pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0081388**
Facility Type	**Non-Municipal**	APS ID	**726627**
Major / Minor	**Minor**	Authorization ID	**1434669**

Applicant and Facility Information

Applicant Name	**Barkas Inc.**	Facility Name	**Windy Brae MHP**
Applicant Address	14971 Mount Olivet Road	Facility Address	14971 Mount Olivet Road
	Stewartstown, PA 17363-8506		Stewartstown, PA 17363-8506
Applicant Contact	Robert Barclay	Facility Contact	Robert Barclay
Applicant Phone	(717) 235-3361	Facility Phone	(717) 231-3361
Client ID	74463	Site ID	444067
Ch 94 Load Status	Not Overloaded	Municipality	North Hopewell Township
Connection Status		County	York
Date Application Received	March 31, 2023	EPA Waived?	Yes
Date Application Accepted	April 10, 2023	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Barkas Inc. has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit for the Windy Brae MHP STP. The permit was last reissued to Barkas on September 28, 2018. The permit expired on September 30, 2023 but the terms and conditions of the permit have been administratively extended since that time.

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

Sludge use and disposal description and location(s): Hauled offsite to Springettsbury Township STP

Public Participation

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

Approve	Deny	Signatures	Date
x		*Aaron Baar* Aaron Baar / Project Manager	April 28, 2024
x		*Maria D. Bebenek* for Daniel W. Martin, P.E. / Environmental Engineer Manager	May 22, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.0337
Latitude	39º 47' 35.11"	Longitude	-76º 37' 55.72"
Quad Name	Glen Rock	Quad Code	2032
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of East Branch Codorus Creek (HQ-CWF)	Stream Code	08133
NHD Com ID	57473799	RMI	4.35
Drainage Area	0.31 sq. mi.	Yield (cfs/mi^2)	0.102
Q_{7-10} Flow (cfs)	0.0316	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	896.56	Slope (ft/ft)	
Watershed No.	7-H	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	The York Water Company		
PWS Waters	South Branch Codorus Creek	Flow at Intake (cfs)	
PWS RMI	0.30	Distance from Outfall (mi)	18.31

Changes Since Last Permit Issuance: No changes since the last issuance of the Windy Brae MHP's NPDES permit.

Drainage Area

The discharge is to UNT of East Branch Codorus Creek at RMI 4.35. A drainage area upstream of the discharge is determined to be 0.31 sq. mi. according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow

According to StreamStats, the watershed has a Q_{7-10} of 0.0316 cfs. This information was used to obtain a LFY, a chronic 30-day (Q_{30-10}) and acute (Q_{1-10}) exposure stream flows for the discharge point as follows (Guidance No. 391-2000-023).

Q_{7-10} = 0.0316 cfs
Q_{30-10} = 1.36 * 0.0316 cfs = 0.043 cfs
Q_{1-10} = 0.64 * 0.0316 cfs = 0.020 cfs
LFY = 0.0316 cfs/0.31 mi^2 = 0.102 cfs/mi^2

UNT of East Branch Codorus Creek

25 Pa Code §93.9 classifies the receiving water, UNT of East Branch Codorus Creek, with a HQ-CWF Existing Use designation. The discharge is in a stream segment listed as not attaining use (impaired recreation) in the 2024 Integrated Report; the source of the impairment has been identified as pathogens (source unknown). 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.

Local Watershed Total Maximum Daily Loads (TMDLs)

According to PA's 2024 Integrated Water Quality Monitoring and Assessment Report, UNT of East Branch Codorus Creek in the vicinity of the point of discharge is impaired for recreation (pathogens). The impairment is listed as Category 5 in the 2024 integrated report, indicating that UNT of East Branch Codorus Creek is impaired for one or more uses by a pollutant that require the development of a TMDL. A TMDL for this waterway has not been developed to date.

Public Water Supply Intake

The nearest downstream public water supply intake is The York Water Company intake located on the South Branch Codorus Creek approximately 18 miles from the discharge. Considering the distance and nature, the discharge is not expected to significantly affect the water supply.

