pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0051861**
Facility Type	**Non-Municipal**	APS ID	**26572**
Major / Minor	**Minor**	Authorization ID	**1069342**

Applicant and Facility Information

Applicant Name	**Penn Sylvan Realty Corp**	Facility Name	**Penn Sylvan Nudist Camp**
Applicant Address	5028 Camp Road	Facility Address	5028 Camp Road
	Mohnton, PA 19540-7723		Mohnton, PA 19540-7723
Applicant Contact	Mary Stoner	Facility Contact	Mary Stoner
Applicant Phone	(717) 445-6330	Facility Phone	(717) 445-6330
Client ID	78426	Site ID	454774
Ch 94 Load Status	Not Overloaded	Municipality	Brecknock Township
Connection Status		County	Berks
Date Application Received	April 13, 2015	EPA Waived?	Yes
Date Application Accepted	April 15, 2015	If No, Reason	

Purpose of Application: This is an application for NPDES renewal.

Summary of Review

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineering Specialist	March 13, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria Bebenek, P.E. / Environmental Program Manager	

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the PennSylvan Realty Corporation located at 5028 Camp Road, Mohnton, PA 19540 in Berks County, municipality of Brecknock Township. The NPDES expired on June 30, 2015. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on April 13, 2015.

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 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 0.014 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 Facilities (Level 1) 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 Brecknock Township Supervisors and the notice was received by the parties approximately April 9, 2015. Since the facility was originally designed to treat up to 0.02 MGD, 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 Rock Run. The sequence of receiving streams that Rock Run discharges into are the Muddy Creek, the Conestoga River, and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fish (TSF) and migratory fish (MF). No Class A Wild Trout fisheries are impacted by this discharge. The presence of high quality and/or exceptional value surface waters initiates the need for an additional evaluation of anti-degradation requirements.

Rock Run is a Category 2 stream listed in the 2018 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. The receiving stream is also impaired for recreational purposes due to pathogens from an unknown source. The receiving waters is not subject to a 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:

- The design flow rate has been re-rated from 0.004 MGD to 0.014 MGD.
- TDS has been eliminated from monitoring
- For Outfall 001:
  a. Ammonia-Nitrogen for Outfall 001 shall be reduced from 33 mg/l to 11 mg/l during the winter months.
  b. Nitrogen species and phosphorus shall be monitored at least 1x/yr.

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:	Penn Sylvan Realty Corporation
NPDES Permit #	PA0051861
Physical Address:	5028 Camp Road Mohnton, PA 19540
Mailing Address:	5028 Camp Road Mohnton, PA 19540
Contact:	Mary Stoner Operator Penn Sylvan Realty Corporation meme123@ptd.net
Consultant:	There was not a consultant utilized for the renewal application.

1.2 Permit History

The subject facility was believed to have been initially permitted in 1983. The Norweco treatment tank is capable of treating up to 0.02 MGD. In the summer months, the wastewater is discharged through spray irrigation. In the winter months, wastewater is discharged via a stream discharge.

Prior NPDES permits limited the discharge flow rate to 0.004 MGD (4000 gpd). Upon a request from the facility during the NPDES application renewal, the subject facility has requested to re-rate the facility to 0.014 GPD. The facility has requested this re-rate as the facility anticipates that there may be high attendance at special events (approximately 3x/yr). To aid in alleviating wastewater generation, the facility also plans to use port-a-potties but has still requested the re-rate during this permit renewal.

Since the original design allows for a design flow of 0.02 MGD, the proposed permit will reflect their request to re-rate the facility to 0.014 MGD. Due to the hydraulic loading limitations on the spray field, the facility will be limited to 5,000 gpd for the spray field. Flow exceeding 5,000 gpd, will require discharge to surface waters. The facility will be required to track flow so that the spray field is not hydraulically overloaded.

The spray field consists of 8 spray nozzles with an approximate radius of 47.5 feet between the spray heads. The total wetted area with all the spray nozzles open is approximately 41,582 ft^2 without considering windy conditions (Environmental Design Service, Inc reported dated for May 28, 2015).

2.0 Treatment Facility Summary

2.1 Site location

The physical address for the facility is 5028 Camp Road, Mohnton, PA 19540. 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

