pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218570**
Facility Type	**Municipal**	APS ID	**872507**
Major / Minor	**Minor**	Authorization ID	**1365221**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Central Mainline Sewer Authority**	Facility Name	**Central Mainline STP**
Applicant Address	PO Box 35 93 Jones Street	Facility Address	4224 Portage Street
	Lilly, PA 15938-0035		Portage, PA 15946
Applicant Contact	Pamela Flis	Facility Contact	Jim Lingafelt, Lead Plant Operator
Applicant Phone	(814) 886-8359	Facility Phone	(814) 736-3863
Client ID	144364	Site ID	609377
Ch 94 Load Status	Not Overloaded	Municipality	Portage Township
Connection Status		County	Cambria
Date Application Received	August 2, 2021	EPA Waived?	Yes
Date Application Accepted	August 16, 2021	If No, Reason	

Purpose of Application: NPDES permit renewal for treated sewage discharges from a municipal sewage treatment plant.

Summary of Review

On August 2, 2021, DEP received an application from The EADS Group, Inc. on behalf of the Central Mainline Sewer Authority (CMSA) to renew the NPDES permit for discharges from the Central Mainline Sewage Treatment Plant (Central Mainline STP). The permit currently in effect was issued on February 3, 2017 with a March 1, 2017 effective date and a February 28, 2022 expiration date. The renewal application was received at least 180 days before the permit's expiration (i.e., was received before September 1, 2021), so the terms and conditions of the 2017 permit will be automatically continued and remain in effect if the permit expires before it is renewed.

The CMSA system is a regional municipal sewerage system that serves portions of Lilly and Cassandra Boroughs and portions of Cresson, Portage, and Washington Townships. Act 537 Sewage Facilities Planning was approved by DEP on June 1, 2000.

Changes for this NPDES permit renewal include the following:

- marginal reductions in the mass loading limits for CBOD5 and TSS consistent with DEP's rounding guidelines
- the addition of new ammonia-nitrogen limits from May 1 through October 31 based on revised water quality criteria for ammonia-nitrogen in 25 Pa. Code Chapter 93 (approved by U.S. EPA in March 2021)
- an annual reporting requirement for *E. coli* based on new water quality criteria for *E. coli* in 25 Pa. Code Chapter 93 (approved by U.S. EPA in March 2021) and corresponding permitting policy updates
- the addition of water quality-based effluent limits for aluminum, iron, and manganese from the Kiskiminetas-Conemaugh River Watershed TMDL

Sludge use and disposal description and location(s): Waste Management's Laurel Highlands Landfill

Approve	Deny	Signatures	Date
X		*Ryan C. Decker* Ryan C. Decker, P.E. / Environmental Engineer	September 7, 2021
X		*Christopher Kriley* Christopher Kriley, P.E. / Program Manager	September 8, 2021

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

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.35
Latitude	40° 24' 23.0"	Longitude	-78° 39' 10.0"
Quad Name	Ebensburg	Quad Code	1516
Wastewater Description:	Treated sewage effluent		
Receiving Waters	Little Conemaugh River (CWF)	Stream Code	45815
NHD Com ID	123718427	RMI	23.13
Drainage Area (mi²)	24.4	Yield (cfs/mi²)	0.1029
Q_{7-10} Flow (cfs)	2.51	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,669	Slope (ft/ft)	0.0149
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Acid mine drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Saltsburg Municipal Water Works (PWS ID 5320035)		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI	0.58	Distance from Outfall (mi)	74.98

StreamStats Report

Region ID: PA
Workspace ID: PA20210825213541194000
Clicked Point (Latitude, Longitude): 40.40644, -78.65278
Time: 2021-08-25 17:35:59 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	24.4	square miles
ELEV	Mean Basin Elevation	2293	feet
PRECIP	Mean Annual Precipitation	48	inches

