Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0041505**
Facility Type	**Non-Municipal**	APS ID	**478279**
Major / Minor	**Minor**	Authorization ID	**1457049**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Berks Properties Inc.**	Facility Name	**Hereford Estates MHP**
Applicant Address	3613 Seisholtzville Road	Facility Address	Ashford Lane Rt 29 Hereford Estates Mhp
	Hereford, PA 18056-1542		Hereford, PA 18056
Applicant Contact	David Rittenhouse	Facility Contact	David Rittenhouse
Applicant Phone	(610) 650-8074	Facility Phone	(610) 650-8074
Client ID	180156	Site ID	447420
Ch 94 Load Status	Not Overloaded	Municipality	Hereford Township
Connection Status		County	Berks
Date Application Received	October 4, 2023	EPA Waived?	No
Date Application Accepted	October 16, 2023	If No, Reason	

Purpose of Application: This is a request for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	October 21, 2024
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	October 22, 2024
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	October 22, 2024

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Hereford Estates MHP located at 3613 Seisholtzville Road, Hereford, PA 18056 in Berks County, municipality of Hereford Township. The existing permit became effective on April 1, 2019 and expired on March 31, 2024. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on October 4, 2023.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.125 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 2) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Berks County Commissioners and Hereford Township. The notice was received by Berks County Commissioners on September 19, 2023. No evidence of return receipt was included for Hereford Township. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Perkiomen Creek. The sequence of receiving streams that the Perkiomen Creek discharges into are Schuylkill River, Delaware River which eventually drains into the Delaware Bay. The receiving water has protected water usage for trout stocking fishes (TSF) and migratory fishes (MF). The receiving stream is Class A waters with trout natural reproduction. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Perkiomen Creek is a Category 2 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life and recreational uses. The receiving waters is subject to the Green Lane Reservoir total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Due to the EPA triennial review, monitoring shall be required for E. coli.**

Sludge use and disposal description and location(s): Biosolids/sewage sludge disposed at Pottstown as liquid sludge

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Hereford Estates MHP
NPDES Permit #	PA0041505
Physical Address:	3613 Seisholtzville Road Hereford, PA 18056
Mailing Address:	3613 Seisholtzville Road Hereford, PA 18056
Contact:	David Rittenhouse drittenhouse@suburbaninvestment.com (610) 650-8074
Consultant:	There was not a consultant utilized for this NPDES renewal.

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 3613 Seisholtzville Road, Hereford, PA 18056. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

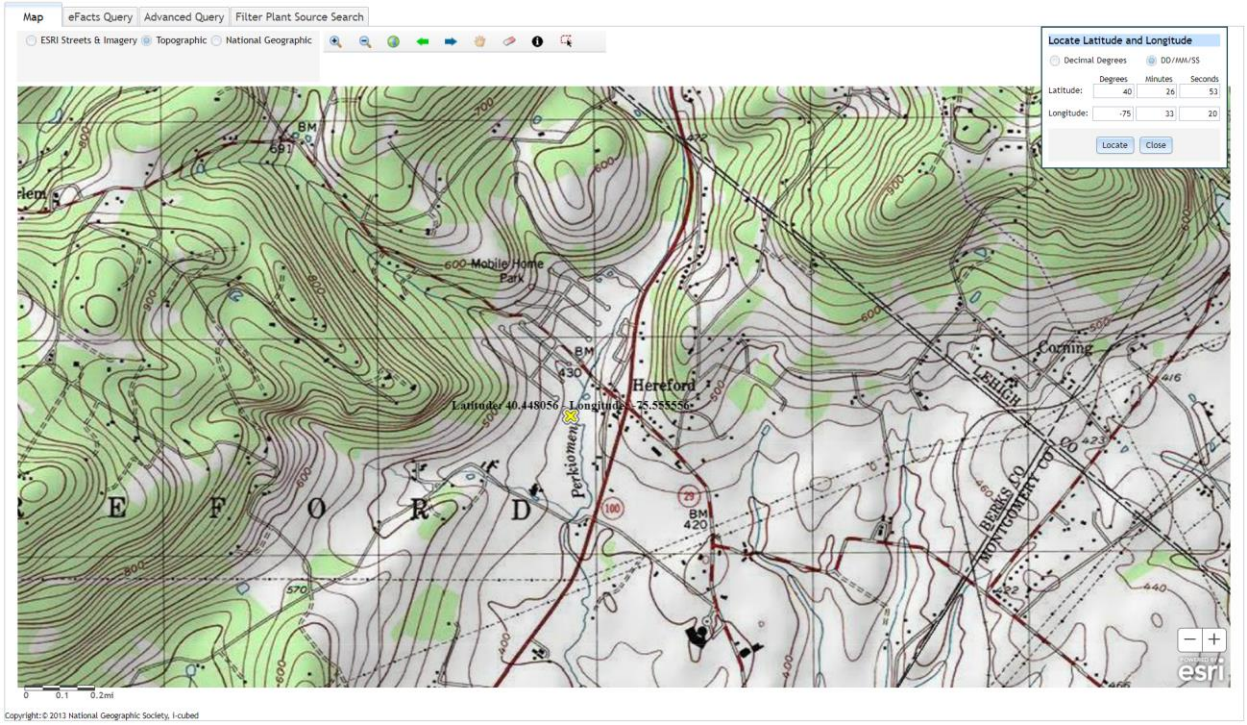
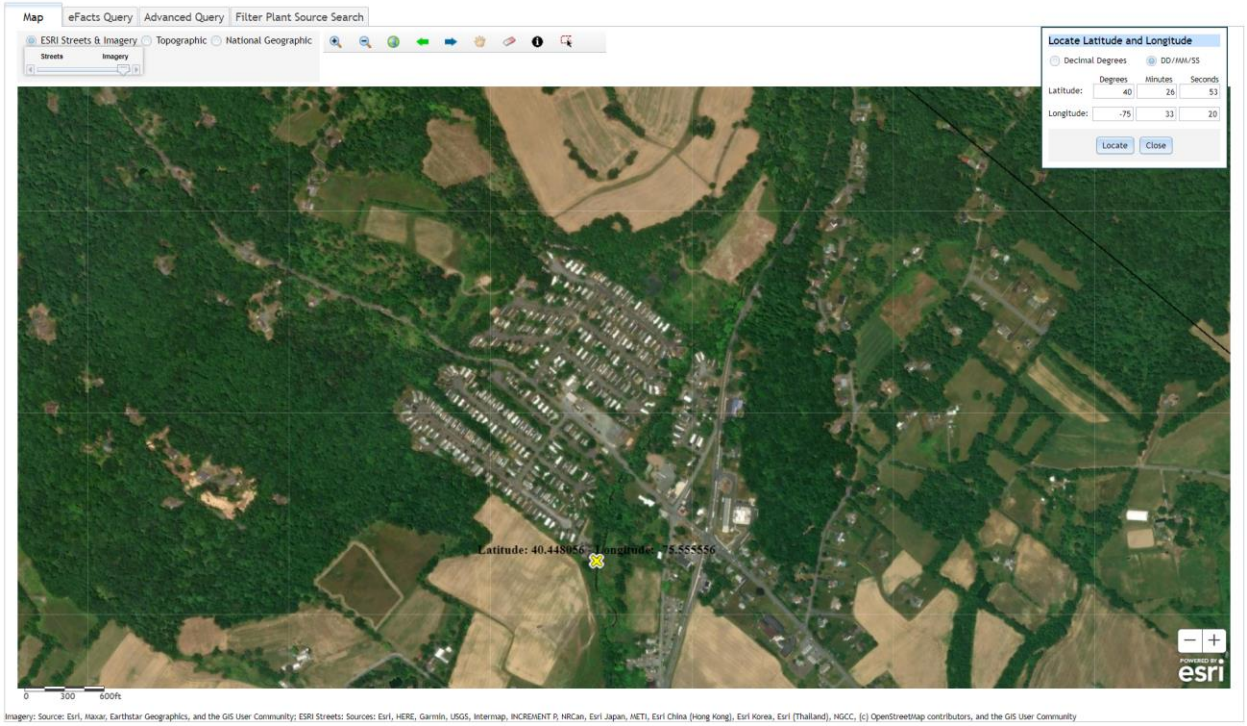


