

Application Type Renewal
Facility Type Municipal
Major / Minor Major

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0027324
APS ID 784783
Authorization ID 961854

Applicant and Facility Information

Applicant Name	<u>Shamokin Coal Township Joint Sewer Authority</u>	Facility Name	<u>SCTJSA WWTF</u>
Applicant Address	<u>114 Bridge Street</u> <u>Shamokin, PA 17872-7690</u>	Facility Address	<u>114 Bridge Street</u> <u>Shamokin, PA 17872-7690</u>
Applicant Contact	<u>Paul Petrovich</u>	Facility Contact	<u>Samuel Rumberger III</u>
Applicant Phone	<u>570-492-1202</u>	Facility Phone	<u>570-274-6452</u>
Client ID	<u>63779</u>	Site ID	<u>458710</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Ralpho Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Northumberland</u>
Date Application Received	<u>January 24, 2013</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>February 07, 2013</u>	If No, Reason	<u>Major Facility, Significant CB Discharge, CSO</u>
Purpose of Application	<u>Renewal of Major Sewage Permit</u>		

Summary of Review

INTRODUCTION

The Department has drafted this permit renewal for the Shamokin-Coal Township Joint Sewer Authority (SCTJSA).

APPLICATION

The Shamokin-Coal Township Joint Sewer Authority (SCTJSA) submitted the NPDES Application for Permit to Discharge Sewage (Long Form) (DEP #3800-PM-WSFR0009b). This application was received by the Department on January 24, 2013 and considered administratively complete on February 07, 2013. The client contact is Paul A. Petrovich, General Manager of the SCTJSA. His additional contact information is (email) ppscjtsa@ptd.net. The site contact is Samuel Rumberger III, Plant Supervisor. The consulting engineer is Craig Zack, PE of KPI Technology of Gettysburg, PA. His contact information is (phone) 717-339-0612, (fax) 717-339-0717 and (email) craigz@kpitech.net.

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.

The case file, permit application package and draft permit will be available for public review at Department's Northcentral Regional Office. The address for this office is 208 West Third Street, Suite 101, Williamsport, PA 17701. An appointment can be made to review these materials during the comment period by calling the file coordinator at 570-327-3636.

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Approve	Return	Deny	Signatures	Date
			Jeffrey J. Gocek, EIT <i>Jeffrey J. Gocek</i> Project Manager	
			Nicholas W. Hartranft, PE <i>Nicholas W. Hartranft</i> Environmental Engineer Manager	

DISCHARGE, RECEIVING WATERS AND WATER SUPPLY INFORMATION

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>8.50</u>
Latitude	<u>40° 48' 53.97"</u>	Longitude	<u>-76° 35' 03.86"</u>
Quad Name	<u>Shamokin, PA</u>	Quad Code	<u>4076</u>
Wastewater Description:	<u>Treated domestic wastewater</u>		
Receiving Waters	<u>Shamokin Creek (WWF)</u>	Stream Code	<u>18489</u>
NHD Com ID	<u>54962467</u>	RMI	<u>19.0</u>
Drainage Area (mi ²)	<u>54.9</u>	Yield (cfs/mi ²)	<u>0.407</u>
Q ₇₋₁₀ Flow (cfs)	<u>22.368</u>	Q ₇₋₁₀ Basis	<u>USGS Gage #01554500</u>
Elevation (ft)	<u>597</u>	Slope (ft/ft)	<u>N/A</u>
Watershed No.	<u>6-B</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>None</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Metals, Pathogens</u>		
Source(s) of Impairment	<u>Acid Mine Drainage, Urban Runoff/Storm Sewers</u>		
TMDL Status	<u>Final</u>	Name	<u>Shamokin Creek Watershed</u>
Nearest Downstream Public Water Supply Intake	<u>SUEZ Water of Harrisburg</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u>2,389</u>
PWS RMI	<u>76.5</u>	Distance from Outfall (mi)	<u>51.5</u>

Q_{7,10} DETERMINATION

The Q_{7,10} is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA § 96.1 defines Q_{7,10} as "the actual or estimated lowest 7 consecutive day average flow that occurs once in 10 years for a stream with unregulated flow, or the estimated minimum flow for a stream with regulated flow".

A stream gage upstream of the existing discharge, "Shamokin Creek near Shamokin, PA" (USGS #01554500) was selected as a reference gage. A Q_{7,10} flow for that gage (22.0 CFS) was obtained from *Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania* (USGS Open Files Report 2011-1070). The drainage area at the point of discharge (54.9 mi²) was calculated by the *USGS Pennsylvania StreamStats* application. Knowing the drainage area (54.9 mi²) at the discharge and both the drainage area (54.0 mi²) and Q_{7,10} (22.0 CFS) at the reference gage, the Q_{7,10} at the discharge was calculated to be 22.36 CFS.

