pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0039551**
Facility Type	**Non-Municipal**	APS ID	**945927**
Major / Minor	**Minor**	Authorization ID	**1190840**

Applicant and Facility Information

Applicant Name	**Lebanon Valley MHC**	Facility Name	**Lebanon Valley MHC**
Applicant Address	320 Parker Street	Facility Address	392 Freeport Road
	Carlisle, PA 17013-3621		Lebanon, PA 17046
Applicant Contact	Michael Sienkiewicz	Facility Contact	Gary Eyster
Applicant Phone	(717) 571-6299	Facility Phone	(717) 571-6299
Client ID	337050	Site ID	260847
Ch 94 Load Status	Not Overloaded	Municipality	Bethel Township
Connection Status		County	Lebanon
Date Application Received	July 3, 2017	EPA Waived?	Yes
Date Application Accepted	July 18, 2017	If No, Reason	

Purpose of Application: Renewal of NPDES permit for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the reissuance of an existing NPDES permit for a discharge of treated domestic sewage from an existing mobile home known as the Lebanon Valley Mobile Home Community (Lebanon Valley MHC). Lebanon Valley MHC owns and operates the wastewater treatment plant, which provides sanitary services for the mobile home community. The plant has a design capacity of 0.012 mgd, and discharges to an unnamed tributary of Swatara Creek which is classified for warm water fishes (WWF). The previous protection report indicates the discharge point is considered to be dry. The existing limits were developed following the dry stream guidance of 2003. The document has been revised in 2008 with new sets of limits which are applicable to new and expanding facilities. This facility is not expanding and will not be required to meet the new limits. The existing limits will apply again for this permit renewal. The existing NPDES permit was issued on December 19, 2012 with an effective date of January 1, 2013 and expiration date of December 31, 2017. The applicant submitted permit renewal application to the Department on May 24, 2017. The permittee is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application.

A topographic map showing the discharge location is presented in attachment A

1.1 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

Approve	Deny	Signatures	Date
X		J. Pascal Kwedza, P.E. / Environmental Engineer	September 26, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review

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.

1.2 Changes to the existing Permit

- The monitoring frequency for Total Nitrogen and Total Phosphorus has been increased to semi-annual to collect adequate data.
- Ultraviolet light intensity (mW/cm^2) monitoring has been added to the permit. TRC limit has been removed.

1.3 Existing Permit Limits and Monitoring Requirements

DISCHARGE LIMITATIONS							MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)					
Discharge Parameter	Average Monthly	Maximum Daily	Inst. Minimum	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	XXX	continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.10	XXX	0.33	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	10	XXX	20	2/month	8-hour comp
$CBOD_5$	XXX	XXX	XXX	10	XXX	20	2/month	8-hour comp
Fecal Coliform (5/1 to 9/30)	XXX	XXX	XXX	200	XXX	1,000	2/month	Grab
Fecal Coliform (10/1 to 4/30)	XXX	XXX	XXX	2,000	XXX	10,000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/yr	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	3.0	XXX	6.0	2/month	8-hour comp
Ammonia May 1 - Oct 31	XXX	XXX	XXX	9.0	XXX	18	2/month	8-hour comp
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/yr	8-hour comp

1.40 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.012
Latitude	40º 23' 29.65"	Longitude	-76º 23' 46.46"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Little Swatara Creek (WWF)	Stream Code	0.012
NHD Com ID	56396563	RMI	0.45
Drainage Area	0.10	Yield (cfs/mi^2)	0.056
Q_{7-10} Flow (cfs)	0.012 @ POFU	Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
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	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	PA American Water Company		
PWS Waters	Swatara Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	35

Changes Since Last Permit Issuance: None

Other Comments:

1.4.1 Water Supply Intake

The nearest water supply intake is 35 miles downstream by PA American Water Company in South Hanover Township, Dauphin County on Swatara Creek. No impact is expected from this discharge.

2.0 Treatment Facility Summary

Treatment Facility Name: Lebanon Valley MHP

WQM Permit No.	Issuance Date
3885409	11/8/2017
3885409	11/21/85, 6/27/86, 6/2/89 & 6/8/90

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Extended Aeration	UV	0.012

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.012		Not Overloaded	Aerobic Digestion	

Changes Since Last Permit Issuance:

- Existing sand filter was replaced with a 2-cell gravity dual media filter,
- UV installed to replace the chlorine disinfection system
- Blowers added for aeration tank for scouring the filter prior to backwash
- Sludge holding tank repaired and an additional 1500-gallon sludge tank added.

