Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0093891**
Facility Type	**Municipal**	APS ID	**1126650**
Major / Minor	**Minor**	Authorization ID	**1508145**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Deer Creek Drainage Basin Authority**	Facility Name	**Hampshire Estates STP**
Applicant Address	945 Little Deer Creek Valley Road PO Box 148 Russellton, PA 15076-0148	Facility Address	57 Hampshire Lane Gibsonia, PA 15044
Applicant Contact	Lynn Biery	Facility Contact	Lynn Biery
Applicant Phone	(724) 265-5315	Facility Phone	(724) 265-5315
Client ID	43670	Site ID	243253
Ch 94 Load Status	Not Overloaded	Municipality	West Deer Township
Connection Status	No Limitations	County	Allegheny
Date Application Received	November 29, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: NPDES permit renewal application.

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Gibson-Thomas Engineering (consultant) on November 29, 2024, on behalf of Deer Creek Drainage Basin Authority (permittee) for Permittee's Hampshire Estates STP (facility). This is a minor sewage facility with a design flow of 0.04 MGD that discharges into Dawson Run (TSF) in state watershed 18-A. The current permit will expire on May 31, 2025. The terms and conditions of the current permit is automatically extended since the renewal application was received at least 180 days prior to expiration date. Renewal NPDES permit application under Clean Water Program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes to existing permit: Added: E. Coli. TRC limits more stringent

Sludge use and disposal description and location(s): The biosolid is sent to Allegheny Valley Joint Sewer Authority for further treatment and ultimate disposal.

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager 	February 7, 2025
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	02/10/2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.04
Latitude	40º 39' 16"	Longitude	-79º 53' 29"
Quad Name	Valencia	Quad Code	1306
Wastewater Description:	Sewage Effluent		

Receiving Waters	Dawson Run (CWF)	Stream Code	42333
NHD Com ID	123973350	RMI	3.06
Drainage Area	0.91 mi^2	Yield (cfs/mi^2)	0.0117
Q_{7-10} Flow (cfs)	0.0106	Q_{7-10} Basis	See below
Elevation (ft)	1036.52	Slope (ft/ft)	
Watershed No.	18-A	Chapter 93 Class.	CWF
Existing Use	**CWF**	Existing Use Qualifier	Ch. 93
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, SILTATION, SILTATION, TOTAL DISSOLVED SOLIDS (TDS)		
Source(s) of Impairment	ACID MINE DRAINAGE, AGRICULTURE, AGRICULTURE, CONSTRUCTION		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°C)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		Wilkinsburg-Penn Joint Water Authority, Penn Hills Muni.	
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI	8.79	Distance from Outfall (mi)	18.97

Changes Since Last Permit Issuance: None

Other Comments:

Streamflow:
There's no nearby StreamGage from this discharge point. The USGS's web based watershed delineation tool StreamStats (accessible at https://streamstats.usgs.gov/ss/, accessed on January 14, 2025) was utilized to determine the drainage area at discharge point and at confluence with UNT 42336 to Dawson Run (node 2). The drainage area at Outfall 001 was found to be 0.91 mi^2 and 3.2 mi^2 at node 2. The previous permit stated a yield of 0.0117 cfs/mi2 which resulted in a Q7-10 at discharge point of 0.0106 cfs. The default Q1-10:Q7-10 of 0.64 and default Q30-10:Q7-10 of 1.36 will be used for modeling, as appropriate. It should be noted that the previous permit stated the receiving stream to be an UNT to Dawson Run (42333). However, the application data and USGS map indicated that the facility is in the main stem of Dawson Run which has same stream code of 42333. The 1999 Pollution Report (fact sheet) also confirmed the receiving stream to be Dawson Run with stream code 42333. The RMI and other stream data are updated to match the correct receiving stream.

PWS Intake:
The nearest downstream public water supply is Wilkinsburg-Penn Joint Water Authority in Penn Hill Municipality, on Allegheny River at RMI 8.97. Its approximately 18.97 miles downstream of Outfall 001. Discharge from this facility is expected not to impact the PWS intake.

