pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0084026**
Facility Type	**Municipal**	APS ID	**278097**
Major / Minor	**Minor**	Authorization ID	**1070897**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Northwestern Lancaster County Authority**	Facility Name	**Northwestern Lancaster County STP**
Applicant Address	97 N Penryn Road	Facility Address	400 Hostetter Road
	Manheim, PA 17545		Manheim, PA 17545
Applicant Contact	Mark Heister	Facility Contact	Mike Wolgemuth
Applicant Phone	(717) 665-4508	Facility Phone	(717) 626-2172
Client ID	51022	Site ID	246984
Ch 94 Load Status	Not Overloaded	Municipality	Penn Township
Connection Status	No Limitations	County	Lancaster
Date Application Received	April 23, 2015	EPA Waived?	No
Date Application Accepted	May 6, 2015	If No, Reason	Significant CB Discharge, Chiques Creek Alternate TMDL
Purpose of Application	NPDES permit renewal.		

Summary of Review

Northwester Lancaster County Authority (NLCA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit was issued November 22, 2010 and became effective on December 1, 2010, authorizing discharge of treated sewage from the existing wastewater treatment plant (WWTP) located in Penn Township, Lancaster County into Chiques Creek. The existing permit expiration date was November 30, 2015, and the permit has been administratively extended since that time.

Based on the previous fact sheet, NLCA constructed a 0.25 mgd sequencing batch reactor (SBR) WWTP in June 1992. The WWTP was expanded to four (4) SBRs with a design flow of 0.65 mgd and maximum monthly flow of 0.71 mgd. The SBRs were designed to handle a peak flow of 1,130 gpm. Each SBR has a maximum working level of 81,000 gallons and operates at 5 cycles per day. The new WWTP included ultraviolet (UV) disinfection. The facility is approximately 9,000 feet upstream of the Manheim Borough WWTP. These two facilities were included in the WQM Modeling for NLCA. The stream at this point is 15 to 30 feet wide and 3 to 18 inches deep. The streambed is relatively flat with a rocky to bedrock bottom. The pool/riffle ratio is 40/60. An abundance of mayflies and caddis larvae was found by observing rocks.

Changes in this renewal: A more stringent $CBOD_5$ limit was added to the permit. Fecal coliform instantaneous maximum (IMAX) limits were added. UV Transmittance, TDS, Sulfate, Chloride, and Bromide monitoring requirements were added. Offsets for 3 EDUs were added to the existing offsets. The existing permit has a mass load effluent limitation for net total nitrogen of 14,987 lbs/year. The proposed effluent limits will contain a net total nitrogen limit of 14,612 lbs/year, with the offsets of 450 lbs/year identified separately, to comply with the Phase II Watershed Implementation Plan (WIP) Supplement. 2/week sampling with 24-Hr Composite Sample Types has been added to the permit for TN and TP.

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	October 3, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review

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.

Supplemental information for this report is located in an attachment to this fact sheet.

Northwestern
Lancaster County Au

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.65
Latitude	40º 9' 54"	Longitude	76º 23' 17"
Quad Name	Manheim	Quad Code	1734
Wastewater Description:	Effluent		
Receiving Waters	Chiques Creek (WWF)	Stream Code	7917
NHD Com ID	57462537	RMI	21.0
Drainage Area	22.9 mi^2	Yield (cfs/mi^2)	0.12
Q_{7-10} Flow (cfs)	2.75	Q_{7-10} Basis	USGS Gage #01576500
Elevation (ft)	469	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, Siltation, Pathogens		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers, Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	27.5	Distance from Outfall (mi)	23

Changes Since Last Permit Issuance: A drainage area of 22.9 mi^2 and a Q_{7-10} flow of 2.75 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q_{7-10} and drainage area at the gage are 38.6 cfs and 324 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (38.6 cfs)/ 324 mi^2 = 0.12 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 22.9 mi^2

The Q_{7-10} at the discharge point = 22.9 mi^2 x 0.12 cfs/mi^2 = 2.75 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia And Phosphorus	Sequencing Batch Reactor	Ultraviolet	0.65
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.741	1762	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process is as follows: Influent Fine Screen – Influent Pump Station - Four (4) SBR Basins – Post EQ Tank –Sludge De-Watering Unit – Sludge Holding Tank – UV Disinfection Chamber – Outfall 001 to Chiques Creek