See Attachment 01 for the Q_{7,10} determination.

DELAY IN APPLICATION PROCESSING

The renewal of this permit was delayed as the Department worked with the Environmental Protection Agency (EPA) on permit reissuance.

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TREATMENT FACILITY

The Authority operates a wastewater treatment facility (WWTF) serving the City of Shamokin (48% of flow), Coal Township (52%) and a small portion of Shamokin Township (0.1%). This WWTF is a combination of two treatment trains which include the original Trickling Filter plant (constructed in 1977) and modern Sequencing Batch Reactor (SBR) units (constructed in 2011). The collection system is a combined sanitary and stormwater collection system, which sometimes overflows during and after precipitation events through permitted Combined Sewer Overflow (CSO) outfalls. The collection system has 67 active CSO outfalls. Other 2011 improvements included a new influent pumping station and ultraviolet disinfection.

See Attachment 02 for a list of CSO outfalls.

The WWTF consists of a combined sewer outfall (002), a screen bypass channel, (2) fine screening units, fine grit (vortex) removal, an influent wet well, (2) primary clarifiers, (2) trickling filters, (2) secondary clarifiers, sand filters, (4) SBRs, (2) ultraviolet disinfection units, a UV contact tank, discharge through Outfall 001, (2) sludge thickeners and (2) anaerobic digesters.

See Attachment 03 for a MAP of the WWTF location.

The WWTF characteristics are as follows.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Domestic Wastewater	Secondary	Trickling Filter With Settling/ SBRs/Nutrient Reduction	Ultraviolet	8.5
Hydraulic Capacity (MGD)	Organic Capacity (lbs BOD5/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
11.5	15,534	Not Overloaded	Anaerobic Digestion	Class A Biosolids used as Landfill cover

Attachment 04 is the WWTF process flow diagram.

The annual average flows of the past three years were 4.104 MGD (2019), 4.8 MGD (2018) and 3.5 MGD (2017). The highest monthly average flow for the previous year was 5.291 MGD, which occurred in January 2020. The highest peak instantaneous flow for the previous year was 11.788 MGD.

The SBR and associated modern wastewater treatment was authorized by Water Quality Management (WQM) permit #4909406, issued January 19, 2011.

The collection system utilizes five pumping stations. All sludge produced is anaerobically digested and treated to produce Class A biosolids.

In 2010, the SCTJSA ceased acceptance of industrial wastewater from Arcos, a categorical waste generator. Because the industrial wastewater is no longer accepted, the SCTJSA no longer needed to maintain an EPA-approved Pretreatment Program. Currently, there are no Significant Industrial Dischargers (SIDs) within the collection system.

COMPLIANCE HISTORY

The WMS Query *Open Violations for Client by Permit Number* revealed no open violations for the SCTJSA.

The most recent Department Compliance Evaluation Inspection (CEI), was conducted November 22, 2019. At the time of the inspection, all required treatment units were online and operational. The plant effluent was clear with a pH of 6.6. The plant has not had any major operational issues for the year prior to the inspection. There were no effluent limitations in that time period. No violations were identified or noted during the inspection.

A Chesapeake Bay (CBAY) inspection was performed December 16, 2019. During the 2018-2019 Water Year, the SCTJSA did not exceed nutrient caploads and sold 3,368 Phosphorus credits as part of eight contracts during the trading period. No violations were identified or noted during the inspection.

There are currently no open Consent Order & Agreements between the Department and the SCTJSA.

Recent Discharge Monitoring Report (DMR) data, from April 2019 to March 2020, is presented in the table below.

