Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021521**
Facility Type	**Municipal**	APS ID	**1054075**
Major / Minor	**Minor**	Authorization ID	**1380490**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Smethport Borough Authority Mckean County**	Facility Name	**Smethport Borough Authority STP**
Applicant Address	201 W Water Street	Facility Address	955 East Water Street
	Smethport, PA 16749		Smethport, PA 16749
Applicant Contact	Graham Nannen	Facility Contact	Graham Nannen
Applicant Phone	(814) 887-5815	Facility Phone	(814) 887-5815
Client ID	45011	Site ID	261938
Ch 94 Load Status	Not Overloaded	Municipality	Smethport Borough
Connection Status	No Limitations	County	McKean
Date Application Received	December 29, 2021	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: This is an application to renew a Minor Sewage Facility with CSO-related bypasses.

Summary of Review

The CSO outfall (Outfall 002) was changed to an IMP (Outfall 101) during the previous permit renewal based on addition of new fine screens to the system before the CSO discharge point, a relief point after the headworks is considered a bypass.

Based on Chapter 94 Reports, the facility is still implementing its LTCP and NMC plans. A summary of the Chapter 94 reports and additional information regarding the current status of implementation of these plans will be discussed later in the fact sheet.

There are no open violations in WMS for the subject Client ID (45011) as of 9/10/25.

Sludge use and disposal description and location(s): Based on the 2021 application, 53.7 Dry Tons of sludge were disposed of at the McKean Landfill.

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.

Approve	Deny	Signatures	Date
X		Dustin Hargenrater Dustin Hargenrater / Project Manager	September 10, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	September 29, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.75
Latitude	41º 48' 40.06"	Longitude	-78º 25' 45.12"
Quad Name	Smethport	Quad Code	41078G4
Wastewater Description:	Sewage Effluent		

Receiving Waters	Potato Creek (TSF)	Stream Code	57625
NHD Com ID	112371529	RMI	11.83
Drainage Area	162	Yield (cfs/mi^2)	0.076
Q_{7-10} Flow (cfs)	12.3	Q_{7-10} Basis	USGS - StreamStats
Elevation (ft)	1,457	Slope (ft/ft)	---
Watershed No.	16-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	25	Default - TSF
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake		PA – NY State Border	
PWS Waters	Allegheny River	Flow at Intake (cfs)	--
PWS RMI	--	Distance from Outfall (mi)	26

Changes Since Last Permit Issuance: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	101	Design Flow (MGD)	N/A
Latitude	41º 47' 55.14"	Longitude	-78º 27' 52.72"
Quad Name	Smethport	Quad Code	41078G4
Wastewater Description:	CSO Related Bypass		
Receiving Waters	Potato Creek	Stream Code	57625
NHD Com ID	112372429	RMI	
Drainage Area	--	Yield (cfs/mi^2)	--
Q_{7-10} Flow (cfs)	--	Q_{7-10} Basis	--
Elevation (ft)	--	Slope (ft/ft)	--
Watershed No.	16-C	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Changes Since Last Permit Issuance: Various sewer line replacements have taken place along with CCTV inspections of laterals and additional sewer lines.

The Nine Minimum Control (NMC) document was approved on 6/10/04. The plan was submitted on 12/24/01.
The Long-Term Control Plan (LTCP) was approved on 2/15/06. The plan was submitted on 12/24/02.

The LTCP goal was to have no more than 4-6 overflow events per year (presumptive approach). To accomplish this the following items were proposed as LTCP tasks:

- Install non-clogging pumps at the Marvin Creek and Nelson Street pump stations to eliminate the potential of dry weather overflows.
- Purchase a CCTV camera to better equip Boro staff to inspect and maintain the combined sewer system.
- Purchase a backfill tamper, air driven boring tool, 3-inch trash pump and a portable velocity meter to aid in the I/I investigation and rehab.
- Conduct dye testing of roofs in business and residential areas.
- Conduct roof leader disconnect program on positive dye tests.
- Replacement of dilapidated manholes.
- Conduct a public awareness program.
- Conduct TV inspection of areas suspect of excessive I/I.

The Authority has completed a majority of the LTCP goals. The only active LTCP goals are continuation of the Public Awareness Program and Implementation of the NMCs.

