pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0063240**
Facility Type	**Municipal**	APS ID	**493001**
Major / Minor	**Minor**	Authorization ID	**1244027**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Lehigh Township Municipal Authority**	Facility Name	**Danielsville WWTF**
Applicant Address	1069 Municipal Road	Facility Address	1069 Municipal Road
	Walnutport, PA 18088		Walnutport, PA 18088
Applicant Contact	Carl Sharpe	Facility Contact	David Getz
Applicant Phone	(610) 760-2459	Facility Phone	(610) 760-2459
Client ID	78422	Site ID	270980
Ch 94 Load Status	Not Overloaded	Municipality	Lehigh Township
Connection Status	No Prohibitions	County	Northampton
Date Application Received	August 29, 2018	EPA Waived?	Yes
Date Application Accepted	September 7, 2018	If No, Reason	-
Purpose of Application	Renewal of existing NPDES permit.		

Summary of Review

The applicant is requesting renewal of their NPDES permit to discharge up to 0.3 MGD of treated sewage to Bertsch Creek (stream code is 3733), a CWF/MF designated receiving water in state water plan basin 02-C (Lower Lehigh River). As per the Department's current existing use list, the receiving water does not have an existing use classification that is more protective than its designated use.

The default low flow yield (LFY) of 0.1 cfs/mi^2 was chosen to model the discharge since there are no nearby representative stream gages to obtain flow data from. The drainage area at Outfall 001 is outside of the USGS StreamStats suggested range for estimating low flow values (see StreamStats Low Flow attachment). For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA as well as the "measure" tool. Drainage areas were delineated using USGS's StreamStats Interactive Map and elevations were obtained using the elevation profile feature of StreamStats (see Watershed Information attachment).

Previous modeling assumed a discharge temperature of 20°C. The current default discharge temperature for WQM 7.0 is 25°C. Sampling data submitted with the permit application shows the maximum discharge temperature to be 71°F (21.67°C) with an average temperature of 68°F (20°C). The discharge for this renewal was modeled using a discharge temperature of 21.67°C (value rounds to 22°C in WQM 7.0).

Limitations for $CBOD_5$, TSS, pH and Fecal Coliform are technology-based and carried over from the previous permit. The 5.0 DO minimum is water quality-based and carried over from the previous permit.

Ammonia-Nitrogen limitations in the previously issued permit (summertime: 4.0 mg/L average monthly, 8.0 mg/L IMAX) were water quality-based limits carried over from previous renewals. WQM modeling during this renewal recommends a summertime 3.5 mg/L monthly average limitation for Ammonia-Nitrogen to meet water quality standards. The difference in limitations results from changes made to several modeling inputs (e.g. discharge temperature, LFY, elevations, reach

Approve	Deny	Signatures	Date
X		/s/ Brian Burden, E.I.T. / Project Manager	October 2, 2019
X		/s/ Amy M. Bellanca, P.E. / Environmental Engineer Manager	October 2, 2019

Summary of Review

lengths, drainage areas, etc.). The new Ammonia-Nitrogen limitations will come into effect 4 years after the Permit Effective Date. The standard 2x multiplier was used to develop the IMAX limits and the standard 3x multiplier was used to develop the wintertime limitations for Ammonia-Nitrogen.

When modeling the discharge using the current TRC calculation spreadsheet, a monthly average limitation of 0.11 mg/L and an IMAX of 0.37 mg/L was recommended. These water quality-based limitations will come into effect 4 years after the Permit Effective Date. Changes to the TRC limitations were mainly due to the change in the spreadsheet's default "Chlorine Demand of Stream" value (went from 0.62 mg/L to 0.3 mg/L). The permittee may conduct site-specific studies to alter the new TRC limitations (see Part C.IV). Several factors can change the recommended TRC limitations as calculated by the spreadsheet, such as: chlorine demand of stream, chlorine demand of discharge, and stream flow. As mentioned, default values for chlorine demand were used to develop the limitations (0.3 mg/L for stream demand, 0 mg/L for discharge demand). The stream flow value was determined by multiplying the drainage area at Outfall 001 (delineated using USGS's StreamStats) by the default LFY of 0.1 cfs/mi^2.

Monthly monitoring and reporting requirements for Total Nitrogen, Nitrate+Nitrite-Nitrogen and Total Phosphorus are carried over from the previous permit. Monthly monitoring and reporting requirements are added to the permit for Total Kjeldahl Nitrogen (TKN) since it's a constituent of Total Nitrogen. Reporting for average monthly mass loading (units of lbs/day) is now included in the permit for these parameters.

Weekly monitoring and reporting requirements for influent BOD_5 and influent TSS are carried over from the previous permit.

DRBC draft docket D-1994-053 CP-3 (dated 1/17/2019) requires a quarterly average Total Dissolved Solids (TDS) limitation of 1,000 mg/L. This basin-wide DRBC requirement will replace the monthly TDS monitoring/reporting requirement from the previously issued permit.