2.1 Treatment facility

The treatment plant consists of a comminutor, 2 bar screens, 1 EQ tank, 1 aeration tank, a grease trap, 1 clarifier, 2-cell gravity dual media filter with a clear well and surge tank, UV unit, mud well, clear well, flow meter and 2 sludge holding tanks.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from July 1, 2018 to June 30, 2019)

Parameter	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18
Flow (MGD) Average Monthly	0.005	0.005	0.005	0.0060	0.007	0.008	0.011	0.007	0.004	0.006	0.007	0.05
Flow (MGD) Daily Maximum	0.012	0.015	0.018	0.014	0.011	0.022	0.012	0.014	0.007	0.015	0.016	0.397
pH (S.U.) Minimum	6.44	6.37	6.50	6.66	6.65	6.92	6.92	7.13	7.22	7.73	6.98	7.12
pH (S.U.) Maximum	7.70	8.60	8.08	8.08	8.32	8.79	8.30	9.0	8.98	8.64	8.50	8.96
DO (mg/L) Minimum	7.24	7.72	8.93	9.72	9.56	9.87	9.21	7.72	6.98	6.97	6.29	6.05
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	0.0025	0.015	0.01	0.02	0.02	0.02
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	0.01	0.04	0.09	0.07	0.06	0.14
CBOD5 (mg/L) Average Monthly	< 2.8	< 6.5	3.25	2.95	4.55	3.25	3.2	< 2.00	< 2.0	< 2.4	< 2.00	4.3
TSS (mg/L) Average Monthly	< 18.5	< 4.00	1.0	< 1.0	< 6.0	1.5	< 1.0	< 4.00	1.5	4	3.5	< 5.5
Fecal Coliform (CFU/100 ml) Geometric Mean	875.67	544.06	137.15	169.17	834.27	35.199	76.77	3.0	7.35	31.78	102.47	22.36
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	7100	3700	330	1060.0	2400	59	83	3.0	54	1010	3500	250
Total Nitrogen (mg/L) Annual Average							< 35.0					
Total Nitrogen (lbs) Total Annual							< 638.75					
Ammonia (mg/L) Average Monthly	0.187	< 2.43	< 0.100	0.252	0.79	0.1565	0.2345	0.167	2.17	0.452	< 0.47	0.468
Total Phosphorus (mg/L) Annual Average							5.1					
Total Phosphorus (lbs) Total Annual							93.075					

3.2 Effluent Violations for Outfall 001, from: August 1, 2018 To: June 30, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	06/30/19	Avg Mo	< 18.5	mg/L	10	mg/L
Fecal Coliform	06/30/19	Geo Mean	875.67	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	05/31/19	Geo Mean	544.06	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	08/31/18	IMAX	3500	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/30/18	IMAX	1010	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	06/30/19	IMAX	7100	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	05/31/19	IMAX	3700	CFU/100 ml	1000	CFU/100 ml

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented on table 3.1 above indicate permit limits have been met most of the time. TSS and Fecal Coliform violations noted on DMRs during the period reviewed are presented on table 3.2. The violations need to be addressed satisfactorily prior to final permit issuance. The following paragraph will be added to the cover letter of the draft permit asking the permittee to address violations.

"According to DEP's records, there are unresolved violation(s) at one or more facilities you own or operate. In accordance with DEP's Clean Water Program standard operating procedures, an applicant's compliance history is considered prior to making a final decision on any permit application. Please take the opportunity to address these violations during this draft comment period. DEP may not be able to issue a final permit until the violation(s) are resolved"

The violations appear to be operation related, if structural adjustment to the treatment unit is required to address the violations, the facility will be required to submit a corrective action plan to the Department for approval.

3.3 Summary of Inspections:

The facility was inspected 13 times during the past permit cycle. Inspection reports review for the facility during the period indicate permit limits have been met satisfactorily. D.O violation noted during the 10/30/14 inspection and TRC violation occurred during 5/21/13 inspection. The reports indicate lack of regular maintenance of the facility. The facility is experiencing I&I during wet weather. The Department requested the permittee to investigate and address the I&I.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .012
Latitude 40º 23' 52.93" **Longitude** -76º 23' 54.34"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the Clean Water Act(AWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.1.1 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: TRC limitation and Weekly averages for TSS and $CBOD_5$ are not applicable to this permit

4.2 Water Quality-Based Limitations

4.2.1 Streamflows @ POFU

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No 01573000 on Swatara Creek at Harper Tavern. The Q_{7-10} and drainage area at the gage is 22.1ft3/s and 337 mi^2 respectively. The resulting yields are as follows:

- Q_{7-10} = (22.1ft^3/s)/337 mi^2 = 0.0656ft^3/s/ mi^2
- Q_{30-10} / Q_{7-10} = 1.40
- Q_{1-10} / Q_{7-10} = 0.80