Low-Flow Statistics Parameters [100.0 Percent (24.4 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	24.4	square miles	2.33	1720
ELEV	Mean Basin Elevation	2293	feet	898	2700
PRECIP	Mean Annual Precipitation	48	inches	38.7	47.9

Low-Flow Statistics Disclaimers [100.0 Percent (24.4 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [100.0 Percent (24.4 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	4.55	ft^3/s
30 Day 2 Year Low Flow	6.38	ft^3/s
7 Day 10 Year Low Flow	2.51	ft^3/s
30 Day 10 Year Low Flow	3.11	ft^3/s
90 Day 10 Year Low Flow	4.39	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Treatment Facility Summary		
Treatment Facility: Central Mainline STP		
WQM Permit No.	**Issuance Date**	**Purpose**
1103401	October 6, 2003	Permit issued to Central Mainline Sewer Authority for a regional gravity sewage collection system with individual grinder pump units with small diameter pressure sewers used to connect to the gravity sewers. The permit also authorized construction and operation of a 0.35 MGD sewage treatment plant consisting of a 1.37 MGD influent pump station with trash basket; a valve pit; a mechanical fine rotary screen with ¼" openings and a bypass bar rack; passive grit removal via three troughs with proportional weirs; two 193,888-gallon sequencing batch reactor tanks with fine bubble aeration (the SBRs employ an Intermittent Cycle Extended Aeration System—continuous fill with intermittent decant); a 36-lamp ultraviolet disinfection system with automated cleaning and rated for 3.26 MGD; two 37,700-gallon aerobic waste sludge digestion tanks; a belt filter press for sludge dewatering; and a 14,107-gallon storage tank with pumps for filter press and screen spray washing, polymer dilution water, and cleaning.
1119401	May 20, 2019	Permit issued to Jamestown Rod & Gun Club for a low-pressure sewer extension (1.5" and 2.0" PVC piping) with eight grinder pump stations connecting to the Central Mainline STP. The applicant entered into a Developer's Agreement with Central Mainline Sewer Authority (CMSA) to release ownership and future maintenance requirements of the low-pressure system to CMSA.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with ammonia capability	Sequencing Batch Reactor	Ultraviolet light	0.100 (2020)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.35	595	Not Overloaded	Aerobic Digestion	Sludge drying beds/landfilling

Comments: In accordance with WQM Permit No. 1103401, the STP was designed for 3,500 people and a unit organic load per person of 0.17 lbs BOD/day, which equates to 595 lbs BOD/day, consistent with the value listed in the NPDES permit application.

Compliance History

DMR Data for Outfall 001 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Average Monthly	0.105	0.117	0.105	0.133	0.086	0.103	0.104	0.086	0.083	0.083	0.087	0.079
Flow (MGD) Daily Maximum	0.271	0.229	0.14	0.356	0.135	0.2	0.344	0.238	0.165	0.072	0.124	0.092
pH (S.U.) Minimum	6.72	6.78	6.7	6.73	6.72	6.7	6.71	6.68	6.76	6.78	6.66	6.68
pH (S.U.) Maximum	7.36	6.99	7.12	6.98	7.0	7.0	7.02	6.99	7.04	7.07	7.14	7.0
DO (mg/L) Minimum	6.24	6.32	6.27	6.02	6.0	5.9	5.88	5.67	5.51	5.59	5.12	5.12
CBOD5 (lbs/day) Average Monthly	5.0	< 8.0	4.0	7.0	3.0	6.0	< 3.0	< 2.0	3.0	< 2.0	< 3.0	3.0
CBOD5 (lbs/day) Weekly Average	6.0	< 11.0	5.0	20.0	4.0	11.0	4.0	3.0	5.0	4.0	4.0	4.0
CBOD5 (mg/L) Average Monthly	6.13	< 6.95	4.92	4.96	4.85	4.96	< 4.32	< 3.66	4.9	< 3.5	< 3.9	5.19
CBOD5 (mg/L) Weekly Average	7.89	< 12.0	5.8	8.07	5.67	6.51	5.94	4.38	7.51	5.38	5.56	7.07
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	143	183	168	209	246	272	128	138	176	178	173	167
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	279	350	176	387	275	500	155	164	205	269	213	230
BOD5 (mg/L) Raw Sewage Influent Average Monthly	174	167.3	1.88	176	368	247	165	209	259	254	243	254
TSS (lbs/day) Average Monthly	< 4.0	< 6.0	< 4.0	< 6.0	< 3.0	< 6.0	< 4.0	< 3.0	< 3.0	< 3.0	< 4.0	< 3.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	142	190	118	150	124	169	78	103	125	142	152	114
TSS (lbs/day) Raw Sewage Influent Daily Maximum	175	227	176	204	150	274	96	129	174	264	194	224
TSS (lbs/day) Weekly Average	< 5.0	< 8.0	< 5.0	< 13.0	< 4.0	12.0	< 5.0	< 4.0	< 4.0	< 4.0	< 4.0	< 3.0