The following is the justification for granting approval of a CSO-related bypass:

The receiving stream is attaining it's uses.
The facility is consistently meeting its limits.
The CSO was activated 1 to 6 times per year in the last 5 years, with an average of 3.2 times per year. This falls within the acceptable range of the LTCP which states, "No more than an average of four overflow events per year, provided that the NPDES Permitting agency may allow up to two additional overflow events per year."

Chapter 4.9.1 of EPA's August 1995 – CSO Guidance for Permit Writers recommends that all wet weather flows passing the headworks of the POTW treatment plant receive at least primary clarification, solids and floatables removal, and disposal, disinfection (if necessary), and any other treatment that can be reasonably provided. Although the CSO bypass doesn't have its own disinfection it still does get some degree of disinfection due to the residual chlorine still present in the headworks waters when it recombines with the discharge after the chlorine contact tank. There are no public water supply intakes downstream, no special protection waters, and no public recreation areas that would warrant the need for full disinfection.

Treatment Facility Summary

Treatment Facility Name: Smethport Borough Authority STP

WQM Permit No.	Issuance Date
4299401	9/3/99
4299401 A-1	8/30/01
4299401 A-2	2/12/14

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Gas Chlorine	0.75

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.51	663	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: None

#4299401: Regulator Chamber, Grit Removal, Comminutors, Influent Pump Station, Extended Aeration, Final Clarifiers, Chlorination, and an effluent diffuser. Sludge handling via an aerobic digestor and a belt filter press.

A-1: Addition of a sludge/grit receiving pad

A-2: New fine screen system ahead of the regulator chamber. Installation of a new area-velocity meter in the manhole upstream of the fine screen building.

Compliance History

DMR Data for Outfall 001 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	0.523	0.46	0.502	0.483	0.285	0.454	0.305	0.234	0.253	0.459	0.261	0.38
Flow (MGD) Weekly Average	0.709	0.523	0.671	0.782	0.491	0.599	0.477	0.302	0.334	0.7	0.439	0.663
pH (S.U.) Minimum	6.8	6.9	6.8	6.7	6.5	6.5	6.6	6.6	6.7	6.5	6.6	6.7
pH (S.U.) Maximum	7.2	7.0	7.0	7.1	6.8	6.9	6.9	7.0	7.0	7.2	7.3	7.2
DO (mg/L) Minimum	6.1	7.4	8.2	7.8	8.9	8.4	6.1	5.8	4.9	5.1	5.2	6.0
TRC (mg/L) Average Monthly	0.30	0.34	0.31	0.3	0.37	0.38	0.35	0.36	0.37	0.32	0.27	0.31
TRC (mg/L) Instantaneous Maximum	0.51	0.51	0.48	0.54	0.67	0.55	0.58	0.63	0.64	0.48	0.48	0.53
CBOD5 (lbs/day) Average Monthly	< 16	< 7	< 11	< 9	4	< 9	< 5	< 4	< 4	< 6	5	< 9
CBOD5 (lbs/day) Weekly Average	27	< 9	23	< 19	10	< 12	< 8	< 5	< 4	< 9	6	< 21
CBOD5 (mg/L) Average Monthly	< 3	< 2	< 2	< 2	2	< 2	< 2	< 2	< 2	< 2	2	< 3
CBOD5 (mg/L) Weekly Average	3	2	2	< 2	2	< 2	< 2	< 2	< 2	2	3	3
BOD5 (lbs/day) Influent Average Monthly	314	292	311	452	257	283	266	255	178	195	172	183
BOD5 (mg/L) Influent Average Monthly	68	84	89	134	123	70	108	135	91	70	79	67
TSS (lbs/day) Average Monthly	39	< 11	< 19	< 17	7	< 13	< 8	< 6	< 7	< 9	< 7	< 15
TSS (lbs/day) Influent Average Monthly	< 240	232	< 290	707	226	258	151	237	184	180	87	338
TSS (lbs/day) Weekly Average	73	< 13	47	39	15	< 18	15	< 7	11	< 14	< 8	41