Wastewater Characteristics:
Discharge pH of 6.5 S.U., temperature of 20°C and hardness of 100 mg/l will be used for modeling, as appropriate.

Background data:
There's no nearby WQN station to collect the stream data from. In absence of site specific data, a default pH of 7.0, temperature of 20°C, and hardness of 100 mg/l will be used for modeling, as appropriate.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Cold Water Fishes (CWF). No High-Quality stream or Exceptional Value water is impacted by this discharge; therefore, no Antidegradation Analysis is performed for the discharge.

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

Treatment Facility Summary

Treatment Facility Name: Hampshire Estates STP

WQM Permit No.	Issuance Date

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage			Hypochlorite	0.04

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.04	68	Not Overloaded	Aerobic digestion	Other WWTP

Changes Since Last Permit Issuance: None

Facility Information

Deer Creek Drainage Basin Authority owns Hampshire Estates STP (Facility), located in West Deer Township, Allegheny County. Sewage from Hampshire Estates Housing Plan is collected and treated at the facility. It's a minor sewage treatment plant with a design flow of 0.04 MGD.

Sewage from the Hampshire Estates housing plan is collected and treated with extended aeration, settling, chlorination and de-chlorination before discharging into a tributary of Dawson Run through outfall 001. Per inspection report dated August 11, 2023, the facility has the following treatment units: One comminutor, one aeration tank, one clarifier, one sludge holding tank, one return line, one skimmer, one chlorinator, one dechlorinator, and two blowers.

The facility uses the following wastewater treatment chemicals:

Wastewater Treatment Chemical	Purpose	Maximum Usage Rate
Dense Soda Ash	to keep pH around 7.0	50# per month
Chlorine	To treat bacteria	as few as needed
Dechlorinate tabs	to neutralize chlorine	as few as needed

The biosolid is sent to Allegheny Valley Joint Sewer Authority for further treatment and ultimate disposal.

Existing Limits

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.04	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.11	XXX	0.26	1/day	Grab
CBOD5	8.34	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	10.0	XXX	XXX	30.0	XXX	60.0	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	5.0	XXX	10.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2.5	XXX	5.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance History

DMR Data for Outfall 001 (from December 1, 2023 to November 30, 2024)

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Flow (MGD) Average Monthly	0.012	0.011	0.011	0.011	0.011	0.01	0.011	0.012	0.012	0.011	0.012	0.011
Flow (MGD) Daily Maximum	0.012	0.011	0.012	0.011	0.012	0.01	0.012	0.012	0.012	0.012	0.012	0.012
pH (S.U.) IMIN	6.4	6.5	6.6	6.6	6.6	6.1	6.4	6.4	6.4	6.7	6.7	6.6
pH (S.U.) IMAX	7.1	7.2	7.1	7.0	7.1	7.1	7.0	7.0	7.0	7.2	7.4	7.1
DO (mg/L) IMIN	7.0	6.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
TRC (mg/L) Average Monthly	0.02	0.03	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.04
TRC (mg/L) IMAX	0.07	0.10	0.14	0.21	0.20	0.23	0.09	0.12	0.23	0.15	0.12	0.08
CBOD5 (lbs/day) Average Monthly	4.90	8.05	6.00	4.00	4.00	4.00	4.00	4.00	6.00	4.00	4.50	5.00
CBOD5 (mg/L) Average Monthly	4.4	< 0.3	3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	4.1	< 3.0	3.6	< 3.0
CBOD5 (mg/L) IMAX	8.4	< 0.3	5.6	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	5.2	< 3.0	4.2	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	250	320	340	599	70	130	498	360	220	250	225	484
BOD5 (mg/L) Raw Sewage Influent Average Monthly	248	310	341.1	590	61.2	124.2	490	350	216	204	222	483
TSS (lbs/day) Average Monthly	5.0	8.0	9.0	9.0	6.0	4.00	4.0	6.0	9.0	9.0	6.0	7.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	150	201	40	475	60	98	199	300	350	150	540	160
TSS (mg/L) Average Monthly	4.0	< 0.3	8.0	6.0	5.0	< 3.0	3.0	5.0	8.0	5.0	5.0	6.0
TSS (mg/L) Raw Sewage Influent Average Monthly	133	192	32.5	453	50.5	93	197	297	328	141	535	155
TSS (mg/L) IMAX	4.0	< 0.3	9.0	8.0	5.0	< 3.0	3.0	8.0	11.0	7.0	5.0	6.0
Fecal Coliform (No./100 ml) Geometric Mean	2420	1	29	164	2	46.6	3	18	70	1	1	1
Fecal Coliform (No./100 ml) IMAX	2420	1	29	199	2	292	5	49	2420	1	1	1

