pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0082651**
Facility Type	**Municipal**	APS ID	**44916**
Major / Minor	**Minor**	Authorization ID	**1177304**

Applicant and Facility Information

Applicant Name	**Landisburg Municipal Authority Perry County**	Facility Name	**Landisburg STP**
Applicant Address	202 E. Main Street	Facility Address	77 W High Street
	Landisburg, PA 17040-0213		Landisburg, PA 17040
Applicant Contact	Marena Weaver	Facility Contact	Marena Weaver
Applicant Phone	(800) 297-4008	Facility Phone	(800) 297-4008
Client ID	70242	Site ID	237721
Ch 94 Load Status	Not Overloaded	Municipality	Tyrone Township
Connection Status	Self Imposed Connection Prohibition	County	Perry
Date Application Received	March 23, 2017	EPA Waived?	Yes
Date Application Accepted	April 24, 2017	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 Engineer Nick Hong (via electronic signature)	January 31, 2022
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	February 1, 2022
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	February 1, 2022

Summary of Review

Important Note:

A draft of the Fact Sheet and a draft of the NPDES permit was sent to the facility in July 2019. Due to outstanding compliance issues, the final fact sheet was not issued to the facility. Current compliance issues are now being addressed.

The enclosed is an updated Fact Sheet and NPDES permit. This draft Fact Sheet and draft NPDES is being submitted to the facility for comment. The final NPDES permit will be issued once the compliance violations have been lifted.

The application submitted by the applicant requests a NPDES renewal permit for the Landisburg Municipal Authority WWTP located at 77 West High Street, Landisburg, PA 17040 in Perry County, municipality of Tyrone Township. The NPDES expired on June 30, 2017. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on March 23, 2017. Processing of the NPDES renewal was delayed due to compliance issues.

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 0.03 MGD treatment facility. The applicant anticipates proposed upgrades to the treatment facility in the near future. Section 1.2 of the Fact Sheet itemizes upgrades per corrective action plans. 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 Perry County Planning Commission and Tyrone Township and the notice was received by the parties on February 10, 2017 and February 16, 2017. 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 Montour Creek. The sequence of receiving streams that the Montour Creek discharges into are Sherman Creek 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 cold water fishes (CWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

Montour Creek is a Category 5 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). The receiving stream is impaired for aquatic life due to siltation from agriculture and 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:

- **Ammonia-nitrogen limits will be lowered from 14 mg/l to 13.5 mg/l as a monthly average**
- **Due to the Chesapeake Bay WIP, the facility will be required to monitor for nitrogen species and phosphorus on a 1x/yr basis.**
- **Consistent with the EPA Triennial Review, E. Coli shall be monitored on a 1x/year basis.**

Summary of Review

Sludge use and disposal description and location(s): Sewage sludge disposed at Capital Region Water in Dauphin County, Harrisburg

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:	Landisburg Municipal Authority WWTP
NPDES Permit #	PA0082651
Physical Address:	77 West High Street Landisburg, PA 17040
Mailing Address:	202 E. Main Street Landisburg, PA 17040
Contact:	Marena Weaver Secretary / Treasurer (800) 297-4008 lma@landisburg.org
Consultant:	Max E. Stoner, PE Glace Associates max@glaceeng.com
Operator:	Dean Miller Operator dmiller@miller-env.com

1.2 Permit History

In February 2019, Ken Morrison inquired about possibility of the plant receiving hauled in wastewater. He suggested that the hauled in wastewater would occur once the treatment plant has been upgraded.

In lieu of absent data in eDMR, DEP request that the facility submit paper DMR for 2018. As of July 2019, the facility has begun populating data retroactive to 2018 but the facility has done so intermittently. eDMR from January 2019 to May 2019 also has been intermittently entered in eDMR.

Contingent upon continued coverage under a NPDES permit, the facility will be required to continue eDMR entries.

DEP Operations staff has summarized the facility's compliance issues as follows:

- Between May 2018 and November 2021, Landisburg exceeded its NPDES Permit effluent limitations for Dissolved Oxygen, Fecal Coliform, TRC, CBOD, TSS and NH3-N.
- Between June 2016 and May 2020, Landisburg failed to submit timely DMR's and failed to collect effluent samples at the frequency required by its NPDES Permit.
- Landisburg failed to submit timely Chapter 94 reports for 2019 and 2020.
- On August 8, 2018, the Department documented an SSO to the surface of the ground near 2 Walnut Lane, Landisburg.
- On October 1, 2020, DEP requested a timeline for submitting a Chapter 94 report, a corrective action plan (CAP) addressing the STP and the collection system, and an engineering evaluation of the STP.

- On June 23, 2021, DEP requested that Landisburg submit the items discussed during the October 1, 2020 teleconference. The requested items were received on August 20, 2021.
- On September 28, 2021, a SSO from a manhole upstream of the Kennedy Valley PS occurred. Additional overflows from the sanitary sewer collection system had occurred on September 23, 2021, September 25, 2021, September 26, 2021, and September 27, 2021. Both pumps at the Kennedy Valley Pump Station were not operational. A Field Order was issued for Landisburg to immediately take necessary actions to restore proper operation to the Kennedy Valley Pump Station.
- On November 24, 2021, the pump at the Kennedy Valley PS had failed resulting in an SSO.

A timeline for upgrades to the facility are addressed in the corrective action plan (CAP). The schedule of activities are as follows.

Year 2022

- Both pumps at Kennedy Valley PS be operational by the end of February 2022.
- Service the STP emergency generator
- Upgrade or complete necessary repairs in influent and effluent composite samplers
- Service and complete necessary repairs to the STP digester blower
- Service the STP polymer feed system
- Install manhole saucers on in all manholes subject to being covered with surface water
- Survey manholes in the service area for infiltration
- Survey for direct sump pump and roof leader collection
- Upgrade the STP flow meter and recorder;
- Install an electric pump for wasting sludge at the STP;
- Service the Kennedy Valley Pumping Station sump pump and wall mounted fan.

Year 2023

- Survey all sewer mains in the sanitary sewer collection system by televising
- Clear blockages, jet, or clean the sewer mains
- Repair or replace the discharge piping and rails in the STP influent pumping station;
- Repair or replace the influent box to the STP equalization tank
- Install a flow meter and flow recorder at the Kennedy Valley PS

Year 2025

- Return the Kennedy Valley PS emergency generator and automatic transfer switch to proper working order

2.0 Treatment Facility Summary

2.1 Site location

The physical address for the facility is 77 West High Street, Landisburg, PA 17040. 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