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Parameter	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19
Flow (MGD) Average Monthly	3.779	3.877	3.463	3.556	3.601	3.21	2.98	3.74	3.66	6.40	5.18	4.31
Flow (MGD) Daily Maximum	7.527	6.722	6.049	5.39	7.128	5.92	5.16	6.21	5.19	6.70	7.44	6.99
pH (S.U.) Minimum	6.4	6.3	6.2	6.5	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.5
pH (S.U.) Maximum	6.7	6.6	6.6	6.7	6.7	7.4	6.6	6.7	6.6	6.7	6.7	6.8
TRC (mg/L) Average Monthly	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TRC (mg/L) Instantaneous Maximum	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CBOD5 (lbs/day) Average Monthly	103	100	93	151	93	83	86	91	97	112	140	105
CBOD5 (lbs/day) Weekly Average	130	154	137	123	125	112	99	126	122	153	185	119
CBOD5 (mg/L) Average Monthly	3.53	3.24	3.42	5.08	3.0	3.0	3.62	3.0	3.31	3.03	3.22	3.0
CBOD5 (mg/L) Weekly Average	5.41	3.88	4.87	4.79	3.0	3.0	4.11	3.2	4.25	3.12	3.83	3.0
TSS (lbs/day) Average Monthly	140	138	161	181	174	110	102	112	147	69	156	132
TSS (lbs/day) Weekly Average	3.7	158	217	241	362	192	141	167	236	85	215	201
TSS (mg/L) Average Monthly	4.5	4.7	5.9	6.49	5.3	4.26	4.4	4.0	4.9	1.9	3.6	3.7
TSS (mg/L) Weekly Average	8.8	5.1	7.6	6.72	8.5	6.4	5.8	6.8	6.2	2.3	4.3	5.0
Fecal Coliform (No./100 ml) Geometric Mean	1.0	1.0	3.0	17	9.0	8.0	6.0	2.0	1.0	2.0	2.0	2.0
Nitrate-Nitrite (mg/L) Average Monthly	4.35	6.0	5.18	4.3	5.3	6.42	7.44	6.56	7.94	5.13	4.75	3.67
Nitrate-Nitrite (lbs) Total Monthly	4107	4814	4293	3660	4425	5576	5167	5646	6607	5433	5866	3902
Total Nitrogen (mg/L) Average Monthly	6.73	6.68	7.61	6.49	6.64	7.42	9.06	8.66	10.14	6.21	6.15	5.73
Total Nitrogen (lbs) Effluent Net Total Monthly	6356	5344	6371	5621	5553	6468	6336	7372	8700	6603	7882	6225
Total Nitrogen (lbs) Total Monthly	6356	5344	6371	5621	5553	6468	6336	7372	8700	6603	7882	6225
Total Nitrogen (lbs) Effluent Net Total Annual							88903					
Total Nitrogen (lbs) Total Annual							88903					
Ammonia (mg/L) Average Monthly	1.38	1.90	1.78	1.74	0.75	0.48	1.44	1.80	1.39	0.54	0.47	1.01
Ammonia (lbs) Total Monthly	1189	1251	1528	1563	614	345	1000	1400	1412	584	573	1157
Ammonia (lbs) Total Annual							12514					
TKN (mg/L) Average Monthly	2.91	0.68	2.43	2.19	1.34	1.00	1.61	2.10	2.20	1.09	1.40	2.06
TKN (lbs) Total Monthly	2019	0.18	2078	1962	1128	892	1169	1725	2093	1170	2016	2323
Total Phosphorus (mg/L) Average Monthly	0.14	0.18	0.2	0.24	0.15	0.25	0.29	0.08	0.13	0.13	0.10	0.15
Total Phosphorus (lbs) Effluent Net Total Monthly	136	150	168	204	132	188	225	70	113	127	134	160
Total Phosphorus (lbs) Total Monthly	136	150	168	204	132	188	225	70	113	127	134	160
Total Phosphorus (lbs) Effluent Net Total Annual							9218					
Total Phosphorus (lbs) Total Annual							1493					

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EXISTING LIMITATIONS

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0	XXX	XXX	9.0	1/Day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/Day	Grab
CBOD ₅	1,460	2,335	XXX	25	40	50	2/Week	24 Hour Composite
Total Suspended Solids	1,751	2,627	XXX	30	45	60	2/Week	24 Hour Composite
Fecal Coliform (CFU/100mL) (05/01-09/30)	XXX	XXX	200/100 mL geo mean and not greater than 1,000/100 mL in more than 10% of the samples tested				2/Week	Grab
Fecal Coliform (CFU /100mL) (10/01-04/30)	XXX	XXX	2,000/100 mL geo mean				2/Week	Grab

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)			Monitoring Requirements	
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Measurement Frequency	Required Sample Type
Ammonia-N	Report	Report	XXX	Report	XXX	1/Week	24 Hour Composite
Kjeldahl-N	Report	XXX	XXX	Report	XXX	1/Week	24 Hour Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	1/Week	24 Hour Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/Month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	1/Week	24 Hour Composite
Net Total Nitrogen	Report	127,852	XXX	XXX	XXX	1/Month	Calculation
Net Total Phosphorus	Report	17,047	XXX	XXX	XXX	1/Month	Calculation

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DEVELOPMENT OF EFFLUENT LIMITATIONS

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

CBOD₅, NH₃-N and DO

WQM 7.0 for Windows is a DEP computer model used to determine wasteload allocations and effluent limitations for CBOD₅, NH₃-N and DO for single and multiple point source discharge scenarios. This model simulates two basic processes. The NH₃-N module simulates the mixing and degradation of NH₃-N in the stream and compares calculated instream NH₃-N concentrations to the water quality criteria. The DO module simulates the mixing and consumption of DO in the stream due to degradation of CBOD₅ and NH₃-N and compares the calculated instream DO concentrations to the water quality criteria. The model then determines the highest pollutant loading the stream can assimilate and still meet water quality under design conditions.

