pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	**NPDES PERMIT FACT SHEET**	Application No.	**PA0204269**
Facility Type	**Industrial**	**INDIVIDUAL INDUSTRIAL WASTE (IW)**	APS ID	**1093953**
Major / Minor	**Minor**	**AND IW STORMWATER**	Authorization ID	**1449336**

Applicant and Facility Information

Applicant Name	**Generation Holdings L.P.**	Facility Name	**Colver Green Energy, LLC**
Applicant Address	141 Interpower Drive	Facility Address	141 Interpower Drive
	Colver, PA 15927-4207		Colver, PA 15927-4207
Applicant Contact	Fred Farabaugh	Facility Contact	***same as applicant***
Applicant Phone	(814) 748-7961	Facility Phone	***same as applicant***
Applicant Email	Fred.Farabaugh@colverenergy.com	Facility Email	***same as applicant***
Client ID	33980	Site ID	262255
SIC Code	4911	Municipality	Barr Township
SIC Description	Trans. & Utilities - Electric Services	County	Cambria
Date Application Received	June 30, 2023	EPA Waived?	Yes
Date Application Accepted	August 2, 2023	If No, Reason	
Purpose of Application	Renewal of an NPDES permit for discharges of industrial waste.		

Summary of Review

Generation Holdings L.P. submitted an application dated June 30, 2023 to renew the NPDES permit for discharges of industrial waste from Colver Green Energy, LLC ("CGE")—a 102.5 MW bituminous waste coal-fired power plant in Colver, PA. The current permit was issued on December 7, 2018 with an effective date of January 1, 2019 and an expiration date of December 31, 2023. The renewal application was due by July 4, 2023. DEP received the renewal application on June 30, 2023. The application was timely, so the terms and conditions of the current permit were continued automatically past the expiration date.

The facility is authorized to discharge cooling tower blowdown and low volume waste sources through Outfall 001 to Elk Creek, which has a designated use for cold water fishes. Cooling tower blowdown is subject to technology-based effluent limits at Internal Monitoring Point (IMP) 101 before mixing with low volume waste sources. Low volume waste sources are regulated at IMP 201 before mixing with cooling tower blowdown. Technology-based effluent limits for cooling tower blowdown and low volume waste sources are imposed based on 40 CFR Part 423 – Stream Electric Power Generating Point Source Category Effluent Limitations Guidelines. Low volume waste sources include boiler blowdown, various plant sumps, filter backwash, demineralizer regeneration wastewater, and demineralizer system wastewaters, which are treated using neutralization, oil/water separation, coagulation, flocculation, and sedimentation.

All storm water runoff is collected in an onsite retention pond and is reused for ash conditioning and for dust suppression on plant roads. The coal pile is kept under roof, so there is no coal pile runoff. The facility does not discharge chemical or non-chemical metal cleaning wastes. Under normal operating conditions, wastewaters regulated at IMPs 101 and 201 also are diverted to the retention pond for consumptive reuse. In accordance with that wastewater management procedure, CGE has not reported any discharges since at least October 2011. CGE maintains the NPDES permit for discharges during emergency conditions.

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	March 25, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	March 29, 2024

Summary of Review

Cooling Water Intake Structure

CGE is supplied with raw water by the Cambria Township Water Authority (CTWA), which owns, operates, and maintains an intake structure at the Colver Reservoir (part of the North Branch Blacklick Creek) approximately 1.5 miles northeast of CGE. Raw water withdrawn from the reservoir enters a pumphouse which conveys water to CGE using three dedicated pumps that are owned and operated by CTWA. Separately, two dedicated pumps pump water to a CTWA water supply reservoir for treatment by CTWA and potable water supply to the community of Colver, PA. Contrary to DEP's determination for the previous permit, CGE does not qualify for the public water system exemption in 40 CFR Part 125, Subpart J, § 125.91(c) because CTWA's provision of water to CGE does not reflect potential reuse of PWS-derived water for cooling. That is, CGE does not reuse water treated for human consumption for cooling; CGE uses raw water supplied by CTWA for cooling. The former would be eligible for the § 125.91(c) exemption while the latter is not.

CGE does not meet the applicability criteria to be subject to the specific requirements of 40 CFR Part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act. Therefore, pursuant to 40 CFR § 125.90(b), CGE must meet Best Technology Available (BTA) requirements for minimizing impingement mortality and entrainment of all life stages of fish and shellfish under section 316(b) of the Clean Water Act established by the Director on a case-by-case, best professional judgment (BPJ) basis. CGE operates a closed-cycle recirculating system, which DEP's 316(b) BPJ policy identifies as BTA for both impingement mortality and entrainment. Therefore, CGE already implements BTA and is not significantly impacted by the change in applicability of 316(b) requirements for this permit renewal. Additional information regarding 316(b) requirements is discussed later in this Fact Sheet.

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)	0.53
Latitude	40° 33' 3.93"	Longitude	-78° 48' 47.10"
Quad Name	Colver	Quad Code	1415
Wastewater Description:	Low volume wastes and cooling tower blowdown monitored at IMPs 101 and 201		
Receiving Waters	Elk Creek (CWF)	Stream Code	44523
NHD Com ID	123717279	RMI	5.93
Drainage Area	3.6	Yield (cfs/mi^2)	0.0639
Q_{7-10} Flow (cfs)	0.23	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,717	Slope (ft/ft)	0.011
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final, April 1, 2005 (superseded); Final, January 29, 2010	Name	Elk Creek (Cambria County); superseded by Kiskiminetas-Conemaugh River Watersheds TMDL
Background/Ambient Data		Data Source	
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake		Buffalo Township Municipal Authority – Freeport	
PWS ID	5030019	PWS Withdrawal (MGD)	1.25
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,250
PWS RMI	29.4	Distance from Outfall (mi)	87.56