Figure 2: Aerial Photograph of the subject facility



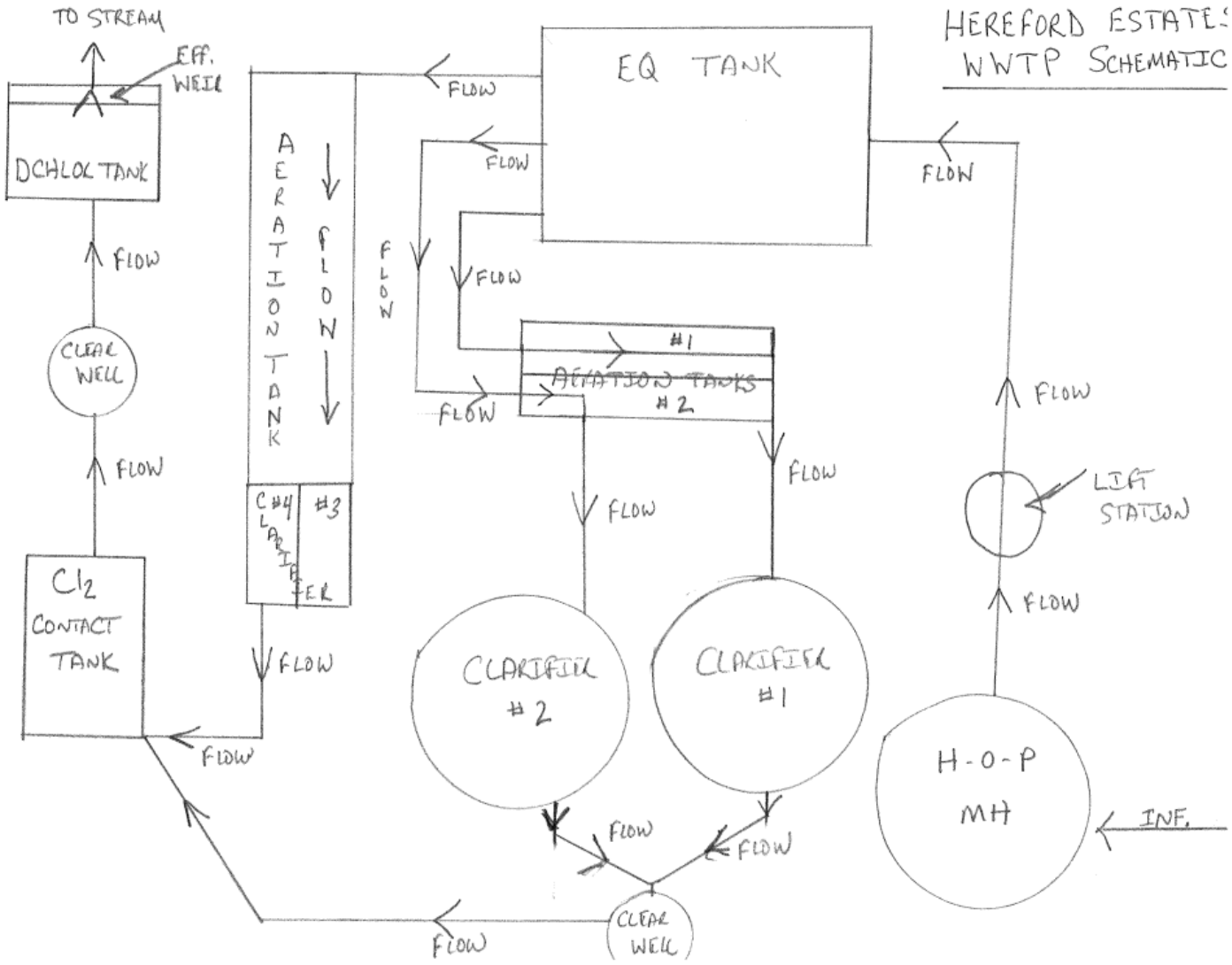
2.2 Description of Wastewater Treatment Process