TSS (mg/L) Average Monthly	6	< 3	< 4	< 4	4	< 3	< 3	< 3	< 4	< 3	< 3	< 3
TSS (mg/L) Influent Average Monthly	< 61	68	< 79	175	107	70	61	121	88	67	39	134
TSS (mg/L) Weekly Average	9	3	4	5	5	< 3	4	< 3	6	3	< 3	4
Fecal Coliform (No./100 ml) Geometric Mean	> 13	< 2	6	4	1	2	< 1	< 1	< 8	12	< 2	12
Fecal Coliform (No./100 ml) Instantaneous Maximum	> 2420	6	88	56	2	3	2	2	16	13	8	47
Total Nitrogen (mg/L) Average Monthly	11.56	12.9	11.27	12.15	18.7	11.72	23.4	22.0	20	15.92	17.4	18.7
Total Phosphorus (mg/L) Average Monthly	1.22	1.13	0.91	0.93	1.49	0.9	2.13	2.1	1.91	1.71	2.11	1.88
Total Copper (mg/L) Average Monthly	0.013	0.019	0.013	0.015	0.018	0.0129	0.027	0.020	0.020	0.020	0.018	0.018

DMR Data for Outfall 101 (from June 1, 2024 to May 31, 2025)

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Influent Average Monthly				0.200								

Compliance History

Effluent Violations for Outfall 001, from: July 1, 2024 To: May 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	05/31/25	Geo Mean	> 13	No./100 ml	200	No./100 ml
Fecal Coliform	05/31/25	IMAX	> 2420	No./100 ml	1000	No./100 ml

Summary of Inspections: There have been 2 inspections since 7/30/21, no violations were noted in either inspection.

Other Comments: There was no explanation reported on the non-compliance reporting form for the two effluent violations from May of 2024. The Geo Mean violation does not appear to be a violation as the reported value is less than the limit value. 4 tests were completed in the month of May for Fecal Coliform and the >2420 No./100 ml value is an outlier to the data set.

Chapter 94 Report Summary (2019 – 2024)

Since the full Chapter 94 reports are reviewed when they are submitted the purpose of these Chapter 94 Report summaries will be focusing on the CSO aspects of the report.

2019
The Borough of Smethport continued improvements associated with the wastewater collection system and stormwater system. Improvements include the replacement of King and Washington Street sewer line. The following also received a new collection line and at least one new cleanout: 508 West Green St, 808 Water St, South Marvin Dollar General, 104 East Water St, and 910 East Water St. A total of 3,748 LF of sewers were televised and/or cleaned. Catch basin and storm sewer replacement consisted of 420 LF of sewer line replacement and 5 catch basin replacements. Inflow/Infiltration monitoring consisted of the 3,748 LF of lines televised that were mentioned above. There were 6 CSO related bypasses in 2019, the record shows that the CSO did not discharge during dry weather conditions and more than 85% of the total sewage flow was captured by the plant. This is verified by the attached CSO Percent capture of Flows table included in the report.

2020
In 2020, 565 LF of sewer lines were replaced. There were 17 replaced/tap repair/installation of at least one cleanout at various addresses throughout the borough. 3,478 LF of sewers were televised and cleaned based on the report. Catch Basins and storm sewers table shows 348 LF of sewer lines and 14 catch basins were repaired/cleaned/replaced. There were 4 CSO related bypasses in 2020, none of which occurred during dry weather conditions and at least 85% of the total sewage flow was captured by the plant based on the CSO Percent Capture of Flows table included in the report.

2021
In 2021, 4,015 LF of sewer lines were repaired/replaced. There were 7 addresses maintained by various means across the borough. An additional 2,045 LF of sewers were televised/cleaned. There were 13 catch basins and storm sewers replaced and an additional 1,074 LF of sewer lines replaced while working on these catch basins. There was only one CSO related bypass in 2021, this event was not during dry weather conditions and the minimum of 85% capture of the untreated sewage was achieved based on the CSO Percent Capture of Flows table included in the report.

2022
In 2022, 102 LF of sewer lines were replaced or repaired. The aim of this round of repairs seemed to be focused on manhole restoration and replacing sewer connection lines to various houses in the borough. A total of 6,407 LF of sewer lines were televised/cleaned. There were 16 catch basins and storm sewers that were repaired/replaced/maintained along with 1,065 LF of sewer lines that connect these catch basins. There were 3 instances of CSO related bypass events in 2022, these events were not during dry weather conditions and the minimum of 85% capture of the total sewage was achieved based on the CSO Percent Capture of Flows table included in the report.

2023
In 2023, 539 LF of sewer lines were replaced or repaired. The aim of these repairs focused on repair and maintenance of existing sewer lines and manhole connections. The borough televised an additional 980 LF of the existing sewer lines. There were 16 catch basins and storm sewers replaced or maintained, additionally 2,072 LF of sewer lines were replaced in regard to these catch basins. There were 2 CSO related bypasses that occurred, these events were not during dry weather conditions and the minimum of 85% capture was achieved based on the CSO Percent Capture of Flows table in the report.