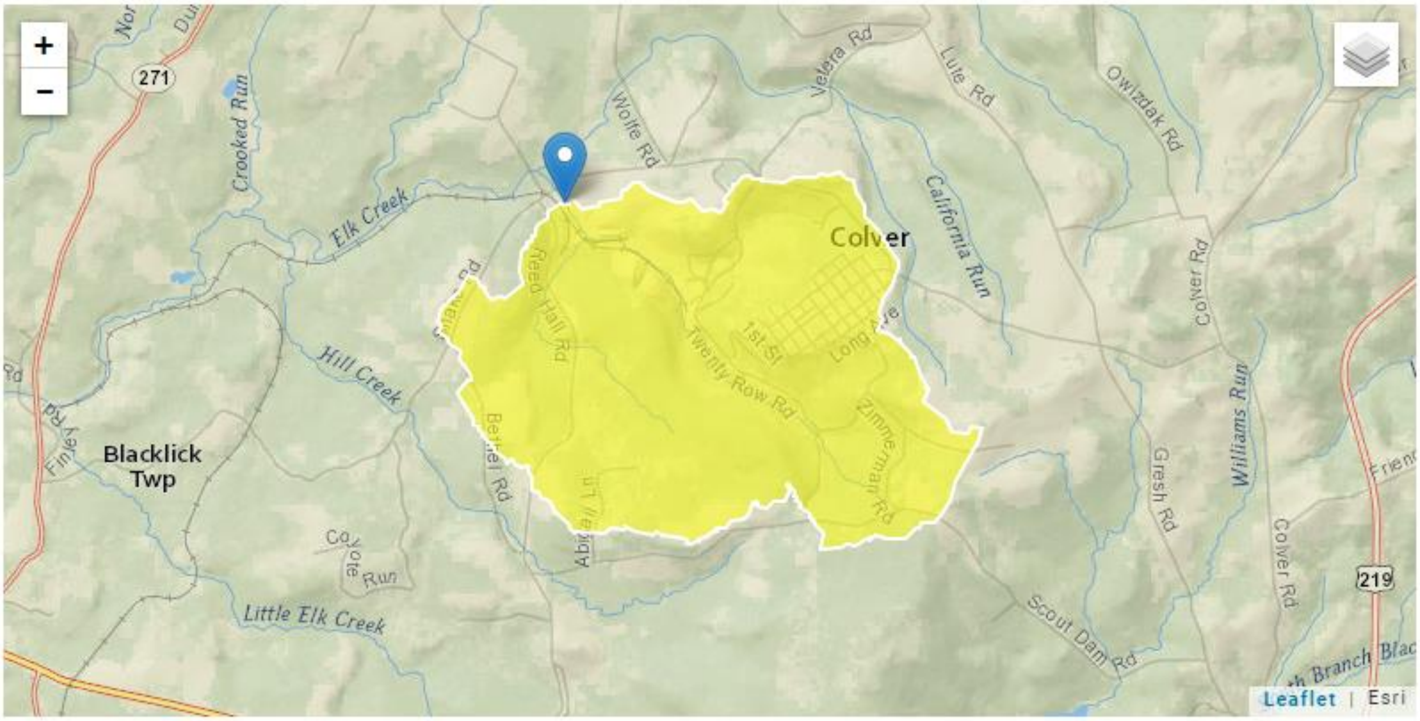
Discharge, Receiving Waters and Water Supply Information			
Internal Monitoring Point	101	Design Flow (MGD)	0.37
Wastewater Description:	Low volume waste sources including boiler blowdown, various sumps, filter backwash, demineralizer regeneration wastewater, and demineralizer system wastewater.		

Discharge, Receiving Waters and Water Supply Information			
Internal Monitoring Point	201	Design Flow (MGD)	0.16
Wastewater Description:	Cooling tower blowdown		

Changes Since Last Permit Issuance:

StreamStats Report

Region ID: PA
Workspace ID: PA20230928202251124000
Clicked Point (Latitude, Longitude): 40.55109, -78.81313
Time: 2023-09-28 16:23:36 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.6	square miles
ELEV	Mean Basin Elevation	2047	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3.6	square miles	2.33	1720
ELEV	Mean Basin Elevation	2047	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.509	ft^3/s	43	43
30 Day 2 Year Low Flow	0.732	ft^3/s	38	38
7 Day 10 Year Low Flow	0.23	ft^3/s	54	54
30 Day 10 Year Low Flow	0.308	ft^3/s	49	49
90 Day 10 Year Low Flow	0.452	ft^3/s	41	41

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.

Application Version: 4.17.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Elk Creek-123717279

Assessment Unit ID: PA-SCR-123717279

Waterbody Condition: Impaired (Issues Identified)

Existing Plans for Restoration: Yes

303(d) Listed: No

Year Reported: 2022

Organization Name (ID): Pennsylvania (21PA)

What type of water is this?

Stream/creek/river (0.4822 Miles)

Where is this water located?

BARR TWP, 15927 (county: Cambria)

Assessment Information from 2022

State or Tribal Nation specific designated uses:

Information on Water Quality Standards   Expand All

Cold Water Fishes   Impaired

Probable sources contributing to impairment from 2022:

Click a column heading to sort...   **Clear Filters**

Source	Parameter	Confirmed
Filter...	Filter...	Filter...
Acid Mine Drainage	Metals	Yes
Acid Mine Drainage	Siltation	Yes

Click a column heading to sort...   **Clear Filters**

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

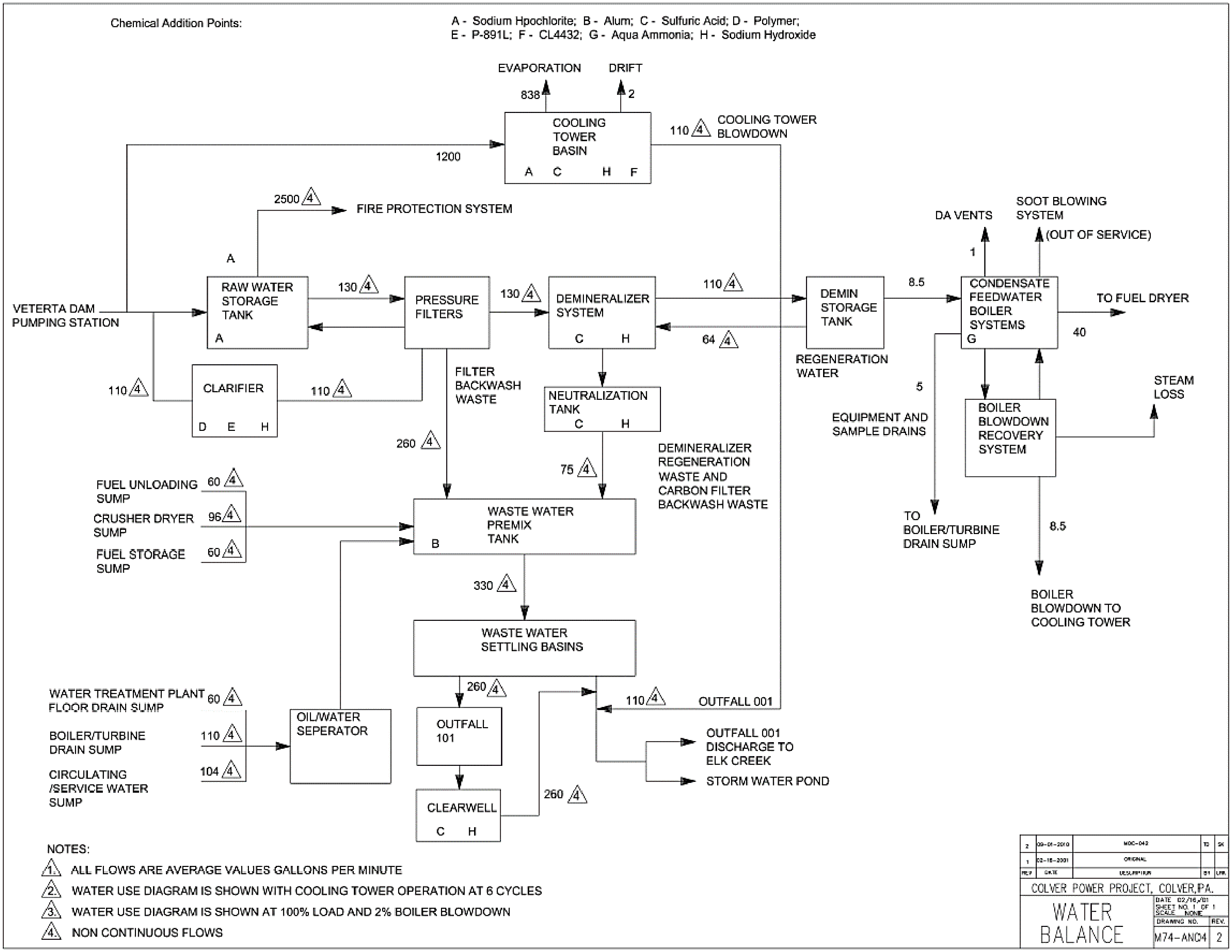
Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Elk Creek (Cambria County)	Metals, pH	TMDL	2005-03-31
Kiskiminetas-Conemaugh River Watersheds Tmdl	Metals, pH, Siltation	TMDL	2010-01-26

