pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0028886**
Facility Type	**Municipal**	APS ID	**8670**
Major / Minor	**Minor**	Authorization ID	**1182266**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Quarryville Borough Authority**	Facility Name	**Quarryville STP**
Applicant Address	300 Saint Catherine Street	Facility Address	2350 Old Road
	Quarryville, PA 17566		New Providence, PA 17560
Applicant Contact	John Chase	Facility Contact	Bill Lamparter
Applicant Phone	(717) 786-2404	Facility Phone	(717) 786-0154
Client ID	40068	Site ID	451929
Ch 94 Load Status	Not Overloaded	Municipality	Quarryville Borough
Connection Status	No Limitations	County	Lancaster
Date Application Received	May 1, 2017	EPA Waived?	No
Date Application Accepted	July 27, 2017	If No, Reason	Significant CB Discharge, Pequea Creek TMDL
Purpose of Application	NPDES Renewal.		

Summary of Review

Quarryville Borough Authority 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 October 11, 2012 and became effective on November 1, 2012 authorizing discharge of treated sewage from the existing wastewater treatment plant (WWTP) located in Quarryville Borough, Lancaster County into UNT to South Fork Big Beaver Creek. The existing permit expiration date was October 31, 2017, and the permit has been administratively extended since that time.

Per the previous fact sheet, the Quarryville WWTP serves the Borough of Quarryville, East Drumore Township, Eden Township and Providence Township for a total of 2,197 equivalent dwelling units (EDUs). At full build out, in 2026, the WWTP will serve 3,384 EDUs. The WWTP was expanded from 0.4 mgd to 0.6 mgd to meet planned growth.

Changes in this renewal: A UV Transmittance monitoring requirement was added. 2/week sampling has been added to the permit for Total Nitrogen (TN) and Total Phosphorus (TP).

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*

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	October 8, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review
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.    Quarryville Borough Authority \

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.6
Latitude	39º 54' 23.1"	Longitude	76º 11' 6.7"
Quad Name	Quarryville	Quad Code	1936
Wastewater Description:	Sewage Effluent		
Receiving Waters	UNT to South Fork Big Beaver Creek (TSF, MF)	Stream Code	7479
NHD Com ID	57467749	RMI	0.08
Drainage Area	2.74	Yield (cfs/mi^2)	0.157
Q_{7-10} Flow (cfs)	0.43	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	417	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	TSF, 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	Pathogens, Nutrients, Siltation, Organic Enrichment/Low D.O., Habitat Alterations, pH		
Source(s) of Impairment	Source Unknown, Agriculture, Agriculture, Agriculture, Habitat Modification – Other Than Hydromodification, Habitat Modification – Other Than Hydromodification		
TMDL Status	Final	Name	Pequea Creek
Nearest Downstream Public Water Supply Intake	PPL Holtwood Electric Plant		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	26.7

Changes Since Last Permit Issuance: USGS PA StreamStats was used to determine the Q_{7-10} flow and the drainage area for the discharge. From StreamStats, the Big Beaver Creek Watershed has a drainage area of 21.4 mi^2 and a Q_{7-10} flow of 3.36 cfs. The yield for the watershed was calculated as follows:

Yield = (3.36 cfs)/ 21.4 mi^2 = 0.157 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 2.74 mi^2

The Q_{7-10} at the discharge point = 2.74 mi^2 x 0.157 cfs/mi^2 = 0.43 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	SBR	UV	0.6
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.6	1,500	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process is as follows: Mechanical and Manual Bar Screen – Influent Pump Station – Two (2) Sequencing Batch Reactors (SBRs) – Two (2) Post Equalization Pump Station – Equalization Tank – Two (2) UV Disinfection Banks – Aerobic Digestion – Outfall 001 to UNT to South Fork Big Beaver 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:	1/8/2013: A routine inspection was conducted. At the time, the WWTP was undergoing an expansion. Construction had begun on the southern side of the property. No issues were noted with the facility. 5/29/2013: An inspection was conducted. The WWTP was still undergoing expansion. It was noted that the plant appeared to be operating properly. 4/14/2014: An inspection was conducted to follow up on the facility upgrades. On the day of inspection, the old treatment plant was ceasing operation, and the flow was being sent to the new sequencing batch reactor (SBR) system. It was expected that the WWTP would not discharge for 2 days, due to the SBR tanks filling. Upstream and downstream of the outfall appeared ok. 9/25/2014: A routine inspection was conducted. The SBR upgrade had been completed. No issues were noted. 7/27/2016: An inspection was conducted due to a report of a failed mixer, which resulted in one of the SBR tanks being offline. The cause was a piece of debris that got jammed in the mixer propeller. SBR #2 was offline line and mostly empty while repairs were being performed. The diffusers were covered and kept wet to keep them from drying out. Some floating scum/oil was noted on the surface of SBR #1. The rest of the WWTP appeared to be functioning properly. Effluent discharging from Outfall 001 appeared mostly clear, with some minor floatables. Upstream and downstream of the outfall appeared ok except for some white foam noted upstream. 10/24/2017: A routine inspection was conducted. All treatment units were online. The WWTP was well maintained and clean. Field readings were within permit limits. 8/6/2019: A routine inspection was conducted. SBR #2 had clear supernatant. The EQ tank appeared clear with approximately 25% coverage of algae on the surface. The outfall appeared clear. Algae was visible on the stream bed in front of the outfall. No solids, debris, or foam was noted. Field readings were within permit limits.