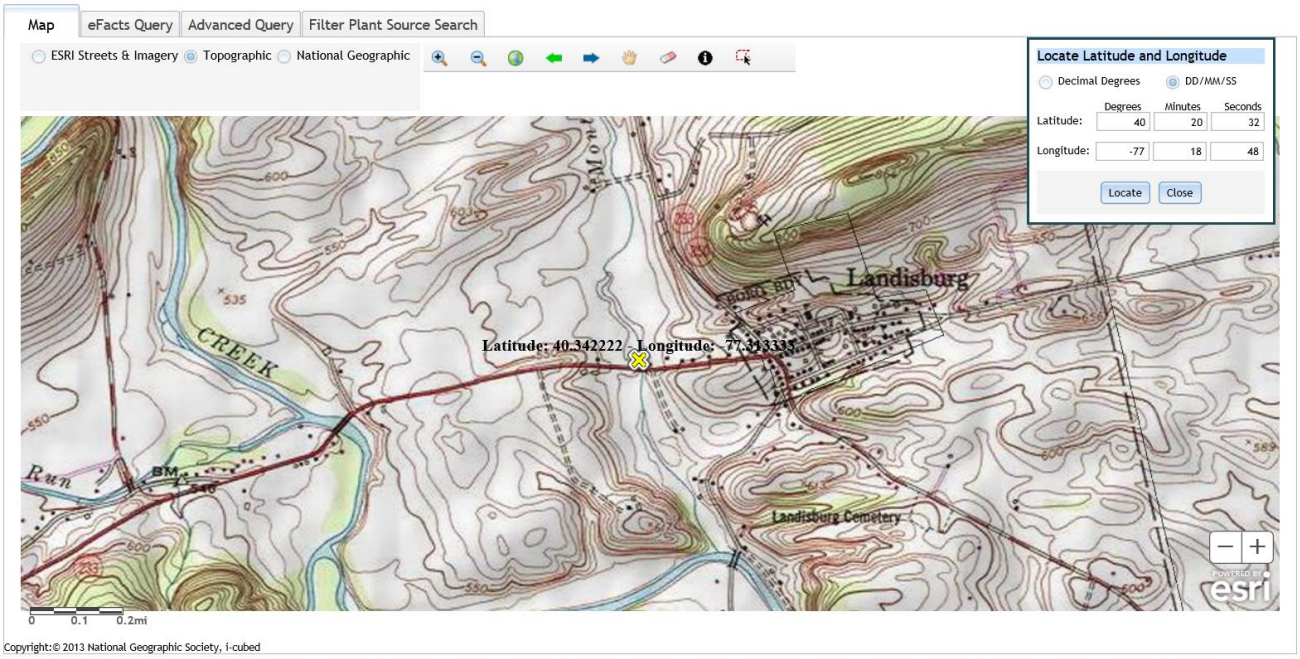
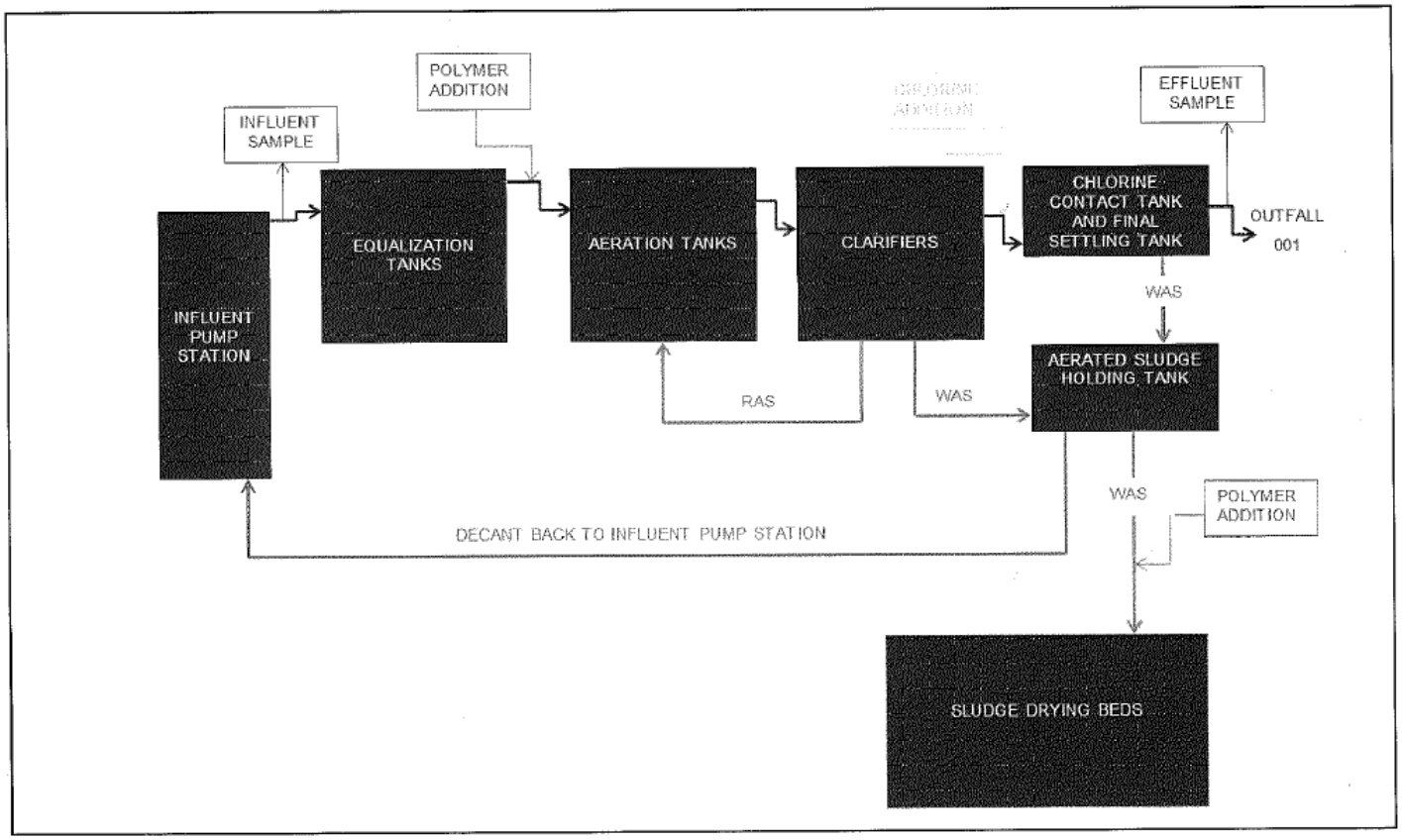


Figure 2: Aerial Photograph of the subject facility

2.2 Description of Wastewater Treatment Process

The subject facility is a 0.03 MGD design flow facility. The subject facility treats wastewater using an equalization basin, an aeration tank, a clarifier, and a chlorine contact chamber. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, TRC, fecal coliform, and ammonia-nitrogen. The existing permits limits for the facility is summarized in Section 2.4.

A process flow diagram for the facility is shown below.



The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Landisburg STP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.03
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.03	60	Not Overloaded	Aerobic Digestion	Other WWTP

2.3 Facility Outfall Information

The facility has the following outfall information.

Outfall No.	001	**Design Flow (MGD)**	.03
Latitude	40º 20' 35.00"	**Longitude**	-77º 18' 49.00"
Wastewater Description:	Sewage Effluent		

The subject facility outfall is not within a local vicinity of another sewage/wastewater outfall.

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.

- Sodium hypochlorite (12.5%) for disinfection
- Pollu-Treat CL 835 (Polymer) for flocculation

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** 40° 20' 35" , **Longitude** 77° 18' 49" , **River Mile Index** 0.5 , **Stream Code** 11157

Discharging to Montour Creek

which receives wastewater from wastewater treatment plant

1. The permittee is authorized to discharge during the period from July 1, 2012 through June 30, 2017.
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 (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	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	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
CBOD5	6.3	10 Wkly Avg	XXX	25	40	50	2/month	24-Hr Composite
Total Suspended Solids	7.5	11 Wkly Avg	XXX	30	45	60	2/month	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Ammonia-Nitrogen	3.5	XXX	XXX	14	XXX	28	2/month	24-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.

04/11/2013:

- During the inspection, water was observed on the blower room floor. Sodium hypochlorite tubing was separated at the compression fitting. The tubing was reattached and the sodium hypochlorite began dripping into the chlorine contact tank.
- The composite samplers were not sufficiently chilled as the ice had melted.
- A new weir box was installed.
- A Sewage Sludge Management Inventory was not submitted per the permit conditions

05/19/2014:

- An inspection was completed as a follow-up from a phone call from the certified operator (David Mohler). On May 16, 2014 there was a report of some solids loss at the plant since the plant received approximately 5" of rain. To aid in retaining the biomass, the air was turned off in the aeration tank.
- During the inspection, the air was on in the aeration tank. The clarifier effluent was clear. The equalization tank was ¾ full and not overflowing. The receiving stream was high and the outfall pipe was submerged.

04/15/2014:

- The facility was observed to experiencing heavy rain before and during the inspection. Landisburg had received 1" of rain on 04/15/2014 and a total of 2.12" since April 1, 2014.
- The equalization tank was full and flowing through the high level overflow to the aeration tank.
- Outfall 001 was submerged. Montour Creek was high and turbid.
- The water level in the influent pump station was to the top of the influent catch basket. A small (1 gpm or less) water leak was noted in the wet well where a 4" (estd) PVC pipe penetrates the wall behind the effluent pump discharge lines. Mr. Mohler thought that this may be the drying bed underdrain discharge. The leak appeared to be groundwater seepage at the pipe penetration. Mr Mohler stated that the groundwater leaks at pipe penetrations are also present in the aeration tanks.
- The operator's notes show problems with the chlorine feed system which includes chlorine line clogging/freezing, check valve problems, and pump failures. The chlorine pumps were out of service and the chlorine tablets were placed in the contact tank influent trough. The log book noted the pumps stopped working on 04/11/2014. Mr. Mohler stated neither the primary nor the backup pumps are functional.
- The operator' notes show two instances when the backup generator failed to power the plant during an electrical failure. Mr. Mohler stated that the problem may be with the transfer switch not fully engaging.