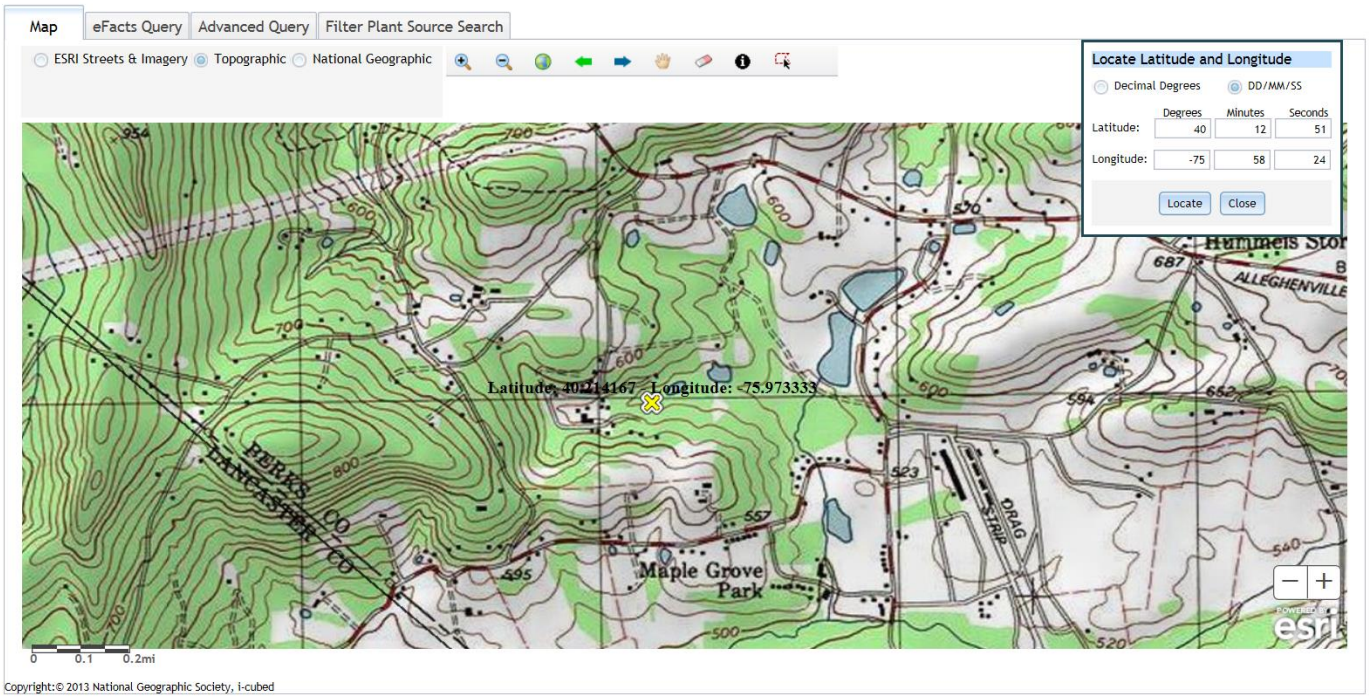
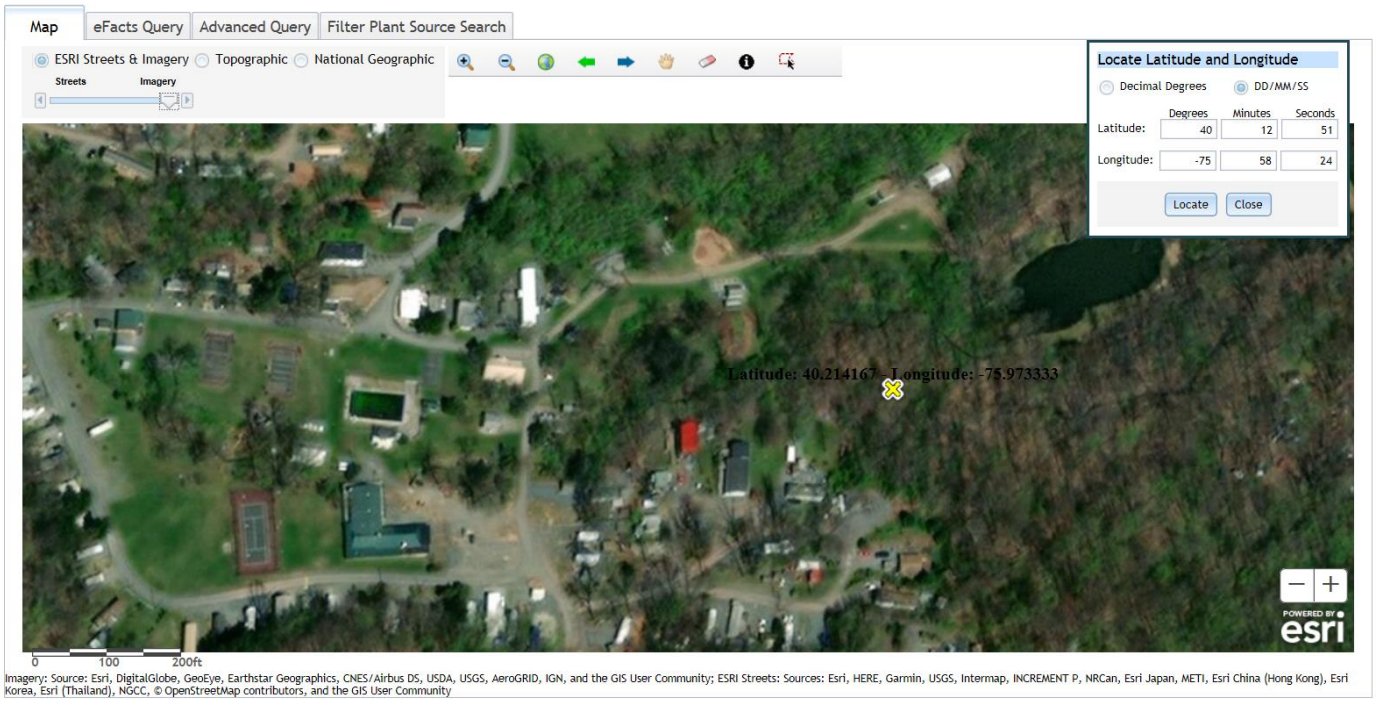


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.02 MGD design flow facility. The subject facility treats wastewater using an equalization tank, two (2) aeration tanks, a clarifier tank, a chlorine contact tank, and a dechlorination tank prior to discharge to either a spray field or Rock Run.

The facility either discharges to the spray field or to surface waters. During the winter when spray irrigation is more limited, discharge occurs to surface waters.

For the discharge to Rock Run through Outfall 001, the facility was being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, TRC, fecal coliform, and ammonia-nitrogen.

For the discharge to the spray field through Outfall 101, the facility was being evaluated for flow, pH CBOD, TSS, TDS, fecal coliform, ammonia-nitrogen, and nitrate-nitrogen.

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: Penn Sylvan Realty				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.005
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.02		Not Overloaded		

2.3 Facility Outfall Information

The facility has the following outfall information.