Treatment Facility Summary		
Treatment Facility: Low volume waste treatment system		
WQM Permit No.	**Issuance Date**	**Purpose**
1191201	May 24, 1994	Permit issued to Inter-Power/AhlCon Partners by the Pennsylvania Department of Environmental Resources for an industrial wastewater treatment system including: one 12,000-gallon neutralization tank for demineralization wastes and chemical feed area drains; one 14’×8’ gravity-feed vertical tube coalescing oil/water separator for boiler/turbine drain sumps, circulating water service sump and area floor drains; one 1,500-gallon premix tank for coagulant additions; and two 50,000-gallon concrete settling basins.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Primary	Neutralization, oil/water separation, coagulation, flocculation, and sedimentation	N/A	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.09	N/A	N/A	N/A	N/A


Chemical Addition Points:
A - Sodium Hpochlorite; B - Alum; C - Sulfuric Acid; D - Polymer;
E - P-891L; F - CL4432; G - Aqua Ammonia; H - Sodium Hydroxide
EVAPORATION
DRIFT
838
2
COOLING TOWER BASIN
A C H F
110
COOLING TOWER BLOWDOWN
1200
2500
FIRE PROTECTION SYSTEM
VETERTA DAM PUMPING STATION
RAW WATER STORAGE TANK
A
130
PRESSURE FILTERS
130
DEMINERALIZER SYSTEM
C H
110
DEMIN STORAGE TANK
64
REGENERATION WATER
8.5
CONDENSATE FEEDWATER BOILER SYSTEMS
G
DA VENTS
1
SOOT BLOWING SYSTEM
(OUT OF SERVICE)
TO FUEL DRYER
40
110
CLARIFIER
D E H
110
FILTER BACKWASH WASTE
NEUTRALIZATION TANK
C H
5
EQUIPMENT AND SAMPLE DRAINS
BOILER BLOWDOWN RECOVERY SYSTEM
STEAM LOSS
260
75
DEMINERALIZER REGENERATION WASTE AND CARBON FILTER BACKWASH WASTE
FUEL UNLOADING SUMP
60
CRUSHER DRYER SUMP
96
FUEL STORAGE SUMP
60
WASTE WATER PREMIX TANK
B
TO BOILER/TURBINE DRAIN SUMP
8.5
BOILER BLOWDOWN TO COOLING TOWER
330
WASTE WATER SETTLING BASINS
260
110
OUTFALL 001
WATER TREATMENT PLANT FLOOR DRAIN SUMP
60
BOILER/TURBINE DRAIN SUMP
110
CIRCULATING /SERVICE WATER SUMP
104
OIL/WATER SEPERATOR
OUTFALL 101
OUTFALL 001 DISCHARGE TO ELK CREEK
STORM WATER POND
CLEARWELL
C H
260
NOTES:
1 ALL FLOWS ARE AVERAGE VALUES GALLONS PER MINUTE
2 WATER USE DIAGRAM IS SHOWN WITH COOLING TOWER OPERATION AT 6 CYCLES
3 WATER USE DIAGRAM IS SHOWN AT 100% LOAD AND 2% BOILER BLOWDOWN
4 NON CONTINUOUS FLOWS
COLVER POWER PROJECT, COLVER, PA.
WATER BALANCE
M74-AN04
2

Development of Effluent Limitations

IMP No.	101	**Design Flow (MGD)**	0.37
Latitude	40° 33' 3.00"	**Longitude**	-78° 48' 48.00"
Wastewater Description:	Low volume waste sources		

Effluent limits are imposed at Internal Monitoring Point (IMP) 101 rather than another monitoring location because 40 CFR § 125.3(f) prohibits compliance with technology-based treatment requirements using "non-treatment" techniques such as flow augmentation (i.e., dilution). Since the wastewaters monitored at IMP 101 combine with cooling tower blowdown before the next downstream monitoring location (Outfall 001), IMP 101 is the only point at which compliance with applicable effluent limits can be determined without interference from other wastewaters. This rationale is consistent with 40 CFR § 122.45(h)[1], which allows for the imposition of effluent limitations on internal waste streams in these circumstances. The rationale also applies to IMP 201.

Wastewaters regulated at IMP 101 are currently subject to the following effluent limits and monitoring requirements.

Table 1. IMP 101 – Current Effluent Limits and Monitoring Requirements

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Limit Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Flow (MGD)	Report	Report	—	—	—	1/week	Recorded	§ 92.61(d)(1)
TSS	Report	Report	30.0	100.0	125	1/week	Grab	40 CFR § 423.15(a)(3)
Oil and Grease	Report	Report	15.0	20.0	—	1/week	Grab	40 CFR § 423.15(a)(3)

The effluent limits and monitoring requirements in **Table 1** will remain in effect at IMP 101 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44) [2], unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l), as discussed in the sections below.

101.A. Technology-Based Effluent Limitations (TBELs)

Effluent Limitations Guidelines

Pursuant to the applicability descriptions and specialized definitions given by 40 CFR §§ 423.10 and 423.11, CGE's process wastewaters are subject to Federal Effluent Limitations Guidelines (ELGs) under 40 CFR Part 423 – Steam Electric Power Generating Point Source Category.

Based on definitions given in 40 CFR §§ 122.2 and 122.29, CGE is a "new source". Classification of the facility as a "new source" is based on 40 CFR § 122.29(b), which states the following:

(b) Criteria for new source determination.

(1) Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets the definition of "new source" in §122.2, and

(i) It is constructed at a site at which no other source is located; or

(ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider such factors as

[1] 40 CFR § 122.45(h)(1): "When permit effluent limitations or standards imposed at the point of discharge are impractical or infeasible, effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams."

[2] *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.)

the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

(2) A source meeting the requirements of paragraphs (b)(1) (i), (ii), or (iii) of this section is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger. See §122.2."