Compliance History	
Summary of DMRs:	A summary of past DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	10/10/2014: A routine inspection was conducted. An effluent grab sample was taken, and results for pH and D.O. were within permitted limits. The outfall was clear, and no issues were noted. Overall treatment appeared to be good based on process control results, field test results, and visual observation. 10/27/2016: A sanitary sewer overflow (SSO) occurred on 10/25/16. The operator reported that the overflow was caused by an electrical switch issue with the pump stop float in the wet well. Rewiring the floats has been proposed as a corrective action. The overflow occurred at an adjacent manhole. No solids were apparent in the vicinity. A nearby storm drain had no solids accumulated in the catch basin. No solids or malodor were detected at the stormwater outfall. It was recommended to apply lime to the affected area. 10/26/2017: A routine inspection was conducted. All treatment units were online. The decanter 3 actuator arm failed on 7/24/17 and was repaired on 8/1/17. This resulted in no discharge. The remaining SBR decanter actuator arms were replaced. Influent pump 2 was replaced a month before the inspection. The influent sampling location had been moved from the channel downstream of the fine screen to the influent wet well. The SBRs have some light tan, greasy foam cover. No other issues were noted. 7/31/2019: A routine inspection was conducted. The influent wet well was free of grease and floatables. Supernatant from the SBRs appeared clear with a green/brown tint. The outfall was observed and was free of sheen, solids, foam, algae and debris. No other issues were noted.

Other Comments: There are currently no open violations associated with the permittee or facility.

Compliance History

DMR Data for Outfall 001 (from August 1, 2018 to July 31, 2019)

Parameter	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19	FEB-19	MAR-19	APR-19	MAY-19	JUN-19	JUL-19
Flow (MGD) Average Monthly	0.5765	0.5516	0.3422	0.5442	0.4176	0.4098	0.3936	0.4347	0.3541	0.4100	0.3705	0.3498
Flow (MGD) Daily Maximum	1.7344	1.1207	0.4879	0.8230	0.6690	0.6081	0.4950	0.8388	0.4397	0.6673	0.5450	0.4023
pH (S.U.) Minimum	7.19	7.39	7.78	7.33	7.50	7.52	7.47	7.20	7.38	7.54	7.61	7.50
pH (S.U.) Instantaneous Maximum	7.87	7.96	8.01	7.95	7.86	7.98	7.88	7.79	7.86	7.91	7.93	7.95
DO (mg/L) Minimum	7.6	7.78	7.76	8.32	7.35	9.26	9.79	8.97	8.32	8.32	7.11	7.02
CBOD5 (lbs/day) Average Monthly	< 10	< 12	13	14	13	18	16	24	10	15	< 8	< 9
CBOD5 (lbs/day) Weekly Average	14	14	20	15	17	25	18	51	12	17	10	11
CBOD5 (mg/L) Average Monthly	< 3	< 3	4	3	4	5	5	8	3	4	< 2	< 3
CBOD5 (mg/L) Weekly Average	3	4	6	4	5	7	6	18	4	5	3	4
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1053	1022	886	988	1265	1025	780	766	880	745	1095	730
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	1723	1515	1105	1153	1496	1175	861	896	1200	906	1333	961
BOD5 (mg/L) Raw Sewage Influent Average Monthly	260	228	306	231	391	298	248	245	294	226	339	271
TSS (lbs/day) Average Monthly	< 8	< 11	13	15	13	15	34	27	28	32	19	< 14
TSS (lbs/day) Raw Sewage Influent Average Monthly	1156	1006	980	1117	1183	1063	718	777	966	827	1029	610