Outfall No. 001 **Design Flow (MGD)** .014
Latitude 40º 12' 51.00" **Longitude** -75º 58' 24.00"
Wastewater Description: Sewage Effluent

Outfall No. 101 **Design Flow (MGD)** .004
Latitude 40º 12' 51.00" **Longitude** -75º 58' 24.00"
Wastewater Description:

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The downstream outfall is Sun Valley Campground (PA0082635) which is about 1.8 miles from the subject facility. Also, approximately 2.2 miles downstream is the Oak Creek Campground (PA0033111).

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.

- Chlorine for disinfection

- Soda ash for pH control
- Dechlorination tablets for dechlorination

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

Outfall 001 is utilized for stream discharge.

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

I. B. **For Outfall** 001 , **Latitude** 40° 12' 51.00" , **Longitude** 75° 58' 24.00" , **River Mile Index** 0.38 , **Stream Code** 07787

Discharging to Unnamed Tributary of Muddy Creek

which receives wastewater from the wastewater treatment plant

1. The permittee is authorized to discharge during the period from July 1, 2012 through June 30, 2015.
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, Footnotes and Supplemental Information).

FINAL

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (3) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum(2)		
Flow (MGD) Nov 1 - Mar 31	Report	Report	XXX	XXX	XXX	XXX	Weekly when Discharging	Measured
pH Nov 1 - Mar 31	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen Nov 1 - Mar 31	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine Nov 1 - Mar 31	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
$CBOD_5$ Nov 1 - Mar 31	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
Total Suspended Solids Nov 1 - Mar 31	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (CFU/100 ml) Nov 1 - Mar 31(4)	XXX	XXX	XXX	2,000	XXX	XXX	2/month	Grab
Ammonia-Nitrogen Nov 1 - Mar 31	XXX	XXX	XXX	33	XXX	66	2/month	8-Hr Composite

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

Outfall 101 is utilized for discharge to a spray field.

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

I. C. **For Outfall** 101 , **Latitude** 40° 12' 51.00" , **Longitude** 75° 58' 24.00" , **River Mile Index** 0.38 , **Stream Code** 07787

Discharging to Unnamed Tributary of Muddy Creek/Spray Irrigation Fields

which receives wastewater from the wastewater treatment plant

1. The permittee is authorized to discharge during the period from July 1, 2010 through June 30, 2015.
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, Footnotes and Supplemental Information).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (3) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
$CBOD_5$	XXX	XXX	XXX	25	XXX	50	1/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Fecal Coliform (CFU/100 ml) (4)	XXX	XXX	XXX	200	XXX	XXX	1/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Nitrate as N	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab

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

11/13/2012:

- The facility had violations for final parameters at outfall 101 (spray field). In the spring of 2012, the operators had the equalization basin and aeration tanks cleaned. The tanks had not been cleaned for approximately 20 years (since installation) and an unexpected amount of accumulated grid and solids had accumulated on the bottom of the tanks. The cleanout took considerable time and the seed sludge saved in the sludge storage tank was insufficient to provide adequate reseed for the activated sludge process. Seed was collected from another facility to resume normal operations at the facility.
- The operator, Mary Stoner had an expired operator's license posted. Another operator, Donna Niemirovich had her operator license posted.

Spray Field:

- The spray head had been removed from the 8 discharge standpipes. The last spray was on 10/27/2012. There was no evidence of runoff from the spray field. The vegetation was mowed regularly and the clippings were left to compost. The operator stated that the spray heads were removed in late October and the operator purged the spray field pipes to clean them.

Sewage Treatment System:

- There was no significant infractions noted for the treatment units.
- The facility was in violation of their NPDES permit as follows:
    - A field sample of TRC was collected with as sample result of 6.9 mg/l. The NPDES permit limit was 1.6 mg/l TRC as an IMAX.
    - The discharge and accumulation of sewage solids on the surface of the ground from purging the spray field discharge lines is a violation of the NPDES permit and PA Code 92.51(c)

11/14/2012:

- This was a follow-up inspection on the TRC residual. The operator stated dechlorination tablets were being placed in the dechlorination unit on 11/13/2012.

10/9/2013:

- The subject facility was reportedly to be planning to pump to the sprayfield until the beginning of November.
- The operator stated that the facility was having issues with cleaning and reseeding in 2012. The DEP inspector advised that the facility should consult with another operator or wastewater engineer to address the chronic final effluent violations and operation and maintenance issues.
- The sprayfield was reportedly utilized from April to November. There are a total of 8 spray heads. Three spray heads are run at a time and then rotated through the 8 spray heads as needed. There were some dark solids and swampy areas around the spray heads in use.
- The facility was advised to spray using all 8 spray heads as outlined in the WQM permit. The facility was also advised to install a flowmeter to measure the final effluent flow for Outfall 001.

07/23/2014:

- The DEP inspector advised that the facility should consult with another operator or wastewater engineer to address the chronic final effluent violations and operation and maintenance issues.
- All 8 spray heads were in use at the time of the inspection. The spray heads were intact and appeared to be operational. There were some swampy areas around the lower four spray heads.

09/17/2014:

- Aeration blower motor #1 was replaced in August 2014.
- Aeration flower #2 was operational but had failed to switch over operation as back up to the failed blower #1.
- The facility observed increased flows at the STP during storm events.
- The DEP inspector advised that the facility should consult with another operator or wastewater engineer to address the chronic final effluent violations and operation and maintenance issues.

03/16/2016:

- DEP arrived at the facility to monitor progress on the correction actions in the April 2016 COA.
- All treatment units are online and appeared to be operating normally.
- The plant was reseeded in June after a microbial examination showed a lack of healthy microbial activity. The operator stated that the WWTP received a toxic load that impacted the mixed liquor microbiologic community and reduced treatment capacity. The operator believed the toxic load was attributed to dumping at the septage receiving station. The station was later closed.
- The facility was advised to maintain daily calibration log for pH meter and review calibration manual for DO probe.