As § 122.29(b)(1) states, a source is a new source if it meets the definition of "new source" in § 122.2 and is described by any of the subsections of § 122.29(b)(1) reproduced above. Section 122.2 defines "new source" as:

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

(a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Construction of the CGE facility commenced in 1994 after promulgation of standards of performance applicable to discharges from the facility—those being the 1982 New Source Performance Standards (1982 NSPS) under 40 CFR § 423.15. Additionally, pursuant to § 122.2(b)(1), the facility was constructed at a site where no other source was located.

Based on the applicability description in 40 CFR § 423.15(a), discharges regulated at IMP 101 are subject to 1982 NSPS under § 423.15(a) paragraphs (1), (2), and (3).

Table 2. 40 CFR Part 423 – Steam Electric New Source Performance Standards for IMP 101

Pollutant	Average of daily values for 30 consecutive days (mg/L)	Maximum for any 1 day (mg/L)	Basis
TSS	30.0	100.0	40 CFR § 423.15(a)(3)
Oil and Grease	15.0	20.0	40 CFR § 423.15(a)(3)
pH	within the range of 6.0 to 9.0		40 CFR § 423.15(a)(1)
There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.			40 CFR § 423.15(a)(2)

An instantaneous maximum (IMAX) limit of 125 mg/L for TSS was previously calculated based on the multipliers in Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations. and Other Permit Conditions in NPDES Permits" [Doc. No. 386-0400-001]. The limit will be maintained in the renewed permit but is only used by DEP in situations where DEP collects a grab sample to evaluate CGE's compliance. The IMAX limit does not apply to CGE for regular eDMR compliance purposes.

<u>Limits for pH</u>

Based on 40 CFR § 423.15(a)(1), low volume waste sources and cooling tower blowdown are each subject to Part 423's effluent limits for pH. Once-through cooling water is the only steam electric wastewater exempt from § 423.15(a)(1)'s pH limits. IMP 201 was established in the previous permit to allow limits from Part 423 that apply to cooling tower blowdown to be imposed separately from the Part 423 limits that apply to low volume waste sources at IMP 101. DEP did not impose pH limits at IMP 101 or IMP 201 in the previous permit, instead opting to impose pH limits on the combined discharge of treated low volume waste sources and untreated cooling tower blowdown at Outfall 001. The rationale was that since pH limits apply to both low volume waste sources and cooling tower blowdown, imposing pH limits on the combined discharge would be equivalent to regulating the pH of each wastewater separately. However, regulating the pH of the combined sources is not necessarily equivalent to regulating each separately.

As explained at the beginning of this section, dilution is not an allowable means for complying with TBELs (per 40 CFR § 125.3(f)). Adding fresh water to dilute a wastewater into compliance with TBELs incentivizes increased water use, does not remove pollutants from a wastewater, and ultimately contaminates more water than necessary to perform an industrial activity. CGE does not add fresh water to dilute its wastewaters into compliance with TBELs. Although, there may be some co-dilution of dissimilar wastes resulting from CGE's combination of post-treatment low volume waste sources, which are pH-neutralized by the low volume waste treatment system, and cooling tower blowdown, which CGE does not treat. In theory, due to its lack of treatment for pH, cooling tower blowdown may not comply with pH limits but for its combination with treated low volume waste sources. However, since any co-dilution that may occur is incidental to CGE's combination of IMP 101's and IMP 201's wastewaters for discharge, DEP will continue to regulate the pH of CGE's wastewaters at Outfall 001. Assuming CGE continues to properly operate the neutralization system for low volume waste sources, any non-compliant pH values at Outfall 002 would likely be attributable to the pH of cooling tower blowdown.

Mass Limits

40 CFR § 423.15(a)(13) allows limits to be expressed as concentration-based limits instead of mass-based limits. DEP has previously imposed limits on IMP 101's wastewaters solely as concentration-based limits, which will be continued in the renewed permit. However, reporting of effluent mass loadings also will be required.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

101.B. Water Quality-Based Effluent Limitations (WQBELs)

WQBELs are not evaluated at this internal monitoring point. WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water and IMP 101 is not a final stream discharge location. Therefore, water quality limits will be evaluated at Outfall 001 where CGE's wastewaters discharge to waters of the Commonwealth.

101.C. Effluent Limitations and Monitoring Requirements for IMP 101

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at IMP 101 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal, as applicable; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Effluent limits and monitoring requirements are summarized in the table below.

Table 3. Effluent Limits and Monitoring Requirements for IMP 101

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1) & 40 CFR & 122.44(l)
Total Suspended Solids	Report	Report	30.0	100.0	125.0	40 CFR §§ 423.15(a)(3) & 122.44(l)
Oil and Grease	Report	Report	15.0	20.0	—	40 CFR §§ 423.15(a)(3) & 122.44(l)

Monitoring frequencies and sample types are imposed in accordance with Chapter 6, Table 6-4 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations" ("Permit Writer's Manual"), DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications" ("IW NPDES SOP"), and the previous permit. Flow must be recorded 1/week. Samples for analysis of TSS and Oil and Grease must be collected 1/week using grab sampling. Narrative limitations will be imposed as conditions in Part C of the permit.

Development of Effluent Limitations

IMP No.	201	**Design Flow (MGD)**	0.37
Latitude	40° 33' 3.00"	**Longitude**	-78° 48' 48.00"
Wastewater Description:	Cooling tower blowdown		

Wastewaters regulated at IMP 201 are currently subject to the following effluent limits and monitoring requirements, in addition to other narrative limitations on PCBs and chlorine dischargers.

Table 4. IMP 201 – Current Effluent Limits and Monitoring Requirements

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Limit Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Flow (MGD)	Report	Report	—	—	—	1/week	Recorded	§ 92.61(d)(1)
Free Available Chlorine	—	—	0.2	—	0.5	1/week	Grab	§423.15(a)(10)(i)
Chromium, Total	Report	Report	0.2	0.2	—	1/week	Grab	§423.15(a)(10)(i)
Zinc, Total	Report	Report	1.0	1.0		1/week	Grab	§423.15(a)(10)(i)
Priority Pollutants, Total	—	Report (IMAX)	—	—	Report	1/year	[1]	§423.15(a)(10)(i)

[1] On an annual basis, the permittee shall conduct monitoring or submit engineering calculations to demonstrate compliance.

The effluent limits and monitoring requirements in Table 4 will remain in effect at IMP 201 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44), unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

201.A. Technology-Based Effluent Limitations (TBELs)

Effluent Limitations Guidelines

Based on the applicability description in 40 CFR § 423.15(a) (see discussion in Section 101.A of this Fact Sheet), discharges regulated at IMP 201 are subject to 1982 New Source Performance Standards under § 423.15(a) paragraphs (1), (2), and (10) as summarized in Table 5.

