pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0030171**
Facility Type	**Non-Municipal**	APS ID	**592715**
Major / Minor	**Minor**	Authorization ID	**1429714**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Llewellyn's Manufactured Home Community Inc.**	Facility Name	**Llewellyn's MHC STP**
Applicant Address	4550 Bull Road	Facility Address	4550 Bull Road
	Dover, PA 17315-2025		Dover, PA 17315
Applicant Contact	Susan Gochenour	Facility Contact	Susan Gochenour
Applicant Phone	(717) 292-4263	Facility Phone	(717) 292-4263
Client ID	250634	Site ID	443097
Ch 94 Load Status	Not Overloaded	Municipality	Conewago Township
Connection Status	No Limitations	County	York
Date Application Received	March 6, 2023	EPA Waived?	Yes
Date Application Accepted	March 9, 2023	If No, Reason	

Purpose of Application .Renewal of existing NPDES Permit

Summary of Review

Llewellyn's Manufactured Home Community (LMHC) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued to LHMC on August 30, 2018. The permit expired on August 31, 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 by Young's Sanitary Septic Service.

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 / Permits Section	February 21, 2024
x		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	April 11, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.02
Latitude	40º 2' 7.83"	Longitude	-76º 49' 46.61"
Quad Name	Dover	Quad Code	1831
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Little Conewago Creek (TSF)	Stream Code	08379
NHD Com ID	57466609	RMI	0.38
Drainage Area	0.0407	Yield (cfs/mi^2)	0.01543
Q_{7-10} Flow (cfs)	0.000628	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	510.89	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Assessed use – recreational (impaired)		
Cause(s) of Impairment			
Source(s) of Impairment	Pathogens		
TMDL Status	Pending	Name	
Nearest Downstream Public Water Supply Intake	Wrightsville Water Supply Co.		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.51 mi	Distance from Outfall (mi)	28.94 mi

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

Drainage Area

The discharge is to UNT to the Little Conewago Creek at RMI 0.38. A drainage area upstream of the discharge is determined to be 0.0407 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 0.000628 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} = 0.000628 cfs
Q_{30-10} = 1.36 * 0.000628 cfs = 0.000854 cfs
Q_{1-10} = 0.64 * 0.000628 cfs = 0.000402 cfs
LFY = 0.000628 cfs/0.0407 mi^2 = 0.01543 cfs/mi^2

UNT to the Little Conewago Creek

25 Pa Code §93.9 classifies the receiving water, UNT to the Little Conewago Creek, with a TSF Existing Use designation. No special protection waters are impacted by this discharge. The discharge is in a stream segment listed as not attaining use 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 to the Little Conewago 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 to the Little Conewago 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 Wrightsville Water Supply Co intake located on the Susquehanna River approximately 28.9 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: Llewellyn MHP

WQM Permit No.	Issuance Date
6790414	October 3, 1990

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Chlorine With Dechlorination	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.02	33	Not Overloaded	Aerobic Digestion	Other WWTP

LMHC owns and operates the sanitary wastewater treatment facility located in Conewago Township, York County. The facility only serves the LHMC, all wastes are residential in nature, and all sewer systems are 100% separated. With having both annual average design flow and hydraulic design capacity of 0.020 MGD, this facility utilizes an extended aeration system consisting of a comminutor/bar screen, EQ tank (2), aeration tank (5), clarifier (2), chlorine contact tank, dichlorination tank and outfall structure to the UNT to the Little Conewago Creek. The facility utilizes a sludge holding tank. An unidentified form of chlorine is used for disinfection, an unidentified compound is used for de-chlorination, and soda ash is used for pH control.

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: November 20, 2019: An annual inspection was conducted by Austen Randecker. No violations were noted.

Other Comments: As of February 21, 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	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.02	XXX	0.07	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-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	8-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	1.50	XXX	3	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	0.50	XXX	1	2/month	8-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-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	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Compliance History

DMR Data for Outfall 001 (from January 1, 2023 to December 31, 2023)