05/18/2017:

- Dean Miller was the presiding operator at the facility.
- The spray fields were observed with no apparent runoff or pooling.
- The April 20, 2015 COA was terminated. A flow meter was requested to be installed to meet permit requirements.

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 above the design capacity of the treatment system of 0.005 MGD.

For Outfall 001, the maximum average flow data for the DMR reviewed was 0.005879 MGD (5879 GPD).

For Outfall 101, the maximum average flow data for the DMR reviewed was 0.0066 MGD (6600 GPD).

The current permit limits for the discharge flow rate is 0.004 MGD for both outfalls. Discussions with Mary Stoner on March 10, 2020 reconcile that that design flow rate is 0.005 MGD. Consultation with DEP soil scientist in Southcentral Regional Office confirmed that the hydraulic loading rate with a design flow rate of 0.005 MGD is acceptable. Flow rates above the 0.005 MGD that do not discharge to soil during the summer months shall discharge to surface waters.

As requested by the facility, the design capacity of the treatment system in the proposed permit will be rerated to 0.014 MGD. Discharge to the spray field shall be 0.005 MGD.

DMR Data for Outfall 001 (from February 1, 2019 to January 31, 2020)

Parameter	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19
Flow (MGD) Average Monthly	0.005879	0.00525	0.005600								0.0044	0.0041
Flow (MGD) Daily Maximum	0.006300	0.006200	0.006600								0.0067	0.0051
pH (S.U.) Minimum	7.1	7.0	7.1								7.3	7.4
pH (S.U.) Maximum	7.4	7.4	7.5								7.6	7.6
DO (mg/L) Minimum	7.7	7.8	6.2								8.7	7.9
TRC (mg/L) Average Monthly	0.090	0.074	0.166								0.09	0.07
TRC (mg/L) Instantaneous Maximum	0.20	0.20	0.30								0.20	0.20
CBOD5 (mg/L) Average Monthly	3	5.4	3.55								11.5	21.05
TSS (mg/L) Average Monthly	4.6	3.6	2.60								13.2	6.6
Fecal Coliform (CFU/100 ml) Average Monthly	< 1	1	< 1								51.9	< 1
Ammonia (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10								0.10	< 0.10

DMR Data for Outfall 101 (from February 1, 2019 to January 31, 2020)

Parameter	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19
Flow (MGD) Average Monthly				0.0050700	0.00585	0.0066	0.0056	0.0057	0.00498	0.00393		
Flow (MGD) Daily Maximum				0.0062000	0.00740	0.0086	0.0077	0.0088	0.0088	0.0081		
pH (S.U.) Minimum				7.1	7.2	7.3	7.3	7.3	7.3	7.4		
pH (S.U.) Maximum				7.5	7.6	7.6	7.7	7.6	7.6	7.6		
CBOD5 (mg/L) Average Monthly				21.7	< 2.0	12.7	6.0	6.4	11.4	11.4		
TSS (mg/L) Average Monthly				4.0	7.6	4.0	< 4.0	< 4.0	< 4.0	< 4.0		
Total Dissolved Solids (mg/L) Daily Maximum				330	192	196	216	142	188	276		
Fecal Coliform (CFU/100 ml) Average Monthly				< 1	4	< 1	1	< 1	< 1	2		
Ammonia (mg/L) Daily Maximum				< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Nitrate (mg/L) Daily Maximum				14.4	< 1.0	1.02	2.24	3.14	< 15.8	16.2		

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 July 1, 2010 to March 8, 2020, the table summarizes the observed effluent non-compliances.

A scan of effluent non-compliances will only populate data that was entered in eDMR. Older DMR data that are in non-compliance with effluent limitations may not appear in the table.

A summary of the non-compliance with NPDES limits for the current permit cycle is as follows:

Summary of Non-Compliance Effluent Violations
Time Period Beginning 7/1/2010 to 03/8/2020

OUTFALL	NON COMPLIANCE DATE	NON COMPLIANCE TYPE	PARAMETER	SAMPLE VALUE	VIOLATION CONDITION	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
101	12/12/2015	Violation of permit condition	Fecal Coliform	3195	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	18165	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	80	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	33.2	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	6600	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	27.5	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	68	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	93.3	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	71.6	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	41.4	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	282	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	46	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	22360	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	8000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	204	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	477	>	200	CFU/100 ml	Average Monthly

101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	60	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	33	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	66.6	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	44	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	28.1	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	509	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	571	>	200	CFU/100 ml	Average Monthly
1	12/12/2015	Violation of permit condition	Total Suspended Solids	97	>	30	mg/L	Average Monthly
1	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	27.25	>	25	mg/L	Average Monthly
1	12/12/2015	Violation of permit condition	Total Suspended Solids	39	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	28.6	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	20000	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	1728	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	74	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	88	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Fecal Coliform	17663	>	200	CFU/100 ml	Average Monthly
101	12/12/2015	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	77.6	>	25	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	52	>	30	mg/L	Average Monthly
101	12/12/2015	Violation of permit condition	Total Suspended Solids	79	>	30	mg/L	Average Monthly
1	12/15/2015	Violation of permit condition	Total Suspended Solids	77.5	>	30	mg/L	Average Monthly
1	01/18/2016	Violation of permit condition	Total Suspended Solids	36.9	>	30	mg/L	Average Monthly
101	07/28/2016	Violation of permit condition	Fecal Coliform	1894	>	200	CFU/100 ml	Average Monthly
101	08/31/2016	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	34.2	>	25	mg/L	Average Monthly
101	09/26/2016	Violation of permit condition	Fecal Coliform	400	>	200	CFU/100 ml	Average Monthly
101	05/28/2017	Violation of permit condition	Fecal Coliform	776	>	200	CFU/100 ml	Average Monthly
101	05/28/2017	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	26.7	>	25	mg/L	Average Monthly

3.3.2 Non-Compliance- Enforcement Actions

A summary of the enforcement actions to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in July 1, 2010 to March 8, 2020, the table summarizes enforcement actions for the facility.