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

Compliance History

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

Parameter	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19	FEB-19	MAR-19	APR-19	MAY-19	JUN-19	JUL-19	AUG-19
Flow (MGD) Average Monthly	0.512	0.397	0.508	0.461	0.469	0.475	0.520	0.429	0.449	0.390	0.395	0.347
Flow (MGD) Daily Maximum	1.070	0.531	0.835	0.820	0.794	0.723	1.192	0.513	0.680	0.449	0.756	0.383
pH (S.U.) Minimum	7.2	7.1	7.2	7.2	7.1	7.1	7.1	7.1	7.1	6.8	7.1	7.1
pH (S.U.) Maximum	7.5	7.5	7.4	7.5	7.4	7.3	7.5	7.3	7.4	7.5	7.5	7.9
DO (mg/L) Minimum	7.0	8.0	8.5	8.9	9.1	9.3	7.4	8.3	7.4	8.0	7.1	7.3
CBOD5 (lbs/day) Average Monthly	11.8	< 10.9	11.0	< 7.9	< 13.2	< 12.9	20.7	< 9.7	< 7.1	< 6.7	< 10.4	9.0
CBOD5 (lbs/day) Weekly Average	19.9	15.7	20.0	11.9	21.2	17.6	35.9	12.1	< 7.8	< 7.1	18.4	15.5
CBOD5 (mg/L) Average Monthly	3.0	< 3.3	3.1	< 2.3	< 3.2	< 3.1	4.4	< 2.9	< 2.0	< 2.0	< 2.8	3.0
CBOD5 (mg/L) Weekly Average	4.3	4.6	5.2	3.1	4.3	3.7	6.3	3.6	< 2.0	2.1	4.3	5.2
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	829	782	744	1093	1278	1176	974	795	849	729	719	664
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	994	952	827	1659	2444	1553	1386	978	1151	973	905	914
BOD5 (mg/L) Raw Sewage Influent Average Monthly	214	231	220	317	302	281	211	232	243	223	202	221
TSS (lbs/day) Average Monthly	< 22.4	< 17.0	< 17.2	< 22.2	< 20.6	30.3	43.2	< 18.9	< 19.6	< 18.3	< 20.3	< 17.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	833	692	739	950	1006	908	935	1029	785	722	539	502

TSS (lbs/day) Raw Sewage Influent Daily Maximum	944	749	868	1565	1748	1217	1221	1847	904	863	776	862
TSS (lbs/day) Weekly Average	25.4	< 22.1	< 19.3	36.8	< 33.1	52.2	57.0	24.9	22.9	21.2	26.6	26.8
TSS (mg/L) Average Monthly	< 5.8	< 5.0	< 5.0	< 6.5	< 5.0	7.0	9.8	< 5.5	< 5.6	< 5.5	< 5.8	< 5.8
TSS (mg/L) Raw Sewage Influent Average Monthly	214	207	218	272	242	220	205	301	222	218	153	165
TSS (mg/L) Weekly Average	7.0	5.0	5.0	11.0	5.0	11.0	14.0	7.0	7.0	6.0	8.0	9.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 3	< 1	< 1	< 1	< 1	< 1	< 2	< 1	< 2	8	< 1	< 3
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	19	2	2	< 1	2	4	21	4	14	68	3	10
Nitrate-Nitrite (mg/L) Average Monthly	< 2.7	< 3.6	< 3.2	< 2.6	< 2.2	< 1.5	< 1.0	< 2.1	< 2.3	< 3.2	< 1.9	< 3.2
Nitrate-Nitrite (lbs) Total Monthly	< 313.4	< 406.5	< 335.3	< 274.9	< 269.0	< 176.2	< 147.2	< 213	< 253.7	< 319.5	< 203.8	< 292.1
Total Nitrogen (mg/L) Average Monthly	< 4.2	< 4.8	< 4.5	< 3.7	< 3.5	< 3.5	< 5.8	< 3.8	< 3.8	< 4.7	< 3.1	< 4.3
Total Nitrogen (lbs) Effluent Net Total Monthly	< 493.2	< 536.6	< 461.9	< 394	< 438.1	< 414.7	< 799.5	< 387	< 411.6	< 462.3	< 332.8	< 397.7
Total Nitrogen (lbs) Total Monthly	< 493.2	< 536.6	< 461.9	< 394	< 438.1	< 414.7	< 799.5	< 387	< 411.6	< 462.3	< 332.8	< 397.7
Total Nitrogen (lbs) Effluent Net Total Annual	< 4941											
Total Nitrogen (lbs) Total Annual	< 4941											
Ammonia (lbs/day) Average Monthly	< 0.40	< 0.56	< 0.34	< 0.38	< 0.69	2.05	13.19	< 1.33	< 0.40	< 0.45	< 0.49	< 0.39
Ammonia (mg/L) Average Monthly	< 0.10	< 0.15	< 0.10	< 0.11	< 0.18	0.52	3.06	< 0.39	< 0.11	< 0.14	< 0.14	< 0.13
Ammonia (lbs) Total Monthly	< 11.9	< 17.4	< 10.3	< 11.6	< 21.5	57.5	409	< 39.8	< 12.3	< 13.7	< 15.3	< 12
Ammonia (lbs) Total Annual	< 254											