12/03/2014:

- In October 2014 DMR, the facility reported a DO violation due to a blower failure, and a fecal coliform violation due to effluent flow meter failing.
- During the inspection the effluent was clear with abundant pin flocs. The clarifiers contained a significant accumulation of floating denitrified sludge some of which was observed carrying over the weir troughs to the contact tank. Mr. Mohler stated that more wasting of sludge is needed.
- A significant accumulation of grit, grease and debris was noted in the equalization tank. Mr. Mohler stated that there are similar accumulations in the Kennedy Valley main pump station wet wells which may be contributing to the problems noted in the log book for the closed pumps.
- The operator stated that the emergency generator transfer switch has not been serviced.
- The facility was advised that the NPDES permit requires immediate notification to the DEP when an incident causes or threatens to cause pollution. The failure of critical equipment such as process blowers ad the flow meter and inability to repair them for several days qualifies as an incident.

10/7/2015:

- The facility had fecal coliform and ammonia nitrogen violations for May 2015, June 2015 and July 2015.
- The operator stated that the fecal coliform violations were caused by the chlorine feed pumps becoming blocked/and or losing prime due to lime scale buildup. Since the pumps were off line, chlorine tablets were being used for disinfection.
- The clarifier nearest the blower building was covered with sludge. The blanket was visible approximately 1.5' below the clarifier surface. Denitrified sludge was observed to be rising to the surface. Minimal flow was observed though the plant during the inspection which led to minimal clarifier effluent.
- The second chamber of chlorine contact tank was covered with sludge. Approximately 2.5' of accumulated sludge was noted in the bottom. The other clarifier was clear to 5-6'.
- On a follow-up visit on 10/14/2015, sludge accumulation in the contact tank and at the outfall was removed. Both clarifiers were clear with a few clumps of floating sludge. One sodium hypochlorite feed pump was in service. The effluent composite sampler was set-up at the contact tank but not collecting samples at the time of inspection.

10/20/2016:

- Only one influent pump was installed at the plant. Mr. Morison stated that the removed pump has failed and the plant is operating on one pump.
- The influent bar screen was removed from the influent pump station.
- The operator stated that the roof drains from the fire hall were disconnected from the sanitary sewer system and that since this was done a decrease in wet weather flow has been noted.

12/27/2017:

- Mr. Morrison noted that the hydraulic loading on the plant has decreased since the Fall. He noted that there were several vacant properties in town and several buildings were recently demolished. The operator investigated the source of the increase of flow when it rains and it was determined that groundwater is seeping into the concrete wet well from seams in the walls for the influent pump station. The operator stated that flows remain high for several days signaling infiltration and he suspected the source to be close the plant as the Kennedy Valley pump station flows do not significantly increase during rain events.
- Mr. Morrison stated that the digester is too small for the size of the plant. Sludge is dried on a drying bed and then stored under roof on a storage pad. The operator anticipates that more permanent piping for transferring to the drying beds be added.
- Of the 3 blowers on site, only one was operational.
- The sodium hypochlorite system was not in operation during the inspection as there was an issue with the feed tubing. The facility had been adding chlorine tables.

06/08/2018:

- The site inspection was in response to an odor complaint on 06/05/2018. Upon arrival, no noticeable odors were present in the area. The operator reviewed the log and found no occurrence that would have led to the increased odor.
- The operator stated that he is working with the Borough Authority to address heavy grease accumulation from a restaurant facility within their collection system.

08/08/2018:

- The inspection was completed due to a SSO occurring upgradient from Martin’s Auto Service.

01/08/2020:

- The inspection itemizes operation and maintenance violations
    - Two blowers were inoperable
    - EQ airlift failure
    - WQ weir box failure due to degradation
    - Sodium Hypochlorite feed system was inoperable
    - Us of Tri-Chlor tablets are not approved for use
    - Failure to maintain chart recorder.

02/24/2020:

- A contractor was onsite working on repairing offline blowers.
- Supplemental reports were not included with eDMR for May, June, and July 2018 and April 2019.

05/04/2020:

- A site inspection was completed due to a compliant about odors

06/03/2020:

- An administrative inspection was completed. The facility was informed that January through March 2020 DMR were not received. Once DEP received the DMRs, the inspector noted errors on the DMRs.

06/18/2020:

- This was a report of a compliant of odors.
- The facility was advised to close the influent wet well hatch except for maintenance activities to limit potential odors.

01/14/2021:

- Dean Miller, a certified operator, was taking over operations on July 20, 2020. The operator stated that an emergency generator at the facility has not been operational since September 2020. A power loss would result in the facility having no aeration. The operator also stated that one of the three available blowers is in need of repair but could be used in an emergency.

09/28/2021:

- Inspection was conducted due to SSO occurring on September 23, 25, 26, and 27, 2021. Of the two pumps at Kennedy Valley Pump Station, one is off site for repair and the second pump is offline due to electrical issues. The facility is hauling sewage from the pump station wet well to the WWTP. A field order was issued for the facility to immediately restore operation at Kennedy Valley Pump Station.

11/24/2021:

- Administrative inspection to document a SSO. The facility stated that a SSO occurred at manholes 200-1 and 200-2 where approximately 2,400 gallons discharged from the manholes. This was caused by Kennedy Valley Pump #1 tripping out due to thermal overload. The pump station is still in operation on one pump and Pump #2 has not been installed. The discharge impacted a grassy area and a portion of the road but did not reach any water courses.

3.2 Summary of DMR Data

In the draft Fact Sheet prepared by DEP in July 2019, a review of approximately 1-year of DMR data shows that the monthly average flow data for the facility with flows above the design capacity of the treatment system. The facility had at least 3 consecutive months when the monthly average flow was above the design capacity of the treatment system (i.e. July 2018 to September 2018). The facility is considered hydraulically overloaded which is a the condition that occurs when the monthly average flow entering a plant exceeds the hydraulic design capacity for 3-consecutive months out of the preceding 12 months or when the flow in a portion of the sewer system exceeds its hydraulic carrying capacity. The flow rate data is summarized below.

Summary of Monitoring Data for 2018

Month	January	February	March	April	May	June	July	August	September	October	November	December
Flow	0.0189	0.0411	0.0234	0.0262	0.0242	0.0272	0.0406	0.0328	0.0505	0.0219	0.0766	0.0451

For the updated Fact Sheet prepared by DEP in January 2022, a review of approximately 1-year of DMR data (December 2020 to November 2021) 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 0.024 MGD. The design capacity of the treatment system is 0.03 MGD.

Since there was a time period in 2018 when the facility was hydraulically overloaded, the facility should conduct a thorough evaluation of their treatment system to determine needs for plant expansion. The most recent 12 months of DMR data in 2021 did not show that the facility was hydraulically overloaded.