Class A Wild Trout Streams

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

Treatment Facility Summary

Treatment Facility Name: Windy Brae MHP

WQM Permit No.	Issuance Date
UNK	UNK

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.0337

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0337	UNK	Not Overloaded	UNK	UNK

Barkas, Inc. owns and operates the sanitary wastewater treatment facility located in North Hopewell Township, York County. This NPDES permit covers discharges of sewage treated by the Windy Brae MHP STP. The facility serves the Windy Brae MHP; all sewer systems are 100% separated. With an annual average design flow 0.0337 MGD, this facility utilizes an extended aeration system consisting of:

Comminutor / Bar Screen (1) ⇒ Aeration Tank (1) ⇒ Clarifier (1) ⇒ Sand Filter (1) ⇒ Chlorine Contact Tank (1) ⇒ Dechlorination Tank (1) ⇒ Discharge

The system incorporates chemical additions in the form of sodium hypochlorite (for disinfection), alum (for phosphorus removal), sodium bicarbonate and lime (for pH control), and sodium sulfite (for dechlorination). A sludge holding tank is used for solids storage. There are no industrial/commercial user contributing industrial wastewater to the sewer system.

Compliance History	
Summary of DMRs:	DMR results for the past year are presented below.
Summary of Inspections:	Since the last renewal of the facility's NPDES permit, the following inspections have been logged: May 3, 2019: Am Incident Inspection was conducted by Austen Randecker. An unidentified milky white substance was observed entering the plant. No violations were noted. November 1, 2019: A CEI was conducted by Austen Randecker. Operational recommendations were made, but no violations were noted. November 26, 2019: A NOV was issued for a number of discharge violations that occurred between 2017-2019. May 4, 2020: An Administrative Inspection was conducted via phone by Austen Randecker. No violations were noted. June 11, 2021: A CEI was conducted by Heather Dock. Operational recommendations were made, but no violations were noted. January 26, 2022: A CEI was conducted by Heather Dock. Operational recommendations were made. A violation was issued for failure to properly maintain treatment units - left wall of aeration tank was deteriorated and sand filter media needed to be added/replaced. October 4, 2023: A Consent Assessment of Civil Penalty was executed for outstanding violations.

Other Comments: As of April 27, 2024, there are no open violations associated with this facility.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.13	XXX	0.43	1/day	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	6.0	XXX	12	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
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
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	2.0	XXX	4.5	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.5	2/month	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

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

Compliance Sampling Location: Outfall 001

Compliance History

DMR Data for Outfall 001 (from March 1, 2023 to February 29, 2024)

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Flow (MGD) Average Monthly	0.0072	0.01252	0.00897	0.00738	0.00619	0.00646	0.0047	0.0048	0.00576	0.00527	0.0067	0.00734
Flow (MGD) Daily Maximum	0.01062	0.0460	0.01503	0.01476	0.00976	0.0124	0.00838	0.00741	0.01417	0.00896	0.0124	0.01131
pH (S.U.) Instantaneous Minimum	6.84	7.03	6.46	6.55	7.02	6.86	6.5	7.27	7.05	6.94	6.92	6.48
pH (S.U.) Instantaneous Maximum	8.63	8.84	8.7	8.22	8.3	8.69	8.43	8.27	8.32	7.85	8.16	8.15
DO (mg/L) Instantaneous Minimum	9.08	9.14	9.43	8.64	7.7	7.47	7.24	7.0	7.0	7.32	7.52	7.55
TRC (mg/L) Average Monthly	0.02	0.02	0.01	0.02	0.0009	0.01	< 0.07	0.01	0.02	< 0.02	0.03	0.03
TRC (mg/L) Instantaneous Maximum	0.05	0.04	0.02	0.04	0.03	0.01	< 0.09	0.03	0.03	0.07	0.05	0.11
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.4	< 2.4	< 3.0	< 3.0	< 3.0	< 2.4	< 2.0	< 2.4	< 2.0	< 3.0	< 2.0
CBOD5 (mg/L) Instantaneous Maximum	< 2.4	< 2.4	< 2.4	2.7	2.6	2.9	< 2.4	< 2.4	< 2.4	< 2.4	2.8	2.5
TSS (mg/L) Average Monthly	2.0	4.5	4.0	1.5	2.5	1.0	3.0	2.5	6.0	2.0	< 2.0	1.0
TSS (mg/L) Instantaneous Maximum	3.0	5.0	6.0	2.0	3.0	1.0	3.0	3.0	8.0	2.0	3.0	1.0
Fecal Coliform (No./100 ml) Geometric Mean	< 18	< 7.0	< 13	< 9	24	< 1.0	< 1	3.0	< 2.0	< 1.0	< 1.0	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	326	48	172	83	31	1.0	< 1.0	8.0	4.0	< 1.0	2.0	< 1.0
Nitrate-Nitrite (mg/L) Average Monthly	33.4	< 32.22	< 28.4	< 46.49	< 42.4	< 22.4	< 20.7	< 17.4	< 0.04	< 2.5	< 2.8	20.4