Table 5. 40 CFR Part 423 – Steam Electric New Source Performance Standards for IMP 201

Pollutant	Average Concentration (mg/L)	Maximum Concentration (mg/L)	Basis
Free Available Chlorine	0.2	0.5	40 CFR § 423.15(a)(10)(i)
pH	within the range of 6.0 to 9.0		40 CFR § 423.15(a)(1)
Pollutant	**Average of daily values for 30 consecutive days (mg/L)**	**Maximum for any 1 day (mg/L)**	**Basis**
Chromium, Total	0.2	0.2	40 CFR § 423.15(a)(10)(i)
Zinc, Total	1.0	1.0	40 CFR § 423.15(a)(10)(i)
The 126 priority pollutants contained in chemicals added for cooling tower maintenance	No detectable amount	No detectable amount	40 CFR § 423.15(a)(10)(i)
There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.			40 CFR § 423.15(a)(2)
Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.			40 CFR § 423.15(a)(10)(ii)

As explained in Section 101.A of this Fact Sheet, DEP will continue to regulate the pH of CGE's wastewaters at Outfall 001.

Mass Limits

40 CFR § 423.15(a)(13) allows limits to be expressed as concentration-based limits instead of mass-based limits. DEP has previously imposed limits on IMP 201's wastewaters solely as concentration-based limits, which will be continued in the renewed permit. However, reporting of effluent mass loadings also will be required.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

201.B. Water Quality-Based Effluent Limitations (WQBELs)

WQBELs are not evaluated at this internal monitoring point. WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water and IMP 201 is not a final stream discharge location. Therefore, water quality limits will be evaluated at Outfall 001 where CGE's wastewaters discharge to waters of the Commonwealth.

201.C. Effluent Limitations and Monitoring Requirements for IMP 201

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at IMP 201 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal, as applicable; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Effluent limits and monitoring requirements are summarized in the table below.

Table 6. Effluent Limits and Monitoring Requirements for IMP 201

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Free Available Chlorine	—	—	0.2	—	0.5	40 CFR § 423.15(b)(10)(i)
Chromium, Total	Report	Report	0.2	0.2	—	40 CFR § 423.15(b)(10)(i)
Zinc, Total	Report	Report	1.0	1.0	—	40 CFR § 423.15(b)(10)(i)
Priority Pollutants, Total	—	Report (IMAX)	—	—	Report	40 CFR § 423.15(b)(10)(i)

Monitoring frequencies and sample types are imposed in accordance with Chapter 6, Table 6-4 of DEP's Permit Writer's Manual, DEP's IW NPDES SOP, and the previous permit. Flow must be recorded 1/week. Samples for analysis of Free Available Chlorine, Chromium, and Zinc must be collected 1/week using grab sampling. Priority pollutants must be sampled 1/year using grab sampling or engineering calculations must be submitted to demonstrate compliance with the "no detectable amount" limitations of 40 CFR § 423.15(a)(10)(i). Narrative limitations will be imposed as conditions in Part C of the permit.

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.53
Latitude	40° 33' 3.00"	**Longitude**	-78° 48' 48.00"
Wastewater Description:	Low volume waste sources and cooling tower blowdown		

Discharges from Outfall 001 are currently subject to the following effluent limits and monitoring requirements.

Table 7. Outfall 001 – Current Effluent Limits and Monitoring Requirements

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Limit Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Flow (MGD)	Report	Report	—	—	—	Continuous	Metered	§ 92.61(d)(1)
pH	—	—	6.0 IMIN	—	9.0	1/day	Grab	§ 95.2(1)
Temperature (°F) Jan 1 – 31	—	—	—	62.0	—	1/day	I-S	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temperature (°F) Feb 1 – 28	—	—	—	58.4	—	1/day	I-S	
Temperature (°F) Mar 1 – 31	—	—	—	79.8	—	1/day	I-S	
Temperature (°F) Apr 1 – 15	—	—	—	82.8	—	1/day	I-S	
Temperature (°F) Apr 16 – 30	—	—	—	70.4	—	1/day	I-S	
Temperature (°F) May 1 – 15	—	—	—	65.9	—	1/day	I-S	
Temperature (°F) May 16 – 31	—	—	—	69.9	—	1/day	I-S	
Temperature (°F) Jun 1 – 15	—	—	—	69.7	—	1/day	I-S	
Temperature (°F) Jun 16 – 30	—	—	—	73.7	—	1/day	I-S	
Temperature (°F) Jul 1 – 31	—	—	—	74.6	—	1/day	I-S	
Temperature (°F) Aug 1 – 15	—	—	—	73.7	—	1/day	I-S	
Temperature (°F) Aug 16 – 31	—	—	—	73.7	—	1/day	I-S	
Temperature (°F) Sep 1 – 15	—	—	—	69.1	—	1/day	I-S	
Temperature (°F) Sep 16 – 30	—	—	—	63.1	—	1/day	I-S	
Temperature (°F) Oct 1 – 15	—	—	—	58.5	—	1/day	I-S	
Temperature (°F) Oct 16 – 31	—	—	—	54.5	—	1/day	I-S	
Temperature (°F) Nov 1 – 15	—	—	—	50.5	—	1/day	I-S	
Temperature (°F) Nov 16 – 30	—	—	—	49.0	—	1/day	I-S	
Temperature (°F) Dec 1 – 31	—	—	—	69.1	—	1/day	I-S	
TDS	2350	4700	5640.0	11280.0	14100	1/week	Grab	WQBELs
Aluminum, Total	0.31	0.31	0.75	0.75	0.75	1/week	Grab	TMDL
Cadmium Total (µg/L)	0.0005	0.001	1.37	2.74	3.42	1/week	Grab	WQBELs
Copper, Total (µg/L)	0.02	0.04	51.63	103.26	129.07	1/week	Grab	WQBELs
Iron, Total	0.62	1.25	1.5	3.0	3.75	1/week	Grab	TMDL
Lead, Total (µg/L)	Report	Report	Report	Report	—	1/week	Grab	§ 92.61(b)
Manganese, Total	0.41	0.83	1.0	2.0	2.5	1/week	Grab	TMDL

Table 7 (continued). Outfall 001 – Current Effluent Limits and Monitoring Requirements

Parameter	Mass (lbs/day)		Concentration (mg/L)			Measurement Frequency	Sample Type	Limit Basis
	Avg. Mo.	Max Daily	Avg. Mo.	Max Daily	IMAX			
Selenium, Total (µg/L)	0.006	0.012	14.53	29.06	36.32	1/week	Grab	WQBELs
Silver, Total (µg/L)	—	—	Report	Report	—	1/week	Grab	§ 92.61(b)
Sulfate, Total	1705	3415	4100.0	8200.0	10250	1/week	Grab	WQBELs
Chloride	—	—	Report	Report	—	1/week	Grab	§ 92.61(b)
Bromide	—	—	6.0 (IMIN)	—	9.0	1/day	Grab	§ 92.61(b)

The effluent limits and monitoring requirements in Table 7 will remain in effect at Outfall 001 in the renewed permit pursuant to anti-backsliding requirements under Section 402(o) of the Clean Water Act and/or 40 CFR § 122.44(l) (incorporated by reference at 25 Pa. Code § 92a.44), unless the limits are superseded by more stringent limits developed for this renewal or are relaxed pursuant to the anti-backsliding exceptions listed in Section 402(o) of the Clean Water Act or 40 CFR § 122.44(l).