Summary of Enforcement Actions
Beginning date 07/01/2010 to 3/8/2020

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	INITIATED DATE	VIOLATIONS	PENALTY AMOUNT	AMOUNT RECEIVED	TOTAL AMOUNT DUE	ENF FINALSTATUS	ENF CLOSED DATE
314740	NOV	Notice of Violation	09/04/2014	09/04/2014		92A.62				Comply/Closed	09/08/2014
322256	COA	Consent Order and Agreement	04/21/2015	04/20/2015	02/10/2015	92A.61DMRVIO	$5,000.00	$0.00	$5,000.00	Comply/Closed	05/18/2017
308448	NOV	Notice of Violation	03/10/2014	03/10/2014		92A.61DMRVIO				Comply/Closed	03/24/2014
292714	NOV	Notice of Violation	01/16/2013	01/10/2013		302 FEE-AOR				Comply/Closed	02/13/2013
292286	NOV	Notice of Violation	01/07/2013	12/07/2012		92A.41IMAX; 92A.61DMRVIO				Comply/Closed	12/18/2012
319028	NOV	Notice of Violation	01/12/2015	01/07/2015	01/07/2015	92A.75(A)				Comply/Closed	04/15/2015
316060	NOV	Notice of Violation	10/09/2014	10/14/2014		302.202				Comply/Closed	10/20/2014
330500	NOV	Notice of Violation	10/16/2015	10/16/2015		302.202				Comply/Closed	10/21/2015

3.4 Summary of Biosolids Disposal

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

The facility operator confirmed that the facility disposes of biosolids every 3-4 years. The facility did not have biosolids disposal in 2019.

3.5 Open Violations

As of March 2020, the facility had an open violation in the Safe Drinking Water program for failure to submit or revise a comprehensive monitoring plan. The final NPDES maybe withheld pending resolution for the open violations.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Rock Run. The sequence of receiving streams that Rock Run discharges into are the Muddy Creek, the Conestoga River, and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is City of Lancaster (PWS ID #7360058) located approximately 31 miles downstream of the subject facility on the Conestoga 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 suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2018 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 2018 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. The receiving stream is also impaired for recreational purposes due to pathogens from an unknown source. The designated use has been classified as protected waters for trout stocking fishes and migratory fishes.

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 WQN and gauge stations to the subject facility is the Conestoga River station at Lancaster, PA (WQN273 or USGS station number 1576500). This WQN station is located approximately 53 miles downstream of the subject facility while the gauge station is located 31 miles downstream of the subject facility. For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 8.2 and the stream water temperature was estimated to be 22.7 C. The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data		
USGS Station Number	1576500	
Station Name	Conestoga River at Lancaster, PA	
Q710	38.6	ft^3/sec
Drainage Area (DA)	324	mi^2

Calculations

The low flow yield of the gauge station is:

Low Flow Yield (LFY) = Q710 / DA

LFY = (38.6 ft^3/sec / 324 mi^2)

LFY =	0.1191	$ft^3/sec/mi^2$

The low flow at the subject site is based upon the DA of 0.5 mi^2

Q710 = (LFY@gauge station)(DA@Subject Site)

Q710 = (0.1191 $ft^3/sec/mi^2$)(0.5 mi^2)

Q710 =	0.060	ft^3/sec

4.6.1 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.014
Latitude	40º 12' 47.49"	Longitude	-75º 58' 3.91"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary of Muddy Creek	Stream Code	7787
NHD Com ID	57461407	RMI	0.5
Drainage Area	0.50	Yield (cfs/mi^2)	0.1191
Q_{7-10} Flow (cfs)	0.060	Q_{7-10} Basis	StreamStats/Gauge
Elevation (ft)	517	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	HQ-TSF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	None
Assessment Status	Attaining Use(s) supports aquatic life; Impaired for recreational purposes		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Unknown source		
TMDL Status	Not applicable	Name	

Background/Ambient Data		Data Source
pH (SU)	8.2	WQN273; Median July to Sept
Temperature (°C)	22.7	WQN273; Median July to Sept
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	City of Lancaster		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI	19	Distance from Outfall (mi)	31

4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	101	Design Flow (MGD)	0.005
Latitude	40º 12' 47.49"	Longitude	-75º 58' 3.91"
Quad Name		Quad Code	
Wastewater Description:	Discharge to spray field		
Receiving Waters	Unnamed Tributary of Muddy Creek	Stream Code	7787
NHD Com ID	57461407	RMI	0.5
Drainage Area	0.5	Yield (cfs/mi^2)	0.1191
Q_{7-10} Flow (cfs)	0.060	Q_{7-10} Basis	StreamStats/Gauge
Elevation (ft)	517	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	HQ-TSF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	None
Assessment Status	Attaining Use(s) supports aquatic life. Impaired for recreational purposes		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Unknown source		
TMDL Status	Not applicable	Name	

Background/Ambient Data		Data Source
pH (SU)	8.2	WQN273; Median July to Sept
Temperature (°F)	22.7	WQN273; Median July to Sept
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		City of Lancaster	
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI	19	Distance from Outfall (mi)	31

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 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 1.0 (WQM Model) and (3) PENTOXSD for Windows 2.0 (PENTOXSD) for Toxics pollutants.