Total Nitrogen (mg/L) Daily Maximum												86.7
Ammonia (mg/L) Average Monthly	1.45	0.11	0.18	0.12	< 0.10	< 0.1	0.15	0.17	1.9	14.3	4.2	< 0.10
Ammonia (mg/L) IMAX	2.78	0.11	0.19	0.14	< 0.10	< 0.1	0.19	0.18	3.6	20.1	7.5	< 0.10
Total Phosphorus (mg/L) Daily Maximum												10.9

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2024 To: November 30, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	11/30/24	Geo Mean	2420	No./100 ml	2000	No./100 ml
Ammonia	02/29/24	Avg Mo	14.3	mg/L	5.0	mg/L
Ammonia	02/29/24	Avg Mo	14.3	mg/L	5.0	mg/L
Ammonia	02/29/24	IMAX	20.1	mg/L	10.0	mg/L
Ammonia	02/29/24	IMAX	20.1	mg/L	10.0	mg/L

Discussion on DMR violations: Fecal coliform violation was due to switching to new chlorine tablet. Cause unknown for Ammonia violation, the operator will continuously monitor the ammonia.

Summary of Inspections:

August 11, 2023: CEI conducted. Violations noted including effluent violation. Recommended to discontinue use of swimming pool chlorine tablet and use calcium hypochlorite designed for wastewater treatment. The inspector observed that the plant was getting old and rust holes were visible in the walls of the tanks. These should be replaced.

Other Comments: None

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.04
Latitude 40º 39' 11.00" **Longitude** -79º 53' 9.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

Model input data

The following data will be used for modeling, as needed:

- Discharge pH 6.5 (2024 daily eDMR data, 90th percentile)
- Discharge Temperature 20°C (Default)
- Discharge Hardness 100 mg/l (Default)
- Stream pH 7.0 (Default)
- Stream Temperature 20.0°C (Default)
- Stream Hardness 100 mg/l (Default)

The following two nodes were used in modeling:

Node 1: At the outfall 001 on Dawson Run (42333)
Elevation: 1036.52 ft (National Map-Advanced Viewer, 1/14/2025)
Drainage Area: 0.91 mi^2 (StreamStat Version 3.0, 1/14/2025)
River Mile Index: 3.06 (PA DEP eMapPA)
Low Flow Yield: 0.0117 cfs/mi^2
Q_{7-10}: 0.0106 cfs
Discharge Flow: 0.04 MGD

Node 2: At confluence with UNT 42336 to Dawson Run
Elevation: 963.52 ft (National Map-Advanced Viewer, 1/14/2025)
Drainage Area: 3.2 mi^2 (StreamStat Version 3.0, 1/14/2025)
River Mile Index: 1.77 (PA DEP eMapPA)

Low Flow Yield: 0.0117 cfs/mi^2
Discharge Flow: 0.0 MGD

WQM 7.0 Model

WQM 7.0 version 1.11 is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and DO. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model was utilized for this permit renewal by using Q_{7-10} and current background water quality levels of the stream.