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	176	176	135	141	185	157	101	156	185	202	213	173
TSS (mg/L) Weekly Average	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.0	< 1.0	< 1.0	3	< 1.0	< 1.0	< 1.0
UV Transmittance (%) Minimum	100	100	97.03	7.32	6.0	70.11	69.87	70.69	70.11	68.92	70.02	70.12
Total Nitrogen (mg/L) Daily Maximum							2.2					
Ammonia (lbs/day) Average Monthly	< 0.7	< 0.9	< 0.7	< 1.0	< 0.7	< 0.9	< 0.6	< 0.5	< 3	< 0.6	< 0.6	< 0.6
Ammonia (mg/L) Average Monthly	< 0.8	< 0.8	< 0.8	< 1.083	< 1.094	< 0.835	< 0.8	< 0.8	< 5.1	< 0.8	< 0.8	< 0.865
Total Phosphorus (mg/L) Daily Maximum							4.7					
Total Aluminum (mg/L) Daily Maximum							0.018					
Total Iron (mg/L) Daily Maximum							0.0209					
Total Manganese (mg/L) Daily Maximum							0.025					

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.35
Latitude 40° 24' 23.0" **Longitude** -78° 39' 10.0"
Wastewater Description: Treated sewage effluent

Technology-Based Effluent Limitations (TBELs)

25 Pa. Code § 92a.47 – Sewage Permits

Regulations at 25 Pa. Code § 92a.47 specify TBELs and effluent standards that apply to sewage discharges. Section 92a.47(a) requires that sewage be given a minimum of secondary treatment with significant biological treatment that achieves the following:

Table 1. Regulatory TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Weekly Average (mg/L)	Instant. Max (mg/L)	Basis
CBOD5	25	40†	50††	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR § 133.102(a)(4)(i)
Total Suspended Solids	30	45	60††	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR § 133.102(b)(1)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	N/A	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	N/A	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	N/A	1.0 (or facility-specific)	25 Pa. Code § 92a.47(a)(8) & § 92a.48(b)(2)
pH (s.u.)	not less than 6.0 and not greater than 9.0			25 Pa. Code § 92a.47(a)(7) & § 95.2(1), & 40 CFR § 133.102(c)

† Outfall 001 is currently subject to a more stringent CBOD5 weekly average limit of 37.5 mg/L. That limit will be maintained pursuant to EPA's anti-backsliding regulation (40 CFR § 122.44(l)).

†† Value is calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001].

The $CBOD_5$, TSS, and pH limits are the same as those in EPA's secondary treatment regulation (40 CFR § 133.102).

Average monthly and maximum daily flow must be reported pursuant to 25 Pa. Code § 92a.61(d)(1). The minimum dissolved oxygen limit of 4.0 mg/L imposed in the previous permit will be reimposed in the new permit pursuant to 25 Pa. Code § 92a.61(b) (regarding reasonable monitoring requirements) and 40 CFR § 122.44(l) (regarding anti-backsliding)..