The subject facility is a 0.125 MGD design flow facility. The subject facility treats wastewater using equalization tank, an aeration tank, a clarifier, a chlorine contact tank, and a dechlorination tank prior to discharge through the outfall. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, fecal coliform, ammonia-nitrogen, phosphorus, total nitrogen, and total dissolved solids. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Hereford Estates MHP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Extended Aeration	Hypochlorite	0.125
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.125		Not Overloaded	Combination	Other WWTP

A schematic of the treatment process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.125
Latitude	40º 26' 54.12"	**Longitude**	-75º 33' 19.98"
Wastewater Description:	Sewage Effluent		

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Aluminum sulfate for phosphorus control

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40º 26' 53" , **Longitude** 75º 33' 20" , **River Mile Index** 32.3 , **Stream Code** 1017

Receiving Waters: Perkiomen Creek
Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from April 1, 2019 through March 31, 2024 .

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Instant. 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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.5	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	1/week	8-Hr Composite
Total Suspended Solids	31.3	XXX	XXX	30.0	XXX	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0	XXX	1000.0	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	14.0	XXX	28	1/week	8-Hr Composite
Total Phosphorus	0.52	XXX	XXX	0.5	XXX	1	1/week	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at discharge from facility

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

06/09/2020:

- The facility stated that the drinking water system and WWTP were both out of service. With the drinking water system out of service, there was no significant flow to the WWTP.
- Mr. Groff stated that chlorine injection point was moved to allow for better mixing and to increase the strength of the solution. Since COVID-19 orders began, operators have noticed an increase in BOD and influent rags. Alum feed had also been adjusted to account for increased in influent phosphorus. Rate of alum addition had been increased and an additional chemical feed pump is now being used. Alum addition is no longer flow paced is now running 24/7 into all 3 aeration tanks. Mr. Groff stated that he is seeing improvements meeting TP permit limits

10/20/2020:

- The inspector noted effluent violations for fecal coliform, and phosphorus for July/August 2019 and June 2020 to September 2020.
- Mr. Groff stated that chlorine injection point was moved to allow for better mixing and to increase the strength of the solution. Since COVID-19 orders began, operators have noticed an increase in BOD and influent rags. Alum feed has also been adjusted to account for increased in influent phosphorus. Rate of alum addition has been increased and an additional chemical feed pump is now being used. Alum addition is no longer flow paced is now running 24/7 into all 3 aeration tanks. Mr. Groff stated that he is seeing improvements meeting TP permit limits

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.065 MGD in April 2024. The design capacity of the treatment system is 0.125 MGD.

The off-site laboratory used for the analysis of the parameters was Analytical Labs located at 4208 Bethlehem Pike, Telford, PA 18969.

DMR Data for Outfall 001 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly	0.0409	0.0479	0.0372	0.0528	0.065	0.0637	0.0435	0.0548	0.0524	0.0277	0.0315	0.0436
Flow (MGD) Daily Maximum	0.135	0.0976	0.058	0.0965	0.2314	0.1562	0.0794	0.1594	0.1627	0.0607	0.0473	0.0993
pH (S.U.) Instantaneous Minimum	6.8	6.7	6.7	6.5	6.4	6.1	6.5	6.3	6.7	6.8	6.7	6.9
pH (S.U.) Instantaneous Maximum	7.8	8.1	7.8	7.4	7.6	7.3	7.3	7.7	7.9	8.3	8.0	7.6
DO (mg/L) Instantaneous Minimum	6.5	6.9	6.8	6.4	7.0	6.7	7.0	7.0	7.1	7.1	7.2	7.0
TRC (mg/L) Average Monthly	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TRC (mg/L) Instantaneous Maximum	0.26	0.21	0.29	0.30	0.20	0.27	0.26	0.28	0.20	0.26	0.20	0.21
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	1.0	1.2	2.5	2.6	3.7	2.1	4.0	3.1	4.8	1.5
TSS (lbs/day) Average Monthly	0.8	2.4	1.4	1.1	2.9	3.1	3.7	1.9	2.2	1.1	2.4	4.4
TSS (mg/L) Average Monthly	2.3	6.0	4.5	2.4	5.3	5.8	10.3	4.2	5.0	4.8	9.3	5.3
Total Dissolved Solids (mg/L) Average Quarterly			566			480			498			754
Fecal Coliform (No./100 ml) Average Monthly	20.8	98.6	25.1	288.5	880.0	573.6	162.8	20.0	56.8	29.3	80.5	52.3
Fecal Coliform (No./100 ml) Instantaneous Maximum	70.0	800.0	800.0	6000.0	3520	1440	650	120	200	130	290	209.0
Total Nitrogen (mg/L) Average Quarterly			24.8			39.6			25.14			13.7
Ammonia (mg/L) Average Monthly	0.4	0.2	0.1	0.1	0.2	0.4	1.5	0.7	0.8	0.7	1.1	0.5

Total Phosphorus (lbs/day) Average Monthly	0.10	0.08	0.06	0.04	0.10	0.07	0.06	0.07	0.09	0.035	0.05	0.17
Total Phosphorus (mg/L) Average Monthly	0.15	0.2	0.2	0.1	0.2	0.13	0.17	0.16	0.2	0.15	0.2	0.2

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in April 1, 2019 to October 18, 2024, the following were observed effluent non-compliances.