Parameter	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20
Flow (MGD) Average Monthly	0.020	0.015	0.024	0.010	0.009	0.009	0.010	0.019	0.022	0.017	0.018	0.021
Flow (MGD) Daily Maximum	0.084	0.062	0.136	0.045	0.019	0.021	0.019	0.096	0.096	0.027	0.031	0.138
pH (S.U.) Minimum	7.1	7.0	6.4	8.0	8.2	8.0	7.8	7.3	7.6	6.8	7.7	7.3
pH (S.U.) Maximum	8.4	8.8	8.9	8.5	8.5	8.4	8.3	8.3	8.3	8.4	8.2	8.5
DO (mg/L) Minimum	5.7	6.8	2.0	7.1	8.2	8.0	8.0	5.3	9.7	6.3	6.1	9.0
TRC (mg/L) Average Monthly	0.2	0.1	0.2	0.3	0.4	0.5	0.3	0.3	0.5	0.3	0.4	0.4
TRC (mg/L) Instantaneous Maximum	0.6	0.2	0.4	1.6	0.8	0.8	0.6	0.9	1.7	1.2	0.9	0.9
CBOD5 (lbs/day) Average Monthly	1.4	< 1.1	< 1.9	< 0.2	0.2	0.2	0.3	5.5	29.0	42.7	2.4	0.5
CBOD5 (lbs/day) Weekly Average	2	0.4	2.8	0.2	0.3	0.3	1	16	85	121	3	1
CBOD5 (mg/L) Average Monthly	7	< 6	< 4	< 3	3	3	3	10	39	278	21	3
CBOD5 (mg/L) Weekly Average	8	11	7	3	3	3	5	20	107	787	28	4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	28	22	49	18	33	22	23	23	21	19	16	21
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	31	24	60	26	40	22	26	24	22	34	17	26
BOD5 (mg/L) Raw Sewage Influent Average Monthly	184	242	217	236	355	294	280	218	140	178	141	149
TSS (lbs/day) Average Monthly	< 2.1	< 1.3	< 6.0	0.5	< 0.5	< 0.4	< 0.4	15.3	78.9	51.3	2.9	< 1.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	46	21	37	20	45	21	27	21	18	13	13	19
TSS (lbs/day) Raw Sewage Influent Daily Maximum	67	23	40	32	53	28	33	23	24	23	17	24

TSS (lbs/day) Weekly Average	2.8	1.1	10	0.7	< 0.5	0.5	< 1	44	234	135	4	2
TSS (mg/L) Average Monthly	< 10	< 9	< 13	7	< 5	< 6	< 5	25	105	325	25	< 9
TSS (mg/L) Raw Sewage Influent Average Monthly	309	234	209	255	485	277	374	204	126	143	115	131
TSS (mg/L) Weekly Average	12	11	23	9	< 5	6	< 5	55	293	873	35	12
Fecal Coliform (CFU/100 ml) Geometric Mean	> 513	1052	> 2420	48	43	< 1	> 361	47	1292	< 469	159	378
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	> 2420	1990	> 2420	53	184	< 1	> 2420	117	180000	18400	280	2200
Ammonia (lbs/day) Average Monthly	< 0.7	< 0.7	0.8	0.03	< 0.02	0.02	< 0.01	2.2	4.2	5.2	5.4	< 0.01
Ammonia (mg/L) Average Monthly	< 2.8	< 3.3	1.8	0.4	< 0.2	0.3	< 0.1	3	12	44	46	< 0.1

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, 2017 to January 15, 2022, the table summarizes observed effluent non-compliances with NPDES permit conditions.

Non Compliance Date	Non Compliance Type Description	Non Compliance Category Description	Parameter	Sample Value	Violation Condition	Permit Value	Unit of Measure	Statistical Base Code	Facility Comments
8/19/2018	Late DMR Submission	Other Violations							
8/19/2018	Sample collection less frequent than required	Other Violations	Flow						
8/19/2018	Sample type not in accordance with permit	Other Violations	Dissolved Oxygen						
8/19/2018	Sample type not in accordance with permit	Other Violations	Fecal Coliform						
8/19/2018	Sample type not in accordance with permit	Other Violations	pH						
8/19/2018	Sample type not in accordance with permit	Other Violations	Total Residual Chlorine (TRC)						
8/19/2018	Violation of permit condition	Effluent	Dissolved Oxygen	1.9	<	5	mg/L	Minimum	
7/16/2018	Violation of permit condition	Other Violations							
10/8/2018	Late DMR Submission	Other Violations							
10/8/2018	Sample type not in accordance with permit	Other Violations							
10/8/2018	Violation of permit condition	Effluent	Dissolved Oxygen	1	<	5	mg/L	Minimum	
10/8/2018	Violation of permit condition	Effluent	Fecal Coliform	236	>	200	CFU/100 ml	Geometric Mean	
10/8/2018	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	0.5	mg/L	Average Monthly	
10/8/2018	Late DMR Submission	Other Violations							
10/8/2018	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	10.14	>	6.3	lbs/day	Average Monthly	
10/8/2018	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	20	>	10	lbs/day	Weekly Average	
10/8/2018	Violation of permit condition	Effluent	Dissolved Oxygen	1	<	5	mg/L	Minimum	
10/8/2018	Violation of permit condition	Effluent	Fecal Coliform	314	>	200	CFU/100 ml	Geometric Mean	
10/8/2018	Violation of permit condition	Effluent	Fecal Coliform	5800	>	1000	CFU/100 ml	Instantaneous Maximum	
10/8/2018	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.73	>	0.5	mg/L	Average Monthly	
10/8/2018	Violation of permit condition	Effluent	Total Suspended Solids	22	>	7.5	lbs/day	Average Monthly	
10/8/2018	Violation of permit condition	Effluent	Total Suspended Solids	43	>	11	lbs/day	Weekly Average	
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Violation of permit condition	Effluent	Dissolved Oxygen	3	<	5	mg/L	Minimum	Had to shut off air to plant to retain solids. Restored after high flow.
1/25/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.51	>	0.5	mg/L	Average Monthly	
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Violation of permit condition	Effluent	Dissolved Oxygen	4	<	5	mg/L	Minimum	Had to shut off air to retain solids. Returned air as soon as flow stabilized
1/25/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	0.5	mg/L	Average Monthly	
1/25/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.78	>	1.6	mg/L	Instantaneous Maximum	
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	3.8	>	3.5	lbs/day	Average Monthly	
1/25/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	8.8	>	6.3	lbs/day	Average Monthly	
1/25/2020	Violation of permit condition	Effluent	Dissolved Oxygen	3	<	5	mg/L	Minimum	Hydraulic overflow potential to lose solids. Had to shut of air
1/25/2020	Violation of permit condition	Effluent	Fecal Coliform	28462	>	2000	CFU/100 ml	Geometric Mean	

1/25/2020	Violation of permit condition	Effluent	Fecal Coliform	33200	>	10000	CFU/100 ml	Instantaneous Maximum	
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	9.1	>	7.5	lbs/day	Average Monthly	
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.64	>	0.5	mg/L	Average Monthly	
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	308	>	30	mg/L	Average Monthly	Skewed Lab results
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	380	>	45	mg/L	Weekly Average	Skewed Lab results
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	52.9	>	7.5	lbs/day	Average Monthly	Lab values apparently skewed this month due to laboratory changing cleaning solutions which contaminated results. Was notified by ALS that this was the reason!
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	68	>	11	lbs/day	Weekly Average	Skewed Lab results
6/1/2019	Late DMR Submission	Other Violations							
6/1/2019	Violation of permit condition	Effluent	Dissolved Oxygen	3.74	<	5	mg/L	Minimum	
6/1/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	0.5	mg/L	Average Monthly	
6/1/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.63	>	1.6	mg/L	Instantaneous Maximum	
1/20/2020	Late DMR Submission	Other Violations							
1/20/2020	Sample type not in accordance with permit	Other Violations							
1/20/2020	Violation of permit schedule	Other Violations							
1/20/2020	Violation of permit condition	Effluent	Dissolved Oxygen	3.3	<	5	mg/L	Minimum	
1/20/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.68	>	0.5	mg/L	Average Monthly	
5/30/2019	Late DMR Submission	Other Violations							
5/30/2019	Sample type not in accordance with permit	Other Violations							
5/30/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.8	>	0.5	mg/L	Average Monthly	
5/29/2019	Late DMR Submission	Other Violations							
5/29/2019	Sample type not in accordance with permit	Other Violations							
5/29/2019	Violation of permit condition	Effluent	Dissolved Oxygen	3.44	<	5	mg/L	Minimum	
5/29/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.8	>	0.5	mg/L	Average Monthly	
5/29/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.65	>	1.6	mg/L	Instantaneous Maximum	
9/2/2019	Late DMR Submission	Other Violations							
9/2/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	0.5	mg/L	Average Monthly	Chemical adjustment to obtain standard dosing to hit targeted values per permit.
9/2/2019	Late DMR Submission	Other Violations							
9/2/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	0.5	mg/L	Average Monthly	
9/2/2019	Late DMR Submission	Other Violations							
9/2/2019	Violation of permit condition	Effluent	Dissolved Oxygen	2.12	<	5	mg/L	Minimum	High flow risked losing solids. Turned off blowers and then restored after high flow event.
11/11/2019	Late DMR Submission	Other Violations							
11/11/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.7	>	0.5	mg/L	Average Monthly	
11/11/2019	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.71	>	1.6	mg/L	Instantaneous Maximum	
1/20/2020	Late DMR Submission	Other Violations							