2024
In 2024, 457 LF of sewer lines were replaced or repaired. The borough also televised/cleaned an additional 9,095 LF of sewer lines. There were 9 catch basins and storm sewers maintained in 2024 and 627 LF of storm sewers were replaced. There were 4 CSO related bypasses that occurred, none of the bypasses occurred during dry weather events however there were two events that did not meet the 85% capture goal. These events seemed to be extreme weather events, there were 2 events 9 days apart so water levels were likely still high. In the explanation of the event it was described as “2.6” of rainfall in 24 hours followed by high groundwater and heavy snowmelt. Water levels up over flood stage. Water was up over creek edge spilling over into surrounding plant. Surrounding plant submerged in 1.5 feet of water. Creek water level over driveway. Isolated plant into wet weather mode. Shut down aeration for prevention of bug loss.” Although the facility did not meet their goal of 85% capture rate, according to the finalized LTCP, a municipality needs to document compliance with any on of the three criteria to satisfy the presumptive approach. The three criteria are an average of 4 overflow events per year, 85% capture by volume, and 85% capture by mass. Since the facility only had 4 events for the year it is expected they will remain in compliance pending further investigation from the Compliance Section of the Clean Water Program.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .75
Latitude 41º 48' 53.00" **Longitude** -78º 25' 44.00"
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

The discharge was modeled using WQM 7.0 v 1.1, TRC_CALC, and the Toxics Management Spreadsheet. The WQM 7.0 model uses a mass balance equation using in-stream data for Q_{7-10}, Yield, Drainage Area, average concentration data for pH from the facility, and discharge rate of the facility. It then uses these values to calculate WQBELs for CBOD5, Ammonia-Nitrogen, and Dissolved Oxygen. The Toxics Management Spreadsheet uses a similar data set along with reported concentrations of toxic pollutants to calculate limits based on a mass balance approach for toxic pollutants. The TRC_CALC model takes into consideration the Q_{7-10} of the receiving stream and the discharge rate and uses a mass balance approach to calculate WQBELs for Total Residual Chlorine.

WQM 7.0 WQBELs
Default values used in the model were stream temperature and stream pH as there weren't any sample points close enough to reasonably assume in-stream concentrations. The WQM 7.0 model produced limits for CBOD5, Ammonia-Nitrogen, and Dissolved Oxygen. The limits for CBOD5 are in line with the technology-based limitations that are in place at the facility so CBOD5 limitations will be carried over from the last permit renewal. Ammonia-Nitrogen limits calculated by the model are 11.29 mg/l average monthly and 22.58 mg/l instantaneous maximum. The BPJ limit of 4mg/l for Dissolved Oxygen will be carried over from the last permit renewal as the model calculated that it was still the appropriate concentration.

Ammonia-Nitrogen limits will be rounded down in accordance with the round-off guidelines found in the Permit Writer's Manual so the limits that will be implemented in the permit are 11.0 mg/l average monthly and 22.0 mg/l instantaneous maximum. Based on the SOP for Establishing Effluent Limitations for Individual Sewage Permits Ammonia-Nitrogen is subject to seasonal limitations for warm and cold weather months. A seasonal multiplier of 3.0 is used to determine cold month limitations for Ammonia-Nitrogen. Using this seasonal multiplier the limits for the facility would be 33.0 mg/l average monthly and 66.0 mg/l instantaneous maximum. Based on the Determining Water Quality Based Effluent Limits "In all cases seasonal limits should never be less stringent than BAT/secondary treatment. Therefore, since the BAT/Secondary Treatment Standards are more stringent than the proposed seasonal limits a 25 mg/l average monthly limit and 50 mg/l instantaneous maximum limit will be imposed during the period of November 1 to April 30.

In the previous permit term Ammonia-Nitrogen limitations were not implemented even though the model calculated technology-based limits of 25 mg/l average monthly and 50 mg/l instantaneous maximum were appropriate and at the minimum monitoring should have been imposed. Based on the SOP for New and Reissuance Individual Sewage NPDES Permits due to the monitoring not being imposed in the previous permit there is no data to determine whether the facility will be able to comply with this permit so a 3-year compliance schedule will be implemented into the permit with monitoring and reporting the monthly average and IMAX concentrations.