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021] and under the authority of 25 Pa. Code § 92a.61(b), annual reporting for Total Nitrogen and Total Phosphorus is required for sewage discharges with design flows greater than 2,000 gpd to help evaluate treatment effectiveness and to monitor nutrient loading to the receiving watershed (this reporting was required by the previous permit and will be reimposed in the renewed permit). Pursuant to that same SOP and under the authority of § 92a.61(b), an annual reporting requirement for *E.coli* will be added to Outfall 001.

CMSA uses ultraviolet light for disinfection rather than chlorine, so the TBELs for TRC from 92a.47(a)(8) are replaced with minimum reporting requirements for ultraviolet light transmittance pursuant to § 92a.61(b).

Mass Limits

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for CBOD5 and TSS. Average monthly and average weekly mass limits (in units of pounds per day) are calculated using the concentration limits in Table 1 (except for the average weekly CBOD5 concentration where the existing 37.5 mg/L limit is used) and the Central Mainline STP's 0.35 MGD design flow with the following formula:

Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

Table 2. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Average Weekly (mg/L)
CBOD5	70.0	105.0
Total Suspended Solids	85.0	130.0

Pursuant to Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" mass limits for conventional pollutants with a magnitude greater than 60.0 are rounded down to the nearest 5.0 mg/L (the mass limits in Table 2 account for this rounding convention).

Water Quality-Based Effluent Limitations (WQBELs)

Pursuant to EPA's March 2021 approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters of the Commonwealth. Therefore, WQBELs are re-evaluated even though there have been no changes to the STP.

WQM 7.0 Water Quality Modeling Program

WQM 7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("CBOD5"), ammonia-nitrogen, and dissolved oxygen ("DO") for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of CBOD5 and ammonia-nitrogen, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

Water Quality Modeling with WQM 7.0

Table 2. 001 WQM 7.0 Inputs

Discharge Characteristics	
Parameter	**Value**
River Mile Index	23.13
Discharge Flow (MGD)	0.35
Discharge Temp. (°C) (Summer)	20.0
Discharge Temp. (°C) (Winter)	15.0
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	24.4
Q_{7-10} (cfs)	2.51
Low-flow yield (cfs/mi^2)	0.1029
Elevation (ft)	1,669
Slope	0.0149
Stream Temp. (°C) (Summer)	20.0
Stream Temp. (°C) (Winter)	5.0
Stream pH (s.u.)	7.0

The WQM 7.0 model is run for Outfall 001 to determine whether WQBELs are necessary for $CBOD_5$, ammonia-nitrogen, and/or dissolved oxygen. Input values for the WQM 7.0 model are shown in Table 2.

DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures.

The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For the summer period, pursuant to DEP's "Implementation Guidance of Section 93.7 Ammonia Criteria" [Doc. No. 391-2000-013] (Ammonia Guidance) and in the absence of site-specific data, the discharge temperature is assumed to be 20°C and the design stream temperature and pH are assumed to be 20°C and 6.5 s.u., respectively, based on the recommendations for free stone cold water streams in DEP's Ammonia Guidance (the Little Conemaugh River is designated for cold water fishes). The flow used for modeling is the average design flow (0.35 MGD). Input discharge concentrations for CBOD-5 and Ammonia-Nitrogen are the model's default concentrations (25 mg/L). The input dissolved oxygen of the discharge is the 4.0 mg/L minimum limit. The width to depth ratio is assumed to be 10.

The results of the WQM 7.0 modeling (see Attachment A) indicate that new WQBELs are needed for ammonia-nitrogen. Consistent with Section IV.D of DEP's Ammonia Guidance, limits are rounded according to the following conventions:

- Limits greater than 10 mg/L are rounded down to the nearest whole number.
- Limits less than 10 mg/L and greater than 1 mg/L are rounded down to the nearest 0.5 mg/L.
- Limits less than 1 mg/L are rounded down to the nearest 0.1 mg/L.