1/20/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.74	>	0.5	mg/L	Average Monthly	
1/20/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.88	>	1.6	mg/L	Instantaneous Maximum	
1/20/2020	Late DMR Submission	Other Violations							
1/20/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.08	>	0.5	mg/L	Average Monthly	
1/20/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.83	>	1.6	mg/L	Instantaneous Maximum	
1/25/2020	Late DMR Submission	Other Violations							
1/25/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.74	>	0.5	mg/L	Average Monthly	
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	308	>	30	mg/L	Average Monthly	Skewed lab results as a result of new cleaning solution contaminated results
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	380	>	45	mg/L	Weekly Average	Skewed lab results as a result of new cleaning solutions contaminating samples
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	52.9	>	7.5	lbs/day	Average Monthly	Was told by ALS lab results are skewed because of new cleaning solutions they used for lab equipment contaminated results
1/25/2020	Violation of permit condition	Effluent	Total Suspended Solids	68	>	11	lbs/day	Weekly Average	Skewed lab results as a result of new cleaning solutions which contaminated results
10/5/2020	Late DMR Submission	Other Violations							
10/5/2020	Sample collection less frequent than required	Other Violations							
10/5/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	14.5	>	6.3	lbs/day	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	142	>	40	mg/L	Weekly Average	
10/5/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	41	>	10	lbs/day	Weekly Average	
10/5/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	55	>	25	mg/L	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	0.6	>	0.5	mg/L	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Total Suspended Solids	178	>	11	lbs/day	Weekly Average	
10/5/2020	Violation of permit condition	Effluent	Total Suspended Solids	239	>	30	mg/L	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Total Suspended Solids	613	>	45	mg/L	Weekly Average	
10/5/2020	Violation of permit condition	Effluent	Total Suspended Solids	62.4	>	7.5	lbs/day	Average Monthly	
10/5/2020	Late DMR Submission	Other Violations							
10/5/2020	Late DMR Submission	Other Violations							
10/5/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	26	>	14	mg/L	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Fecal Coliform	12500	>	10000	CFU/100 ml	Instantaneous Maximum	
10/5/2020	Violation of permit condition	Effluent	Fecal Coliform	2646	>	2000	CFU/100 ml	Geometric Mean	
10/5/2020	Late DMR Submission	Other Violations							
10/5/2020	Violation of permit condition	Effluent	Fecal Coliform	38400	>	10000	CFU/100 ml	Instantaneous Maximum	
10/5/2020	Late DMR Submission	Other Violations							

10/5/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	18	>	14	mg/L	Average Monthly	
10/5/2020	Violation of permit condition	Effluent	Fecal Coliform	20347	>	200	CFU/100 ml	Geometric Mean	
10/5/2020	Violation of permit condition	Effluent	Fecal Coliform	45000	>	1000	CFU/100 ml	Instantaneous Maximum	
7/28/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	5.1	>	3.5	lbs/day	Average Monthly	
7/28/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	58	>	14	mg/L	Average Monthly	
7/28/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	6.7	>	6.3	lbs/day	Average Monthly	Miller Environmental, Inc. began operating Landisburg STP on July 20th, 2020. We have begun and will continue to evaluate and make process control changes to bring the plant into compliance.
7/28/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	71	>	25	mg/L	Average Monthly	
7/28/2020	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	92	>	40	mg/L	Weekly Average	
7/28/2020	Violation of permit condition	Effluent	Fecal Coliform	184000	>	1000	CFU/100 ml	Instantaneous Maximum	
7/28/2020	Violation of permit condition	Effluent	Fecal Coliform	59592	>	200	CFU/100 ml	Geometric Mean	
7/28/2020	Violation of permit condition	Effluent	Total Suspended Solids	39	>	30	mg/L	Average Monthly	
7/28/2020	Violation of permit condition	Effluent	Total Suspended Solids	48	>	45	mg/L	Weekly Average	
8/27/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	4	>	3.5	lbs/day	Average Monthly	Miller Environmental, Inc. began operating Landisburg STP on July 20th, 2020. We have begun and will continue to evaluate and make process control changes to bring the plant into compliance.
8/27/2020	Violation of permit condition	Effluent	Ammonia-Nitrogen	40	>	14	mg/L	Average Monthly	
8/27/2020	Violation of permit condition	Effluent	Dissolved Oxygen	1.7	<	5	mg/L	Minimum	
8/27/2020	Violation of permit condition	Effluent	Fecal Coliform	69282	>	200	CFU/100 ml	Geometric Mean	
8/27/2020	Violation of permit condition	Effluent	Fecal Coliform	80000	>	1000	CFU/100 ml	Instantaneous Maximum	
9/24/2020	Violation of permit condition	Effluent	Fecal Coliform	244	>	200	CFU/100 ml	Geometric Mean	Miller Environmental, Inc. began operating Landisburg STP on July 20th, 2020. There has been a significant improvement in effluent quality since then, and we will continue to evaluate and make process control changes to bring the plant into compliance.
9/24/2020	Violation of permit condition	Effluent	Fecal Coliform	8500	>	1000	CFU/100 ml	Instantaneous Maximum	See comment above.
9/24/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.8	>	1.6	mg/L	Instantaneous Maximum	See comment above.
10/26/2020	Violation of permit condition	Effluent	Fecal Coliform	3700	>	1000	CFU/100 ml	Instantaneous Maximum	Blocked underground Sodium Hypochlorite line. The line has been replaced.
10/26/2020	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.8	>	1.6	mg/L	Instantaneous Maximum	See comment above.
11/30/2020	Late DMR Submission	Other Violations							
2/28/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	46	>	14	mg/L	Average Monthly	
2/28/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	5.4	>	3.5	lbs/day	Average Monthly	Hydraulic overload after heavy rains in December (see attached flow chart) caused loss of nitrification which has taken about 60 days to recover.

3/28/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	44	>	14	mg/L	Average Monthly	See comment above.
3/28/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	5.2	>	3.5	lbs/day	Average Monthly	See comment above.
3/28/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	121	>	10	lbs/day	Weekly Average	See comment above.
3/28/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	278	>	25	mg/L	Average Monthly	See comment above.
3/28/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	42.7	>	6.3	lbs/day	Average Monthly	Aeration was shut down to prevent extreme solids loss from the plant during high flow on 2/16. PADEP was notified and a 24 HC sample was started and collected on 2/17. A combination of snow melt and a blower failure due to a power failure contributed to the severity of the violations.
3/28/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	787	>	40	mg/L	Weekly Average	See comment above.
3/28/2021	Violation of permit condition	Effluent	Fecal Coliform	18400	>	10000	CFU/100 ml	Instantaneous Maximum	See comment above.
3/28/2021	Violation of permit condition	Effluent	Total Suspended Solids	135	>	11	lbs/day	Weekly Average	See comment above.
3/28/2021	Violation of permit condition	Effluent	Total Suspended Solids	325	>	30	mg/L	Average Monthly	See comment above.
3/28/2021	Violation of permit condition	Effluent	Total Suspended Solids	51.3	>	7.5	lbs/day	Average Monthly	See comment above.
3/28/2021	Violation of permit condition	Effluent	Total Suspended Solids	873	>	45	mg/L	Weekly Average	See comment above.
4/22/2021	Violation of permit condition	Effluent	Ammonia-Nitrogen	4.2	>	3.5	lbs/day	Average Monthly	See comment above.
4/22/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	107	>	40	mg/L	Weekly Average	See comment above.
4/22/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	29	>	6.3	lbs/day	Average Monthly	Violations were due to the results of a sample collected while the WWTP was operating in storm mode on 3/1 and 3/2, after heavy rain. DEP was notified.
4/22/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	39	>	25	mg/L	Average Monthly	See comment above.
4/22/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	85	>	10	lbs/day	Weekly Average	See comment above.
4/22/2021	Violation of permit condition	Effluent	Fecal Coliform	180000	>	10000	CFU/100 ml	Instantaneous Maximum	See comment above.
4/22/2021	Violation of permit condition	Effluent	Total Residual Chlorine (TRC)	1.7	>	1.6	mg/L	Instantaneous Maximum	See comment above.
4/22/2021	Violation of permit condition	Effluent	Total Suspended Solids	105	>	30	mg/L	Average Monthly	See comment above.
4/22/2021	Violation of permit condition	Effluent	Total Suspended Solids	234	>	11	lbs/day	Weekly Average	See comment above.
4/22/2021	Violation of permit condition	Effluent	Total Suspended Solids	293	>	45	mg/L	Weekly Average	See comment above.
4/22/2021	Violation of permit condition	Effluent	Total Suspended Solids	78.9	>	7.5	lbs/day	Average Monthly	See comment above.
5/26/2021	Violation of permit condition	Effluent	Carbonaceous Biochemical Oxygen Demand (CBOD5)	16	>	10	lbs/day	Weekly Average	
5/26/2021	Violation of permit condition	Effluent	Total Suspended Solids	15.3	>	7.5	lbs/day	Average Monthly	Violations due to the results of a sample collected while the WWTP was operating in storm mode on 4/12. DEP was notified and a bypass sample was collected.
5/26/2021	Violation of permit condition	Effluent	Total Suspended Solids	44	>	11	lbs/day	Weekly Average	