001.A. <u>Technology-Based Effluent Limitations (TBELs)</u>

TBELs from 40 CFR Part 423 that apply to wastewaters discharging through Outfall 001 are imposed at IMPs 101 and 201 except for pH, which is regulated at Outfall 001 pursuant to 40 CFR § 423.15(a)(1), as discussed in Section 101.A of this Fact Sheet. Effluent standards for pH also apply to Outfall 001's discharges based on 25 Pa. Code §§ 92a.48(a)(2) and 95.2(1), but the pH limits from the Pa. Code are the same as those imposed by § 423.15(a)(1).

As discussed in Sections 101.B and 201.B, WQBELs are evaluated for Outfall 001 (see Section 001.B below).

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1). Additional monitoring requirements are discussed below.

<u>Per- and Polyfluoroalkyl Substances (PFAS)</u>

In February 2024, DEP implemented a new monitoring initiative for PFAS. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts.[3] Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

[3] ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

CGE's application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA's research, CGE does not operate in one of the industries EPA expects to be a source for PFAS.[4] Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.b of SOP BCW-PMT-032. Even though CGE did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if CGE did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject CGE to the annual monitoring requirements described in Section II.I.b of the SOP.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results in CGE's case), then the monitoring may be discontinued.

001.B. <u>Water Quality-Based Effluent Limitations (WQBELs)</u>

<u>Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential</u>

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling. If necessary, ammonia-nitrogen, CBOD-5, and dissolved oxygen are analyzed separately using DEP's WQM 7.0 model.

The TMS evaluates each pollutant by computing a wasteload allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

[4] USEPA, "Multi-Industry Per- and Polyfluoroalkyl Substances (PFAS) Study – 2021 Preliminary Report". Office of Water (4303T). EPA-821-R-21-004. September 2021.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Table 8. TMS Inputs for 001

Parameter	Value
River Mile Index	5.93
Discharge Flow (MGD)	0.53
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	3.6
Q_{7-10} (cfs)	0.23
Low-flow yield (cfs/mi^2)	0.0639
Elevation (ft)	1,717.0
Slope	0.011

Discharges from Outfall 001 are evaluated based on the maximum concentrations reported at IMP 101 on the permit renewal application. Outfall 001 has not discharged for many years, but when there is a discharge, the effluent is a combination IMP 101's and IMP 201's wastewaters. Since there have been no discharges from Outfall 001, modeling is conservatively conducted using data reported at IMP 101 for which a comprehensive dataset for Pollutant Groups 1 through 5 is available. Data for IMP 201 are limited by application requirements to Group 1 (General Chemistry) pollutants and chromium and zinc from Group 2.

The TMS model is run for Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 8. Pollutants for which water quality criteria have not been promulgated (e.g., TSS, Oil and Grease, etc.) are excluded from the modeling.

Output from the TMS model is included in **Attachment A** to this Fact Sheet. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. The results indicate that the following WQBELs are necessary for discharges at Outfall 001.

Table 9. Water Quality-Based Effluent Limits for Outfall 001

Parameter	Permit Limits					Discharge Conc. (µg/L) †	Target QL (µg/L)	Governing WQBEL Basis‡
	Avg Mo. (lb/day)	Max Daily (lb/day)	Avg Mo. (µg/L)	Max Daily (µg/L)	IMAX (µg/L)			
Aluminum, Total	3.32	4.25	750	960	960	4240	10	AFC
Arsenic, Total	Report	Report	Report	Report	Report	1.4	3	THH
Copper, Total	0.082	0.13	18.5	28.9	46.3	369	4	CFC
Selenium, Total	0.028	0.044	6.39	9.97	16.0	3.5	5	CFC
Zinc, Total	Report	Report	Report	Report	Report	32.3	5	AFC
Acrylamide	0.001	0.002	0.25	0.38	0.61	<5000	0.1	CRL
Chloroform	Report	Report	Report	Report	Report	3	0.5	THH

† Calculated as the long-term average of a delta lognormal distribution of maximum daily DMR results (Dec. 2018 – May 2023)
‡ CFC = Chronic Fish Criterion

CGE reported results for Acrylamide using an analytical reporting limit of 5000 µg/L. For modeling purposes, the TMS uses a Target QL of 0.1 µg/L for Acrylamide. The permit application instructions do not identify a Target QL for Acrylamide, so applicants are not held to the TMS's Target QL for Acrylamide. Also, according to the application, chemical additives containing Acrylamide are not used at CGE. Therefore, the TMS's WQBELs for Acrylamide are not imposed.

As stated previously, Outfall 001 has not discharged for many years. Under normal operating conditions, wastewaters regulated at IMPs 101 and 201 are diverted to the onsite retention pond for consumptive reuse. Since CGE has the option to manage wastewaters in a way that does not require discharges from Outfall 001 under normal circumstances, the permit will not include a schedule of compliance for the new WQBELs. To the extent that CGE requires time to ensure it can meet the new WQBELs in the event a discharge is necessary, CGE's normal wastewater management practices (that do not require CGE to discharge) provide CGE time to install any necessary controls.

Previously imposed WQBELs and reporting requirements for cadmium, lead, and silver will be maintained in the permit with minor changes to the WQBELs for cadmium based on rounding, and updated mass limits to use a flow rate of 0.53 MGD. WQBELs and reporting requirements for TDS, sulfate, chloride, and bromide will be removed from Outfall 001. Modeling for the previous permit indicated that WQBELs for TDS and sulfate were based on discharge concentrations input into the model. However, the water quality criteria for TDS and sulfate apply at the first downstream potable water supply withdrawal and no withdrawal was input into the model, so the WQBELs for those parameters are not valid. In addition, the monitoring initiative that resulted in reporting requirements for chloride and bromide ended in 2021. Therefore, monitoring requirements for those parameters will be removed from Outfall 001. The relaxation of requirements for TDS, sulfate, chloride, and bromide is consistent with the allowable exceptions to antibacksliding in 40 CFR § 122.44(l)(2)(i)(B)*(1)* and *(2)* regarding new information that justifies the application of less stringent limits and technical mistakes.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit.

The stream flow and discharge flow entered in the TRC_CALC spreadsheet are 0.23 cfs and 0.53 MGD, respectively. The results of the analysis included in **Attachment B** indicate that the following WQBELs are needed for TRC: 0.05 mg/L average monthly and 0.163 mg/L instantaneous maximum. No schedule is included in the permit for the new TRC WQBELs.

Thermal Limits

Thermal WQBELs are evaluated using a DEP program called "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel® for Windows. The program calculates temperature wasteload allocations (WLAs) through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream upstream of the discharge location. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is made based on the input data which include the receiving stream flow rate ($Q_{7\text{-}10}$), the stream intake flow rate, external source intake flow rates, consumptive flow rates, and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures. DEP’s “Implementation Guidance for Temperature Criteria” [Doc. No. 386-2000-001] directs permit writers to assume instantaneous complete mixing of the discharge with the receiving stream when calculating thermal effluent limits unless adverse factors exist. DEP is not aware of any site-specific adverse factors, so instantaneous complete mixing is assumed.