The average monthly and instantaneous maximum ammonia-nitrogen WQBELs calculated by WQM 7.0 for the summer period are 15.46 mg/L and 30.92 mg/L, respectively. Those limits are rounded down to 15.0 mg/L and 30.0 mg/L for inclusion in the permit. The IMAX limit for ammonia-nitrogen will appear in the permit, but since 8-hour composite sampling is required for ammonia-nitrogen and IMAX limits only apply when grab sampling is specified, CMSA does not need to report results on DMRs for compliance with the ammonia-nitrogen IMAX limits. The IMAX limit may be used by DEP to spot-check compliance such as a grab sample collected during a site inspection.

Since WQBELs are calculated for the summer period, winter limits also are evaluated. Pursuant to DEP's Ammonia Guidance, WQBELs for the winter period are set by multiplying the summer limits by three, unless modeling indicates that more stringent WQBELs than those calculated using the 3x multiplier are needed for winter. For existing dischargers like those from the Central Mainline STP, if the model recommends the default input concentration of 25 mg/L as the average monthly limit and the ammonia-nitrogen limits for winter calculated using the 3x multiplier are less stringent than 25 mg/L, then monitoring and reporting is required for the winter period. For winter period modeling, the low-flow yield (representing $Q_{7\text{-}10}$ flow) is doubled to 0.2058 cfs/mi^2 consistent with DEP's Ammonia Guidance. Default stream and discharge temperatures of 5°C and 15°C, respectively, also are assumed based on the Ammonia Guidance.

The results of the modeling (see Attachment A) indicate that limits more stringent than 25 mg/L are not necessary. Since the WQBELs for ammonia-nitrogen calculated for the winter period using the 3x multiplier (15.0 mg/L × 3 = 45 mg/L & 30 mg/L × 3 = 90 mg/L) are less stringent than the 25 mg/L input discharge concentration, reporting will be required for ammonia-nitrogen from November 1 through April 30.

Mass Limits

In accordance with Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", only average monthly mass limits are calculated for ammonia-nitrogen (no average weekly mass limits). Average monthly mass limits (in units of pounds per day) are calculated using the ammonia-nitrogen concentration limit and the plant's 0.35 MGD design flow with the following formula:

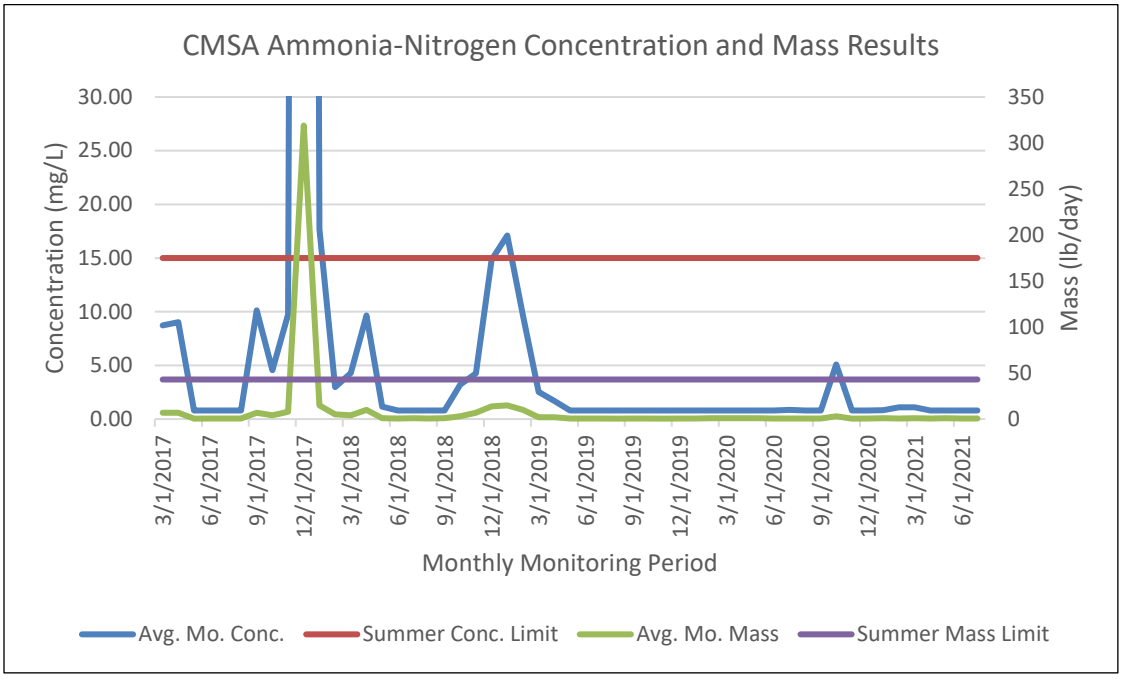
Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