5/26/2021	Violation of permit condition	Effluent	Total Suspended Solids	55	>	45	mg/L	Weekly Average	
6/28/2021	Violation of permit condition	Effluent	Fecal Coliform	> 2420	>	1000	CFU/100 ml	Instantaneous Maximum	
6/28/2021	Violation of permit condition	Effluent	Fecal Coliform	> 361	>	200	CFU/100 ml	Geometric Mean	Cause is unknown, as disinfection was adequate and plant was operating with no known problems. Fecal coliform samples are collected by a lab tech with a sampling pole that is sanitized and used only for fecal samples. We suspect that the tech may have used the wrong pole.
10/27/2021	Violation of permit condition	Effluent	Dissolved Oxygen	2	<	5	mg/L	Minimum	The violations in September occurred when the plant was operating in storm mode (aeration shutdown) due to excessive rainfall. Rainfall on 9/1-9/2 was ~6" and ~4" on 9/23-9/24.
10/27/2021	Violation of permit condition	Effluent	Fecal Coliform	> 2420	>	1000	CFU/100 ml	Instantaneous Maximum	See comment above.
10/27/2021	Violation of permit condition	Effluent	Fecal Coliform	> 2420	>	200	CFU/100 ml	Geometric Mean	See comment above.
12/26/2021	Violation of permit condition	Effluent	Fecal Coliform	> 2420	>	10000	CFU/100 ml	Instantaneous Maximum	See comment above.
12/26/2021	Violation of permit condition	Effluent	Fecal Coliform	> 513	>	2000	CFU/100 ml	Geometric Mean	Hypochlorite chemical feed pump failed. Temporarily used chlorine tablets, but they did not provide adequate disinfection. Ordered pump rebuild kit. Cleaned & serviced pump and placed back in service. Subsequent sample result in early December was back in compliance.

3.3.2 Non-Compliance- Enforcement Actions

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

Summary of Enforcement Action
Beginning July 1, 2012 and Ending January 15, 2022

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	EXECUTED DATE	VIOLATIONS	ENF FINAL STATUS	ENF CLOSED DATE	ENF COMMENT
357974	NOV	Notice of Violation	09/19/2017	09/19/2017	92A.44	Administrative Close Out	02/07/2019	Violations continue through 2018
386205	NOV	Notice of Violation	06/08/2020	06/08/2020	92A.44; 92A.61(G); 94.12(A)			
357404	NOV	Notice of Violation	08/21/2017	08/21/2017	92A.41(A)12B	Comply/Closed	09/05/2017	
375317	NOV	Notice of Violation	05/24/2019	06/06/2019	92A.41(A)12B			
378632	NOV	Notice of Violation	09/09/2019	09/05/2019	92A.41(A)12B			
332055	NOV	Notice of Violation	11/25/2015	11/17/2015	92A.41(C); 92A.44	Comply/Closed	12/07/2015	
383219	NOV	Notice of Violation	01/28/2020	01/22/2020	92A.41(A)5			
397547	FDORD	Field Order	09/28/2021	09/28/2021	CSL201			
367861	NOV	Notice of Violation	09/28/2018	08/22/2018	CSL201	Comply/Closed	10/17/2018	

3.4 Summary of Biosolids Disposal

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

Sewage Sludge / Biosolids Production Information

Hauled Off-Site			
2021	Gallons	% Solids	Dry Tons
January	0		
February	0		
March	0		
April	0		
May	8,000	0.8	0.266
June	8,000	0.8	0.266
July	12,000	1.1	0.567
August	0		
September	4,000	1.3	0.219
October	8,140	1.3	0.441
November	4,150	0.7	0.121

Notes:

Sewage sludge disposed at Capital Region Water in Dauphin County, Harrisburg

For May, a percentage solids and dry tons were not populated in DMR supplmental. The percentage solids and tons was assumed the same as June 2021

3.5 Open Violations

The following table summarizes open violations. Issuance of the final executed NPDES will be withheld until the open violations have been addressed and closed.

Summary of Open Violations

VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
874157	01/08/2020	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance
885898	06/03/2020	94.12(A)	Wasteload Management - Failure to submit a timely Chapter 94 report
885899	06/03/2020	92A.61(G)	NPDES - Failure to use a format or process required by DEP for self-monitoring results
885900	06/03/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit
931074	09/28/2021	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth
937301	11/24/2021	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Montour Creek. The sequence of receiving streams that Montour Creek discharges into are Sherman Creek 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 Capital Region Water (PWS ID #7220049) located approximately 36 miles downstream of the subject facility on the Susquehanna River. 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 2020 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 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 5 waterbody. The surface waters is a non-attaining stream that supports aquatic life and recreational purposes.

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 station to the subject facility is the Sherman Creek station at Shermans Dale, PA (WQN243 or USGS station number 1568000). This WQN station is located approximately 9.5 miles downstream of the subject facility while the gauge station is located 11.7 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 8.15 and the stream water temperature was estimated to be 22.3 C. The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1568000		
Station Name	Sherman Creek at Shermans Dale, PA		
Q710	15.5	ft^3/sec	
Drainage Area (DA)	207	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(15.5 ft^3/sec / 207 mi^2)		
LFY =	0.0749	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		12	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.0749 $ft^3/sec/mi^2$)(12 mi^2)			
Q710 =	0.899	ft^3/sec	

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.03
Latitude	40º 20' 10.11"	Longitude	-77º 18' 36.15"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Montour Creek	Stream Code	1157
NHD Com ID	56402647	RMI	0.49
Drainage Area	12	Yield (cfs/mi^2)	0.0749
Q_{7-10} Flow (cfs)	0.899	Q_{7-10} Basis	StreamStats/Stream Gauge
Elevation (ft)	517	Slope (ft/ft)	
Watershed No.	7-A	Chapter 93 Class.	CWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use	Same as Chapter 93 class	Exceptions to Criteria	None
Assessment Status	Non Attaining Use(s) for aquatic life and recreational use		
Cause(s) of Impairment	Agriculture for aquatic life; pathogens for recreational use		
Source(s) of Impairment	Siltation for agriculture; unknown source for pathogens		
TMDL Status	Not appl.	Name	

Background/Ambient Data		Data Source
pH (SU)	8.15	WQN243; Median July to Sept
Temperature (°C)	22.3	WQN243; Median July to Sept
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Capital Region Water	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	73	Distance from Outfall (mi)	36

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

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

General Data 1 (Modeling Point #1)	***Type***	***Default***	***Input Value***	***Units***
Stream Code	R		11157	
River Mile Index	R		0.49	miles
Elevation	R		517	feet
Latitude			40.342222	
Longitude			-77.313333	
Drainage Area	R		12	sq miles
Reach Slope	O		Default	ft/ft
Low Flow Yield	R	0.1	0.0749	cfs/sq mile
Potable Water Supply Withdrawal	O	0	Default	mgd
General Data 2 (Modeling Point #2)	***Type***	***Default***	***Input Value***	***Units***
Stream Code	R		11157	
River Mile Index	R		0	miles
Elevation	R		506	feet
Latitude			40.33604	
Longitude			-77.3099	
Drainage Area	R		144	sq miles
Reach Slope	O		Default	ft/ft
Low Flow Yield	R	0.1	0.0749	cfs/sq mile
Potable Water Supply Withdrawal	O	0	Default	mgd

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.