Nitrate-Nitrite (lbs) Total Monthly	< 54.7	< 9.08	< 2.03	< 54.6	< 2.02	< 1.1	< 23	< 0.82	< 0.6	< 0.12	< 4.6	32.7
Total Nitrogen (mg/L) Average Monthly	< 2.0	< 33.9	< 28.4	< 46.49	< 42.4	< 22.9	< 17.6	< 17.4	7.1	< 4.0	< 2.9	20.9
Total Nitrogen (lbs) Total Monthly	< 56	< 9.0	< 2	< 56	< 2.0	< 22	< 20.0	< 26	10.0	< 0.2	< 4.8	33.4
Total Nitrogen (lbs) Total Annual						< 202						
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.01	< 0.6	< 0.1	< 0.1
Ammonia (mg/L) Instantaneous Maximum	< 0.1	< 0.1	0.22	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.24	< 1.0	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 0.2	< 0.03	< 2	< 0.004	< 0.2	< 0.003	< 0.1	< 0.2	0.3	< 0.03	< 0.2	< 0.2
Ammonia (lbs) Total Annual						< 4.0						
TKN (mg/L) Average Monthly	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.02	< 1.3	< 0.05	0.09	0.05	1.2	< 0.5
TKN (lbs) Total Monthly	< 0.8	< 0.1	< 0.04	< 0.02	< 0.8	< 0.02	< 1.0	< 0.8	3.0	2.0	2.0	< 0.8
Total Phosphorus (mg/L) Average Monthly	0.4	0.2	0.5	< 0.4	0.4	0.5	0.5	< 0.2	0.3	< 0.3	0.3	0.2
Total Phosphorus (mg/L) Instantaneous Maximum	0.48	0.32	0.56	< 0.39	0.46	0.52	0.55	< 0.23	0.34	< 0.4	0.4	0.25
Total Phosphorus (lbs) Total Monthly	< 0.7	0.03	0.03	< 0.02	0.7	0.5	0.6	< 0.3	0.5	< 0.4	0.5	0.4
Total Phosphorus (lbs) Total Annual						< 20.0						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0337
Latitude 39º 47' 35.57" **Longitude** -76º 37' 55.97"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Comments: These standards apply, subject to water quality analysis and BPJ where applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model was utilized, and the model output indicated that existing WQBEL of 7.5 mg/L (AVG) and 15.0 (Peak Instant) for CBOD5 during cold weather months and that the existing WQBEL of 6.0 mg/L (AVG) and 10.0 (Peak Instant) for CBOD5 during warm weather months are still appropriate. Likewise, the model output indicated that the existing WQBELs for NH3-N are still protective of water quality during both warm and cold weather months. No changes are proposed.

The model indicates that the existing DO limit of 7.0 mg/L is still protective of water quality.

Toxics

DEP's NPDES permit application for minor sewage facilities (less than 0.1 MGD) does not require sampling for heavy metals including Total Copper, Total Lead, and Total Zinc unless the facility receives commercial or industrial wastewater.