Table 3. Ammonia-Nitrogen Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass Limits (lbs/day)	Concentration Limits (mg/L)	
	Average Monthly	Average Monthly	Instant. Maximum
Ammonia-Nitrogen May 1 – October 31	43.0 (rounded)	15.0	30.0
Ammonia-Nitrogen November 1 – April 30	Report	Report	—

Mass limits are rounded according to the rounding conventions in Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits". The 43.785 lbs/day summer mass limit is rounded down to the nearest whole number: 43 lbs/day.

CMSA currently monitors Outfall 001's ammonia-nitrogen effluent concentrations 1/week. Average monthly concentrations and mass results show that CMSA can comply with the summer limits.



The December 2018 concentration result that is not shown on the chart was reported as 396.8 mg/L.

Total Maximum Daily Load ("TMDL") for the Kiskiminetas-Conemaugh River Watersheds

A TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which the Little Conemaugh River is a part—was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7. The Central Mainline STP was assigned wasteload allocations (WLAs) for aluminum, iron, and manganese by the Kiski-Conemaugh TMDL (see Attachment B to this Fact Sheet). Therefore, pursuant to § 122.44(d)(1)(vii)(B), WQBELs will be imposed at Outfall 001. Only aluminum, iron, and manganese WQBELs are imposed because the TMDL does not establish wasteload allocations for sediment or pH. The TMDL used a surrogate approach for both of those constituents by which reductions of in-stream concentrations of aluminum, iron, and manganese would result in acceptable reductions of sediment and mitigation of acidic pH.

The TMDL's allocated concentrations for aluminum, iron, and manganese are equivalent to the most stringent water quality criteria for those pollutants and those criteria will be imposed as end-of-pipe limits at Outfall 001. The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. Also, DEP's "Water Quality Toxics Management Strategy" [Doc. No. 361-2000-003] addresses design conditions in detail (Table 1 in that document), including the appropriate durations to assign to water quality criteria. The design duration for Criteria Maximum Concentration (CMC) criteria is 1 hour (acute). The design duration for Criteria Continuous Concentration (CCC) criteria is 4 days (chronic). The design duration for Threshold Human Health (THH) criteria is 30 days (chronic). The design duration for Cancer Risk Level (CRL) criteria is 70 years (chronic).

The 750 µg/L aluminum criterion in 25 Pa. Code § 93.8c is a CMC (acute) criterion. Therefore, 750 µg/L is imposed as a maximum daily limit. There is no CCC criterion for aluminum necessitating the imposition of a more stringent average monthly limit. Imposing 750 µg/L as both a maximum daily and average monthly limit is protective of water quality uses.

The 1.5 mg/L iron criterion is given as a 30-day average in 25 Pa. Code § 93.7(a). Therefore, 1.5 mg/L is imposed as an average monthly limit and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit based on DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001, Chapter 3, pp. 15, 16].

The 1 mg/L potable water supply criterion for manganese in 25 Pa. Code § 93.7(a) is a human health criterion (chronic). Per Table 1 of DEP's "Water Quality Toxics Management Strategy", the duration for a THH criterion is 30 days. Therefore,

an average monthly effluent limit of 1 mg/L is imposed, and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit consistent with the technical guidance cited above for iron.