Toxics Management Spreadsheet WQBELs
The Toxics Management Spreadsheet was used to evaluate the reported concentrations of Total Aluminum, Total Copper, Total Iron, Total Lead, Total Manganese, and Total Zinc. Total Copper, Total Lead, and Total Zinc sampling is required in the application if the facility receives industrial or commercial contributors. Total Aluminum, Total Iron, and Total Manganese were tested at the facility because they were believed to be present in the discharge likely due to the industrial users that send their wastewater to the facility. Default values used in the model were Discharge Hardness, in-stream Hardness, and in-stream pH as there were no sample points close enough to reasonably assume in-stream values.

The TMS did produce limits for Total Copper based on Acute Fish Criteria. The limit produced by the TMS is 0.037 mg/l average monthly and 0.092 mg/l instantaneous maximum. The facility did receive Total Copper limits in the last permit renewal of 0.044 mg/l average monthly and 0.9 mg/l instantaneous maximum. Sine the IMAX limit of 0.9 mg/l is more stringent than the calculated limit it will be retained for this permit renewal. The limits for the average monthly concentration calculated by the model were more stringent than the current limit so the new average monthly limit for Total Copper will be 0.037 mg/l.

The remaining parameters did not receive limitations based on the following reasons:
Total Aluminum – Discharge Conc < TQL
Total Iron – Discharge Conc ≤ 10% WQBEL
Total Lead – Discharge Conc < TQL
Total Manganese – Discharge Conc ≤ 10% WQBEL
Total Zinc – Discharge Conc ≤ 10% WQBEL

TRC_CALC WQBELs
The TRC_CALC model suggested limits of 0.5 mg/l average monthly and 1.6 mg/l instantaneous maximum which are currently in the permit so the limits will be retained for this permit renewal.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen was previously implemented as a BPJ value of 4.0 mg/l and will be retained for this permit renewal.

Anti-Backsliding

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	5/week	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	5/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	156	250	XXX	25	40	50	1/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Biochemical Oxygen Demand (BOD5) Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	188	281	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Copper, Total	**XXX**	**XXX**	**XXX**	**0.044**	**XXX**	**0.09**	**2/month**	**24-Hr Composite**

The previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous permit limitations, monitoring requirements, and conditions will be retained. New or more stringent limitations are being proposed for E. Coli, Ammonia-Nitrogen, and Total Copper.

Other Limits or Monitoring

Based on the SOP for Establishing Effluent Limitations for Individual Sewage Permits, monitoring, at a minimum, for E. Coli, in new and reissued permits with a monitoring frequency of 1/quarter for design flows >= 0.05 MGD and <1 MGD should be imposed.

Total Nitrogen and Total Phosphorous monitoring frequency will be reduced to 1/quarter for this renewal. This is due to the facility not being in the Chesapeake Bay watershed and the receiving waters are not impaired for nutrients. The Phase 2 WIP Wastewater Supplement report for the Chesapeake Bay outlines the plan for limits or monitoring for sewage and industrial waste permits in the Chesapeake Bay watershed. In the past the monitoring has been imposed based on the Department wishing to collect data to ensure other waters of the commonwealth were not being overloaded with nutrients. The Phase 2 WIP Wastewater Supplement report outlines a plan to reduce limits for Phase 4 and 5 facilities to reduce monitoring. Phase 4 and 5 facilities are any sewage facilities with design flow rates of <0.4 MGD. Although this facility discharges at a rate higher than what is outlined in the report to be considered a Phase 4 or 5 facility the discharge is not outlined as receiving limits in the report. As mentioned above this is most likely because the facility is not considered to be in the Chesapeake Bay watershed. Since the receiving waters are not impaired for nutrients and based on the SOP for Establishing Effluent Limitations for Individual Sewage Permits the reduction of monitoring is allowed.