Best Professional Judgment (BPJ) Limitations

Total Phosphorus & Total Nitrogen

DEP's SOP no. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends monitoring requirements for Total Phosphorus and Total Nitrogen for all sewage facilities. Therefore, a routine monitoring for TKN, Nitrate-Nitrite, and TN are recommended to be continued in this permit. Sampling frequency for TKN, Nitrate-Nitrite, TN, and TP are currently required 1/month. No change is proposed in this renewal.

Total Residual Chlorine

Since chlorine is used for disinfection, Total Residual Chlorine (TRC) effluent levels must be regulated in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet was utilized to determine if the existing limits are still appropriate. The worksheet indicated that existing limits for TRC (0.13 mg/L AVG/0.43 mg/L Peak Instant) are no longer protective of water quality. Updated TRC limits (0.10 mg/L AVG/0.32 mg/L Peak Instant) are proposed in this permit. A review of the facility's DMR records indicate that the existing facility is already meeting the proposed limits on a consistent basis.

Additional Considerations

Flow Monitoring

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

E. Coli Monitoring

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

Chesapeake Bay TMDL

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

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

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

The Phase 3 WIP categorizes this facility as a phase 5 non-significant sewage facility that has a design flow less than 0.2 MGD but greater than 0.002 MGD. The WIP recommends monitoring and reporting for Total Nitrogen and Total Phosphorus throughout the permit term at a frequency no less than annual. As discussed previously, monthly testing of these pollutants is proposed in this permit.

Monitoring Frequency and Sample Type

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

Antidegradation Requirements

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

Anti-backsliding Requirement

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

Annual Fees

An annual fee clause was added to the permit in accordance with 25 Pa. Code § 92a.62. The facility covered by the permit is classified in the Minor Sewage Facility <0.05 MGD fee category, which has an annual fee of $500.

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)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	7.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.10	XXX	0.32	1/day	Grab
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	6.0	XXX	12	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
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
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

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 Nov 1 - Apr 30	XXX	XXX	XXX	2.0	XXX	4.5	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.5	2/month	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

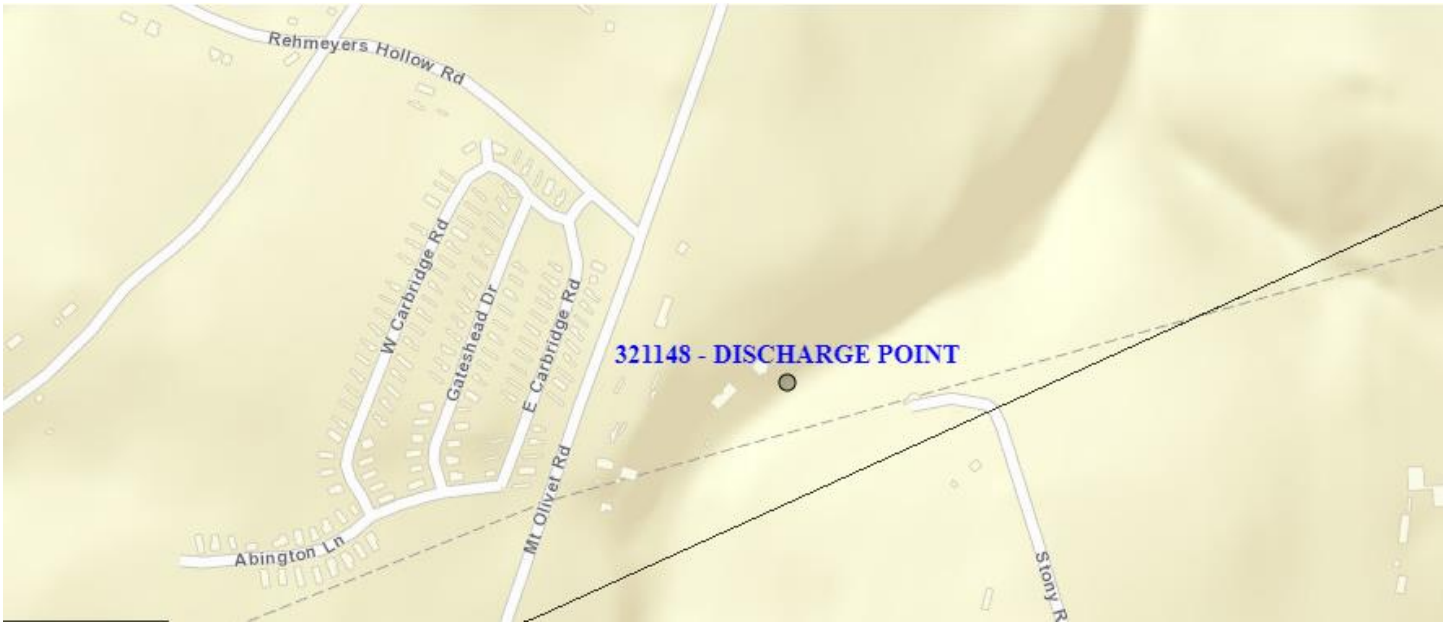
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants).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