Since the allocated concentrations are equivalent to water quality criteria, the Central Mainline STP's compliance with concentration limits for aluminum, iron, and manganese will not result in excursions above water quality criteria and the permit will be consistent with the TMDL's WLAs. Consequently, the TMDL's load limits are not required. The applicable TMDL WQBELs are summarized in the table below.

Table 7. TMDL WQBELs for Outfall 001

Parameter	Average Monthly (mg/L)	Maximum Daily (mg/L)
Aluminum, Total	0.75	0.75
Iron, Total	1.5	3.0
Manganese, Total	1.0	2.0

In the previous permit, the Central Mainline STP was subject to annual reporting for aluminum, iron, and manganese. The DMR results for those parameters are summarized below.

Table 8. DMR Results for TMDL Metals

Parameter	2017	2018	2019	2020
Aluminum, Total	0.01	0.01	0.01	0.018
Iron, Total	0.02	0.02	0.0344	0.0209
Manganese, Total	4.89	0.026	0.025	0.025

Based on CMSA's reported aluminum, iron, and manganese concentrations—excluding one elevated result for manganese—DEP expects that CMSA will be able to comply with the TMDL WQBELs. Therefore, the new TMDL WQBELs will take effect on the permit effective date.

Influent Monitoring

Pursuant to Section IV.E.8 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications" [SOP No. BCW-PMT-002, Version 1.9, January 6, 2020], for POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring is established in the permit with the same sample frequency and sample type used for the effluent (1/week, 8-Hr Composite). The required monitoring will be average monthly and maximum daily influent loading and average monthly influent concentrations for BOD5 and TSS.

Effluent Limits and Monitoring Requirements

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61, effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the table on the following page.

Monitoring frequencies and sample types are established pursuant to DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" and DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits". Dissolved oxygen, UV transmittance, and pH must be sampled 1/day using grab sampling. CBOD5, TSS, and ammonia-nitrogen must be sampled 1/week using 8-hour composite sampling. Fecal coliform must be sampled 1/week using grab sampling. *E.Coli* must be sampled 1/year using grab sampling. Total nitrogen and total phosphorus must be sampled 1/year using grab sampling. Aluminum, iron, and manganese must be sampled 2/year using grab sampling. Flow must be metered continuously.

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD5)	70.0	105.0	XXX	25.0	37.5	50.0	1/week	8-Hr Composite
Biochemical Oxygen Demand 5-Day Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	85.0	130.0	XXX	30.0	45.0	60.0	1/week	8-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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	43.0	XXX	XXX	15.0	XXX	30.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Outfall 001, Continued (from 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Aluminum	XXX	XXX	XXX	0.75	0.75 Daily Max	XXX	2/year	Grab
Total Iron	XXX	XXX	XXX	1.5	3.0 Daily Max	XXX	2/year	Grab
Total Manganese	XXX	XXX	XXX	1.0	2.0 Daily Max	XXX	2/year	Grab

Compliance Sampling Location: at Outfall 001

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment A)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021]
☐	Other:

ATTACHMENT A

WQM 7.0 Modeling Results

Summer Modeling

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
18E	45815	LITTLE CONEMAUGH RIVER	23.130	1669.00	24.40	0.01490	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	0.103	0.00	0.00	0.000	0.000	10.0	0.00	0.00	20.00	6.50	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
Outfall 001	PA0218570	0.3500	0.0000	0.0000	0.000	20.00	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	9.17	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Summer Modeling

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
18E	45815	LITTLE CONEMAUGH RIVER	22.130	1628.00	31.70	0.01490	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	0.103	0.00	0.00	0.000	0.000	10.0	0.00	0.00	20.00	6.50	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	0.00	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Summer Modeling