5.3.2 Toxics Modeling

Toxics modeling is not applicable to the subject facility.

5.3.3 Whole Effluent Toxicity (WET)

WET is not applicable to the subject facility.

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, II, and III 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 September 13, 2021.

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.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

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 Phase 5, Sector C monitoring requirements. The facility has been recommended to be monitored for nitrogen species and phosphorus on a 1x/yr basis as a 24-hr composite. The facility is not listed in Attachment B of the Phase 2 WIP.

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 and (b) Nitrogen Species and Phosphorus.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Landisburg WWTP, PA0082651

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 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 25 mg/l as an average monthly and 6.3 lbs/mo as a monthly average.
		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 2/month as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 30 mg/l as an average monthly and 7.5 lbs/mo as a monthly average.
		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)	
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 200 mg/l as a geometric mean. Winter 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).
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/yr as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) 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, or (g) WET

2 Monitoring frequency based on flow rate of 0.03 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 Nitrogen Species and Phosphorus

Changes in Permit Monitoring or Effluent Quality		
Parameter	**Existing Permit**	**Draft Permit**
E. Coli	No monitoring or effluent limitations.	Due to the EPA Triennial review, E. Coli shall be monitored 1x/yr.
Ammonia-Nitrogen	Monitoring is required 2x/mo. Effluent limitations are 14 mg/l.	Monitoring will be required 2x/mo with the effluent limitation not to exceed 13.5 mg/l as a monthly average and 3.3 lbs/day.
Nitrate-Nitrite as N	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
Total Nitrogen	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
TKN	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
Total Phosphorus	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended

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	Draft Permit
E. Coli	No monitoring or effluent limitations.	Due to the EPA Triennial review, E. Coli shall be monitored 1x/quarter.
Ammonia-Nitrogen	Monitoring is required 2x/mo. Effluent limitations are 14 mg/l.	Monitoring will be required 2x/mo with the effluent limitation not to exceed 13.5 mg/l as a monthly average and 3.3 lbs/day.
Nitrate-Nitrite as N	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
Total Nitrogen	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
TKN	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended
Total Phosphorus	No monitoring or effluent limitations.	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least annually. No effluent limitations have been recommended

6.3 Summary of Proposed NPDES Effluent Limits

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° 20' 35.00" , **Longitude** 77° 18' 49.00" , **River Mile Index** 0.49 , **Stream Code** 11157

Receiving Waters: Montour Creek (CWF)

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	Weekly Average	Minimum	Average Monthly	Weekly Average	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)	6.3	10	XXX	25	40	50	2/month	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Suspended Solids	7.5	11	XXX	30	45	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Nitrate-Nitrite as N (Total Load, lbs) (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Nitrogen (Total Load, lbs) (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	3.3	XXX	XXX	13.5	XXX	27	2/month	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Total Kjeldahl Nitrogen (Total Load, lbs) (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Total Phosphorus (Total Load, lbs) (lbs)	Report Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	24-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 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)
☐	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, Rev October 11, 2013*
☐	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]
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

StreamStats Report

Region ID: PA
Workspace ID: PA20220118112846974000
Clicked Point (Latitude, Longitude): 40.34221, -77.31317
Time: 2022-01-18 06:29:06 -0500

Landisburg MA PA0082651 Modeling Point #1 January 2022

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	12	square miles
PRECIP	Mean Annual Precipitation	39	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.51	miles per square mile
ROCKDEP	Depth to rock	5.7	feet
CARBON	Percentage of area of carbonate rock	36.34	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	12	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	1.51	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5.7	feet	3.32	5.65
CARBON	Percent Carbonate	36.34	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

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

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2.9	ft^3/s
30 Day 2 Year Low Flow	3.33	ft^3/s
7 Day 10 Year Low Flow	2.02	ft^3/s
30 Day 10 Year Low Flow	2.22	ft^3/s
90 Day 10 Year Low Flow	2.67	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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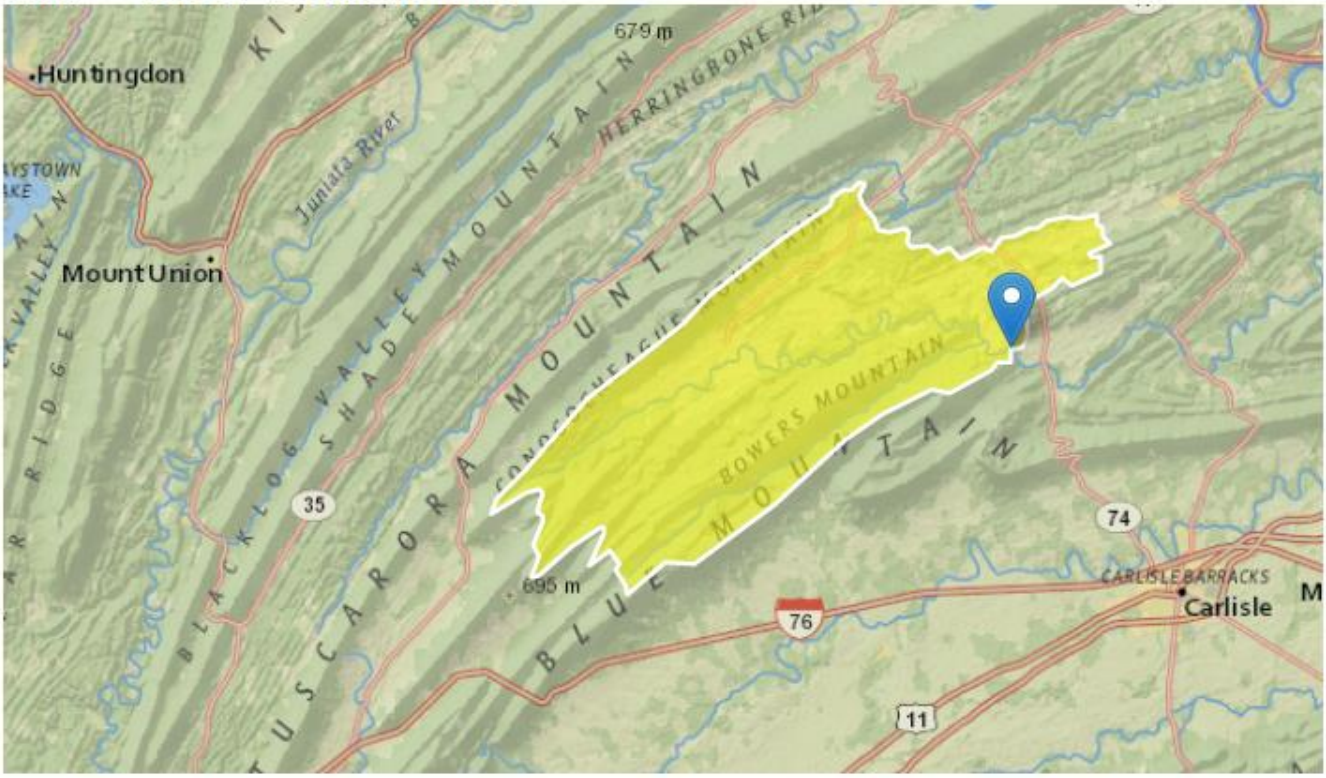
Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20220118143826312000
Clicked Point (Latitude, Longitude): 40.33603, -77.30983
Time: 2022-01-18 09:38:48 -0500