Summary of Non-Compliance with NPDES Effluent Limits
Beginning April 1, 2019 and Ending October 18, 2024

MONITORING_PERIOD_BEGIN_DATE	MONITORING_PERIOD_END_DATE	SUBMISSION_DATE	NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	FACILITY_COMMENTS
4/1/2019	4/30/2019	5/28/2019	5/28/2019	Sample collection less frequent than required	Other Violations	Ammonia-Nitrogen						
4/1/2019	4/30/2019	5/28/2019	5/28/2019	Sample collection less frequent than required	Other Violations	Carbonaceous Biochemical Oxygen Demand (CBOD5)						
4/1/2019	4/30/2019	5/28/2019	5/28/2019	Sample collection less frequent than required	Other Violations	Fecal Coliform						
4/1/2019	4/30/2019	5/28/2019	5/28/2019	Sample collection less frequent than required	Other Violations	Total Phosphorus						
4/1/2019	4/30/2019	5/28/2019	5/28/2019	Sample collection less frequent than required	Other Violations	Total Suspended Solids						
4/1/2019	6/30/2019	7/30/2019	7/30/2019	Late DMR Submission	Other Violations							
7/1/2019	7/31/2019	8/27/2019	8/27/2019	Violation of permit condition	Effluent	Fecal Coliform	1879.0	>	200.0	No./100 ml	Average Monthly	Chlorine pump not priming consistently. Repair has been made.
7/1/2019	7/31/2019	8/27/2019	8/27/2019	Violation of permit condition	Effluent	Fecal Coliform	8000.0	>	1000.0	No./100 ml	Instantaneous Maximum	Inconsistent pump priming. Corrected.
8/1/2019	8/31/2019	9/27/2019	9/27/2019	Violation of permit condition	Effluent	Fecal Coliform	254.2	>	200.0	No./100 ml	Average Monthly	Not feeding enough chlorine. Feed has been increased. Last two results for month were <1.0 and 5.
1/1/2020	3/31/2020	8/28/2020	8/28/2020	Late DMR Submission	Other Violations							
6/1/2020	6/30/2020	7/28/2020	7/28/2020	Violation of permit condition	Effluent	Fecal Coliform	2800.0	>	1000.0	No./100 ml	Instantaneous Maximum	One large weekly sample skewed the monthly average. All other samples were well below the maximum.
6/1/2020	6/30/2020	7/28/2020	7/28/2020	Violation of permit condition	Effluent	Fecal Coliform	955.0	>	200.0	No./100 ml	Average Monthly	One large value for fecal skewed the month overall. Every other sample was way under the maximum.
7/1/2020	7/31/2020	8/28/2020	8/28/2020	Violation of permit condition	Effluent	Fecal Coliform	3000.0	>	1000.0	No./100 ml	Instantaneous Maximum	Increased chlorine feed.
7/1/2020	7/31/2020	8/28/2020	8/28/2020	Violation of permit condition	Effluent	Total Phosphorus	0.6	>	.5	mg/L	Average Monthly	Needed more alum due to increased cleaning and home disinfection due to COVID-19.
8/1/2020	8/31/2020	9/28/2020	9/28/2020	Violation of permit condition	Effluent	Fecal Coliform	1040.0	>	1000.0	No./100 ml	Instantaneous Maximum	same as above
8/1/2020	8/31/2020	9/28/2020	9/28/2020	Violation of permit condition	Effluent	Fecal Coliform	485.0	>	200.0	No./100 ml	Average Monthly	Increased chlorine rate and location of injection into the effluent stream.