Development of Effluent Limitations

Outfall No.	101	**Design Flow (MGD)**	__N/A__
Latitude	41º 48' 00"	**Longitude**	-78º 28' 00"

Wastewater Description: CSO related bypass

Chapter 4.9.1 of EPA's August 1995 – CSO Guidance for Permit Writers recommends that all wet weather flows passing the headworks of the POTW treatment plant receive at least primary clarification, solids and floatables removal, and disposal, disinfection (if necessary), and any other treatment that can be reasonably provided. Since the CSO related bypass receives primary clarification, solids and floatables removal, disposal, and residual disinfection, flow monitoring will be imposed on the CSO related bypass so the permittee can monitor the percent capture rate for CSO related bypasses

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through End of Interim Period 1.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	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	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	156	250	XXX	25	40	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	188	281	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through End of Interim Period 1)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Copper	XXX	XXX	XXX	0.037	XXX	0.09	2/month	24-Hr Composite

Compliance Sampling Location: Outfall 001, after disinfection, prior to bypass recombination.

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: End of Interim Period 1 through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	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	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	156	250	XXX	25	40	50	1/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5)	156	250	XXX	25	40	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	188	281	XXX	30	45	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab

Outfall 001, Continued (from End of Interim Period 1 through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Ammonia Oct 1 - Apr 30	206.0	XXX	XXX	25.0	XXX	50	1/week	8-Hr Composite
Ammonia May 1 - Sep 30	68.0	XXX	XXX	11.0	XXX	22.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Copper	XXX	XXX	XXX	0.037	XXX	0.09	2/month	24-Hr Composite

Compliance Sampling Location: Outfall 001, after disinfection, prior to bypass recombination.

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" (386-0400-001), SOPs and/or BPJ.

Outfall 101, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Daily when Discharging	Measured

Compliance Sampling Location: Suboutfall 101.

Attachment 1
WQM 7.0 Modeling

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
16C	57625	POTATO CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
11.830	12.31	0.00	12.31	1.1602	0.00042	.868	64.79	74.68	0.24	0.229	25.00	6.98
10.930	12.39	0.00	12.39	1.1602	0.00071	.852	63.42	74.43	0.25	0.585	25.00	6.98
8.530	12.62	0.00	12.62	1.1602	0.00030	.882	66.55	75.42	0.23	0.495	25.00	6.99
6.630	12.77	0.00	12.77	1.1602	0.00038	.876	66.19	75.6	0.24	0.252	25.00	6.99
Q1-10 Flow												
11.830	7.88	0.00	7.88	1.1602	0.00042	NA	NA	NA	0.19	0.287	25.00	6.98
10.930	7.93	0.00	7.93	1.1602	0.00071	NA	NA	NA	0.20	0.731	25.00	6.98
8.530	8.07	0.00	8.07	1.1602	0.00030	NA	NA	NA	0.19	0.619	25.00	6.98
6.630	8.17	0.00	8.17	1.1602	0.00038	NA	NA	NA	0.19	0.315	25.00	6.98
Q30-10 Flow												
11.830	16.74	0.00	16.74	1.1602	0.00042	NA	NA	NA	0.28	0.196	25.00	6.99
10.930	16.85	0.00	16.85	1.1602	0.00071	NA	NA	NA	0.29	0.499	25.00	6.99
8.530	17.16	0.00	17.16	1.1602	0.00030	NA	NA	NA	0.28	0.422	25.00	6.99
6.630	17.36	0.00	17.36	1.1602	0.00038	NA	NA	NA	0.28	0.215	25.00	6.99

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
16C	57625	POTATO CREEK	**11.830**	1457.00	162.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.076	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Smethport STP	PA0021521	0.7500	0.7500	0.7500	0.000	25.00	6.85

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
16C	57625	POTATO CREEK	**10.930**	1455.00	163.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.076	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
16C	57625	POTATO CREEK	**8.530**	1446.00	166.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.076	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
16C	57625	POTATO CREEK	**6.630**	1443.00	168.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.076	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
16C	57625	POTATO CREEK	**5.640**	1441.00	205.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.076	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
16C	57625	POTATO CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.830	Smethport STP	11.29	50	11.29	50	0	0
10.930		NA	NA	11.29	NA	NA	NA
8.530		NA	NA	11.28	NA	NA	NA
6.630		NA	NA	11.28	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
11.830	Smethport STP	1.37	21.19	1.37	21.19	0	0
10.930		NA	NA	1.37	NA	NA	NA
8.530		NA	NA	1.37	NA	NA	NA
6.630		NA	NA	1.37	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
11.83	Smethport STP	25	25	11.29	11.29	4	4	0	0
10.93		NA	NA	NA	NA	NA	NA	NA	NA
8.53		NA	NA	NA	NA	NA	NA	NA	NA
6.63		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
16C	57625	POTATO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
11.830	0.750	25.000	6.985
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
64.790	0.868	74.675	0.240
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.98	0.730	0.97	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.878	0.775	Tsivoglou	5
Reach Travel Time (days)			
0.229			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.023	3.90	0.95	7.54
0.046	3.82	0.93	7.45
0.069	3.74	0.91	7.25
0.092	3.66	0.89	7.06
0.115	3.58	0.86	6.88
0.138	3.51	0.84	6.70
0.161	3.43	0.82	6.53
0.184	3.36	0.81	6.37
0.207	3.29	0.79	6.22
0.229	3.22	0.77	6.07