Landisburg MA PA0082651 Modeling Point #2 January 2022

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	144	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.88	miles per square mile
ROCKDEP	Depth to rock	4.9	feet
CARBON	Percentage of area of carbonate rock	11.23	percent

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	144	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.88	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.9	feet	3.32	5.65
CARBON	Percent Carbonate	11.23	percent	0	99

Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	22.8	ft^3/s	38	38
30 Day 2 Year Low Flow	28.2	ft^3/s	33	33
7 Day 10 Year Low Flow	14	ft^3/s	51	51
30 Day 10 Year Low Flow	17	ft^3/s	46	46
90 Day 10 Year Low Flow	22.8	ft^3/s	36	36

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

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Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Attachment B

WQM 7.0 Modeling Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07A	11157	MONTOUR CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.490	Landisburg MA	PA0082651	0.030	CBOD5	25		
				NH3-N	13.48	26.96	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07A	11157	MONTOUR CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.490	Landisburg MA	2.46	28	2.46	28	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.490	Landisburg MA	.54	13.48	.54	13.48	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.49	Landisburg MA	25	25	13.48	13.48	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
07A	11157	MONTOUR CREEK	**0.490**	517.00	12.00	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	0.075	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.30	8.15	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
Landisburg MA	PA0082651	0.0300	0.0300	0.0300	0.000	25.00	7.95

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	14.00	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
07A	11157	MONTOUR CREEK	0.000	506.00	144.00	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	0.075	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.30	8.15	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
07A	11157	MONTOUR CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.490	0.030	22.433	8.138
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.768	0.516	30.581	0.116
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.13	0.514	0.66	0.844
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.084	18.518	Owens	5
Reach Travel Time (days)			
0.258			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	3.08	0.65	7.88
0.052	3.04	0.63	7.88
0.077	2.99	0.62	7.88
0.103	2.95	0.61	7.88
0.129	2.91	0.59	7.88
0.155	2.86	0.58	7.88
0.180	2.82	0.57	7.88
0.206	2.78	0.56	7.88
0.232	2.74	0.54	7.88
0.258	2.70	0.53	7.88

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07A	11157	MONTOUR CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.490	0.90	0.00	0.90	.0464	0.00425	.516	15.77	30.58	0.12	0.258	22.43	8.14
Q1-10 Flow												
0.490	0.74	0.00	0.74	.0464	0.00425	NA	NA	NA	0.10	0.286	22.46	8.14
Q30-10 Flow												
0.490	1.11	0.00	1.11	.0464	0.00425	NA	NA	NA	0.13	0.230	22.41	8.14

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	0.62	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.24	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Attachment C

TRC Evaluation

Landisburg Municpal Authority WWTP
PA0082651

February 2022

	A	B	C	D	E	F	G
2	**TRC EVALUATION**						
3	Input appropriate values in B4:B8 and E4:E7						
4		0.899	= Q stream (cfs)		0.5	= CV Daily	
5		0.03	= Q discharge (MGD)		0.5	= CV Hourly	
6		30	= no. samples		1	= AFC_Partial Mix Factor	
7		0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8		0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9		0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
		0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10		Source	Reference	AFC Calculations		Reference	CFC Calculations
11		TRC	1.3.2.iii	WLA afc = 6.195		1.3.2.iii	WLA cfc = 6.032
12		PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13		PENTOXSD TRG	5.1b	LTA_afc= 2.308		5.1d	LTA_cfc = 3.507
14							
15		Source		Effluent Limit Calculations			
16		PENTOXSD TRG	5.1f	AML MULT = 1.231			
17		PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18				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)**

Correspondence

Hong, Nicholas

From: Michael Lucas <bestbuddypsu@gmail.com>
Sent: Sunday, January 30, 2022 4:01 PM
To: Hong, Nicholas
Subject: [External] Fwd: Landisburg MA NPDES renewal Response to DEP Comments

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

Sent from my iPhone

Begin forwarded message:

From: Max Stoner <max@glaceeng.com>
Date: January 28, 2022 at 15:43:24 EST
To: Michael Lucas <bestbuddypsu@gmail.com>, Raelene Gabriel <raelene@glaceeng.com>
Cc: dmiller@miller-env.com, clynch@miller-env.com
Subject: Landisburg MA NPDES renewal Response to DEP Comments

Mike-

We were waiting for the December 2021 flow figures but here is the information that we have so far and are suggesting in red after each DEP question below. Adjust responses accordingly. Thanks. Max.

From: Michael Lucas <bestbuddypsu@gmail.com>
Sent: Friday, January 28, 2022 3:49 AM
To: Max Stoner <max@glaceeng.com>; Raelene Gabriel <raelene@glaceeng.com>
Subject: Fwd: Landisburg MA NPDES renewal

Sent from my iPhone

Begin forwarded message:

From: Cameron Lynch <clynch@miller-env.com>
Date: January 26, 2022 at 10:22:42 EST
To: bestbuddypsu@gmail.com, Marena Weaver <marenaweaver1228@gmail.com>
Cc: Dean Miller <dmiller@miller-env.com>
Subject: Fwd: Landisburg MA NPDES renewal

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

1

From: Hong, Nicholas <nhong@pa.gov>
Sent: Wednesday, January 26, 2022 10:21:33 AM
To: lma@landisburg.org <lma@landisburg.org>
Cc: clynch@miller-env.com <clynch@miller-env.com>
Subject: RE: Landisburg MA NPDES renewal

Landisburg MA.

Please see message from January 18, 2022.

We would like a response by February 1, 2022.

Nick Hong, PE | Environmental Engineer
PA Department of Environmental Protection
Clean Water Programs
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110
Phone: 717.705.4824 | Fax: 717.705.4760
www.dep.pa.gov

THE SOUTHCENTRAL REGIONAL OFFICE AFTER HOURS REPORTING & 24 HOUR EMERGENCY RESPONSE NUMBER IS 1-800-541-2050

From: Hong, Nicholas
Sent: Tuesday, January 18, 2022 11:14 AM
To: lma@landisburg.org
Cc: clynch@miller-env.com
Subject: FW: Landisburg MA NPDES renewal

Fowarding message to new Landisburg MA email address.

Please see message below in email chain.

Nick Hong, PE | Environmental Engineer
PA Department of Environmental Protection
Clean Water Programs
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110
Phone: 717.705.4824 | Fax: 717.705.4760
www.dep.pa.gov

THE SOUTHCENTRAL REGIONAL OFFICE AFTER HOURS REPORTING & 24 HOUR EMERGENCY RESPONSE NUMBER IS 1-800-541-2050

From: Hong, Nicholas
Sent: Tuesday, January 18, 2022 11:12 AM
To: landisburgma@gmail.com
Cc: clynch@miller-env.com
Subject: Landisburg MA NPDES renewal

Landisburg MA:

This message acknowledges that DEP is continuing processing Landisburg NPDES renewal.

We sent Landisburg a draft NPDES in July 2019. Since 2.5 years of time has elapsed, we will be re-drafting the NPDES renewal permit.

We have the following preliminary comments on the application.

- Itemize any proposed upgrades to the facility in the next 5 years.

Major overhaul or replacement of the emergency generator and transfer switch
Provide an electric pump and hoses for wasting sludge
Purchase backup dissolved oxygen and PH meters
Replace digester belts and service blowers
Repair/replace discharge piping and rails in influent pump station
Repair/replace influent box in equalization tank
Replace blowers as required
Upgrade flow meter, recorder and monitoring system

- What is the design flow rate for the facility? 30,000 GPD What is the average annual flow for the facility? In 2021, 16,000 GPD What is the hydraulic design flow? The hydraulic design flow is 30,000 GPD average with the ability to accept short peaks up to 60,000 GPD

- Does the facility plan for expansion? Not in the foreseeable future. There is sufficient space available to expand in the future if necessary. If so when? Certainly not within the next 5 years.

- Include the email and contact information for the consultant and operator.

Consultants-Glace Associates, Inc.- Max E. Stoner, P.E. (max@glaceeng.com) and Raelene Gabriel, P.E. (raelene@glaceeng.com)
Certified Operator-Miller Environmental, Inc. -Dean Miller (dmiller@miller-env.com) and Cameron Lynch (clynch@miller-env.com)

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