The drainage area at the proposed discharge point was found from streamstats calculation to be 0.11 mi^2
The drainage area at the POFU is approximately 0.18 mi^2.
The design streamflow (Q_{7-10}) at the POFU is calculated as: Q_{7-10} =(0.065)(0.18) = 0.012cfs

4.2.3 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

- STP pH = 6.7 (DMR Median July -Sept)
- STP Temperature = 25 ^{o} C (default)
- Stream pH = 7.0 (default)
- Stream Temperature = 20 ^{o} C (WWF)
- Background NH_3-N = 0.0 (default)

4.2.4TSS, $CBOD_5$ & NH_3-N

The previous protection report indicates the Department's Guidance for Evaluating Wastewater Discharges to Drainage Swales and Ditches was consulted to develop the existing effluent limits. The minimum treatment requirements include CBOD5 and TSS limits 10/20 mg/l, an ammonia limit of 3 mg/l, a minimum D.O. of 5 mg/l, and Fecal Coliform limits of 200 & 2000/100 ml.

A new evaluation is performed using WQM 7.0 to determine if 3.0mg/l limit for ammonia was still adequate to protect the POFU located at the confluence with secondary water UNT Little Swatara Creek (09906) RMI 0.75mi from toxicity effects. The secondary water was used to run the model since the unnamed tributary that receives the discharge has no stream code. The attached results of the WQM 7.0 stream model presented in attachment B indicates that the existing summer limit of 3.0 mg/l and winter limit of 9.0 mg/l NH_3-N as a monthly average are adequate to protect the aquatic life from toxicity effects at the POFU.

4.2.5 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement per DEP guidance.

4.2.6 Total Residual Chlorine

The discharge does not have the reasonable potential to cause or contribute to a water quality standards violation for total residual chlorine since the permittee no longer add chlorine to the wastewater for disinfection. Therefore, the proposed permit does not contain effluent limits for total residual chlorine. Ultraviolet light intensity (mW/cm^2) monitoring will be required in the permit.

4.2.7 Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay Foundation 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 will receive 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) will be 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). Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away.

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 and Phase 2 in March 2012. In accordance with the Phase 2 WIP and its supplement, 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. This facility is, classified as a phase 5, and has been monitoring Total Nitrogen and Total Phosphorus annually but will

continue to monitor Nitrate-Nitrite as N, Total Kjeldahl Nitrogen and Total Nitrogen and Total Phosphorus semi-annually throughout the next permit cycle collect adequate data.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Stormwater:

No storm water outfall is associated with this facility

5.3 Biosolids Management

Sludge is hold up in 2 sludge holding tanks and hauled out by a licensed hauler periodically.

5.4 Anti-Degradation (93.4)

The effluent limits for this discharge 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. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.5 Class A Wild Trout Fisheries

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

5.6 303d Listed Streams:

The discharge is not located on a 303d listed stream segment.

5.7 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.8 Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

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" (362-0400-001), 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	5.0	XXX	XXX	XXX	1/day	Grab
Ultraviolet light intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
CBOD5	XXX	XXX	XXX	10	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10	XXX	20	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	2/month	8-Hr Composite
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite

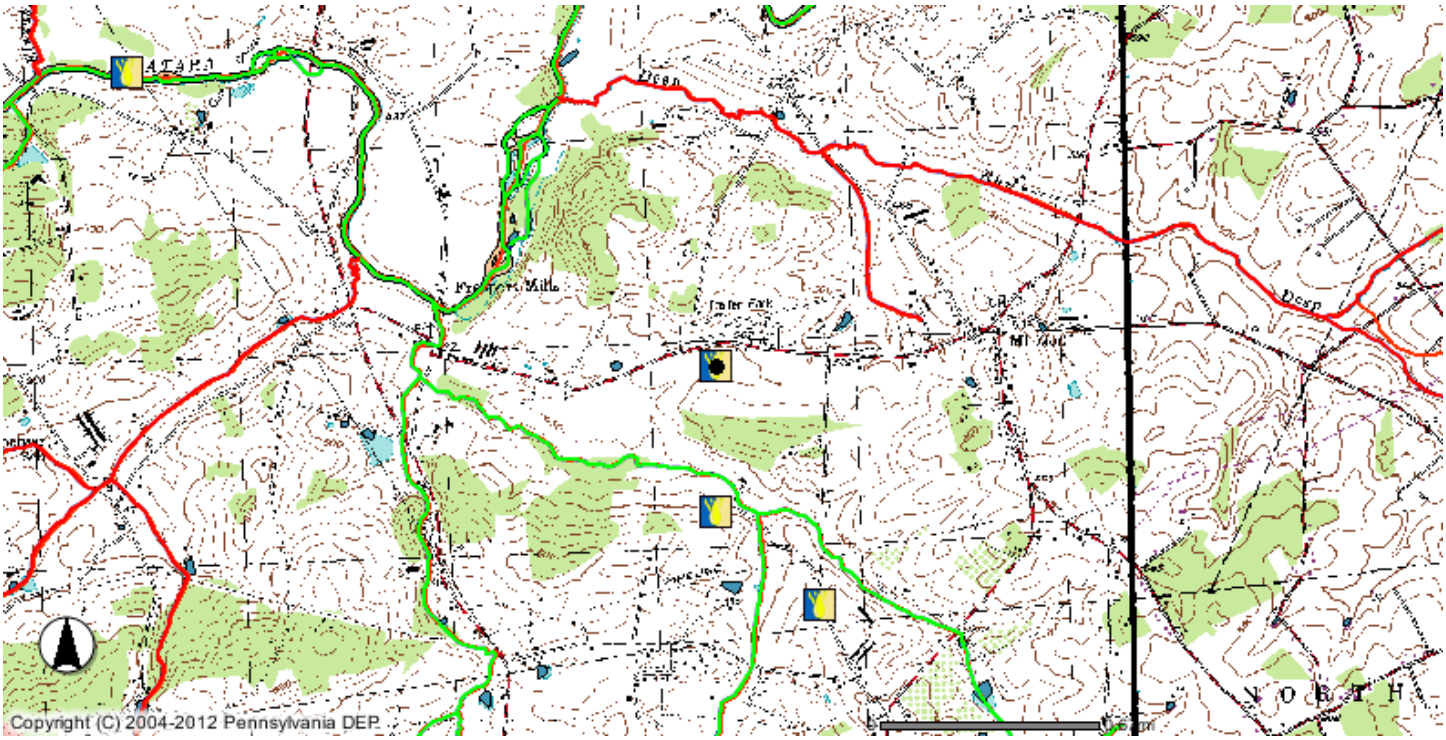
Compliance Sampling Location: At Outfall 001

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **D**)
☐	PENTOXSD for Windows Model (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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☒	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	Other:
☐	Other:

Permit No. PA0039551

Attachments

A. Topographical Map



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B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07D	9906	Trib 09906 of Little Swatara Creek

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)
0.450	Lebanon Val MHC	PA0039551	0.012	CBOD5	25		
				NH3-N	3.08	6.16	
				Dissolved Oxygen			5

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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
07D	9906	Trib 09906 of Little Swatara Creek	0.450	480.00	0.18	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	0.056	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
Lebanon Val MHC	PA0039551	0.0120	0.0000	0.0000	0.000	25.00	6.70

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

Permit No. PA0039551

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
07D	9906	Trib 09906 of Little Swatara Creek	0.010	460.00	0.20	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	0.056	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Permit No. PA0039551

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07D	9906	Trib 09906 of Little Swatara Creek

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												
0.450	0.01	0.00	0.01	.0186	0.00861	.298	2.19	7.37	0.04	0.613	23.24	6.78
Q1-10 Flow												
0.450	0.01	0.00	0.01	.0186	0.00861	NA	NA	NA	0.04	0.639	23.49	6.77
Q30-10 Flow												
0.450	0.01	0.00	0.01	.0186	0.00861	NA	NA	NA	0.05	0.570	22.84	6.81

Permit No. PA0039551

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	0.8	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.4	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Permit No. PA0039551

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07D	9906	Trib 09906 of Little Swatara Creek

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
0.450	Lebanon Val MH	8.53	12.24	8.53	12.24	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
0.450	Lebanon Val MH	1.75	3.08	1.75	3.08	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)		
0.45	Lebanon Val MHC	25	25	3.08	3.08	5	5	0	0

Permit No. PA0039551

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07D	9906	Trib 09906 of Little Swatara Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.450	0.012	23.240	6.784
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.195	0.298	7.372	0.044
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.91	1.393	2.00	0.898
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.141	27.115	Owens	5
Reach Travel Time (days)			
0.613			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.061	15.31	1.89	6.78
0.123	13.87	1.79	7.02
0.184	12.56	1.69	7.17
0.245	11.37	1.60	7.30
0.307	10.30	1.52	7.42
0.368	9.33	1.44	7.52
0.429	8.45	1.36	7.62
0.491	7.65	1.29	7.71
0.552	6.93	1.22	7.77
0.613	6.27	1.15	7.77