8/1/2020	8/31/2020	9/28/2020	9/28/2020	Violation of permit condition	Effluent	Total Phosphorus	0.6	>	.5	mg/L	Average Monthly	Increased rate alum rate and quantity of available alum in solution.
9/1/2020	9/30/2020	10/28/2020	10/28/2020	Violation of permit condition	Effluent	Total Phosphorus	0.85	>	.5	mg/L	Average Monthly	Increased feed rate, run time and strength of alum solution. Please be advised that pounds of P permitted under permit is .5 lbs/month and .27 lbs of P was the loading for the month.
2/1/2021	2/28/2021	4/30/2021	4/30/2021	Late DMR Submission	Other Violations							
5/1/2021	5/31/2021	6/28/2021	6/28/2021	Violation of permit condition	Effluent	Total Phosphorus	0.55	>	.5	mg/L	Average Monthly	Increased feed rate. Still under on allowable pounds of P. Increased alum strength to allow for increased wash days of increaes in soap loading etc.
7/1/2021	7/31/2021	8/26/2021	8/26/2021	Violation of permit condition	Effluent	Fecal Coliform	2000.0	>	1000.0	No./100 ml	Instantaneous Maximum	Problem with chlorine flowpace feed rate. Problem corrected.
9/1/2021	9/30/2021	10/28/2021	10/28/2021	Violation of permit condition	Effluent	Fecal Coliform	1400.0	>	1000.0	No./100 ml	Instantaneous Maximum	Increased chlorine feed due to 1 sample above instantaneous max.
9/1/2021	9/30/2021	10/28/2021	10/28/2021	Violation of permit condition	Effluent	Fecal Coliform	362.3	>	200.0	No./100 ml	Average Monthly	Increased chlorine feed following 1 sample above instantaneous max.
3/1/2022	3/31/2022	4/27/2022	4/27/2022	Violation of permit condition	Effluent	Total Phosphorus	0.66	>	.5	mg/L	Average Monthly	Something moved thru the plant on 3/2 as evident from results, but flow remaining normal. Allowable lbs./day of P still under allowable limit.
5/1/2022	5/31/2022	6/28/2022	6/28/2022	Violation of permit condition	Effluent	Fecal Coliform	1200.0	>	1000.0	No./100 ml	Instantaneous Maximum	same as above
5/1/2022	5/31/2022	6/28/2022	6/28/2022	Violation of permit condition	Effluent	Fecal Coliform	325.0	>	200.0	No./100 ml	Average Monthly	Found pinhole leak in pump tubing. Replaced and fixed
6/1/2022	6/30/2022	7/28/2022	7/28/2022	Violation of permit condition	Effluent	Fecal Coliform	3000.0	>	1000.0	No./100 ml	Instantaneous Maximum	Increased chlorine feed and subsequently increaed Dchlor as well.
12/1/2022	12/31/2022	1/26/2023	1/26/2023	Violation of permit condition	Effluent	Total Phosphorus	0.6	>	.5	mg/L	Average Monthly	Temps slowed down the bilogical removal of P. Plant still under on allowable pounds of P for the month.
5/1/2024	5/31/2024	6/28/2024	6/28/2024	Violation of permit condition	Effluent	Fecal Coliform	288.5	>	200.0	No./100 ml	Average Monthly	WE had nesting birds constantly try to build and inhabit the effluent testing area causing the fecal to increase. Birds have finally been removed from the effluent testing area.
5/1/2024	5/31/2024	6/28/2024	6/28/2024	Violation of permit condition	Effluent	Fecal Coliform	6000.0	>	1000.0	No./100 ml	Instantaneous Maximum	

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in April 1, 2019 and ending on October 18, 2024, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning April 1, 2019 and Ending October 18, 2024

PF ID	PERMIT	FACILITY	ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	INITIATED DATE	VIOLATIONS
473078	PA0041505	HEREFORD ESTATES MHP	401290	NOV	Notice of Violation	02/10/2022	12/20/2021	12/20/2021	302.202
473078	PA0041505	HEREFORD ESTATES MHP	301565	NOV	Notice of Violation	09/04/2013	08/07/2013		201BYPASS

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2023	
Sewage Sludge / Biosolids Production Information	
Hauled Off-Site	
2023	Gallons
January	
February	
March	6,000
April	
May	
June	
July	8,000
August	
September	
October	
November	16,000
December	8,000
Notes:	
Biosolids/sewage sludge disposed at Pottstown as liquid sludge	

3.5 Open Violations

As of October 2024, the table summarizes open violations. The open violations are associated with the same client but different from the subject property. The final NPDES may be withheld until the open violations are addressed.

Summary of Open Violations
Beginning April 1, 2019 and Ending October 18, 2024

FACILITY	PROGRAM SPECIFIC ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
WOODLAND MHP	PA0055352	3630544	8162134	10/03/2023	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth
WOODLAND MHP	PA0055352	3630929	8162296	10/16/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit
WOODLAND MHP	PA0055352	3630929	8163624	10/16/2023	92A.41(C)	NPDES - Discharge contained floating materials, scum, sheen, foam, oil, grease or substances that produced an observable change or resulted in deposits in receiving waters for NPDES permitted activities
WOODLAND MHP	PA0055352	3630929	8163625	10/16/2023	92A.41(A)10C	NPDES - Failure to collect representative samples

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Perkiomen Creek. The sequence of receiving streams that the Perkiomen Creek discharges into are Schuylkill River, Delaware River which eventually drains into the Delaware Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is East Greenville Borough Water Department (PWS ID # 1460023) located approximately 5 miles downstream of the subject facility on the Perkiomen Creek. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP discharges into Class A Wild Trout Fishery waters. The draft Fact Sheet shall be sent to Fish and Boat for comments.

4.4 2024 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily

Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 and 5 waterbody. The surface waters is an attaining stream that supports aquatic life and recreational uses. The designated use has been classified as protected waters for trout stocking fishes (TSF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest gauge station to the subject facility is the Perkiomen Creek at East Greenville, PA station (USGS station number 1472198). This gauge station is located approximately 6 miles downstream of the subject facility.

For WQM modeling, default values for pH and stream water temperature were used. pH was estimated to be 7 and the stream water temperature was estimated to be 20 C.

A default value for hardness of 100 mg/l $CaCO_3$ was used.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1472198		
Station Name	Perkiomen Creek at East Greenville, PA		
Q710	7.5	ft^3/sec	
Drainage Area (DA)	38	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(7.5 ft^3/sec / 38 mi^2)		
LFY =	0.1974	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		6.78	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.1974 $ft^3/sec/mi^2$)(6.78 mi^2)			
Q710 =	1.338	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.125
Latitude	40º 26' 54.22"	Longitude	-75º 33' 19.03"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Perkiomen Creek (TSF)	Stream Code	1017
NHD Com ID	25971536	RMI	31.7
Drainage Area	6.78	Yield (cfs/mi^2)	0.1974
Q_{7-10} Flow (cfs)	1.338	Q_{7-10} Basis	StreamStats/Streamgauge
Elevation (ft)	418	Slope (ft/ft)	
Watershed No.	3-E	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, SILTATION, THERMAL MODIFICATIONS		
Source(s) of Impairment	AGRICULTURE, AGRICULTURE, AGRICULTURE		
TMDL Status	Final 03/10/2003	Name	Green Lane Reservoir