Applicable pollutant sampling results submitted with the permit application (and with a permit application addendum dated September 26, 2019) were evaluated using the Department's Toxics Screening Analysis spreadsheet and modeled with PENTOX if recommended by the spreadsheet (see attachments). No limitations were recommended through PENTOX modeling.

Monitoring frequencies for all parameters with limitations are consistent with the recommended frequencies found in Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001). Since the TDS limitations were initiated by the DRBC, the monitoring frequency remains quarterly for that parameter.

The facility's 2018 Chapter 94 report shows no projected hydraulic/organic overloads at the WWTF. There was one organic overload calculated for February 2016. The following explanation is offered in the report: "The February 2016 data for organic loading was skewed by one analysis performed on a sample collected on a day with unusually high flow. We believe that extraneous organic material would have been scoured from the collection system, which yielded an anomalous result. The high BOD coupled with a high flow multiplier resulted in a calculated organic loading above the design load. We do not believe this suggests a chronic overload condition, since 51 of 52 weekly analyses yield a calculated organic load well below the design load."

Regarding sewage sludge/biosolids disposal, the Chapter 94 report states: "Waste sludge from the Danielsville WWTF is concentrated on site in a waste holding tank and is applied to the reed beds at the facility. Lehigh County Pretreatment Facility is also used for disposal as required, typically during very cold weather. A total of 120,000 gallons, or 7.21 dry tons were hauled from the facility in 2018. Sludge accumulated over the past 14 years in the reed beds was completely removed by Earth Care, Inc. during 2012, demonstrating that the sludge disposal system has a life cycle under current loading of roughly 14 years. The reeds regenerated naturally, and reed replanting was not necessary."

DMR review of the past 2 years reveals the following concentration limitation exceedances:

May 2019: Fecal Coliform – 2,900 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
September 2018: Fecal Coliform – 2,700 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
August 2018: Ammonia-Nitrogen – 4.1 mg/L monthly average (limitation was 4.0 mg/L)
August 2018: Fecal Coliform – 20,000 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)
July 2018: Ammonia-Nitrogen – 7.3 mg/L monthly average (limitation was 4.0 mg/L)
May 2018: Fecal Coliform – 20,000 CFU/100mL IMAX (limitation was 1,000 CFU/100mL)

Summary of Review

March 2018: Fecal Coliform – 20,000 CFU/100mL IMAX (limitation was 10,000 CFU/100mL)

The previously issued permit expired on February 28, 2019 and the application for permit renewal was submitted on time. There are no open violations for the client that would warrant withholding the issuance of the final permit. Antibacksliding requirements have been met since no effluent limitations were made less stringent or removed from the permit. EPA waiver is in effect.

WQM Modeling.pdf

TRC Calculation.pdf

Toxics Screening.pdf

PENTOX.pdf

Watershed Information.pdf

StreamStats Low Flow.pdf

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.3
Latitude	40º 46' 32"	Longitude	-75º 33' 19"
Quad Name	Palmerton	Quad Code	1241
Wastewater Description:	Sewage Effluent		

Receiving Waters	Bertsch Creek (CWF/MF)	Stream Code	3733
NHD Com ID	26289875	RMI	4.05
Drainage Area	3.4 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.34	Q_{7-10} Basis	Default LFY
Elevation (ft)	541	Slope (ft/ft)	0.0079
Watershed No.	2-C	Chapter 93 Class.	CWF/MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-

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

Nearest Downstream Public Water Supply Intake	Northampton Borough Municipal Authority		
PWS Waters	Lehigh River	Flow at Intake (cfs)	93.7 (using default LFY)
PWS RMI	24.8	Distance from Outfall (mi)	~10.3

Treatment Facility Summary

Treatment Facility Name: Danielsville WWTF

WQM Permit No.	Issuance Date
4895405	1/30/1996

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Sodium Hypochlorite	0.1352 (2017)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.3	510	Not Overloaded	Digested	Reed Beds/ Hauled Off Site

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.3
Latitude 40º 46' 32" **Longitude** -75º 33' 19"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
	50.0	IMAX	-	-
Total Suspended Solids	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
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)
	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)
	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model / Basis
Ammonia-Nitrogen (5/1 – 10/31)	3.5	Average Monthly	2019 WQM 7.0 Modeling
	7.0	IMAX	
Ammonia-Nitrogen (11/1 – 4/30)	10.5	Average Monthly	
	21.0	IMAX	
Total Residual Chlorine	0.11	Average Monthly	2019 TRC Calculation Spreadsheet
	0.37	IMAX	
Dissolved Oxygen	5.0	Minimum	Previous Modeling
Total Dissolved Solids	1,000	Average Quarterly	DRBC Draft Docket No. D-1994-053 CP-3

Comments: Revised limitations for Ammonia-Nitrogen and Total Residual Chlorine will come into effect 4 years after the permit effective date.