TSS (lbs/day) Raw Sewage Influent Daily Maximum	1946	1223	1656	1274	1463	1484	775	973	1808	945	1305	972
TSS (lbs/day) Weekly Average	17	17	28	35	19	25	57	51	43	47	31	41
TSS (mg/L) Average Monthly	< 2	< 3	5	4	4	4	10	9	10	10	6	< 5
TSS (mg/L) Raw Sewage Influent Average Monthly	280	228	335	265	365	302	228	250	318	252	318	227
TSS (mg/L) Weekly Average	6	4	10	9	6	7	15	18	14	17	10	13.0
Fecal Coliform (CFU/100 ml) Geometric Mean	24	6	29	21	46	< 24	88	112	25	23	170	170
Nitrate-Nitrite (mg/L) Average Monthly	3.3	3.30	3.02	2.33	2.99	3.33	3.76	3.69	5.31	5.77	5.20	6.42
Nitrate-Nitrite (lbs) Total Monthly	402.8	501.7	272.6	304.1	300.5	359.1	335.1	359.4	475.4	589.5	507.1	552.7
Total Nitrogen (mg/L) Average Monthly	4.45	4.52	4.57	3.75	8.50	10.05	10.63	9.39	7.71	7.66	6.81	8.10
Total Nitrogen (lbs) Effluent Net Total Monthly	541.2	667.4	409.1	483.3	849.4	1052.8	956.1	907	690	785.4	664.8	700.5
Total Nitrogen (lbs) Total Monthly	541.2	667.4	409.1	483.3	849.4	1052.8	956.1	907	690	785.4	664.8	700.5
Total Nitrogen (lbs) Effluent Net Total Annual		7953										
Total Nitrogen (lbs) Total Annual		7953										
Ammonia (lbs/day) Average Monthly	< 0.4	< 0.5	< 0.3	< 1.2	11.5	10.8	12.9	7.5	< 1.3	< 0.3	< 0.3	< 0.3
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.3	3.6	3.4	4.0	2.4	< 0.4	< 0.1	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 13.2	< 13.7	< 8.9	< 35.7	356.4	335.4	360.7	233.7	< 37.8	< 10.3	< 9.7	< 10.5
Ammonia (lbs) Total Annual		< 1408										
TKN (mg/L) Average Monthly	1.15	1.22	1.54	1.42	5.51	6.72	6.87	5.70	2.4	1.89	1.62	1.69
TKN (lbs) Total Monthly	138.4	165.7	136.5	179.2	548.8	693.7	621.0	547.6	214.6	195.9	157.7	147.8

Total Phosphorus (lbs/day) Average Monthly	2.6	3.4	1.8	2.6	1.1	2.6	2.8	2.5	2.4	2.4	2.3	1.5
Total Phosphorus (mg/L) Average Monthly	0.7	0.7	0.6	0.6	0.3	0.8	0.9	0.8	0.8	0.7	0.7	0.5
Total Phosphorus (lbs) Effluent Net Total Monthly	79.3	103.0	56.2	78.6	32.6	81.3	77.5	76.9	73.3	73.6	67.6	46.7
Total Phosphorus (lbs) Total Monthly	79.3	103.0	56.2	78.6	32.6	81.3	77.5	76.9	73.3	73.6	67.6	46.7
Total Phosphorus (lbs) Effluent Net Total Annual		930.0										
Total Phosphorus (lbs) Total Annual		930										

Existing Effluent Limitations and Monitoring Requirements

The tables below summarize the effluent limits and monitoring requirements implemented in the existing NPDES permit.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	136	217 Wkly Avg	XXX	25	40	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	163	244 Wkly Avg	XXX	30	45	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	XXX	1/week	Grab
Ammonia May 1 - Oct 31	24	XXX	XXX	4.5	XXX	9.0	1/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	73	XXX	XXX	13.5	XXX	27	1/week	8-Hr Composite
Total Phosphorus	10.8	XXX	XXX	2.0	XXX	4.0	1/week	8-Hr Composite

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Monitoring Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia-N	Report	Report	XXX	Report	XXX	1/week	8-Hr Composite
Kjeldahl-N	Report	XXX	XXX	Report	XXX	1/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	1/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	1/week	8-Hr Composite
Net Total Nitrogen	Report	14,987	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	1,826.5	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .65
Latitude 40º 9' 54" **Longitude** 76º 23' 17"
Wastewater Description: Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

$CBOD_5$, NH_3-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.0b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), NH_3-N and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal, and was run as a multiple discharge analysis, including NLCA's WWTP and Manheim's WWTP. The model output indicated a $CBOD_5$ average monthly limit of 19.43 mg/l, an NH_3-N average monthly limit of 4.6 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality.