Background/Ambient Data		Data Source
pH (SU)	7	Default
Temperature (°C)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		East Greenville Borough Water Department	
PWS Waters	Perkiomen Creek	Flow at Intake (cfs)	
PWS RMI	27	Distance from Outfall (mi)	5

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	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)

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1	***(Modeling Point #1)***	***(Modeling Point #2)***	***Units***
Stream Code	1017	1017	
River Mile Index	31.7	29.8	miles
Elevation	418	354	feet
Latitude	40.448056	40.425877	
Longitude	-75.555556	-75.553144	
Drainage Area	6.78	13.9	sq miles
Low Flow Yield	0.1974	0.1974	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) a 30-day average concentration for CBOD5 in the discharge;
(c) a 30-day average concentration for the NH_3-N in the discharge;
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the following pollutants: TDS, chloride, bromide, and sulfate.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does discharge into a local TMDL.

The Green Lane Reservoir, encompassing approximately 814 acres, is located in northern Montgomery County, Pennsylvania and is owned by the Philadelphia Suburban Water Company. The reservoir resides within Green Lane Reservoir Park, which is a popular area for outdoor activities including swimming, fishing, boating, hiking, and horseback riding. The surrounding watershed is approximately 45,400 acres and consists of mainly forested land, cropland, and hay/pasture lands. Pennsylvania listed Green Lane Reservoir on the 1996 303(d) list as impaired by organic enrichment/low dissolved oxygen due to agriculture based on Phase I Clean Lakes Report and Trophic State Index (TSI) studies. These reports documented elevated nutrient levels and algal blooms that impaired the designated uses of Green Lane Reservoir, resulting in a hyper-eutrophic classification.

The goal of the TMDL for nutrients is to reduce phosphorus loadings to the lake so that chlorophyll-a levels in Green Lane Reservoir stay at or below 20 ug/l as a seasonal average. The TMDL is accomplished by requiring all point sources in the watershed to achieve effluent limitations of 0.5 mg/l total phosphorus and reductions in nonpoint source total phosphorus contributions from cropland, hay/pasture land, septic systems, and streambank areas.

The TMDL lists Hereford Estates as one of fourteen point source dischargers in the Green Lake Reservoir Watershed.

The individual wasteload allocations for the subject facility is 0.5 mg/l total phosphorus, 0.52 lbs/day, and 15.63 lbs/month.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, (c) Non-Conventional Pollutants, and (d) Chapter 92a.61 targeted parameters

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Hereford Estates MHP, PA0041505

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD.
TRC	TBEL	Monitoring:	The monitoring frequency shall be on a daily basis as a grab sample (Table 6-3).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and/or 1.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the TBEL is more stringent than the WQBEL. The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.48(b)(2)	
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.125 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Hereford Estates MHP, PA0041505

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	Anti-backsliding	Monitoring:	The monitoring frequency shall be 1x/wk as an 8-hr composite sample
		Effluent Limit:	During the months of May 1 to October 31, effluent limits shall not exceed 14 mg/l. During the months of November 1 to April 30, effluent limits shall not exceed 20 mg/l.
		Rationale:	Due to anti-backsliding regulations, the current permit limit shall continue to the proposed permit.
Total Nitrogen	Anti-backsliding	Monitoring:	The monitoring frequency shall be 1x/quarter as a 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Monitoring is recommended to monitor nutrient levels in receiving stream.
Total Phosphorus	TMDL	Monitoring:	The monitoring frequency shall be 1x/wk as an 8-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 0.52 lbs/day, 15.63 lbs/month, and 0.5 mg/l as an average monthly.
		Rationale:	Due to the Green Lane Reservoir TMDL, the permit limits are 0.5 mg/l as a monthly average, and 0.52 lbs/day as a monthly average
Notes:			

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.125 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3 Non-Conventional Polluants

Summary of Proposed NPDES Parameter Details for Non-Conventional Pollutants Hereford Estates MHP, PA0041505			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
Total Dissolved Solids	DRBC	Monitoring:	The monitoring frequency shall be 1x/quarter as an 8-hr composite sample.
		Effluent Limit:	No effluent requirement
		Rationale:	Due to DRBC effluent limit, monitoring has been recommended.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.125 MGD.			
3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth.

Based upon DEP policy directives the following pollutants shall be monitored:

- Consistent with DEP Management directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required. The monitoring frequency is based upon flow rate.

Summary of Proposed NPDES Parameter Details for polluants monitored under Chapter 92a.61 Hereford Estates MHP, PA0041505			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised Febraury 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.125 MGD.			
3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- Due to the EPA triennial review, monitoring shall be required for E. coli.