CGE obtains its water from an intake on North Branch Blacklick Creek (not Elk Creek), so the discharge is analyzed as Case 2 and is modeled using the maximum reported (batch) discharge flow rate at Outfall 001, 0.53 MGD, as directed by the “Implementation Guidance for Temperature Criteria” for Case 2 scenarios. The results of the thermal discharge analysis using the Thermal Discharge Limit Calculation Spreadsheet (see **Attachment C**) indicate that the following thermal WQBELs apply to Outfall 001.

Table 10. Thermal WQBELs for Outfall 001

Period	Default Ambient Stream Temp. (°F)	Allowable Downstream Temp. (°F)	Allowable Discharge Temp. (°F)
Jan 1-31	34	38	41.6
Feb 1-29	35	38	40.9
Mar 1-31	39	42	47.9
Apr 1-15	46	48	53.2
Apr 16-30	52	53	55.6
May 1-15	55	56	57.4
May 16-31	59	60	61.4
Jun 1-15	63	64	64.8
Jun 16-30	67	68	68.8
July 1-31	71	72	72.5
Aug 1-15	70	71	71.4
Aug 16-31	70	71	71.4
Sep 1-15	66	67	67.3
Sep 16-30	60	61	61.3
Oct 1-15	55	56	56.3
Oct 16-31	51	52	52.3
Nov 1-15	46	47	47.4
Nov 16-30	40	42	42.9
Dec 1-31	35	40	43.4

Total Maximum Daily Load for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed

On April 1, 2005, the U.S. Environmental Protection Agency (USEPA) approved a Total Maximum Daily Load (TMDL) for the Elk Creek Watershed to control aluminum, iron, and manganese in acid mine drainage affected segments of the watershed. On January 29, 2010, a TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which Elk Creek and its tributaries are a part—was approved by USEPA to control aluminum, iron, manganese, sediment and pH in that watershed. The Kiski-Conemaugh TMDL imposes wasteload allocations (WLAs) to directly control aluminum, iron, and manganese and uses a surrogate approach for sediment and pH through which reductions of in-stream concentrations of aluminum, iron, and manganese result in acceptable reductions of sediment and mitigation of acidic pH. Upon approval, the Kiski-Conemaugh TMDL superseded the Elk Creek Watershed TMDL.

40 CFR § 122.44(d)(1)(vii)(B) requires that, 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 WLA for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7.

In the draft version of the Kiski-Conemaugh TMDL, CGE was assigned WLAs that did not require any reductions from baseline (existing) loadings. The TMDL conservatively set baseline loadings at levels equal to Pennsylvania's most stringent water quality criteria. In other words, CGE's loadings were not expected to contribute to excursions above water quality criteria, but the TMDL still needed to account for CGE's load contributions and conservatively assumed those contributions were at levels equivalent to water quality criteria. In the final TMDL, CGE's WLAs were combined with other WLAs for facilities in the same sub-watershed (SWS) and specified as "Negligible Discharge Gross WLAs" for the whole SWS. The draft and final TMDL WLAs are summarized in Tables 11 and 12.

Table 11. Draft Kiski-Conemaugh TMDL WLAs for SWS 4485

SWS	PERMIT	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
4485	PA0024171	Aluminum	628	0.75	628	0.75	0
4485	PA0024171	Iron	1,257	1.50	1,257	1.50	0
4485	PA0024171	Manganese	838	1.00	838	1.00	0
4485	PA0204269	Aluminum	388	0.75	388	0.75	0
4485	PA0204269	Iron	777	1.50	777	1.50	0
4485	PA0204269	Manganese	518	1.00	518	1.00	0

Note: PA0024171 is the NPDES permit for the Cambria Township Sewer Authority's Colver Sewage Treatment Plant.

Table 12. Final Kiski-Conemaugh TMDL WLAs for SWS 4485

SWS	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
4485	Aluminum	1,017	0.75	1,017	0.75	0
4485	Iron	2,034	1.50	2,034	1.50	0
4485	Manganese	1,356	1.00	1,356	1.00	0

TMDL WLAs for SWS 4485 are not facility-specific or outfall-specific—they apply collectively to all discharges in SWS 4485. Unlike allocated loads, the allocated concentrations can be imposed on any discharge in the SWS because the allocated concentrations do not depend on the discharge flow rate. Therefore, the allocated concentrations for aluminum, iron, and manganese, which are equal to the most stringent water quality criteria for those parameters, are translated into effluent limits and imposed 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.

Load limits for aluminum, iron, and manganese are calculated using the average concentration limits and the maximum discharge flow rate, 0.53 MGD, with the following formula.

Mass Limit (lbs/day) = Design flow (MGD) × concentration limit (mg/L) at design flow × 8.3435 [unit conversion factor]

TMDL limits are summarized in Table 13.

Table 13. TMDL Effluent Limits for Outfall 001

Pollutant	Mass (lbs/day)		Concentration (mg/L)		
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Instantaneous Maximum
Aluminum, Total	3.32	3.32	0.75	0.75	0.75
Iron, Total	6.63	13.2	1.5	3.0	3.75
Manganese, Total	4.42	8.84	1.0	2.0	2.5

001.C. <u>Effluent Limits and Monitoring Requirements for Outfall 001</u>

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under Section 402(o) of the Clean Water Act and 40 CFR § 122.44(l) (incorporated in Pennsylvania's regulations at 25 Pa. Code § 92a.44), effluent limits at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal, as applicable; and effluent limits and monitoring requirements from the previous permit subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet. Effluent limits and monitoring requirements are summarized in the table below.

Table 14. Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(b) & 40 CFR & 122.44(l)
pH (S.U.)	—	—	6.0 Inst. Min.	—	9.0	25 Pa. Code § 92a.48(a)(2) & 95.2(1)
Total Residual Chlorine	—	—	0.07	—	0.163	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temp. (°F) (Jan 1 - 31)	—	—	—	41.6	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temp. (°F) (Feb 1 - 29)	—	—	—	40.9	—	
Temp. (°F) (Mar 1 - 31)	—	—	—	47.9	—	
Temp. (°F) (Apr 1 - 15)	—	—	—	53.2	—	
Temp. (°F) (Apr 16 - 30)	—	—	—	55.6	—	
Temp. (°F) (May 1 - 15)	—	—	—	57.4	—	
Temp. (°F) (May 16 - 31)	—	—	—	61.4	—	
Temp. (°F) (Jun 1 - 15)	—	—	—	64.8	—	
Temp. (°F) (Jun 16 - 30)	—	—	—	68.8	—	

