

The outfall is subject to 2022 PAG-03 General Stormwater permit conditions as a minimum requirement because it discharges stormwater associated with industrial activity. The SIC code for the facility is 8733—Noncommercial Research Organization which has no specific corresponding appendix in the PAG-03 so it is classified as Appendix J—Additional Facilities. The reporting requirements applicable to stormwater discharges under this appendix are shown in Table 19 below. Since the application mentions laydown areas, heavy equipment, aboveground fuel storage tanks, vehicle maintenance, and waste/material storage containers exposed to stormwater at the facility, PAG-03 Appendix L best management practices (BMPs) are included in Part C of the Draft Permit.

Table 19. 2022 PAG-03 Appendix J monitoring requirements

Parameter	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen	XXX	1/6 Months	Grab
Total Phosphorus	XXX	1/6 Months	Grab
Total Suspended Solids (TSS)	100	1/6 Months	Grab
Oil & Grease	30	1/6 Months	Grab
pH (S.U.)	9.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	120	1/6 Months	Grab

008.B Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) stream conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharge from this outfall is composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted.

Total Maximum Daily Load (TMDL)

See Section 001.B for a discussion of the Thompson Run Watershed TMDL. Limits consistent with the reasoning in Section 001.B are applied to Outfall 008.

Since this discharge consists solely of stormwater only the MDL is considered; these concentrations are in **bold**. Sampling will not be performed on a monthly basis, so a monthly average concentration is not appropriate.

Table 20. TMDL Limits for Outfall 008

Parameter	Concentration (ug/L)	
	Monthly Average	Daily Maximum
Total Aluminum	0.75	0.75
Total Iron	1.5	3.0

008.C Anti-Backsliding

Previous limits can be used pursuant to EPA’s anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 21.

Table 21. Effluent limitations from previous permit for Outfall 008

Parameter	Concentration (mg/L)			Samples	
	Instantaneous Minimum	Daily Maximum	Instantaneous Maximum	Frequency	Sample Type
pH (S.U.)	Report	—	Report	1/quarter	Grab
Total Suspended Solids	—	Report	—	1/quarter	Grab
Oil & Grease	—	Report	—	1/quarter	Grab
Aluminum, Total	—	0.75	—	1/quarter	Grab
Iron, Total	—	3.0	—	1/quarter	Grab

008.D Proposed Effluent Limitations and Monitoring Requirements

Effluent limits imposed at Outfall 008 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 22. 1/quarter monitoring is carried over from the prior permit.

Benchmark values are not effluent limits, and an exceedance of a benchmark value is not a violation. An exceedance of the benchmark provides permittees with an indication that the facility’s BMPs may not be sufficiently controlling pollutants in stormwater. A Part C condition is included in the Draft Permit requiring a Corrective Action Plan to evaluate site stormwater controls and BMPs when there are two consecutive exceedances of the benchmark values.