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 input values utilized for the modeling are summarized in the table which can be found in Attachment B.

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

5.3.3 Whole Effluent Toxicity (WET)

The subject 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.

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 not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I and II WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was December 17, 2019.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors
:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose

to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

If no data are available to determine existing concentrations for expanding Phase 4 or 5 facilities, default concentrations of 25 mg/l TN and 4 mg/l TP may be used (these are the average estimated concentrations of all non-significant sewage facilities).

DEP will not issue permits to existing Phase 4 and 5 facilities containing Cap Loads unless it is done on a broad scale or unless the facilities are expanding.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

This facility is subject to Sector C monitoring requirements. An annual sample for nitrogen species and phosphorus has been recommended. Since the facility was originally designed for 0.02 MGD (Fact Sheet 03/26/1984), the facility will not be considered as expanding even though the flow rate has been re-rated from 0.004 MGD to 0.014 MGD.

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 special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Since the facility existed prior to the high quality water designation (Fact Sheet from April 21, 2011), the facility is not subject to additional anti-degradation requirements. The facility was originally designed for 0.02 MGD. Thus, the re-rate from 0.004 MGD to 0.02 MGD will not consider the facility as an expanding facility.

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 and (b) Nitrogen Species and Phosphorus.

6.1.1.1 Conventional Pollutants and Disinfection (Outfall 001)

OUTFALL 001: Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection PennSylvan Realty Corporation, PA0051861, Outfall 001, November 1 to March 31			
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 2x/month 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 2x/mo as a 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. Since the TBEL is more stringent than TBEL, TBEL will apply.
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). The TRC Evaulation worksheet was modeled using a winter flow rate of 0.009 MGD (i.e. 0.014 MGD - 0.005 MGD). The 0.009 MGD flow rate is reasonable for the facility's operation during the winter at which time the facility does not anticipate large events.	
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 2000 mg/l 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, or (g) WET			
2 Monitoring frequency based on flow rate of 0.009 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017			

6.1.1.2 Conventional Pollutants and Disinfection (Outfall 101)

OUTFALL 101: Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
PennSylvan Realty Corporation, PA0051861, Outfall 001, April 1 to October 31			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample.
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The effluent limits have been assigned based upon best professional judgement.
CBOD	TBEL; Regulation Chapter 72.42	Monitoring:	The monitoring frequency shall be 1x/month as an grab sample.
		Effluent Limit:	Effluent limits shall not exceed 25 mg/l as an average monthly.
		Rationale:	The effluent limits have been assigned consistent with secondary treatment limits/Chapter 72.42.
TSS	TBEL; Regulation Chapter 72.42	Monitoring:	The monitoring frequency shall be 1/mo as a grab sample.
		Effluent Limit:	Effluent limits shall not exceed 30 mg/l as an average monthly.
		Rationale:	The effluent limits have been assigned consistent with secondary treatment limits/Chapter 72.42.
Fecal Coliform	TBEL; Regulation Chapter 72.42, 73.165	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample.
		Effluent Limit:	Effluent limits shall not exceed 200 mg/l as a geometric mean.
		Rationale:	The effluent limits have been assigned consistent with Chapter 72.42.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, or (g) WET			
2 Monitoring frequency based on flow rate of 0.005 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017			

6.1.2.1 Nitrogen Species and Phosphorus (Outfall 001)

OUTFALL 001: Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

PennSylvan Realty Corporation, PA0051861, Outfall 001, November 1 to March 31

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	WQM	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample
		Effluent Limit:	Effluent limits shall be greater than 11.0 mg/l. The WQM model results recommended an ammonia-nitrogen limit of 3.77 mg/l. Accounting for winter limits, a 3x multiplier is applied to the 3.77 mg/l to arrive at the 11.0 mg/l (3.77 mg/l x 3 = 11.0 mg/l).
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually.
Nitrate-Nitrite as N	Cheapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually.
Total Nitrogen	Cheapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually.
TKN	Cheapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually.
Total Phosphorus	Cheapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually.

Notes:

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

2 Monitoring frequency based on flow rate of 0.009 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017

6.1.2.2 Nitrogen Species and Phosphorus (Outfall 101)

OUTFALL 101: Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

PennSylvan Realty Corporation, PA0051861, Outfall 001, April 1 to October 31

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	BPJ	Monitoring:	The monitoring frequency shall be 1x/mo as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	In conjunction with Chapter 71.64 regulations for nitrate-nitrogen, this parameter has been recommended for monitoring.
Nitrate-Nitrite as N	Regulation-Chapter 71.64	Monitoring:	The monitoring frequency shall be 1x/mo as grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Soil discharges are subject to Chapter 71.64 regulations
Total Nitrogen	BPJ	Monitoring:	The monitoring frequency shall be 1x/mo as grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	In conjunction with Chapter 71.64 regulations for nitrate-nitrogen, this parameter has been recommended for monitoring.
TKN	BPJ	Monitoring:	The monitoring frequency shall be 1x/mo as grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	In conjunction with Chapter 71.64 regulations for nitrate-nitrogen, this parameter has been recommended for monitoring.
Notes:			

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

2 Monitoring frequency based on flow rate of 0.005 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 Phase 2 Watershed Implementation Plan Wastewater Supplement, Revised September 6, 2017

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.