NH_3-N
WQM 7.0 suggested NH_3-N limit of 2.5 mg/l as monthly average and 5.0 mg/l as IMAX limit during summer to protect water quality standards. These limits are the same as are in the existing permit and will be carried over.

CBOD5
WQM 7.0 suggests CBOD5 limit of 25.0 mg/l as AML which is the same as existing limit. Existing AML and IMAX will be carried over, along with the AML mass limits.

DO
WQM 7.0 suggests minimum DO of 6.0 mg/l which is the model input and same as existing limit. Existing limit will be carried over.

Toxics Management Spreadsheet (TMS)

Minor facilities with design flow less than 0.1 MGD aren't required to sample for Total Copper, Total Lead, Total Zinc, and any other parameters unless they are accepting flows from industrial or commercial users. No toxics modeling is conducted.

Other Requirements/BPJ based limits

Total Phosphorus:
PADEP's SOP BCW-PMT-033 recommends monitoring for Total Phosphorus for facilities with design flow more than 2000-GPD, which is also supported by Pa Code 25 Ch. 92a.61. Current monitoring requirement will be continued.

Total Nitrogen:
PADEP's SOP BCW-PMT-033 recommends monitoring for Total Nitrogen for facilities with design flow more than 2000-GPD, which is also supported by Pa Code 25 Ch. 92a.61. Current monitoring requirement will be continued.

Fecal Coliform:
The recent coliform guidance in 25 Pa. code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml. These are existing requirements and will be carried over in this renewal.

E. Coli:
Pa Code 25 § 92a. 61 requires monitoring of E. Coli. DEP's SOP titled "Establishing Effluent Limitations for Individual Sewage Permits (BCW-PMT-033, revised March 24, 2021) recommends annual E. Coli monitoring for minor sewage dischargers with a design flow between 2000 GPD and 50,000 GPD. This requirement will be applied from this permit term.

pH:
The TBEL for pH is above 6.0 and below 9.0 S.U. (40 CFR §133.102(c) and Pa Code 25 §§ 95.2(1), 92a.47) which are existing limits and will be carried over.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The existing limits of 30 mg/L average monthly and 60 mg/L instantaneous maximum will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment, 25 Pa. Code § 92a.47 and 40CFR 133.102(b). The mass based average monthly limit is calculated to be 10 lbs./day which is the same as were in existing permit and will be carried over.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The model suggests an average monthly limit of 0.034 mg/l and IMAX of 0.11 mg/l. These limits are more stringent compared to the current permit. A schedule will be provided in the draft permit to meet the final WQBELs.

Monitoring Frequency and Sample Types:
Otherwise specified above, the monitoring frequency and sample type of compliance monitoring for existing parameters are recommended by DEP's SOP and Permit Writers Manual and/or on a case-by-case basis using best professional judgment (BPJ).

Flow and Influent BOD_5 and TSS Monitoring Requirement:
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii). Influent BOD_5 and TSS monitoring requirements are established in the permit per the requirements set in Pa Code 25 Chapter 94.

Anti-Backsliding
Anti-backsliding prohibition is justified in sections where an exception is justified for the affected pollutant(s). For remaining pollutants, this prohibition isn't applicable since the proposed limits are at least as stringent as were in current permit.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.04	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC (interim)	XXX	XXX	XXX	0.11	XXX	0.26	1/day	Grab
TRC (final)	XXX	XXX	XXX	0.034	XXX	0.11	1/day	Grab
CBOD5	8.34	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	10.0	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	5.0	XXX	10.0	2/month	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.5	XXX	5.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: At Outfall 001