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	6		

Summer Modeling

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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												
23.130	2.51	0.00	2.51	.5414	0.01490	1.198	11.98	10	0.21	0.287	20.00	6.56
Q1-10 Flow												
23.130	1.61	0.00	1.61	.5414	0.01490	NA	NA	NA	0.17	0.350	20.00	6.58
Q30-10 Flow												
23.130	3.41	0.00	3.41	.5414	0.01490	NA	NA	NA	0.25	0.248	20.00	6.54

Summer Modeling

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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
23.130	Outfall 001	21.93	50	21.93	50	0	0

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
23.130	Outfall 001	2.12	15.46	2.12	15.46	0	0

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)		
23.13	Outfall 001	25	25	15.46	15.46	4	4	0	0

Summer Modeling

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.130	0.350	20.000	6.556
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.977	1.198	10.000	0.213
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.08	1.026	2.74	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.253	30.125	Tsivoglou	6
Reach Travel Time (days)			
0.287			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.029	5.90	2.69	8.24
0.057	5.73	2.63	8.24
0.086	5.57	2.58	8.24
0.115	5.40	2.53	8.24
0.144	5.25	2.48	8.24
0.172	5.09	2.43	8.24
0.201	4.95	2.38	8.24
0.230	4.80	2.33	8.24
0.258	4.66	2.29	8.24
0.287	4.53	2.24	8.24

Summer Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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)
23.130	Outfall 001	PA0218570	0.350	CBOD5	25		
				NH3-N	15.46	30.92	
				Dissolved Oxygen			4

Winter Modeling

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
18E	45815	LITTLE CONEMAUGH RIVER	23.130	1669.00	24.40	0.01490	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	0.206	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	6.50	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
Outfall 001	PA0218570	0.3500	0.0000	0.0000	0.000	15.00	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	12.80	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Winter Modeling

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
18E	45815	LITTLE CONEMAUGH RIVER	22.130	1628.00	31.70	0.01490	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	0.206	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	6.50	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	0.00	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Winter Modeling

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	6		

Winter Modeling

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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												
23.130	5.02	0.00	5.02	.5414	0.01490	1.367	13.67	10	0.30	0.205	5.97	6.53
Q1-10 Flow												
23.130	3.21	0.00	3.21	.5414	0.01490	NA	NA	NA	0.24	0.256	6.44	6.55
Q30-10 Flow												
23.130	6.83	0.00	6.83	.5414	0.01490	NA	NA	NA	0.35	0.175	5.73	6.52

Winter Modeling

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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
23.130	Outfall 001	32.03	50	32.03	50	0	0

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
23.130	Outfall 001	4.91	25	4.91	25	0	0

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)		
23.13	Outfall 001	25	25	25	25	4	4	0	0

Winter Modeling

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
23.130	0.350	5.973	6.530
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
13.668	1.367	10.000	0.298
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.24	0.831	2.43	0.238
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
11.943	42.162	Tsivoglou	6
Reach Travel Time (days)			
0.205			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.021	4.20	2.42	11.17
0.041	4.16	2.41	11.17
0.062	4.13	2.40	11.17
0.082	4.09	2.39	11.17
0.103	4.05	2.37	11.17
0.123	4.02	2.36	11.17
0.144	3.98	2.35	11.17
0.164	3.95	2.34	11.17
0.185	3.91	2.33	11.17
0.205	3.88	2.32	11.17

Winter Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18E	45815	LITTLE CONEMAUGH RIVER

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)
23.130	Outfall 001	PA0218570	0.350	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

ATTACHMENT B

TMDL Waste Load Allocations

Kiskiminetas River Watershed Minor Non-Mining Wasteload Allocations

Region	SWS	PERMIT	PIPE	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction	Comments
5	4339	PA0218570	1	Aluminum	800	0.75	800	0.75	0	
5	4339	PA0218570	1	Iron	1,599	1.50	1,599	1.50	0	
5	4339	PA0218570	1	Manganese	1,066	1.00	1,066	1.00	0	