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

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

Compliance Sampling Location: Outfall 001

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


Rehmeyers Hollow Rd
W Carbridge Rd
Gateshead Dr
E Carbridge Rd
321148 - DISCHARGE POINT
Mt Olivet Rd
Abington Ln
Stony R

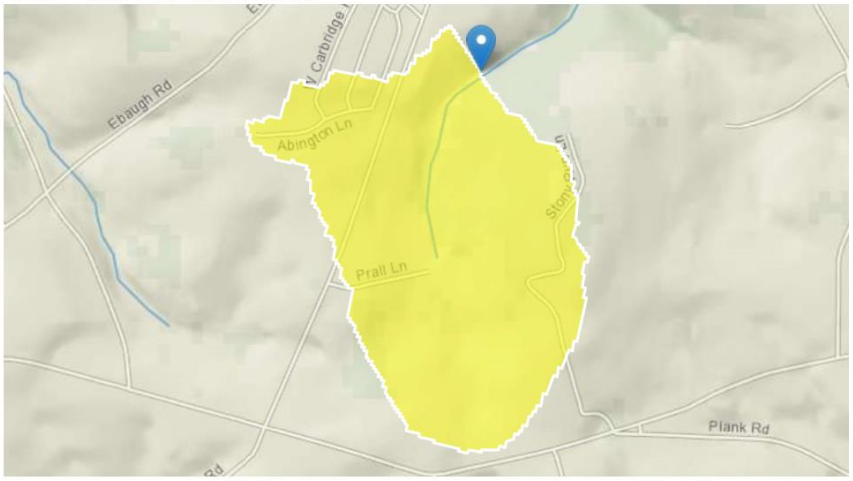
TRC EVALUATION					
Input appropriate values in B4:B8 and E4:E7					
0.0316	= Q stream (cfs)		0.5	= CV Daily	
0.0337	= Q discharge (MGD)		0.5	= CV Hourly	
30	= no. samples		1	= AFC_Partial Mix Factor	
0.3	= Chlorine Demand of Strea		1	= CFC_Partial Mix Factor	
0	= Chlorine Demand of Disch		15	= AFC_Criteria Compliance Time (min)	
0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.212		1.3.2.iii	WLA cfc = 0.200
PENTOXSD TRC	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
PENTOXSD TRC	5.1b	LTA_afc= 0.079		5.1d	LTA_cfc = 0.116
Source		Effluent Limit Calculations			
PENTOXSD TRC	5.1f	AML MULT = 1.231			
PENTOXSD TRC	5.1g	AVG MON LIMIT (mg/l) = 0.097		AFC	
		INST MAX LIMIT (mg/l) = 0.319			

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)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