This model recommended the following limitations.

Parameter	Effluent Limitations (mg/L)		
	30 Day Average	Maximum	Minimum
CBOD ₅	25		
NH ₃ -N	5.69	11.38	
DO			3.0

The Department only incorporates a DO limitation when the model recommends a limitation which exceeds that of the in-stream target criteria. As an existing discharge to a Warm Water stream, with a target in-stream criteria of 5.0 mg/L DO, the model did not recommend a DO effluent limit greater than the target in-stream criteria.

DMR data shows the SCTJSA can meet the proposed Ammonia limitation.

See Attachment 05 for the WQM model output.

25 PA §95.5

According to 25 PA §95.5, for sewage wastes discharged to waters polluted by abandoned coal mine drainage, only secondary treatment is necessary. See below for information on receiving stream.

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Toxics Screening Analysis

The SCTJSA analyzed and submitted an effluent analysis for all of the parameters in Pollutant Groups 1 through 5. Maximum concentrations were taken from the Pollutant Groups and entered into the Department's Toxics Screening Analysis (v2.7) spreadsheet to determine which parameters are candidates for PENTOXSD modeling. All maximum concentrations above the pollutant's most stringent 25 PA Chapter 93 criteria and established quantitation limits (QLs) are considered parameters of concern. This also includes samples that resulted in non-detect, when the reported method detection limit is higher than the QLs outlined in the Department's application instructions (DEP #3800-PM-BPNPSM0009a, rev. 07/2013) and higher than the most stringent Chapter 93 criteria. This method is in accordance with Department Standard Operating Procedure (SOP) #BPNPSM-PMT-033.

All pollutants determined to be candidates for PENTOXSD modeling were entered into the model.

PENTOXSD for Windows is a DEP computer model which considers mixing, first-order decay and other factors to determine recommended water quality based effluent limitations (WQBEL). For each toxic pollutant evaluated, the program 1. Computes a wasteload allocation (WLA) on a single discharge basis, 2. Determines a recommended maximum WQBEL, 3. Compares the recommended WQBEL with the entered discharge concentration to determine which is more stringent and 4. Recommends average monthly and maximum daily effluent limitations.

The PENTOXSD model output is as follows:

Parameter	WQBEL (µg/L)	WQBEL Criterion ¹
1,1,2,2-TETRACHLOROETHANE	1.622	CRL
1,1,2-TRICHLOROETHANE	5.629	CRL
1,2-DICHLOROETHANE	3.626	CRL
1,3-DICHLOROPROPYLENE	3.244	CRL
3,4-BENZOFLUORANTHENE	0.036	CRL
4,6-DINITRO- <i>o</i> -CRESOL	35.106	THH
ACROLEIN	3.589	AFC
BENZENE	11.449	CRL
BENZO(a)ANTHRACENE	0.036	CRL
BENZO(a)PYRENE	0.036	CRL
BENZO(k)-FLUORANTHENE	0.036	CRL
CADMIUM	0.731	CFC
CARBON TETRACHLORIDE	2.194	CRL
CHLORODIBROMOMETHANE	3.816	CRL
CHRYSENE	0.036	CRL
COBALT	51.308	CFC
DIBENZO(a,h) ANTHRACENE	0.036	CRL
DICHLOROBROMOMETHANE	5.248	CRL
HEXACHLOROBUTA-DIENE	4.198	CRL
INDENO(1,2,3-cd)PYRENE	0.036	CRL
MANGANESE	2700.445	THH
NICKEL	140.863	CFC
PENTACHLOROPHENOL	2.576	CRL
PHENANTHRENE	2.7	CFC
SELENIUM	13.473	CFC
SULFATE (PWS)	NA	NA
TETRACHLOROETHYLENE	6.583	CRL
TOTAL DISSOLVED SOLIDS (PWS)	NA	NA
VINYL CHLORIDE	0.239	CRL
ZINC	143.332	AFC

¹ AFC = Acute Fish Criteria, CFC = Chronic Fish Criteria, CRL = Cancer Risk Level, THH = Threshold Human Health

See Attachment 06 for the PENTOXSD model results.