Parameter	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23
Flow (MGD) Average Monthly	0.012	0.013	0.016	0.013	0.011	0.009	0.014	0.016	0.015	0.024	0.014	0.015
Flow (MGD) Daily Maximum	0.015	0.027	0.019	0.016	0.013	0.012	0.020	0.018	0.016	0.027	0.017	0.016
pH (S.U.) Instantaneous Minimum	6.89	6.98	6.87	6.92	7.19	7.23	7.52	7.43	7.35	7.41	7.3	7.13
pH (S.U.) Instantaneous Maximum	7.56	7.43	7.62	7.66	7.95	7.88	7.97	8.03	7.91	8.02	7.85	7.96
DO (mg/L) Instantaneous Minimum	6.53	6.84	6.58	6.08	6.17	6.39	6.25	7.51	9.1	10.34	11.48	9.27
TRC (mg/L) Average Monthly	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
TRC (mg/L) Instantaneous Maximum	0.03	0.04	0.03	0.04	0.03	0.04	0.02	0.03	0.03	0.03	0.03	0.02
CBOD5 (mg/L) Average Monthly	< 2.40	< 2.4	< 2.4	< 2.4	< 2.4	< 2.4	< 2.4	< 3	< 2.4	< 2.4	< 2.4	< 2.4
TSS (mg/L) Average Monthly	3.0	2	2.0	2	< 2.0	2	3	3	3	2	3	1
Fecal Coliform (No./100 ml) Geometric Mean	< 1	1	< 1	2	1.0	3	1.0	2	2	2	< 1.0	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	2	< 1	4.0	2.0	4	1.0	5.0	3	5	2.0	3
Ammonia (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.12	< 0.10

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .02
Latitude 40º 2' 7.16" **Longitude** -76º 49' 48.89"
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 TBEL of 25 mg/L for CBOD5 is still appropriate. The output also indicated that the existing winter and summer WQBELs for NH3-N could be higher given current low-flow conditions in the receiving water, but due to anti-backsliding provisions the existing limits will be left intact.

The model also indicates that the existing DO limit of 5.0 mg/L is no longer protective of water quality and an updated limit of 6.0 mg/L is recommended and proposed. The summary of DO sampling over the past year presented above shows that the existing facility is already meeting the proposed higher DO limit.

Toxics

DEP's NPDES permit application for minor sewages (less than 0.1 MGD) does not require sampling for heavy metals including Total Copper, Total Lead, and Total Zinc.

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/year. However, SOP No. BPNPSM-PMT-033 also states the following:

> "In general, sewage discharges with design flows > 2,000 GPD will include monitoring, at a minimum, for Total Nitrogen in new and reissued permits, with a monitoring frequency equivalent to conventional pollutants in Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001) ("Permit Writer's Manual") where the facility discharges to nutrient-impaired waters, or a lesser frequency for discharges to waters not impaired for nutrients, at the discretion of the application manager."
>
> "In general, sewage discharges with design flows > 2,000 GPD will include monitoring, at a minimum, for Total Phosphorus in new and reissued permits, with a monitoring equivalent to conventional pollutants in Table 6-3 of the Permit Writer's Manual where the facility discharges to nutrient-impaired waters, or a lesser frequency for discharges to waters not impaired for nutrients, at the discretion of the application manager."

Table 6.3 in Guidance Doc. 362-0400-001 recommends the testing of conventional pollutants twice monthly for facilities with flows between 0.01 mgd to 0.1 mgd. Therefore, the sampling frequency of TKN, Nitrate-Nitrite, TN, and TP are proposed to be increased in this permit to twice monthly to establish a better baseline understanding of the nutrient loading in LMHC's effluent.

An Annual Total Mass Load calculation was added for TP and TN on a 1/year basis to summarize the data collected throughout the compliance year.

Total Residual Chlorine

Per SOP No. BPNPSM-PMT-033, "For existing discharges, where the existing TRC limit is at or below 0.1 mg/L, the existing limit may remain in the reissued permit (no modeling required)." Therefore, the existing TRC limits will remain unchanged.

Given the sensitivity of the receiving water to chlorine, the following language has also been added to Part C:

> "The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts."
>
> "Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR."

Additional Considerations

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft 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, twice 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.

eDMR Reporting

A requirement has been added to the permit requiring the submission of all DMRs and Supplemental Forms through the eDMR system. The facility has already been utilizing the eDMR system since 2017.

Solids Management

A requirement has been added to Part C to manage solids in the treatment plant and report production and disposal numbers to the Department.