Changes in Permit Monitoring or Effluent Quality

Parameter	Existing permit	Proposed Permit
Flow Rate	Outfalls 001 and 101 are both 0.004 MGD each.	Outfall 001 for surface water discharge shall be 0.009 MGD (i.e. 0.014 MGD - 0.005 MGD = 0.009 MGD).
		Outfall 101 for spray irrigation shall be 0.005 MGD.
TDS	Monitoring was required 1x/mo	TDS monitoring has been eliminated.
Ammonia Nitrogen for Outfall 001	An effluent limit of 33 mg/l as an average monthly for the months of November 1 to March 31. Monitoring was required 2x/mo.	The effluent limit has been recommended to be reduced to 11.0 mg/l as an average monthly. The effluent limit decreased since the facility requested a re-rate in flow rate from 4,000 gpd to 14,000 gpd. The limit applies for the months of November 1 to March 31. During the months of April 1 to October 31, the facility anticipates minimal flow through Outfall 001. The next renewal will examine the amount of flow through Outfall 001 during the summer months. An effluent limit for ammonia-nitrogen may be enforceable at that time. A review of DMR from 2019 indicates that the facility should not have difficulty in meeting an ammonia-nitrogen limit of 3.5 mg/l.
Nitrate-Nitrite as N for Outfall 001	No monitoring or effluent limits.	Due the Chesapeake Bay Implementation Plan, the facility will be required to monitor 1x/yr as an 8-hr composite sample.
Total Nitrogen for Outfall 001	No monitoring or effluent limits.	Due the Chesapeake Bay Implementation Plan, the facility will be required to monitor 1x/yr as an 8-hr composite sample.
TKN for Outfall 001	No monitoring or effluent limits.	Due the Chesapeake Bay Implementation Plan, the facility will be required to monitor 1x/yr as an 8-hr composite sample.
Total Phosphorus for Outfall 001	No monitoring or effluent limits.	Due the Chesapeake Bay Implementation Plan, the facility will be required to monitor 1x/yr as an 8-hr composite sample.

6.3.1 Summary of Proposed NPDES Effluent Limits (Outfall 001)

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° 12' 51.00" , **Longitude** 75° 58' 24.00" , **River Mile Index** 0.5 , **Stream Code** 7787

Receiving Waters: Unnamed Tributary of Muddy Creek (HQ-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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Weekly when Discharging	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	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	2000 Geo Mean	XXX	XXX	2/month	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	XXX	XXX	XXX	11.0	XXX	22	2/month	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	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		
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	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
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Systems

Special Conditions

Land Application and Treatment

1. The herein approved treatment facilities shall produce an effluent with the following limits prior to irrigation:

Parameter	Monthly Average (mg/l)	Instantaneous Maximum	Measurement Frequency	Sample Type
Flow (mgd) Influent and Irrigation	Shall be monitored		Continuous	Measured
$CBOD_5$	25	50	1/month	Grab
Total Suspended Solids	30	60	1/month	Grab
pH	6 -9 S.U. at all times		1/day	Grab
Fecal Coliform	200/100 ml as a geometric average, not greater than 1000/100 ml in more than ten percent of the samples tested.		1/month	Grab
Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate-Nitrite, Ammonia Nitrogen	Monitor and Report		1/month	Grab

   The results of all sampling activities are to be listed once a month on the Discharge Monitoring Form (DMR) supplied by the Department and submitted to this office on a monthly basis.

2. The spray field consists of eight (8) spray head comprising approximately 41,582 ft^2. Effluent shall be evenly distributed over the wetted area. The hydraulic loading rates shall not exceed 1.25 in/wk.

3. Effluent shall not be sprayed during the following adverse weather conditions:

   a. 0.5 or more inches of precipitation have occurred in the previous 24-hour period.
   b. Sustained wind velocity exceeding 10 mph.
   c. Precipitation is falling.
   d. The ground surface is frozen.
   e. The ground surface is covered with more than one inch of snow.

4. The spraying of effluent shall be rotated through all zones to ensure even coverage over the permitted area.

5. The spraying of effluent shall be managed to prevent ponding and/or run-off of effluent from the permitted area.

6. When the spray field is in operation, the operator shall inspect the site frequently to assure proper operation of the spray field at all times. Any inoperable or malfunctioning sprinkler heads or leaks in the supply lines shall be repaired immediately.

7. A crop management plan shall be developed to address crop planting, maintenance, and harvesting. This plan shall be submitted within 60 days of permit issuance.

8. All portions of the spray field shall be vegetated at all times while in use. A crop shall be harvested annually from the spray field and the yield in tons per acre shall be reported to the Department in the final monthly submittal of the Land Application Systems form.

9. The vegetation surrounding each sprinkler head shall be managed to prevent obstructing the water stream from the nozzles.

10. The Department shall be notified at least 2 weeks prior to the start of any new construction or modification of the treatment, monitoring, or spray irrigation system.

11. The Department may amend this permit, upon written notification to the permittee, if the amendment is necessary to comply with any provision of the Clean Streams Law, any rule, regulation, or order of the Department, or term or condition of this permit.

12. The permittee shall keep records of the spray field operation including the date of wastewater application, the amount of effluent spray irrigated per day, which zone has been sprayed, weather conditions, the duration of application, the condition of spray field, the amount of snow on the spray field and the rainfall depth that occurred each day. These records are to be listed once a month on the Land Application Systems supplemental form supplied by the Department and submitted to this office on a monthly basis with the Discharge Monitoring Form.

13. Five years from the date of issuance of this permit, and each subsequent five-year period, the facility shall submit a report to the Department summarizing the effectiveness of the spray irrigation system. The report shall include summary reports providing groundwater quality data from quarterly events, groundwater elevation data and maps, and a narrative discussion including tables and maps. This analysis should be completed by a Licensed Professional Geologist or a Professional Engineer trained to complete such assessments. The narrative report shall evaluate the overall operation of the system demonstrating its effectiveness. If modification to the operation is proposed, details must be submitted in the report.