Table 22. Proposed effluent limits and monitoring requirements for Outfall 008

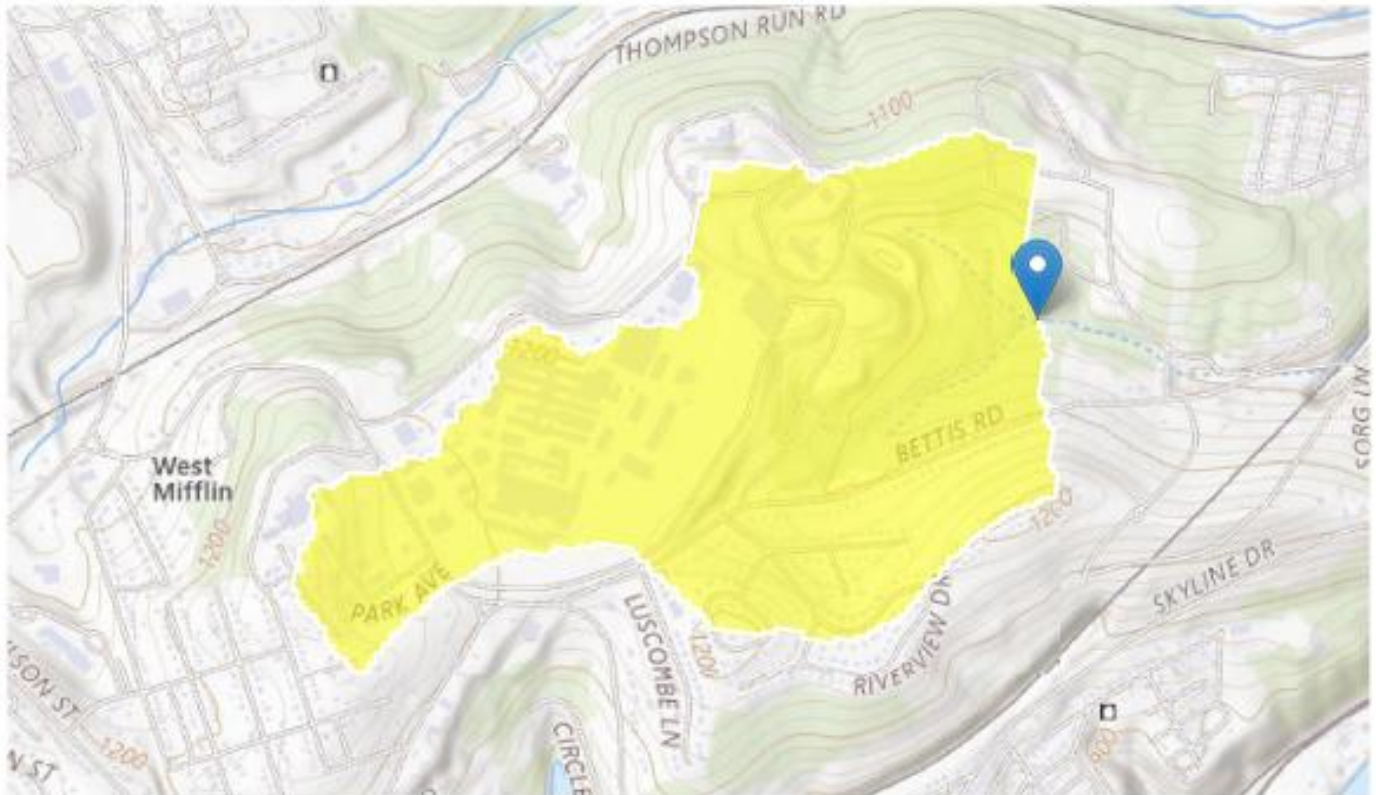
Parameter	Concentration (mg/L)		Samples	
	Benchmark Value	Daily Maximum	Frequency	Sample Type
Total Nitrogen	—	Report	1/quarter	Grab
Total Phosphorus	—	Report	1/quarter	Grab
Total Suspended Solids (TSS)	100	Report	1/quarter	Grab
Oil & Grease	30	Report	1/quarter	Grab
pH (S.U.)	9.0	Report	1/quarter	Grab
Chemical Oxygen Demand (COD)	120	Report	1/quarter	Grab
Total Iron	—	3.0	1/quarter	Grab
Total Aluminum	—	0.75	1/quarter	Grab

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [REDACTED])
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment B)
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [REDACTED])
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: Establishing Effluent Limits for Individual Industrial Permits (BCW-PMT-032)
<input checked="" type="checkbox"/>	Other: USGS StreamStats (see Attachment A)

Attachment A: USGS StreamStats

PA0000914 StreamStats Report - Point of First Use, Confluence of Bull Run and Northeast Area Stream

Region ID: PA
Clicked Point (Latitude, Longitude): 40.36074, -79.88799
Time: 2026-03-23 13:57:42 -0400



StreamStats Update

Starting with version 4.30.0, the StreamStats application uses services that were redeveloped with open-source software components. Users may observe minor variations in computed results when compared to those from previous versions. These differences are expected and do not reflect errors in the underlying data or analytical methods. Users are advised to consider these potential variations when interpreting or comparing results generated across different versions of StreamStats. Please email streamstats@usgs.gov with any questions or concerns. A full list of changes can be found at

<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>
(<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>) .

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.8457	degrees
DRNAREA	Area that drains to a point on a stream	0.3	square miles
ELEV	Mean Basin Elevation	1153	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	0.3	square miles	2.26	1400
ELEV	Mean Basin Elevation	1153	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