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	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.02	XXX	0.07	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-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	8-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	1.50	XXX	3	2/month	8-Hr Composite

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	0.50	XXX	1	2/month	8-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	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:

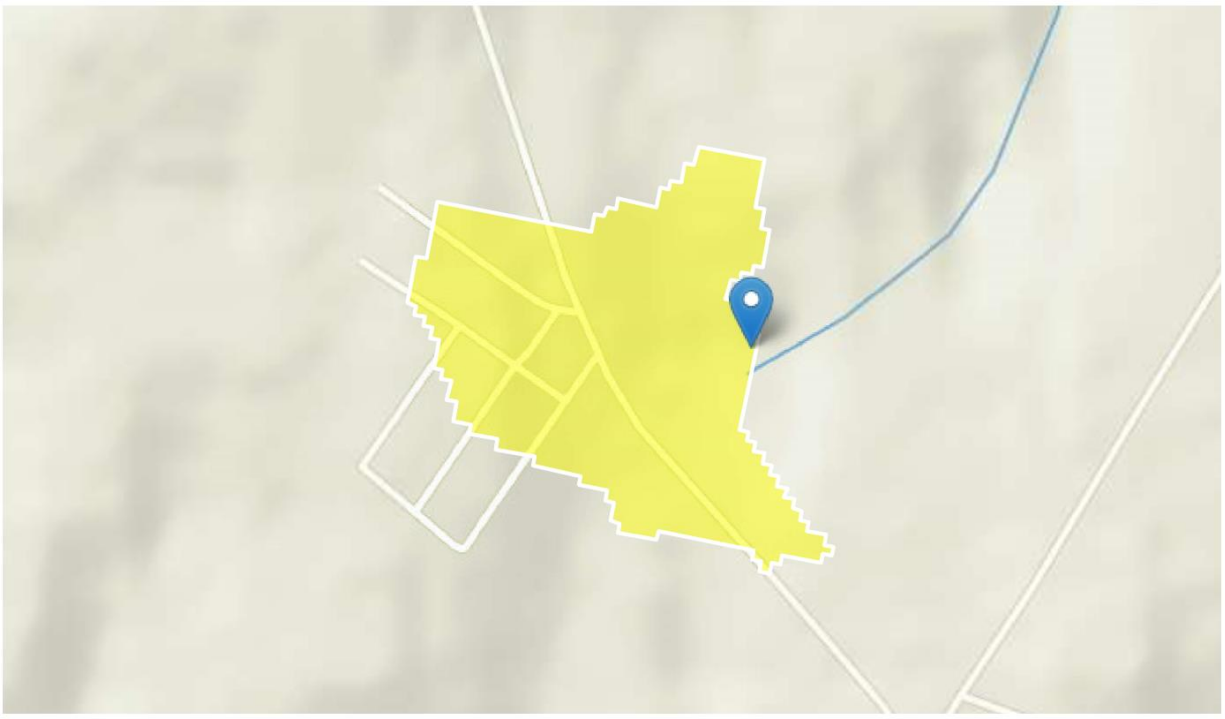

274857 - DISCHARGE POINT
Butter Rd

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.000628	= Q stream (cfs)		0.5	= CV Daily	
5	0.02	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.025		1.3.2.iii	WLA cfc = 0.017
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.009		5.1d	LTA_cfc = 0.010
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.012		AFC	
18			INST MAX LIMIT (mg/l) = 0.038			

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)**

StreamStats Report

Region ID: PA
Workspace ID: PA20240218140113472000
Clicked Point (Latitude, Longitude): 40.03550, -76.82958
Time: 2024-02-18 09:01:34 -0500



Outfall 001

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.1797	degrees
DRNAREA	Area that drains to a point on a stream	0.0407	square miles
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	0.8531	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	0.0407	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.1797	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	0.8531	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]