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The most stringent water quality based effluent limits (WQBELs) recommended by the model were also entered into the TSA spreadsheet. This spreadsheet utilizes the following logic to assign either no action, effluent limitation or monitoring:

- Establish average monthly and IMAX limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL
- Non-Conservative Pollutants – Establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL
- Conservative Pollutants – Establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL

See Attachment 07 for the completed TSA spreadsheet.

Based on the model output and the spreadsheet logic, effluent limitations are recommended for the following parameters; Total Cadmium, Total Selenium, Total Zinc, Acrolein, 1,3-Dichloropropylene, 1,1,2,2-Tetrachloroethane, Vinyl Chloride, 4,6-Dinitro-o-cresol, Pentachlorophenol, Benzo(a)Anthracene, Benzo(a)Pyrene, 3,4-Benzofluoranthene, Benzo(k)Fluoranthene, Chrysene, Dibenzo(a,h)Anthracene, Hexachlorobutadiene, Indeno(1,2,3-cd)Pyrene and Phenanthrene. Monitoring is recommended for Total Cobalt, Total Manganese, Total Nickel, Carbon Tetrachloride, Chlorodibromomethane and 1,2-Dichloroethane. No action is necessary for Benzene, Dichlorobromomethane, Tetrachloroethylene and 1,1,2-Trichloroethane.

Many of the parameters proposed for limitations (above) in the draft permit were identified as non-detectable (ND) in the application's pollutant groups and are not typically found in the effluent from a Publicly Owned Treatment Works (POTW). Many of the NDs were higher than the Chapter 93 criteria and the QLs identified in the application instructions and are therefore considered parameters of concern. In accordance with the Department's SOP #BPNSM-PMT-033, the SCTJSA will be offered another opportunity during the draft permit comment period in order to demonstrate these pollutants are not in the effluent.

Best Professional Judgment (BPJ) Limitations

In the absence of applicable effluent guidelines for the discharge or pollutant, permit writers must identify and/or develop needed technology-based effluent limitations (TBELs) TBELs on a case-by-case basis, in accordance with the statutory factors specified in the Clean Water Act. No BPJ limitations have been proposed for this draft.

Anti-Backsliding

In order to comply with 40 CFR § 122.44(l) (anti-backsliding requirements), the Department must issue a renewed permit with limitations as stringent as that of the previous permit.

Since the design flow of the upgraded WWTF is now 8.5 MGD, mass limitations could be calculated with the higher flow in accordance with 40 CFR § 122.44(l)(2)(i). Since the majority of the larger flows will consist of precipitation, the Department decided to keep mass limitations calculated at the previous flow of 7.0 MGD. No additional source of CBOD5 should be present in the precipitation.

With respect to Total Suspend Solids (TSS), this parameter is a pollutant of concern in the Chesapeake Bay TMDL and wasteload allocations (WLAs) for both edge of stream (EOS, 170,549.96 pounds per year) and delivered (56,980.74 pounds per year) have been assigned to this point source. In order to not exceed these WLAs, the mass limitations for TSS will remain calculated at 7.0 MGD. The TSS EOS WLA is not currently included in the NPDES permit as an annual capload. See below for nutrient caploads.

Chesapeake Bay TMDL

Despite 25 years of extensive restoration efforts, the Chesapeake Bay Total Maximum Daily Load (TMDL) was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries. This TMDL, required by the Clean Water Act, is the largest ever developed by the Environmental Protection Agency (EPA). This document identifies the necessary pollution reductions of nitrogen, phosphorus and sediment across Delaware, Maryland, New York, Virginia, West Virginia, District of Columbia and Pennsylvania. It also sets pollution limits necessary to meet applicable water quality standards in the Bay, tidal rivers and embayments.

Pennsylvania explains how and when it will meet its pollution allocations in its Watershed Implementation Plan (WIP), which is incorporated into the TMDL. Pennsylvania's permitting strategy for significant dischargers has been outlined in the Phase I WIP and incorporated in the Phase III WIP by reference, and imposes Total Nitrogen (TN) and Total Phosphorus (TP) cap loads on the significant dischargers.

Because of the design flow of this facility, the Department considers this a Significant Sewage Discharger (Phase 1) for the purposes of implementing the Chesapeake Bay TMDL. In a past NPDES renewal, this facility was assigned caploads of 127,852 pounds per year Total Nitrogen (TN) and 17,047 pounds per year Total Phosphorus (TP).

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The Phase III WIP calls for the continued monitoring of Ammonia-N, Kjeldahl-N, Nitrate-Nitrite as N, TN and TP.