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 26' 54.12" , **Longitude** 75° 33' 19.98" , **River Mile Index** 31.7 , **Stream Code** 1017

Receiving Waters: Perkiomen Creek (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	Daily 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
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	1/week	8-Hr Composite
Total Suspended Solids	31.3	XXX	XXX	30.0	XXX	60	1/week	8-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0	XXX	1000.0	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	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	Daily Maximum	Instant. Maximum		
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	14.0	XXX	28	1/week	8-Hr Composite
Total Phosphorus	0.52	XXX	XXX	0.5	XXX	1	1/week	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Solids Management for Non-Lagoon Treatment Systems

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:

Attachment A
Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01465780	Poquessing Creek above Byberry Creek at Phila., Pa.	40.070	-74.975	13.2	N
01465798	Poquessing Creek at Grant Ave. at Philadelphia, Pa.	40.057	-74.985	21.4	N
01465850	South Branch Rancocas Creek at Vincentown, N.J.	39.94	-74.763	64.5	N
01466500	McDonalds Branch in Byrne State Forest, N.J.	39.885	-74.505	2.35	N
01467000	North Branch Rancocas Creek at Pemberton, N.J.	39.97	-74.684	118	N
01467042	Pennypack Creek at Pine Road, at Philadelphia, Pa.	40.090	-75.069	37.9	N
01467048	Pennypack Creek at Lower Rhawn St Bdg, Phila., Pa.	40.050	-75.033	49.8	N
01467050	Wooden Bridge Run at Philadelphia, Pa.	40.055	-75.022	3.35	N
01467081	South Branch Pennsauken Creek at Cherry Hill, N.J.	39.942	-75.001	8.98	N
01467086	Tacony Creek ab Adams Avenue, Philadelphia, Pa.	40.047	-75.111	16.7	N
01467087	Frankford Creek at Castor Ave, Philadelphia, Pa.	40.016	-75.097	30.4	N
01467089	Frankford Creek at Torresdale Ave., Phila., Pa.	40.007	-75.092	33.8	N
01467150	Cooper River at Haddonfield, N.J.	39.903	-75.021	17.0	N
01467500	Schuylkill River at Pottsville, Pa.	40.684	-76.186	53.4	N
01468500	Schuylkill River at Landingville, Pa.	40.629	-76.125	133	N
01469500	Little Schuylkill River at Tamaqua, Pa.	40.807	-75.972	42.9	N
01470500	Schuylkill River at Berne, Pa.	40.523	-75.998	355	N
01470756	Maiden Creek at Virginville, Pa.	40.514	-75.883	159	N
01470779	Tulpehocken Creek near Bernville, Pa.	40.413	-76.172	66.5	N
01470853	Furnace Creek at Robesonia, Pa.	40.340	-76.143	4.18	N
01470960	Tulpehocken Creek at Blue Marsh Damsite near Reading, Pa.	40.371	-76.025	175	Y
01471000	Tulpehocken Creek near Reading, Pa.	40.369	-75.979	211	Y
01471510	Schuylkill River at Reading, Pa.	40.335	-75.936	880	Y
01471875	Manatawny Creek near Spangsville, Pa.	40.340	-75.742	56.9	N
01471980	Manatawny Creek near Pottstown, Pa.	40.273	-75.680	85.5	N
01472000	Schuylkill River at Pottstown, Pa.	40.242	-75.652	1,147	Y
01472157	French Creek near Phoenixville, Pa.	40.151	-75.601	59.1	N
01472174	Pickering Creek near Chester Springs, Pa.	40.090	-75.630	5.98	N
01472198	Perkiomen Creek at East Greenville, Pa.	40.394	-75.515	38.0	N
01472199	West Branch Perkiomen Creek at Hillegass, Pa.	40.374	-75.522	23.0	N
01472500	Perkiomen Creek near Frederick, Pa.	40.275	-75.455	152	N
01472620	East Branch Perkiomen Creek near Dublin, Pa.	40.404	-75.234	4.05	LF
01472810	East Branch Perkiomen Creek near Schwenksville, Pa.	40.259	-75.429	58.7	LF
01473000	Perkiomen Creek at Graterford, Pa.	40.230	-75.452	279	LF
01473120	Skippack Creek near Collegeville, Pa.	40.165	-75.433	53.7	N
01473169	Valley Creek at Pa. Turnpike Br near Valley Forge, Pa.	40.079	-75.461	20.8	N
01473500	Schuylkill River at Norristown, Pa.	40.111	-75.347	1,760	N
01473900	Wissahickon Creek at Fort Washington, Pa.	40.124	-75.220	40.8	N
01473950	Wissahickon Creek at Bells Mill Rd, Phila., Pa.	40.080	-75.226	53.6	N
01473980	Wissahickon Creek at Livezey Lane, Phila., Pa.	40.050	-75.214	59.2	N
01474000	Wissahickon Creek at Mouth, Philadelphia, Pa.	40.015	-75.207	64.0	N
01474500	Schuylkill River at Philadelphia, Pa.	39.968	-75.189	1,893	N
01475000	Mantua Creek at Pitman, N.J.	39.737	-75.113	6.05	N
01475300	Darby Creek at Waterloo Mills near Devon, Pa.	40.023	-75.422	5.15	N
01475510	Darby Creek near Darby, Pa.	39.929	-75.272	37.4	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01472174	1969–1984	16	1.2	1.5	2.4	1.8	3.1	2.7
01472198	1983–2008	26	7.1	7.5	12.9	9.6	15.4	13.9
01472199	1983–2008	26	3.8	4.3	6.8	5.1	8.3	7.2
01472500	1886–1913	28	—	14.5	24.0	20.6	34.9	33.2
01472620	1985–2008	24	0	0	7.2	.1	7.3	.5
01472810	1992–2008	15	12.9	18.8	36.0	33.7	49.2	49.8
01473000	[3]1916–1956	41	9.5	14.8	32.1	24.1	44.7	41.4
01473000	[2]1958–2008	51	28.5	33.9	61.6	42.5	77.4	53.3
01473120	1968–1994	27	1.4	1.9	4.4	3.2	6.8	5.6
01473169	1984–2008	25	8.5	9.2	13.2	10.5	15.5	13.2
01473500	1929–2008	9	182	220	422	247	518	328
01473900	1963–2008	14	5.2	6.1	11.3	7.6	14.2	9.9
01473950	1967–1981	15	9.1	11.1	19.1	14.5	24.0	19.7
01474000	1967–2008	42	13.7	16.6	25.6	21.4	32.9	30.4
01474500	1933–2008	76	58.7	108	376	180	515	320
01475000	1942–2006	37	3.5	4.1	6.1	4.8	7.0	5.7
01475300	1974–1997	24	1.0	1.2	2.1	1.6	2.9	2.4
01475510	1965–1990	26	9.3	11.5	18.8	15.5	24.2	22.6
01475530	1966–1981	19	1.2	1.3	2.0	1.8	2.8	2.7
01475550	1965–1990	25	.1	.6	4.4	2.9	8.5	8.9
01475850	1983–2008	26	1.5	2.2	4.6	3.4	6.5	5.4
01476480	1988–2008	19	2.3	3.5	8.5	5.8	11.5	9.0
01476500	1933–1954	22	3.9	4.9	11.4	6.4	14.4	9.7
01477000	1933–2007	73	10.4	12.4	24.9	15.7	31.0	22.8
01477120	1967–2008	42	6.5	7.1	12.9	8.5	15.0	11.2
01477800	1947–2008	62	.2	.2	.6	.5	1.2	1.4
01478000	1944–2008	65	.6	1.5	3.6	2.3	5.0	4.2
01478500	1953–1979	23	9.8	10.7	24.1	13.5	29.1	19.7
01479000	1933–2008	65	12.3	13.7	30.3	18.0	36.8	27.8
01479820	1989–2008	20	3.2	4.1	12.5	5.6	14.6	10.8
01480000	1944–2008	65	8.5	9.8	17.7	12.6	21.1	17.6
01480015	1990–2008	19	9.0	11.0	20.1	14.7	24.5	18.4
01480100	1965–1980	16	.3	.4	1.2	1.2	2.0	2.3
01480300	1962–2008	47	2.6	3.0	6.2	3.9	7.4	5.3
01480500	[3]1945–1993	30	7.3	8.3	14.5	10.4	18.4	14.5
01480500	[2]1995–2008	14	4.8	5.2	12.3	6.6	14.8	9.6
01480617	1971–2008	38	12.1	14.0	23.3	16.6	27.8	22.0
01480675	1968–2008	41	.6	.6	1.7	.9	2.3	1.6
01480685	1975–2008	34	.5	.9	3.7	2.4	7.4	5.7
01480700	[2]1975–2008	34	12.3	14.0	22.3	17.8	28.4	21.9
01480800	1960–1968	9	11.5	12.1	19.8	14.6	23.8	19.5
01480870	1973–2008	36	24.0	26.5	36.8	31.0	44.5	38.0
01481000	[3]1913–1973	51	—	68.5	117	79.0	136	102
01481000	[2]1975–2008	34	60.0	63.8	117	76.9	138	106
01481500	[2]1975–2008	34	64.2	68.3	128	84.5	154	117

Attachment B
Modeling Input Values
WQM 7.0 Modeling Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN 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)
31.700	Hereford Estate	PA0041505	0.125	CBOD5	25		
				NH3-N	22.09	44.18	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN 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
31.700	Hereford Estate	15.18	50	15.18	50	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
31.700	Hereford Estate	1.83	22.09	1.83	22.09	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)		
31.70	Hereford Estate	25	25	22.09	22.09	5	5	0	0

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03E	1017	PERKIOMEN CREEK	**31.700**	418.00	6.78	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	0.197	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
Hereford Estate	PA0041505	0.1250	0.1250	0.1250	0.000	25.00	7.16

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
03E	1017	PERKIOMEN CREEK	**29.800**	354.00	13.90	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	0.197	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
31.700	0.125	20.631	7.017
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.928	0.538	29.591	0.179
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.90	0.783	2.79	0.735
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.834	10.994	Tsivoglou	5
Reach Travel Time (days)			
0.650			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.065	4.65	2.66	7.76
0.130	4.42	2.53	7.76
0.195	4.19	2.42	7.80
0.260	3.98	2.30	7.84
0.325	3.77	2.20	7.89
0.390	3.58	2.09	7.95
0.455	3.40	2.00	8.00
0.520	3.23	1.90	8.05
0.585	3.06	1.81	8.10
0.650	2.90	1.73	8.14

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN 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												
31.700	1.34	0.00	1.34	.1934	0.00638	.538	15.93	29.59	0.18	0.650	20.63	7.02
Q1-10 Flow												
31.700	0.86	0.00	0.86	.1934	0.00638	NA	NA	NA	0.14	0.803	20.92	7.03
Q30-10 Flow												
31.700	2.14	0.00	2.14	.1934	0.00638	NA	NA	NA	0.23	0.513	20.41	7.01

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	1.6	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Hereford MHP** NPDES Permit No.: **PA0041505** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage effluent**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.125	100	7.16						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		754									
	Chloride (PWS)	mg/L		43.7									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		106									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Hereford MHP, NPDES Permit No. PA0041505, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Perkiomen Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	001017	31.7	418	6.78			Yes
End of Reach 1	001017	29.8	354	13.9			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	31.7	0.1974										100	7		
End of Reach 1	29.8	0.1974										100	7		

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	31.7														
End of Reach 1	29.8														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Hereford MHP, NPDES Permit No. PA0041505, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All | ○ Inputs | ○ Results | ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 8.417 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.02

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 8.417 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.02

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 8.417 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

☑ ***CRL*** CCT (min): 3.116 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable

Attachment C

TRC Evaluation

Hereford Estates MHP
PA0041505

October 2024

TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

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

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 2.226	1.3.2.iii	WLA cfc = 2.163
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.830	5.1d	LTA_cfc = 1.257

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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)