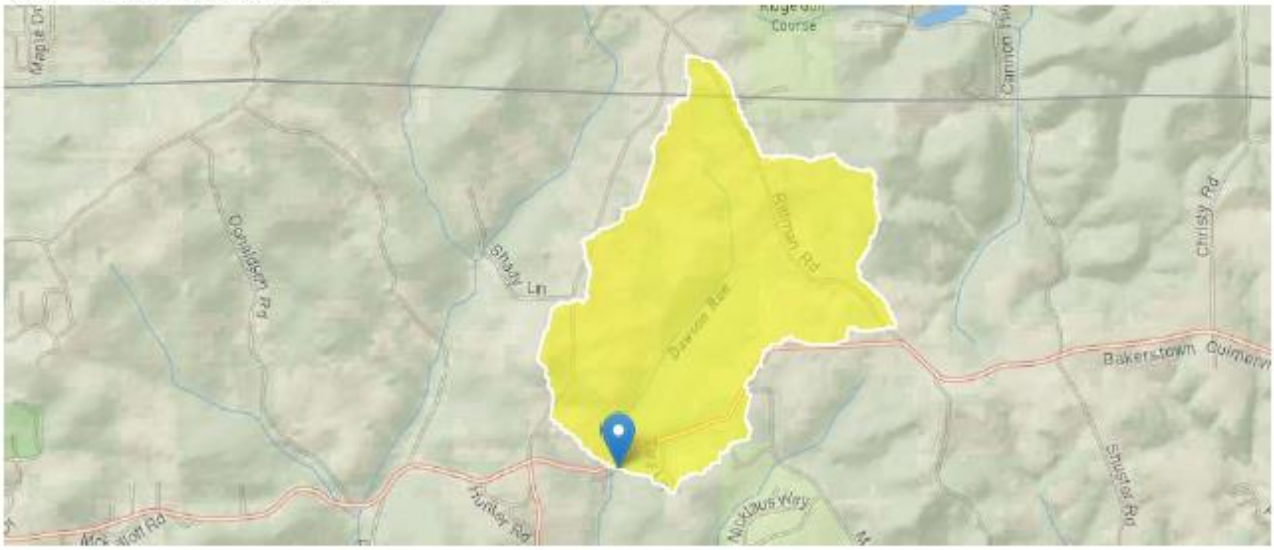
Other Comments: None

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:

USGS StreamStats at Outfall 001

PA0093891 at Outfall 001

Region ID: PA
Workspace ID: PA20250115013141653000
Clicked Point (Latitude, Longitude): 40.65453, -79.89176
Time: 2025-01-14 20:32:03 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.91	square miles
ELEV	Mean Basin Elevation	1125	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	0.91	square miles	2.26	1400
ELEV	Mean Basin Elevation	1125	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	0.0239	ft^3/s

Statistic	Value	Unit
30 Day 2 Year Low Flow	0.0461	ft^3/s
7 Day 10 Year Low Flow	0.00705	ft^3/s
30 Day 10 Year Low Flow	0.0151	ft^3/s
90 Day 10 Year Low Flow	0.0306	ft^3/s

Low-Flow Statistics Citations

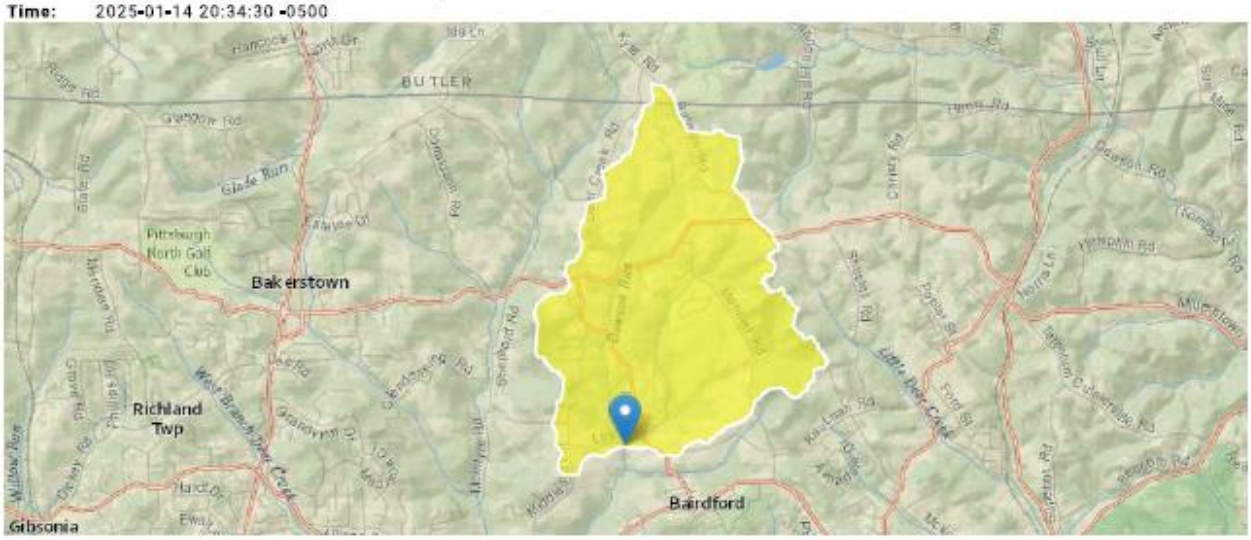
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.25.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