RECEIVING STREAM

Stream Characteristics

The receiving stream is Shamokin Creek, a tributary to the Susquehanna River. Shamokin Creek, according to 25 PA § 93.9M, is protected for *Warm Water Fishes (WWF)* and *Migratory Fishes (MF)*. These are the streams *Designated Uses*, which is defined in 25 PA § 93.1 as “those uses specified in §§ 93.9a – 93.9z for each waterbody or segment whether or not the use is being attained”. Designated uses are regulations promulgated by the Environmental Quality Board (EQB) throughout the rulemaking process. This stream currently has no *Existing Use*, which is defined in 25 PA § 93.1 as “those uses actually attained in the waterbody on or after November 28, 1975 whether or not they are included in the water quality standards”. Shamokin Creek is identified by stream code 18489. This stream is located in (Chapter 93) drainage list M and State Water Plan watershed 6B (Mahanoy and Shamokin Creeks).

Impairment/TMDL

According to Department water quality data, Shamokin Creek is not attaining its designated uses with respect to aquatic life. The stream is impaired by metals due to Abandoned Mine Drainage (AMD). A Total Maximum Daily Load (TMDL) was developed for Shamokin Creek by the Department’s Pottsville District Mining office and the Susquehanna River Basin Commission in 2001. This TMDL was approved by EPA later in 2001. The TMDL recommends the reduction in the discharge of metals in excess of the Department’s water quality standards. The TMDL set allowable loadings at specified points in Shamokin Creek for Aluminum, Iron and Manganese and Acidity from both point and nonpoint sources.

The stream is also impaired for recreation due to pathogens from urban runoff/storm sewers.

STORMWATER OUTFALLS

The plant has two stormwater outfalls which discharge from the WWTF. The outfalls locations are as follows.

Outfall	Latitude	Longitude	Receiving Stream
SW1	40°48'39"	-76°34'58"	Shamokin Creek
SW2	40°48'40"	-76°35'30"	Shamokin Creek

DEVELOPMENT OF MONITORING

Influent Monitoring

In order to adequately characterize the influent wastewater, monitoring of influent Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) will be required at the current frequency of 2/Week.

Dissolved Oxygen

In order to comply with in-stream criteria defined in 25 PA § 93.7, this permit will monitor Dissolved Oxygen (DO (as a minimum) in the effluent. This will allow the Department to check if the effluent is well oxygenated at the point of discharge, will not degrade the required in-stream criteria concentration and will protect the aquatic life in the receiving stream. As a new parameter being introduced into an existing permit, only monitoring will be required at this time.

Shamokin Creek TMDL

Since there is an approved TMDL for the receiving stream, the annual monitoring of the TMDL parameters of concern (Aluminum, Iron and Manganese) will be required to ensure that the discharge is not contributing to the impairment of the receiving stream.

COMBINED SEWERS

Combined Sewer Systems (CSSs) are wastewater collection systems designed to convey sanitary sewage and stormwater in a single pipe to a WWTF. During dry weather, the CSSs convey domestic, commercial and industrial wastewaters. In periods of rainfall or snowmelt, the total wastewater flow can exceed the design capacity of the CSS and/or treatment systems. When this occurs, the Combined Sewer Overflows (CSOs) are used to reduce the hydraulic impact to the CSS and WWTF. Because of varied contaminants and the volume of flows, CSOs can cause a variety of adverse impacts on the physical characteristics of surface water, impair the viability of aquatic habitats and pose a potential threat to drinking water supplies.

Because the SCTJSA operates a combined sewer system, additional requirements must be met through NPDES Permitting. The SCTJSA is subject to both state and federal Combined Sewer Overflow (CSO) strategies. Dischargers with combined sewer systems must characterize those systems, demonstrate implementation of the Nine Minimum Controls (NMCs) and develop a Long-Term Control Plan (LTCP).

The goals of the EPA CSO Control Policy are 1. To ensure that if CSOs occur, they are only as a result of wet weather, 2. To bring all wet weather CSO discharge points into compliance with the technology-based and water quality-based requirements of the Clean Water Act (CWA) and 3. To minimize water quality, aquatic biota and human health impacts from CSOs.

Since the Department is responsible for administering the federal NPDES permit program, the Department developed the PA CSO Policy to define how it will meet the requirements of the federal CSO policy. The goals of the state policy are 1. To control and eliminate CSO discharges as practicable and 2. To ultimately bring all remaining CSO discharges into compliance with state water quality standards through the NPDES permitting program.