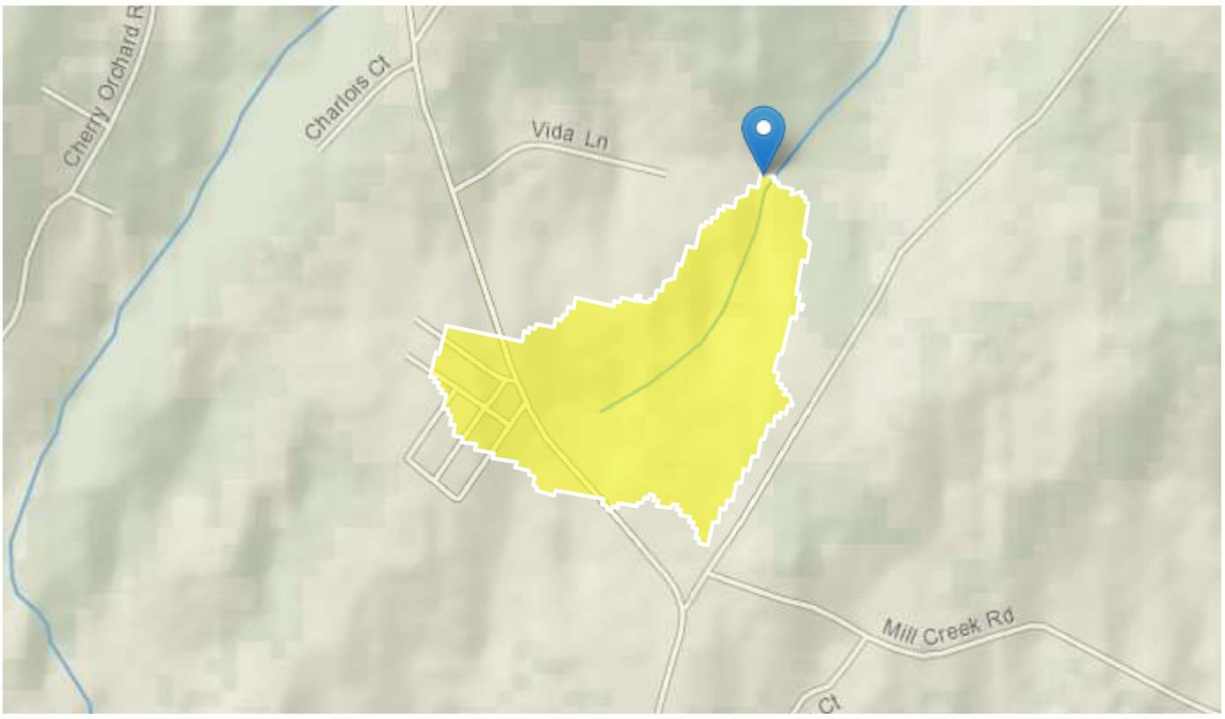
Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00234	ft^3/s
30 Day 2 Year Low Flow	0.0038	ft^3/s
7 Day 10 Year Low Flow	0.000628	ft^3/s
30 Day 10 Year Low Flow	0.00114	ft^3/s
90 Day 10 Year Low Flow	0.00264	ft^3/s

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/)

StreamStats Report

Region ID: PA
Workspace ID: PA20240218140307376000
Clicked Point (Latitude, Longitude): 40.03962, -76.82574
Time: 2024-02-18 09:03:28 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.9782	degrees
DRNAREA	Area that drains to a point on a stream	0.12	square miles
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	0.2961	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	0.12	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.9782	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	0.2961	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	0.00913	ft^3/s
30 Day 2 Year Low Flow	0.014	ft^3/s
7 Day 10 Year Low Flow	0.00278	ft^3/s
30 Day 10 Year Low Flow	0.0047	ft^3/s
90 Day 10 Year Low Flow	0.0096	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/)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8379	Trib 08379 of Little Conewago 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)
0.380	LHMC STP	PA0030171	0.020	CBOD5	25		
				NH3-N	1.42	2.84	
				Dissolved Oxygen			6

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8379	Trib 08379 of Little Conewago 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)
0.380	LHMC STP	PA0030171	0.020	CBOD5	25		
				NH3-N	1.42	2.84	
				Dissolved Oxygen			6

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8379	Trib 08379 of Little Conewago 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
0.380	LHMC STP	11.13	11.28	11.13	11.28	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
0.380	LHMC STP	1.38	1.42	1.38	1.42	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)		
0.38	LHMC STP	25	25	1.42	1.42	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07F	8379	Trib 08379 of Little Conewago Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.380	0.020	24.901	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.354	0.336	4.030	0.069
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.54	1.497	1.39	1.021
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.045	30.702	Owens	6
Reach Travel Time (days)			
0.334			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.033	23.05	1.34	6.03
0.067	21.66	1.30	6.11
0.100	20.34	1.25	6.22
0.133	19.11	1.21	6.34
0.167	17.95	1.17	6.46
0.200	16.86	1.13	6.57
0.234	15.84	1.09	6.67
0.267	14.88	1.06	6.77
0.300	13.98	1.02	6.87
0.334	13.13	0.99	6.95

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
07F	8379	Trib 08379 of Little Conewago 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												
0.380	0.00	0.00	0.00	.0309	0.02209	.336	1.35	4.03	0.07	0.334	24.90	7.00
Q1-10 Flow												
0.380	0.00	0.00	0.00	.0309	0.02209	NA	NA	NA	0.07	0.335	24.94	7.00
Q30-10 Flow												
0.380	0.00	0.00	0.00	.0309	0.02209	NA	NA	NA	0.07	0.332	24.87	7.00

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
07F	8379	Trib 08379 of Little Conewago Creek	**0.380**	510.89	0.04	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	0.00	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
LHMC STP	PA0030171	0.0200	0.0200	0.0200	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

/

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
07F	8379	Trib 08379 of Little Conewago Creek	**0.001**	466.68	0.12	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	0.00	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	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