The flow data used to run the model was acquired from USGS PA StreamStats, and USGS Gage #01576500 on the Conestoga River, and is included in the attachment. Stream pH and temperature inputs for this model run were based on data acquired from the National Water Quality Monitoring Council website. Data was analyzed from the Water Quality Network (WQN) Station ID 206 on Chiques Creek from October 1998 to March 2019 for pH, and from October 1998 to October 2017 for temperature. DEP's Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends using the 90th percentile of long-term data for background and discharge characteristics when using WQM 7.0. A 90th percentile analysis was performed on the data and resulted in a Stream pH of 8.3 and a Stream Temperature of 21°C. Based on the round-off guidelines from Chapter 5 of the Technical Guidance for the Development and Specification of Effluent Limitations (Guidance No. 362-0400-001), a $CBOD_5$ limit of 19 mg/l and a NH_3-N limit of 4.5 mg/l are necessary to protect water quality. The $CBOD_5$ limit is more stringent than the existing limit and will be added to the permit. The NH_3-N limit is the same as the existing limit, which will remain in the permit. Mass loading limits for $CBOD_5$ were based off of these more stringent limits and included in the permit. Based on a review of past DMRs, the WWTP should be capable of meeting this effluent limit.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Screening Analysis worksheet and PENTOXSD to develop appropriate permit requirements for toxic pollutants of concern. A stream hardness value of 250.9 mg/l was used in modeling, taken from WQN Station ID 206 from October 1998 to March 2019. Based on effluent sample results reported on the application, there are no pollutants which are candidates for PENTOXSD modeling.

Best Professional Judgement (BPJ) Limitations

Dissolved Oxygen
A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Total Phosphorus
For Total Phosphorus (TP), the current NPDES permit requires the permittee to comply with average monthly and IMAX limits of 2.0 mg/L and 4.0 mg/L, respectively. DEP's Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams (Guidance No. 391-2000-018) was used during the past renewal to evaluate if phosphorus limitations were necessary. According to the guidance, phosphorus limits would be needed if the contributions from this facility exceeded 0.25% of the total phosphorus load of all discharges in the Lower Susquehanna River Basin. The calculated 33.3 lbs/day was 0.87% of the loading after delivery ratios to the lower Susquehanna River were applied; therefore, a TP limit of 2 mg/l was included in the permit.
Phosphorus limits were also developed based on the 2001 Chiques Creek TMDL, which has been withdrawn. The TMDL limited NLCA to 1,521 lbs/yr based on 2 mg/l and 0.25 mgd. The TMDL loads were reallocated to 1,978.6 lbs/yr at 1 mg/l and 0.65 mgd. The existing TP limit of 2.0 mg/l will remain unchanged in the permit to protect the local watershed.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan* (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow. For renewed or amended permits that do include an increase in design flow, Cap Loads will be based on the lesser of: existing TN and TP concentrations at current design average annual flow or 7,306 lbs/yr TN and 974 lbs/yr TP. A zero nutrient load for the Chesapeake Bay will be assigned for new sewage discharges from industrial and/or domestic sources. Point source growth may be addressed by the purchase of nutrient credits or by the use of offsets.

NLCA WWTP is a Phase 2 significant discharger. The facility's waste load allocation (WLA) is tracked under an individual WLA as a significant discharger in the Phase 2 Supplement. The following Cap Loads specified in the current Phase 2 Supplement will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0084026	2	Northwestern Lancaster County Authority	11/22/2010	11/30/2015	10/1/2008	14,987	375	1,827	0.97	0.436

The Cap Loads are unchanged from the previous renewal. DEP's SOP for New and Reissuance Sewage Individual NPDES Permit Applications recommends that Significant Chesapeake Bay sewage discharges should monitor for nutrients at a minimum of 1/week as 24-hour composites. The Phase 2 Supplement states that "the minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for significant sewage dischargers will be 2/week." Therefore, the monitoring frequency for TN species and TP is being increased to 2/week, and the sample type will be changed to 24-hour composites. DEP no longer offers any tools to calculate monthly loads for Net TN and Net TP, and it is no longer needed since offsets and credits are applied annually. Therefore, this reporting requirement is no longer needed and will be removed from the permit.