Long Term Control Plan

The Long-Term Control Plan (LTCP) is a document by which the permittee evaluates the existing CSS infrastructure and the hydraulic relationship between the CSS, wet weather, overflows and treatment capacity. Cost effective alternatives for reducing or eliminating overflows are evaluated and a plan forward to eventually meet water quality standards is selected. An implementation schedule is then developed to achieve that goal. The three LTCP options are demonstrative, presumptive and total separation. The demonstrative approach shows that the current plan is adequate to meet the water quality-based requirements of the CWA based on data, while the presumptive approach will implement a minimum level of treatment that is presumed to meet the water quality-based requirements of the CWA.

In a revised 2017 LTCP, the SCTJSA proposed a new 2-Phased LTCP goal of 85% capture. Due to financial concerns, the former LTCP goal of total separation was replaced with the minimum defined performance criteria under the presumptive approach which is defined as "the elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the combined sewer system during precipitation events on a system-wide annual basis". The first phase would involve the hydraulic characterization of the system and the selected alternative to meet the presumptive goal, while the second phase would be the implementation of the selected alternative. This revised plan was approved by the Department on October 25, 2017. The end date of the current LTCP, 2042, will remain until a revised LTCP (2023) is approved by the Department.

The new interim milestones of the revised LTCP are as follows.

Event	Date
System Hydraulic Characterization	December 2020
Alternative Selection to meet 85% Capture	June 2022
Submit Revised LTCP to meet 85% Capture	June 2023

Annual CSO Status Report (Chapter 94 Report)

The Annual CSO Status Report is part of the permittee's annual Chapter 94 Municipal Wasteload Management Report. In this annual report, the permittee includes 1. The summary of the frequency, duration and volume of the CSO events from the past year, 2. The operational status of the CSO outfalls, 3. Identification of any known in-stream water quality impacts, 4. A summary of all actions taken to implement NMCs and the LTCP and effectiveness of those actions, 5. A progress report and evaluation of the NMC implementation, 6. Rain gauge data for each event and 7. Documentation of annual inspections and maintenance.

During calendar year 2019, a total of 110 CSO events occurred at three metered CSO outfalls.

Since the revised LTCP was approved by the Department, four phases of flow monitoring have been completed. Current LTCP work includes mapping and modeling of the CSS. When this is completed, calculations on the overall capture rate of the system will be performed. Following the calculations, the alternatives will be evaluated. The implementation of the NMCs continues.

Documentation of the continued implementation of the NMCs in 2019 was included in the Annual Report.

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CSO Inspection

The most recent Department CSO inspection occurred October 17, 2018. At this inspection, seven of the CSO outfalls were observed. All treatment units were operational and online during the inspection.

CSO Receiving Streams

The following streams received flow from CSOs. See Attachment 02 for the list of CSOs and respective receiving streams.

Name	Stream Code	Designated Use
Shamokin Creek	18489	WWF, MF
Furnace Run	18646	CWF, MF
Carbon Run	18647	CWF, MF
Coal Run	18651	CWF, MF
Quaker Run	18652	CWF, MF

WHOLE EFFLUENT TOXICITY TESTING

Whole Effluent Toxicity (WET) Testing is a measure of the aggregate toxic effect to aquatic organisms from all the pollutants in a facility's wastewater effluent.

The Department will require the permittee to conduct WET Testing during the permit term.

ADDITIONAL CONSIDERATIONSHauled-In Wastes

According to the application materials, the SCTJSA has received hauled-in wastes during the past three years and anticipates receiving hauled-in wastes during the next permit term. Septage is received at the plant headworks. The SCTJSA expects to receive an annual average volume of 365,000 gallons during the next permit term.

Mass Limitations

Existing mass limitations for CBOD₅ and TSS are calculated by multiplying the concentration (mg/L) by the flow (MGD) by the conversion (8.34). See above section on anti-backsliding of mass limitations.

Rounding of Limitations

Limitations have been rounded in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Limit Multipliers

The instantaneous maximum limitations have been calculated using multipliers of 2.0 (for sewage discharges) and 2.5 (for toxic industrial discharges) for determining the monthly average. This practice is in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Sample Frequencies and Types

The sample type and minimum measurement frequencies are in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001). The minimum measurement frequencies of the nutrient parameters are in accordance with the Department's *Phase III Watershed Implementation Plan* of the Chesapeake Bay TMDL.

Standard Operating Procedures (SOPs)

The review of this permit application was performed in accordance with the Department's *SOP for New and Reissuance Sewage Individual NPDES Permit Applications* and *SOP for Establishing Effluent Limitations for Individual Sewage Permits* (SOP #BPNPSM-PMT-033).

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Special Permit Conditions

- Stormwater Prohibition
- Approval Contingencies
- Proper Waste Disposal
- Solids Management for Non-Lagoon Treatment Systems
- Combined Sewer Overflows (2019 Condition)
- Whole Effluent Toxicity – No Permit Limits
- Stormwater Requirements for Sewage Facilities >= 1.0 MGD

Supplemental Discharge Monitoring Reports

- Daily Effluent Monitoring
- Non-Compliance Reporting
- Biosolids Production and Disposal
- Hauled-in Municipal Waste
- Influent and Process Control
- Lab Accreditation
- CSO Monthly Report

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.

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

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report Daily Maximum	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0 Instantaneous Minimum	XXX	XXX	9.0	1/Day	Grab
Dissolved Oxygen	XXX	XXX	Report Instantaneous Minimum	XXX	XXX	XXX	1/Day	Grab
Ultraviolet Light Intensity (mW/cm2)	XXX	XXX	Report Instantaneous Minimum	XXX	XXX	XXX	1/Day	Measured
CBOD ₅	1,460	2,335	XXX	25	40	50	1/Day	24 Hour Composite
BOD ₅ Influent	Report	XXX	XXX	Report	XXX	XXX	1/Day	24 Hour Composite
Total Suspended Solids	1,751	2,627	XXX	30	45	60	1/Day	24 Hour Composite
TSS Influent	Report	XXX	XXX	Report	XXX	XXX	1/Day	24 Hour Composite
Fecal Coliform (No./100mL) (05/01-09/30)	XXX	XXX	XXX	200 Geometric Mean	XXX	1,000	1/Day	Grab
Fecal Coliform (No./100mL) (10/01-04/30)	XXX	XXX	XXX	2,000 Geometric Mean	XXX	10,000	1/Day	Grab
Total Aluminum	Report	XXX	XXX	Report	XXX	XXX	1/Month	Grab
Total Iron	Report	XXX	XXX	Report	XXX	XXX	1/Month	Grab
Total Manganese	Report	XXX	XXX	Report	XXX	XXX	1/Month	Grab
Ammonia Nitrogen	350	495	XXX	5.0	7.0	10	1/Day	24 Hour Composite
Total Cadmium (µg/L)	0.052	0.078	XXX	0.73	1.10	1.46	1/Week	24 Hour Composite

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Total Cobalt (µg/L)	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Composite
Total Nickel (µg/L)	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Composite
Total Selenium (µg/L)	0.95	1.43	XXX	13.47	20.21	26.95	1/Week	24 Hour Composite
Total Zinc (µg/L)	10.16	15.24	XXX	143.3	215	286.6	1/Week	24 Hour Composite
Acrolein (µg/L)	0.25	0.38	XXX	3.59	5.38	7.18	1/Week	24 Hour Composite
Carbon Tetrachloride (µg/L)	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Composite
Chlorodibromomethane (µg/L)	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Composite
1,2-Dichloroethane (µg/L)	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Composite
1,3-Dichloropropylene (µg/L)	0.23	0.34	XXX	3.24	4.87	6.49	1/Week	24 Hour Composite
1,1,2,2-Tetrachloroethane (µg/L)	0.11	0.17	XXX	1.62	2.43	3.24	1/Week	24 Hour Composite
Vinyl Chloride (µg/L)	0.017	0.025	XXX	0.24	0.36	0.48	1/Week	24 Hour Composite
4,6-Dinitro-o-cresol (µg/L)	2.48	3.73	XXX	35.11	52.66	70.2	1/Week	24 Hour Composite
Pentachlorophenol (µg/L)	0.18	0.27	XXX	2.58	3.86	5.15	1/Week	24 Hour Composite
Benzo(a)Anthracene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Benzo(a)Pyrene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
3,4-Benzofluoranthene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Benzo(k)Fluoranthene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Chrysene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Dibenzo(a,h)Anthracene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Hexachlorobutadiene (µg/L)	0.29	0.44	XXX	4.20	6.30	8.40	1/Week	24 Hour Composite
Indeno(1,2,3-cd)Pyrene (µg/L)	0.003	0.004	XXX	0.04	0.05	0.07	1/Week	24 Hour Composite
Phenanthrene (µg/L)	0.19	0.28	XXX	2.70	4.05	5.40	1/Week	24 Hour Composite

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)			Monitoring Requirements	
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Measurement Frequency	Required Sample Type
Ammonia-N	Report	Report	XXX	Report	XXX	2/Week	24 Hour Composite
Kjeldahl-N	Report	XXX	XXX	Report	XXX	2/Week	24 Hour Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/Week	24 Hour Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/Month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/Week	24 Hour Composite
Net Total Nitrogen	XXX	127,852	XXX	XXX	XXX	1/Year	Calculation
Net Total Phosphorus	XXX	17,047	XXX	XXX	XXX	1/Year	Calculation

END of Fact Sheet.