14. The groundwater quality beneath the spray irrigation field will be observed through a monitoring well system. The wells should be open across the water table and be able to deliver a representative sample throughout the year. Should a well become dry for three (3) or more consecutive quarters, a new well will be drilled to replace the dry well.

15. The monitoring wells (MW#1 and #2) shall be sampled quarterly for the following parameters:

    - pH
    - Fecal Coliform
    - CBOD
    - Nitrate-Nitrogen
    - Ammonia-Nitrogen
    - Nitrite-Nitrogen
    - Total Dissolved Solids

    Prior to sampling, all the wells will be purged three to five well volumes. Another purging method may be acceptable pending the Department's written approval.

    The sampling results will be recorded on the Groundwater Data Monitoring Report form and shall be submitted to the Department within 45 days of the sample date. If at any time the monitoring results indicate that groundwater degradation has occurred, the Department may require the permittee to perform necessary steps to alleviate the problem.

    The forms shall be submitted either electronically or mailed to:

    Pennsylvania Department of Environmental Protection

Clean Water Program
Monitoring and Compliance Section
909 Elmerton Avenue
Harrisburg, PA 17110

16. Test Procedures

Unless otherwise specified in this permit, the test procedures for the analysis of pollutants shall be those approved under 40 CFR 136 (or in the case of sludge use or disposal, approved under 40 CFR 136, unless otherwise specified in 40 CFR 503), or alternate test procedures approved pursuant to those parts, unless other test procedures have been specified in this permit.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: *New and Reissuance Sewage Individual NPDES Permit Applications, revised October 11, 2013*
☐	Other:

APPENDIX 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]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	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)
01565000	1941–2008	37	17.6	18.6	28.6	20.3	32.4	24.4
01565700	1965–1981	17	.4	.4	.9	.5	1.1	.8
01566000	1913–2008	52	4.3	7.9	18.8	12.4	25.6	19.2
01566500	1932–1958	27	1.7	2.4	4.0	3.2	5.7	4.9
01567000	[2]1974–2008	35	504	534	725	589	857	727
01567000	[3]1901–1972	72	311	367	571	439	704	547
01567500	1955–2008	54	2.0	2.2	3.3	2.6	3.8	3.1
01568000	1931–2008	78	12.7	15.5	25.5	19.2	32.0	26.0
01568500	[2]1943–1997	55	1.8	2.3	4.3	2.7	5.0	3.1
01569000	1939–1974	14	2.6	4.0	7.4	5.1	9.4	7.8
01569800	1978–2008	31	15.9	17.0	24.4	18.4	26.1	20.3
01570000	[3]1913–1969	35	—	63.1	110	76.1	124	95.3
01570000	[2]1971–2008	38	63.1	69.3	109	78.3	125	97.8
01570500	[3]1901–1972	72	2,310	2,440	4,000	2,830	4,950	3,850
01570500	[2]1974–2008	35	3,020	3,200	5,180	3,690	6,490	4,960
01571000	1941–1995	16	.1	.2	.6	.3	1.2	.8
01571500	1911–2008	62	81.6	86.8	115	94.0	124	105
01572000	1921–1984	14	2.1	2.3	4.8	3.0	6.5	4.5
01572025	1990–2008	17	15.2	16.4	26.7	18.5	34.6	27.7
01572190	1990–2008	17	19.1	20.5	36.2	23.9	45.8	35.3
01573000	1920–2008	89	18.0	22.0	52.0	30.8	69.2	50.9
01573086	1965–1981	17	.5	.6	2.6	.8	3.3	1.1
01573160	1977–1994	18	26.9	29.6	46.4	33.6	51.9	39.5
01573500	1939–1958	20	1.3	1.4	2.5	1.8	3.2	2.6
01573560	1977–2008	30	50.3	62.0	104	76.9	131	108
01574000	1930–2008	79	8.0	11.1	32.0	17.7	47.0	33.9
01574500	[2]1968–2008	41	14.2	24.0	35.9	29.4	42.0	33.3
01574500	[3]1930–1966	34	2.3	7.1	11.5	9.3	14.8	12.7
01575000	[2]1973–1995	23	.7	1.4	6.7	3.2	12.0	9.3
01575000	[3]1929–1971	43	.1	.6	10.3	2.3	15.0	6.1
01575500	[2]1948–1996	49	12.1	18.7	41.3	23.9	50.0	33.8
01576000	[3]1933–1972	40	2,100	2,420	4,160	2,960	5,130	4,100
01576000	[2]1974–2008	35	2,990	3,270	5,680	3,980	7,180	5,540
01576085	1984–1995	12	.4	.5	.8	.7	1.2	1.2
01576500	1931–2008	78	27.2	38.6	79.4	49.1	97.3	66.1
01576754	1986–2008	23	74.2	84.9	151	106	189	147
[4]01578310	1969–2008	40	549	2,820	5,650	4,190	7,380	6,140
01578400	1964–1981	18	1.4	1.5	2.7	1.9	3.2	2.5
[4]01580000	1928–2008	81	19.7	22.8	48.1	28.1	51.8	35.4
[4]01581500	1946–2008	28	.2	.3	1.2	.8	1.7	1.5
[4]01581700	1969–2008	40	4.7	5.5	17.5	8.1	18.3	12.0
[4]01582000	1946–2008	63	11.3	12.5	25.0	15.5	28.0	20.3
[4]01582500	1979–2008	27	41.2	43.9	78.8	53.8	90.6	74.1
[4]01583000	1949–1981	33	.3	.3	.7	.3	1.0	.6
[4]01583100	1984–2008	15	2.1	2.4	5.5	3.2	6.0	4.2

APPENDIX B
Modeling Input Values
WQM 7.0 Modeling Output Values

ATTACHMENT C
TRC Evaluation