TKN (mg/L) Average Monthly	1.5	< 1.2	< 1.2	< 1.1	< 1.3	2.1	4.8	< 1.7	1.4	1.5	< 1.2	< 1.1
TKN (lbs) Total Monthly	179.8	< 130.1	< 126.6	< 119.1	< 169.2	238.6	652.3	< 174	157.9	142.9	< 129	< 105.6
Total Phosphorus (lbs/day) Average Monthly	1.80	1.20	0.99	< 0.59	< 0.60	0.92	1.36	0.68	2.17	2.07	2.39	1.56
Total Phosphorus (mg/L) Average Monthly	0.47	0.35	0.29	< 0.18	< 0.15	0.22	0.30	0.20	0.61	0.63	0.61	0.52
Total Phosphorus (lbs) Effluent Net Total Monthly	53.9	37.2	29.6	< 18.4	< 18.5	25.7	42.3	20.5	67.2	62.4	74.2	48.4
Total Phosphorus (lbs) Total Monthly	53.9	37.2	29.6	< 18.4	< 18.5	25.7	42.3	20.5	67.2	62.4	74.2	48.4
Total Phosphorus (lbs) Effluent Net Total Annual	466											
Total Phosphorus (lbs) Total Annual	466											

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)					
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	125.0	200.0	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	150.0	225.0	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-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	37.0	XXX	XXX	7.5	XXX	15.0	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	12.0	XXX	XXX	2.5	XXX	5.0	1/week	24-Hr Composite
Total Phosphorus	6.5	XXX	XXX	2.0	XXX	4.0	1/week	24-Hr Composite

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Monitoring Frequency	Required Sample Type
Ammonia-N	Report	Report	XXX	Report	XXX	1/week	24-Hr Composite
Kjeldahl-N	Report	XXX	XXX	Report	XXX	1/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	1/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	1/week	24-Hr Composite
Net Total Nitrogen	Report	7,306	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.6
Latitude 39º 54' 23.1" **Longitude** 76º 11' 6.7"
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	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. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 2.73 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 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 204 on Pequea Creek from October 1998 to January 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 7.6 and a Stream Temperature of 13.75°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 25 mg/l and a NH_3-N limit of 2.5 mg/l are necessary to protect water quality. These limits are the same as the existing, which will remain in the permit.

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. 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 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 23.5 lbs/day was 0.62% 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. The existing TP limit of 2.0 mg/l will remain unchanged in the permit to protect the Lower Susquehanna River.

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 November 9, 2018. 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.

Quarryville WWTP is a Phase 3 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
PA0028886	3	Quarryville Borough Authority	10/11/2012	10/31/2017	10/1/2014	7,306	-	974	0.98	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. 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.

Pequea Creek TMDL

A TMDL was established for Pequea Creek on March 2, 2001 (revisions June 16, 2006 and August 18, 2006). The report allocated an annual load of 1,218 lbs/yr for TP at a permitted design flow of 0.4 mgd. DEP's Chesapeake Bay Tributary Strategy allocated an annual phosphorus loading of 974 lbs/yr. The annual load of 974 lbs/yr is more stringent, and will remain in the permit.

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.

Quarryville reported a maximum effluent TDS concentration of 714 mg/l and Bromide concentration of <0.2 mg/l. Based upon the data provided in the application, monitoring for these parameters will not be necessary.

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 agriculture from nutrients, siltation, and organic enrichment/low D.O., habitat modification – other than hydromodification due to habitat alterations and pH. The permit renewal includes pH, TP, TN, D.O. and fecal coliform limits.

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	125.0	200.0	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	150.0	225.0	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-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	37.0	XXX	XXX	7.5	XXX	15.0	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	12.0	XXX	XXX	2.5	XXX	5.0	2/week	24-Hr Composite
Total Phosphorus	6.5	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

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	7,306	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	974	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Other Comments: None

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: