pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0024171**
Facility Type	**Municipal**	APS ID	**918516**
Major / Minor	**Minor**	Authorization ID	**1365289**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Cambria Township Sewer Authority**	Facility Name	**Colver STP**
Applicant Address	PO Box 247, Municipal Road	Facility Address	290 Twenty Row Road
	Revloc, PA 15948-0247		Colver, PA 15927
Applicant Contact	Richard Evans, Chairman	Facility Contact	Daniel Hardsock, Plant Operator
Applicant Phone	(814) 472-5023; ctsa247@gmail.com	Facility Phone	(814) 472-5023; ctsaplant@gmail.com
Client ID	43663	Site ID	255330
Ch 94 Load Status	Not Overloaded	Municipality	Cambria Township
Connection Status	No Limitations	County	Cambria
Date Application Received	August 4, 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 non-municipal sewage treatment plant.

Summary of Review

On August 4, 2021, DEP received an application from L.R. Kimball on behalf of the Cambria Township Sewer Authority (CTSA) to renew the NPDES permit for discharges of treated sewage from the Colver Wastewater Treatment Plant ("Colver Sewage Treatment Plant" or "Colver STP"). The permit currently in effect was issued on February 23, 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.

Changes for this NPDES permit renewal include the following:

- marginal reductions in the mass loading limits for CBOD5, TSS, and ammonia-nitrogen consistent with DEP's rounding guidelines
- an annual reporting requirement for *E. coli* based on the addition of water quality criteria for *E. coli* to 25 Pa. Code Chapter 93 and updated DEP policies
- the addition of water quality-based effluent limits for aluminum, iron, and manganese from the Kiskiminetas-Conemaugh River Watershed TMDL
- replacement of influent CBOD5 reporting with BOD5 reporting as necessary to evaluate the existence of organic overload conditions

Sludge use and disposal description and location(s): Hauled by Hugill's Sanitation to CTSA's Revloc STP (NPDES PA0024163).

CTSA has no open/unresolved violations.

Approve	Deny	Signatures	Date
X		*Ryan C. Decker* Ryan C. Decker, P.E. / Environmental Engineer	October 15, 2021
X		*Christopher Kriley* Christopher Kriley, P.E. / Environmental Engineer Manager	October 20, 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)	0.275
Latitude	40° 32' 20.0"	Longitude	-78° 47' 59.0"
Quad Name	Colver	Quad Code	1415
Wastewater Description:	Treated sewage		

Receiving Waters	Elk Creek (CWF)	Stream Code	44523
NHD Com ID	123717402	RMI	7.20
Drainage Area (mi^2)	0.95	Yield (cfs/mi^2)	0.0661
Q_{7-10} Flow (cfs)	0.0628	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,839	Slope (ft/ft)	0.02
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, Siltation, pH		
Source(s) of Impairment	Acid mine drainage		
TMDL Status	Final (Superseded); Final	Name	Elk Creek (Cambria County); 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)	60.35

Treatment Facility Summary		
Treatment Facility: Colver STP (and Revloc STP)		
WQM Permit No.	**Issuance Date**	**Purpose**
1171403	May 27, 1971	Permit issued to Cambria Township Sewer Authority for two extended aeration sewage treatment plants and collection systems including the 0.205 MGD Revloc STP for the Revloc-Mylo Park area and the 0.15 MGD Colver STP for the Tripoli-Colver-Twenty Row area. The Colver STP consisted of one screening device, two grit chambers, one comminutor, two aeration tanks, two settling tanks, one chlorine contact tank, and one sludge digester. The Tripoli-Colver-Twenty Row area is served by 8,800 feet of 8-inch sewers and three pump stations with force mains.
1104403	July 13, 2004	Permit issued to Cambria Township Sewer Authority for design flow expansion to 0.275 MGD (peak hourly flow of 0.9 MGD) and upgraded treatment systems including two 111,000-gallon sequencing batch reactors; one 5,000-gallon post-SBR aeration tank; two 1.5 MGD peak capacity UV disinfection units; and two aerated sludge holding tanks.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Sequencing Batch Reactor with solids removal	Ultraviolet light	0.141 (2020)

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.275	425	Not Overloaded	Two Aerated Sludge Holding Tanks	Hauled to Revloc STP

Comments: Notwithstanding the 2004 upgrades to the Colver STP, WQM Permit 1171403 from May 27, 1971 is still valid for its authorization of the collection systems that lead to the Colver STP and for portions of the original treatment system that are still in use.

Compliance History

DMR Data for Outfall 001 (from August 1, 2020 to July 31, 2021)

Parameter	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20
Flow (MGD) Average Monthly	0.05	0.110	0.107	0.064	0.137	0.055	0.082	0.097	0.048	0.037	0.033	0.031
Flow (MGD) Daily Maximum	0.091	0.408	0.466	0.140	0.730	0.176	0.397	0.571	0.159	0.189	0.067	0.081
pH (S.U.) Minimum	6.9	6.9	6.6	6.6	6.7	7.0	6.7	7.0	6.9	7.1	7.3	7.2
pH (S.U.) Maximum	7.2	7.1	7.1	7.0	7.1	7.2	7.2	7.2	7.2	7.4	7.4	7.3
DO (mg/L) Minimum	6.25	7.62	7.85	8.04	8.72	9.54	8.43	7.8	7.61	6.80	7.02	7.02
CBOD5 (lbs/day) Average Monthly	5.8	5.3	13.1	5.4	12.4	3.6	3.1	4.5	2.0	1.3	1.6	0.89
CBOD5 (lbs/day) Raw Sewage Influent Average Monthly	62	70	169	81	136	55	72	109	78	50	61	61
CBOD5 (lbs/day) Raw Sewage Influent Weekly Average	72	111	247	128	267	74	102	165	106	59	72	78
CBOD5 (lbs/day) Weekly Average	12.9	8.6	25.0	7.0	39.5	5.3	5.8	7.8	3.0	2.0	2.4	1.4
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	158	91	193	173	144	193	162	183	207	203	236	272
CBOD5 (mg/L) Average Monthly	14.1	7.4	12.7	11.4	8.8	12.7	5.0	8.1	5.0	5.2	6.2	4.0
CBOD5 (mg/L) Raw Sewage Influent Weekly Average	197	119	263	223	172	268	218	317	233	245	306	337
CBOD5 (mg/L) Weekly Average	28.1	10.8	16.3	15.4	14.2	19.3	7.0	16.7	6.2	8.3	10.6	6.1
TSS (lbs/day) Average Monthly	2.7	5.9	9.2	4.2	8.1	5.5	5.7	4.9	4.0	2.2	2.5	1.8
TSS (lbs/day) Raw Sewage Influent Average Monthly	66	64	133	63	65	38	63	80	63	37	48	50
TSS (lbs/day) Raw Sewage Influent Weekly Average	68	112	195	121	81	50	95	108	94	41	56	67
TSS (lbs/day) Weekly Average	3.4	7.4	17.0	7.3	31.4	7.1	6.1	7.7	7.7	3.4	3.5	2.3

Parameter	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20
TSS (mg/L) Raw Sewage Influent Average Monthly	166	109	166	150	82	133	108	135	165	149	187	216
TSS (mg/L) Average Monthly	6.6	8.6	9.6	9.2	4.2	19.2	11.9	7.8	10.1	8.9	9.9	8.1
TSS (mg/L) Raw Sewage Influent Weekly Average	208	269	239	330	118	171	159	230	195	181	218	261
TSS (mg/L) Weekly Average	7.4	10.9	24.4	18.2	6.6	23.0	17.2	11.8	16.0	13.0	14.8	10.0
Fecal Coliform (No./100 ml) Geometric Mean	117	50	76	153	45	126	53	36	93	134	133	168
Fecal Coliform (No./100 ml) Instantaneous Maximum	144	103	114	192	106	172	106	54	144	136	164	188
UV Transmittance (%) Minimum	90	100	80	100	100	70	70	100	90	90	100	90
UV Transmittance (%) Average Monthly	98	100	99	100	100	94	95	100	99	94	100	95
Total Nitrogen (mg/L) Daily Maximum								< 0.5				
Ammonia (lbs/day) Average Monthly	0.04	0.24	0.08	0.22	0.17	1.2	0.41	0.06	0.04	0.09	0.06	0.07
Ammonia (mg/L) Average Monthly	0.1	0.22	0.1	0.63	0.14	4.3	1.2	< 0.1	0.1	0.35	0.24	0.33
Total Phosphorus (mg/L) Daily Maximum								0.395				
Total Aluminum (mg/L) Daily Maximum								< 0.1				
Total Iron (mg/L) Daily Maximum								< 0.2				
Total Manganese (mg/L) Daily Maximum								< 0.02				

Compliance History

Effluent Violations for Outfall 001, from: September 1, 2020 To: July 31, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Ammonia	02/28/21	Avg Mo	4.3	mg/L	4.0	mg/L

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.275
Latitude 40° 32' 20.0" **Longitude** -78° 47' 59.0"
Wastewater Description: Treated sewage

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 38.0 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 6.0 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 new 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. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a) and the monitoring will be used to determine if *E. coli* concentrations require additional controls.

CTSA uses ultraviolet light for disinfection rather than chlorine, so the TBELs for TRC from 92a.47(a)(8) are replaced with minimum and average monthly 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 38.0 mg/L limit is used) and the Colver STP's 0.275 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	57.0	85.0
Total Suspended Solids	65.0	100.0

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 and limits greater than 10.0 and less than 60.0 are rounded down to the nearest 1.0 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.

WQM 7.0 Modeling for Outfall 001

Table 2. 001 WQM 7.0 Inputs

Discharge Characteristics	
Parameter	**Value**
River Mile Index	7.2
Discharge Flow (MGD)	0.275
Discharge Temp. (°C) (Summer)	20.0
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	0.95
Q_{7-10} (cfs)	0.0628
Low-flow yield (cfs/mi^2)	0.0661
Elevation (ft)	1,839
Slope	0.02
Stream Temp. (°C) (Summer)	20.0
Stream pH (s.u.)	6.5

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 conditional 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 (Elk Creek is designated for cold water fishes). The flow used for modeling is the average design flow (0.275 MGD). Input discharge concentrations for CBOD-5 and Ammonia-Nitrogen are the average

monthly limits from the previous permit (25 mg/L and 2.0 mg/L, respectively). The 2.0 mg/L ammonia-nitrogen limit is a WQBEL from the previous permit and is used in place of model's 25 mg/L default input concentration because the 2.0 mg/L limit is technologically achievable by the existing Colver STP. The input discharge concentration for dissolved oxygen is the 6.0 mg/L minimum dissolved oxygen limit in the current permit. The background dissolved oxygen concentration of Elk Creek at 20°C is assumed to be 9.17 mg/L based on theoretical dissolved oxygen saturation. The width to depth ratio of the stream is assumed to be 10 according to DEP policy.

The results of the modeling indicate that new, more stringent WQBELs for CBOD5 and Ammonia-Nitrogen are not required because the input concentrations are returned as the recommended limits, which means that the existing limits are protective of Elk Creek's aquatic life use. Since no new WQBELs apply during the summer period, winter period WQBELs are not evaluated.

As with CBOD5 and TSS, average monthly mass limits for ammonia-nitrogen (in units of pounds per day) are calculated using the existing seasonal ammonia-nitrogen concentration limits (summarized Table 3) and the Colver STP's 0.275 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	4.5 (rounded)	2.0[1]	4.0
Ammonia-Nitrogen November 1 – April 30	9.0 (rounded)	4.0[1]	8.0

The IMAX concentration limits 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, CTSA does not need to report results on DMRs for compliance with the ammonia-nitrogen IMAX limits. The IMAX limits may be used by DEP to spot-check compliance by collecting a grab sample during a site inspection.

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 1.0 and less than 10.0 are rounded down to the nearest 0.5. Ammonia-nitrogen is a non-conventional pollutant, but the rounding guidelines for conventional pollutants are followed for the mass limits as they are for ammonia-nitrogen's concentration limits.[2] 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 imposed for ammonia-nitrogen.

Total Maximum Daily Load for the Kiskiminetas-Conemaugh River Watershed

A Total Maximum Daily Load ("TMDL") for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which Elk Creek is a part—was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment, and pH. The Kiski-Conemaugh TMDL superseded a previous TMDL finalized on April 2, 2005 for acid mine drainage pollutants specifically in Elk Creek.

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 Colver STP was assigned WLAs for aluminum, iron, and

[1] See Attachment C to this Fact Sheet for previous modeling outputs, which is where the existing ammonia-nitrogen limits originated. Attachment C also shows WQM 7.0 outputs using the 25 mg/L default input concentration for ammonia-nitrogen in WQM 7.0 instead of 2.0 mg/L. WQBELs calculated using the default 25 mg/L input ammonia-nitrogen concentration are comparable to the existing limits.

[2] Section IV.D of DEP's Ammonia Guidance provides a general note on precision for concentration limits with rounding guidelines for concentration limits (not specific to any parameter) equivalent to the rounding guidelines for conventional pollutants in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits". Therefore, the rounding guidelines for conventional pollutants are followed for both concentration and mass limits for ammonia-nitrogen.

manganese by the Kiski-Conemaugh TMDL (see Attachment B). Therefore, pursuant to § 122.44(d)(1)(vii)(B), WQBELs based on the TMDL will be imposed at Outfall 001. The TMDL was final when the previous permit was issued in 2017, but the Kiski-Conemaugh TMDL's WLAs for the Colver STP were not imposed at that time. 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 Colver 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 do not need to be imposed. The WQBELs for Outfall 001 based on the TMDL are summarized in the table below.

Table 4. 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 Colver STP was subject to annual reporting for aluminum, iron, and manganese. The DMR results for those parameters are summarized below.

Table 5. DMR Results for TMDL Metals

Parameter	2017	2018	2019	2020
Aluminum, Total	<0.05	<0.05	<0.1	<0.1
Iron, Total	0.04	0.06	<0.3	<0.2
Manganese, Total	0.03	<0.02	<0.02	<0.02

Based on CTSA's reported aluminum, iron, and manganese concentrations, the Colver STP 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 BOD5 and TSS monitoring is established in the permit with the same minimum measurement frequency and sample type used for the effluent (1/week, 8-Hr Composite for the Colver STP). The required influent monitoring will be for BOD5 and TSS including average monthly and average weekly influent loading and average monthly and average weekly influent concentrations.

For the previous permit, DEP granted a request from CTSA to change the raw sewage influent BOD parameter from BOD5 to CBOD5. The Fact Sheet addendum for the previous permit states that CTSA wanted to make the influent test type compatible with the effluent testing for CBOD5. However, CTSA's request was improperly granted.

As stated in Footnote 3 in Part A of the current NPDES permit, the organic design capacity of 425 lbs BOD5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an "organic overload" condition exists, as defined in 25 Pa. Code Chapter 94. That is, BOD5 is the parameter used to determine whether a sewage treatment plant is organically overloaded. The influent organic loading for any STP is composed of both carbonaceous and nitrogenous BOD (CBOD and NBOD), so only collecting influent information on CBOD underrepresents the organic loading to the treatment plant and does not allow DEP to determine whether an organic overload condition exists pursuant to the requirements of 25 Pa. Code Chapter 94. Therefore, the influent BOD parameter will be changed from CBOD5 back to BOD5.

Effluent Limits and Monitoring Requirements

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l)[3] (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits applicable at Outfall 001 are 1) the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and 2) effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Applicable effluent limits and monitoring requirements are 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 measured continuously using a flow meter.