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

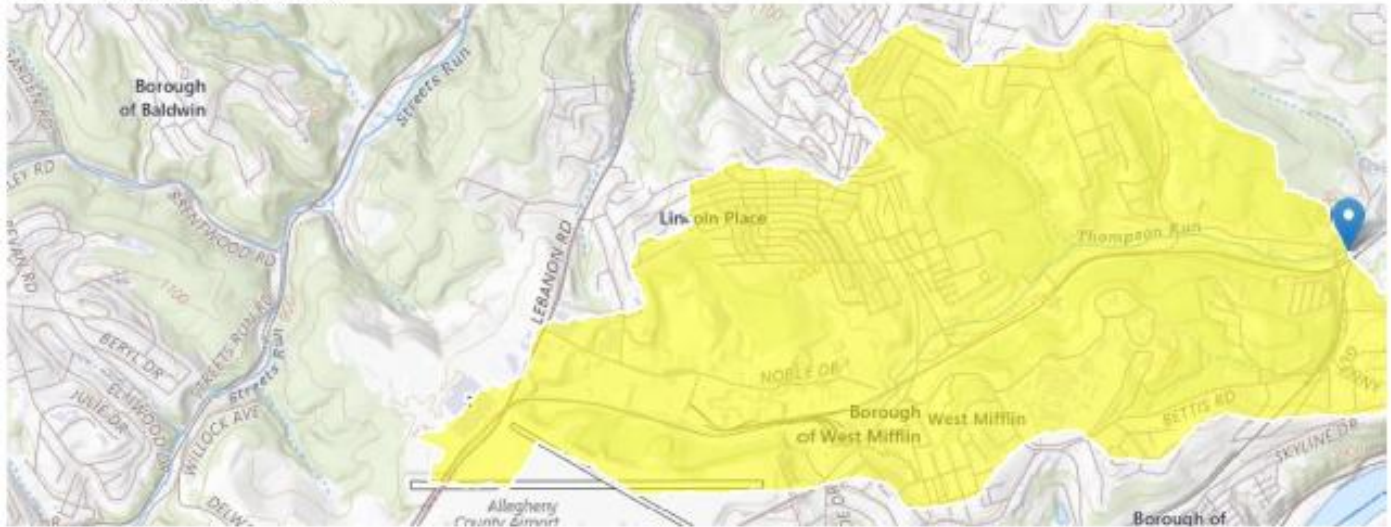
Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00689	ft ³ /s
30 Day 2 Year Low Flow	0.014	ft ³ /s
7 Day 10 Year Low Flow	0.00182	ft ³ /s
30 Day 10 Year Low Flow	0.00425	ft ³ /s
90 Day 10 Year Low Flow	0.00914	ft ³ /s

Low-Flow Statistics Citations

Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

PA0000914 StreamStats Report - Downstream of Point of First Use, Confluence of Bull Run and Thompson Run

Region ID: PA
 Clicked Point (Latitude, Longitude): 40.36605, -79.87927
 Time: 2026-05-29 12:00:28 -0400



StreamStats Update

Starting with version 4.30.0, the StreamStats application uses services that were redeveloped with open-source software components. Users may observe minor variations in computed results when compared to those from previous versions. These differences are expected and do not reflect errors in the underlying data or analytical methods. Users are advised to consider these potential variations when interpreting or comparing results generated across different versions of StreamStats. Please email streamstats@usgs.gov with any questions or concerns. A full list of changes can be found at <https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release> (<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>).

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.45	square miles
ELEV	Mean Basin Elevation	1116.2	feet

LowFlow Statistics

LowFlow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.45	square miles	2.26	1400
ELEV	Mean Basin Elevation	1116.2	feet	1050	2580

LowFlow Statistics Flow Report [Low Flow Region 4]

PI: 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, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.108	ft ³ /s	43	43

Statistic	Value	Unit	SE	ASEp
30 Day 2 Year Low Flow	0.196	ft ³ /s	38	38
7 Day 10 Year Low Flow	0.0363	ft ³ /s	66	66
30 Day 10 Year Low Flow	0.0704	ft ³ /s	54	54
90 Day 10 Year Low Flow	0.133	ft ³ /s	41	41