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
10.930	0.750	25.000	6.985
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
63.417	0.852	74.433	0.251
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.22	0.462	0.76	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.081	1.368	Tsivoglou	5
Reach Travel Time (days)			
0.585			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.058	3.11	0.72	5.91
0.117	3.01	0.68	5.76
0.175	2.90	0.64	5.64
0.234	2.81	0.60	5.55
0.292	2.71	0.57	5.48
0.351	2.62	0.53	5.43
0.409	2.54	0.50	5.39
0.468	2.45	0.47	5.37
0.526	2.37	0.44	5.36
0.585	2.29	0.42	5.36

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
16C	57625	POTATO CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
8.530	0.750	25.000	6.985
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
66.545	0.882	75.419	0.235
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.28	0.206	0.41	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.413	0.539	Tsivoglou	5
Reach Travel Time (days)			
0.495			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.049	2.26	0.39	5.36
0.099	2.23	0.37	5.30
0.148	2.20	0.35	5.26
0.198	2.17	0.34	5.22
0.247	2.14	0.32	5.19
0.297	2.12	0.30	5.16
0.346	2.09	0.29	5.14
0.396	2.06	0.27	5.12
0.445	2.04	0.26	5.11
0.495	2.01	0.25	5.09

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.630	0.750	25.000	6.985
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
66.193	0.876	75.598	0.240
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.015	0.24	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.129	0.706	Tsivoglou	5
Reach Travel Time (days)			
0.252			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	2.01	0.24	5.16
0.050	2.01	0.23	5.18
0.076	2.01	0.23	5.21
0.101	2.01	0.22	5.24
0.126	2.00	0.21	5.27
0.151	2.00	0.21	5.30
0.176	2.00	0.20	5.33
0.201	2.00	0.20	5.35
0.227	2.00	0.19	5.38
0.252	2.00	0.19	5.41

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
16C	57625	POTATO CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
11.830	Smethport STP	PA0021521	0.750	CBOD5	25		
				NH3-N	11.29	22.58	
				Dissolved Oxygen			4

Attachment 2
Toxics Management Spreadsheet Modeling

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Smethport Boro STP** NPDES Permit No.: **PA0021521** Outfall No.: **001**

Evaluation Type **Major Sewage / Industrial Waste** Wastewater Description: **Treated Sewage Effluent/IW Wastewater**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.75	100	6.83						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	mg/L	<	0.007									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L		0.024									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	mg/L		0.06									
	Total Lead	µg/L	<	0.03									
	Total Manganese	mg/L		0.005									
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.018									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										

Group 3	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										
	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										

	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Smethport Boro STP, NPDES Permit No. PA0021521, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Potato Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	057625	11.83	1457	162			Yes
End of Reach 1	057625	9.68	1445	164			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	11.83	0.076										100	7		
End of Reach 1	9.68	0.076										100	7		

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	11.83														
End of Reach 1	9.68														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Smethport Boro STP, NPDES Permit No. PA0021521, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.292 Analysis Hardness (mg/l): 100 Analysis pH: 6.95

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	3,075	
Total Copper	0	0		0	13.439	14.0	57.4	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	335	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	117.180	120	491	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 6.98

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	108	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	17,417	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	36.9	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	118.139	120	1,391	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	11,612	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 69.978 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.23	0.36	0.037	0.057	0.092	mg/L	0.037	AFC	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Iron	17.4	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	N/A	N/A	Discharge Conc < TQL
Total Manganese	11.6	mg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	0.31	mg/L	Discharge Conc ≤ 10% WQBEL

Attachment 3
TRC_CALC Modeling

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

12.3	= Q stream (cfs)	0.5	= CV Daily
0.75	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 3.401	1.3.2.iii	WLA cfc = 3.308
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.267	5.1d	LTA_cfc = 1.923

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**