[3] *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)

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	6.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand 5-Day (CBOD5)	57.0	85.0	XXX	25.0	38.0	50.0	1/week	8-Hr Composite
Biochemical Oxygen Demand 5-Day (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Suspended Solids	65.0	100.0	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Recorded
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	9.0	XXX	XXX	4.0	XXX	8.0	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	4.5	XXX	XXX	2.0	XXX	4.0	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)	Required
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Total Aluminum	XXX	XXX	XXX	0.75 Annl Avg	0.75 Daily Max	XXX	2/year	Grab
Total Iron	XXX	XXX	XXX	1.5 Annl Avg	3.0 Daily Max	XXX	2/year	Grab
Total Manganese	XXX	XXX	XXX	1.0 Annl Avg	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]
☒	SOP: 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]
☐	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
18D	44523	ELK CREEK	7.200	1839.00	0.95	0.02000	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	0.066	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	PA0024171	0.2750	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	6.00	9.17	0.00	0.00
NH3-N	2.00	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
18D	44523	ELK CREEK	5.930	1712.00	3.61	0.02000	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	0.041	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
18D	44523	ELK 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												
7.200	0.06	0.00	0.06	.4254	0.02000	.553	5.53	10	0.16	0.486	20.00	6.89
Q1-10 Flow												
7.200	0.04	0.00	0.04	.4254	0.02000	NA	NA	NA	0.16	0.500	20.00	6.93
Q30-10 Flow												
7.200	0.09	0.00	0.09	.4254	0.02000	NA	NA	NA	0.16	0.474	20.00	6.87

Summer Modeling

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44523	ELK 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
7.200	Outfall 001	17.83	4	17.83	4	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
7.200	Outfall 001	1.97	2	1.97	2	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)		
7.20	Outfall 001	25	25	2	2	6	6	0	0

Summer Modeling

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44523	ELK CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
7.200	0.275	20.000	6.893
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.532	0.553	10.000	0.160
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.04	1.474	1.74	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.408	18.973	Owens	6
Reach Travel Time (days)			
0.486			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.049	20.52	1.68	6.41
0.097	19.10	1.63	6.51
0.146	17.77	1.57	6.66
0.195	16.54	1.52	6.81
0.243	15.40	1.47	6.96
0.292	14.33	1.42	7.10
0.340	13.34	1.37	7.23
0.389	12.42	1.33	7.36
0.438	11.56	1.28	7.47
0.486	10.76	1.24	7.58

Summer Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44523	ELK 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)
7.200	Outfall 001	PA0024171	0.275	CBOD5	25		
				NH3-N	2	4	
				Dissolved Oxygen			6

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
4	4485	PA0024171	1	Aluminum	628	0.75	628	0.75	0	
4	4485	PA0024171	1	Iron	1,257	1.50	1,257	1.50	0	
4	4485	PA0024171	1	Manganese	838	1.00	838	1.00	0	

Kiski-Conemaugh TMDL - Appendix G

ATTACHMENT C

WQBEL Supporting Documentation

FILE: a:\ColverW3.wqm
Colver STP 0.275 MGD Warmer Period

Effluent Limitations Display

DIS #	Q	NH3-N TOX. 1 DAY	NH3-N TOX. 30 DAY	DISS. OXYGEN C-BOD5 30-DAY	DISS. OXYGEN NH3-N 30-DAY	DISS. OXYGEN EFF. D.O.
	MGD					
1	.275	4.3	2.1	25	2.1 use 2.0	6

(WQAM63.EXE) Release 1.2 08-28-2002 13:18:22

FILE: a:\ColverC3.wqm
Colver STP 0.275 MGD Colder Period

Effluent Limitations Display

DIS #	Q	NH3-N TOX. 1 DAY	NH3-N TOX. 30 DAY	DISS. OXYGEN C-BOD5 30-DAY	DISS. OXYGEN NH3-N 30-DAY	EFF. D.O.
	MGD					
1	.275	7.9	4	25	4	6

(WQAM63.EXE) Release 1.2 08-28-2002 13:34:18

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44523	ELK 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)
7.200	Outfall 001	PA0024171	0.275	CBOD5	25		
				NH3-N	2.37	4.74	
				Dissolved Oxygen			6