Low-Flow Statistics Citations

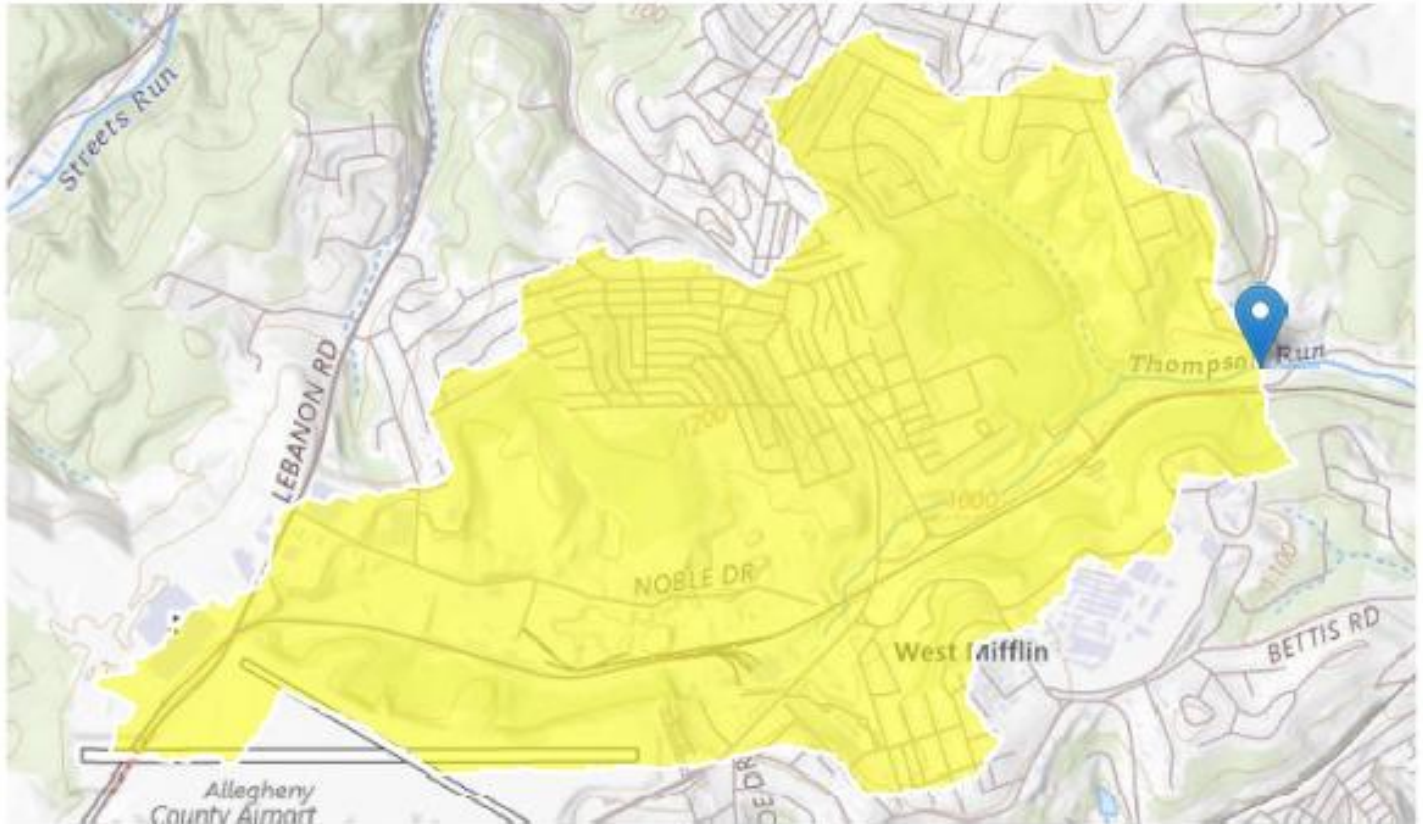
Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

PA0000914 StreamStats Report - Thompson Run

Region ID: PA

Clicked Point (Latitude, Longitude): 40.36674, -79.89170

Time: 2026-03-23 13:42:43 -0400



StreamStats Update

Starting with version 4.30.0, the StreamStats application uses services that were redeveloped with open-source software components. Users may observe minor variations in computed results when compared to those from previous versions. These differences are expected and do not reflect errors in the underlying data or analytical methods. Users are advised to consider these potential variations when interpreting or comparing results generated across different versions of StreamStats. Please email streamstats@usgs.gov with any questions or concerns. A full list of changes can be found at

<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>
(<https://www.usgs.gov/streamstats/news/streamstats-data-updates-open-source-code-release>)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.2776	degrees
DRNAREA	Area that drains to a point on a stream	2.33	square miles
ELEV	Mean Basin Elevation	1131.6	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	2.33	square miles	2.26	1400
ELEV	Mean Basin Elevation	1131.6	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, PseudoR²: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.0701	ft ³ /s	43	43
30 Day 2 Year Low Flow	0.13	ft ³ /s	38	38
7 Day 10 Year Low Flow	0.0226	ft ³ /s	66	66
30 Day 10 Year Low Flow	0.0451	ft ³ /s	54	54
90 Day 10 Year Low Flow	0.0873	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/>)

Attachment B: Toxics Management Spreadsheet



Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions Discharge Stream

Facility: Bettis Atomic Power Laboratory NPDES Permit No.: PA0000914 Outfall No.: 007

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: IW Process Effluent without ELG

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 ₉₅
0.025	100	8.3						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1											
Total Dissolved Solids (PWS)	mg/L										
Chloride (PWS)	mg/L										
Bromide	mg/L	<									
Sulfate (PWS)	mg/L										
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	mg/L										
Free Cyanide	µg/L										
Total Cyanide	µg/L										
Dissolved Iron	mg/L	<	0.1								
Total Iron	µg/L										
Total Lead	mg/L	<	0.00052								
Total Manganese	µg/L										
Total Mercury	mg/L	<	0.0002								
Total Nickel	µg/L										
Total Phenols (Phenolics) (PWS)	µg/L	<									
Total Selenium	µg/L	<									
Total Silver	µg/L	<									
Total Thallium	µg/L	<									
Total Zinc	mg/L										
Total Molybdenum	µg/L	<									
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	mg/L	<	0.0005								
Bromofom	µg/L	<									
Carbon Tetrachloride	µg/L	<									