The previous renewal application included a list of 15 on-lot disposal systems (OLDS) which were permitted/installed prior to January 1, 2003 and were retired by connection to the collection system after January 1, 2003. Based on the Chesapeake Bay Strategy, the offset load was calculated at 25 lbs TN/year, which increased the CAP Load by 375 lbs/year. In the existing permit, the 375 lbs/year offset was included as a mass load effluent limitation for net total nitrogen. *Supplement to Phase II Watershed Implementation Plan (revised on 09/06/2017)* states that from this point forward, permits will be issued with the wasteload allocations (WLAs) as cap loads and will identify offsets separately to facilitate nutrient trading activities and compliance with the TMDL. Therefore, the proposed effluent limits will contain a net total nitrogen limit of 14,612 lbs/year, to reflect the Cap Loads required by the WIP Supplement. Additionally, this application has requested the inclusion of several new offsets. A total of 3 equivalent dwelling units (EDUs) have been abandoned since the previous permit renewal. The systems existed prior to January 1, 2003. Based on 25 lbs TN/year, an additional 75 lbs/year are available for TN offsets. These offsets are granted, and will be included with the existing offsets, for a total of 450 lbs TN/year. The offsets will be identified separately below the limits table.

Chiques Creek Alternate Restoration Plan

This facility discharges to Chiques Creek. Chiques Creek was included on Pennsylvania's 1996 303(d) List of Impaired Waters due to nutrient impairments. A Total Maximum Daily Load (TMDL) for the Chiques Creek Watershed was approved by the United States Environmental Protection Agency (EPA) on April 9, 2001. Due to several deficiencies within the TMDL, it was withdrawn with approval from EPA on October 28, 2015. DEP, Susquehanna River Basin Commission (SRBC) and watershed stakeholders have been in the process of developing a large scale monitoring and restoration plan. The goal of this Alternate Restoration Plan (ARP) is to address impacts to the Chiques Creek Watershed due to suspended solids/siltation and nutrient pollution. During the ongoing ARP development, this discharge permit will be renewed to conform with existing guidance. This permit will include a Total Phosphorus (TP) limit of 2.0 mg/l. The TP limit of 2.0 mg/l is derived from 25 Pa. Code § 96.5(c). This section states that "when it is determined that the discharge of phosphorus, alone or in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses in a free flowing surface water, phosphorus discharges from point source discharges shall be limited to an average monthly concentration of 2 mg/l." This is consistent with existing limits for other dischargers to the Chiques Creek Watershed. This limit is included in the existing permit, and will remain in the renewal. A continued evaluation of dischargers to Chiques Creek will be performed as described in the NPDES Part C Conditions.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

NLCA reported the maximum effluent TDS concentration of 1,150 mg/l and Bromide concentration of <1.0 mg/l. Based upon the data provided in the application, monitoring will be necessary for TDS, sulfate, chloride, and bromide. A monitoring frequency of 1/week will be used for these parameters.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. The instantaneous maximum fecal coliform limits have been included in the permit.

UV Monitoring

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This approach has been assigned to other facilities equipped with similar technology. Accordingly, a parameter for UV Transmittance will be included in the permit.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Flow Monitoring

Flow monitoring is recommended by DEP's technical guidance and is also required by 25 PA Code §§ 92a.27 and 92a.61.

Influent BOD_5 and Total Suspended Solids (TSS) Monitoring

As a result of negotiation with US EPA, influent monitoring of TSS and BOD_5 are required for any publicly owned treatment works (POTWs); therefore, influent sampling of BOD_5 and TSS will remain in the permit.

Mass Loading Limitation

All mass loading effluent limitations recommended in the draft permit are concentration-based, calculated using a formula: design flow (MGD) x concentration limit (mg/l) x conversion factor of 8.34.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment due to pathogens from an unknown source. There is an aquatic life impairment due to siltation from agriculture, and siltation from urban runoff/storm sewers The proposed effluent limits include limits for fecal coliform.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
CBOD5	103	151	XXX	19	28	38	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	163	244	XXX	30	45	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Ammonia Nov 1 - Apr 30	73	XXX	XXX	13.5	XXX	27	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	24	XXX	XXX	4.5	XXX	9.0	2/week	24-Hr Composite
Total Phosphorus	10.8	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite
TDS	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Sulfate	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
Chloride	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
Bromide	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite

Compliance Sampling Location: - Composite samples may be taken before or after disinfection
- Grab samples shall be taken after disinfection

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Instant. Maximum		
Ammonia	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	14,612	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1,826.5	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: - Composite samples may be taken before or after disinfection
- Grab samples shall be taken after disinfection

Other Comments: On-lot disposal system offsets are 450 lbs/year based on 18 EDUs. Any additional offsets claimed during the permit term must be reported as outlined in PART C of this permit.

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