USGS StreamStats at Node 2

Streamstats at node 2

Region ID: PA
Workspace ID: PA20250115013409637000
Clicked Point (Latitude, Longitude): 40.63755, -79.89078
Time: 2025-01-14 20:34:30 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.2	square miles
ELEV	Mean Basin Elevation	1108	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	3.2	square miles	2.26	1400
ELEV	Mean Basin Elevation	1108	feet	1050	2580

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

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.0989	ft^3/s	43	43
30 Day 2 Year Low Flow	0.18	ft^3/s	38	38
7 Day 10 Year Low Flow	0.033	ft^3/s	66	66
30 Day 10 Year Low Flow	0.0642	ft^3/s	54	54

WQM 7.0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42333	DAWSON RUN	**3.060**	1036.52	0.91	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.012	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Hampshire Estat	PA0093891	0.0400	0.0400	0.0400	0.000	20.00	6.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	2.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
18A	42333	DAWSON RUN	**1.770**	963.52	3.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.012	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18A	42333	DAWSON RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
3.060	0.01	0.00	0.01	.0619	0.01072	.331	4.17	12.6	0.05	1.499	20.00	6.55
Q1-10 Flow												
3.060	0.01	0.00	0.01	.0619	0.01072	NA	NA	NA	0.05	1.546	20.00	6.53
Q30-10 Flow												
3.060	0.01	0.00	0.01	.0619	0.01072	NA	NA	NA	0.05	1.457	20.00	6.56

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18A	42333	DAWSON RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.060	Hampshire Estat	22.41	5	22.41	5	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.060	Hampshire Estat	2.11	2.5	2.11	2.5	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
3.06	Hampshire Estat	25	25	2.5	2.5	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18A	42333	DAWSON RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.060	0.040	20.000	6.546
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.169	0.331	12.602	0.053
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
21.62	1.427	2.13	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.329	23.337	Owens	6
Reach Travel Time (days)			
1.499			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.150	17.46	1.92	7.17
0.300	14.09	1.73	7.54
0.450	11.38	1.56	7.83
0.600	9.19	1.40	8.06
0.750	7.42	1.26	8.24
0.900	5.99	1.14	8.24
1.050	4.83	1.02	8.24
1.200	3.90	0.92	8.24
1.349	3.15	0.83	8.24
1.499	2.54	0.75	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18A	42333	DAWSON RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
3.060	Hampshire Estat	PA0093891	0.040	CBOD5	25		
				NH3-N	2.5	5	
				Dissolved Oxygen			6

TRC Modeling

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0106	= Q stream (cfs)	0.5	= CV Daily
0.04	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.074	1.3.2.iii	WLA cfc =	0.064
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.027	5.1d	LTA_cfc =	0.037

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.034	AFC
		INST MAX LIMIT (mg/l) =	0.110	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)