StreamStats Report

Region ID: PA
Workspace ID: PA20240421151014177000
Clicked Point (Latitude, Longitude): 39.79317, -76.63204
Time: 2024-04-21 11:10:39 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.7011	degrees
DRNAREA	Area that drains to a point on a stream	0.31	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	0.2216	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.31	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	4.7011	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	0.2216	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.076	ft^3/s
30 Day 2 Year Low Flow	0.0977	ft^3/s
7 Day 10 Year Low Flow	0.0316	ft^3/s
30 Day 10 Year Low Flow	0.043	ft^3/s
90 Day 10 Year Low Flow	0.0681	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/)

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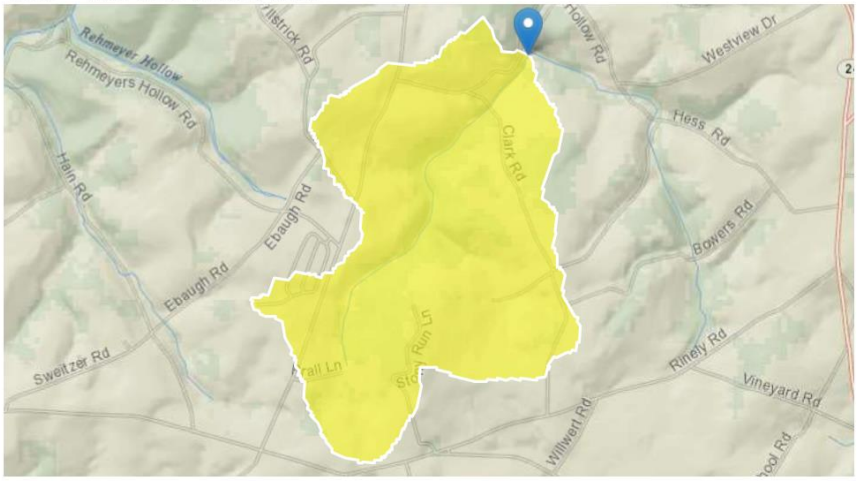
StreamStats Report

Region ID: PA
Workspace ID: PA20240421181642262000
Clicked Point (Latitude, Longitude): 39.80527, -76.62041
Time: 2024-04-21 14:17:06 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.3037	degrees
DRNAREA	Area that drains to a point on a stream	1.25	square miles
ROCKDEP	Depth to rock	5	feet
URBAN	Percentage of basin with urban development	0.1112	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.25	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.3037	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5	feet	4.13	5.21
URBAN	Percent Urban	0.1112	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.36	ft^3/s
30 Day 2 Year Low Flow	0.445	ft^3/s
7 Day 10 Year Low Flow	0.167	ft^3/s
30 Day 10 Year Low Flow	0.215	ft^3/s
90 Day 10 Year Low Flow	0.313	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/)

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07H	8133	Trib 08133 to E Branch Codorus Cr

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)
4.350	Windy Brae MHP	PA0081388	0.034	CBOD5	25		
				NH3-N	3.44	6.88	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07H	8133	Trib 08133 to E Branch Codorus Cr

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
4.350	Windy Brae MHP	16.76	23.26	16.76	23.26	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
4.350	Windy Brae MHP	1.89	3.44	1.89	3.44	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)		
4.35	Windy Brae MHP	25	25	3.44	3.44	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07H	8133	Trib 08133 to E Branch Codorus Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.350	0.034	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.118	0.349	8.931	0.077
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.32	1.359	2.14	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.224	27.264	Owens	6
Reach Travel Time (days)			
0.930			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.093	14.38	2.01	7.67
0.186	12.68	1.88	7.93
0.279	11.17	1.76	8.07
0.372	9.85	1.65	8.19
0.465	8.68	1.55	8.24
0.558	7.65	1.45	8.24
0.651	6.74	1.36	8.24
0.744	5.94	1.27	8.24
0.837	5.24	1.19	8.24
0.930	4.61	1.12	8.24

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		

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8133	Trib 08133 to E Branch Codorus Cr	**4.350**	896.56	0.31	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.03	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
Windy Brae MHP	PA0081388	0.0337	0.0337	0.0337	0.000	20.00	7.00

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07H	8133	Trib 08133 to E Branch Codorus Cr	**3.180**	754.96	1.25	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.17	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	0.00	7.00

Parameter Data

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