Table 14 (cont'd). Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds/day)		Concentration (µg/L)			Basis
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Instant Maximum	
Temp. (°F) (Jul 1 - 31)	—	—	—	72.5	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.6
Temp. (°F) (Aug 1 - 15)	—	—	—	71.4	—	
Temp. (°F) (Aug 16 - 31)	—	—	—	71.4	—	
Temp. (°F) (Sep 1 - 15)	—	—	—	67.3	—	
Temp. (°F) (Sep 16 - 30)	—	—	—	61.3	—	
Temp. (°F) (Oct 1 - 15)	—	—	—	56.3	—	
Temp. (°F) (Oct 16 - 31)	—	—	—	52.3	—	
Temp. (°F) (Nov 1 - 15)	—	—	—	47.4	—	
Temp. (°F) (Nov 16 - 30)	—	—	—	42.9	—	
Temp. (°F) (Dec 1 - 31)	—	—	—	43.4	—	
Aluminum, Total	3.32	3.32	0.75	0.75	0.75	40 CFR § 122.44(d)(1)(vii)(B); TMDL WQBELs
Arsenic, Total (µg/L)	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Cadmium, Total (µg/L)	0.006	0.012	1.37	2.74	3.42	40 CFR & 122.44(l)
Copper, Total (µg/L)	0.082	0.13	18.5	28.9	46.3	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Iron, Total	6.63	13.2	1.5	3.0	3.75	40 CFR § 122.44(d)(1)(vii)(B); TMDL WQBELs
Lead, Total (µg/L)	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Manganese, Total	4.42	8.84	1.0	2.0	2.5	40 CFR § 122.44(d)(1)(vii)(B); TMDL WQBELs
Selenium, Total (µg/L)	0.028	0.044	6.39	9.97	16.0	BPJ TBEL; 25 Pa. Code § 92a.48(a)(3) & 40 CFR & 122.44(l)
Silver, Total (µg/L)	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Zinc, Total (µg/L)	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Chloroform	Report	Report	Report	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanoic acid (PFOA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorooctanesulfonic acid (PFOS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Perfluorobutanesulfonic acid (PFBS)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Hexafluoropropylene oxide dimer acid (HFPO-DA)	—	—	—	Report	—	25 Pa. Code § 92a.61(b)

Monitoring frequencies and sample types are based on those in the existing permit and the recommendations from Chapter 6, Table 6-4 in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits". Flow must be recorded continuously; pH must be measured 1/day using grab sampling; and temperature must be measured 1/day using immersion stabilization sampling. Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) will require grab sampling 1/year. All other parameters will require grab sampling 1/week.

Clean Water Act Section 316(b) – Best Technology Available for Cooling Water Intake Structures

On August 15, 2014, EPA promulgated Clean Water Act Section 316(b) regulations applicable to cooling water intake structures at existing facilities. The regulations established best technology available (BTA) standards to reduce impingement mortality and entrainment of all life stages of fish and shellfish at existing power-generating and manufacturing facilities. The Final Rule took effect on October 14, 2014. Regulations implementing the 2014 Final Rule (and the previously promulgated Phase I Rule) are provided in 40 CFR part 125, Subparts I and J for new facilities and existing facilities, respectively. Associated NPDES permit application requirements for facilities with cooling water intake structures are provided in 40 CFR Part 122, Subpart B – Permit Application and Special NPDES Program Requirements (§ 122.21(r)).

CGE is supplied with raw, untreated, non-potable water by the Cambria Township Water Authority (CTWA), which owns, operates, and maintains an intake structure at the Colver Reservoir (part of the North Branch Blacklick Creek impounded by the Vetera Dam) approximately 1.5 miles northeast of CGE. On behalf of CGE, at DEP's request, Civil & Environmental Consultants, Inc. provided information on CTWA's intake structure, which is partially reproduced below.

The CTWA intake structure consists of a single concrete tower, approximately seventeen feet wide and fifty feet in height, as well as five withdrawal pumps. Within the intake tower, there are four intake pipes that are each ten inches in diameter, and each intake pipe is fitted with a circular twelve-inch long steel strainer with 1/4-inch openings. The screens are perforated stainless steel. Only two of the four intake pipes are open at any given time; the remaining two are kept closed in reserve. According to CTWA, design documentation illustrating the dimensions of the screens is not available. Each of the four intake pipes also have a stainless-steel wire screen (2-inch by 2-inch wire mesh openings) on the exterior of the intake tower to keep debris away from the intake pipes. The maximum external wire mesh screen velocity for only CGE is 0.136 feet per second and the maximum internal perforated screen velocity is 0.54 feet per second.

Water withdrawn from the common suction line within the intake tower enters a pumphouse containing three dedicated pumps for CGE and two dedicated pumps used by CTWA to supply potable water to the community of Colver, PA. The three pumps operated by CTWA that supply raw, untreated, non-potable water to Colver each have a design capacity of 600 gallons per minute (gpm). Only two pumps operate at a time (the third is maintained as a backup), so the design intake flow for CGE is 1,200 gpm or 1.728 MGD. CGE's cooling water usage rate varies from 90% to 99%. The two pumps operated by CTWA that supply water for treatment and subsequent distribution through CTWA's municipal water distribution system have a design capacity of 350 gallons per minute and only one is operated at a time (the second pump is maintained as a backup).

Design Intake Flow

According to 40 CFR 125.92(g), *Design Intake Flow* (DIF) means the value assigned during the cooling water intake structure design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source waterbody. The facility's DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including pumps permanently removed from service, flow limit devices, and physical limitations of the piping. DIF does not include values associated with emergency and fire suppression capacity or redundant pumps (i.e., back-up pumps).

CTWA's 350-gpm pumps that are used to supply potable water to the community of Colver do not reflect capability to withdraw cooling water because the potable water supply portion of the intake is operated independently of the portion used to supply CGE. That is, there is a physical limitation on the capability of CTWA's intake to supply cooling water that precludes the use of the 350-gpm pumps for that purpose. Therefore, the DIF of the cooling water intake structure is based on the capacity of the pumps used to supply CGE, 1.728 MGD, which also excludes the third 600-gpm backup pump.

Actual Intake Flow

According to 40 CFR 125.92(a), *Actual Intake Flow* (AIF) means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three years. After October 14, 2019, Actual Intake Flow means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the previous five years. Actual intake flow is measured at a location within the cooling water intake structure that the Director deems appropriate. The calculation of actual intake flow includes days of zero flow. AIF does not include flows associated with emergency and fire suppression capacity.

CGE provided the following table of data summarizing the last five years of CTWA's monthly water withdrawal volumes supplied to CGE.

Month	2019	2020	2021	2022	2023
January	35,869,000	38,266,000	29,841,000	31,010,000	29,921,000
February	29,033,000	32,344,000	23,301,000	28,596,000	29,624,000
March	34,513,000	30,286,000	34,148,000	26,310,000	25,313,000
April	30,683,000	31,836,000	23,489,000	19,592,000	33,440,000
May	36,621,000	16,661,000	27,188,000	32,060,000	22,966,000
June	34,612,000	0	37,232,000	39,120,000	37,580,000
July	35,594,000	0	36,992,000	36,101,000	42,655,000
August	41,012,000	0	40,044,000	38,962,000	36,978,000
September	35,350,000	516,000	30,941,000	35,881,000	36,822,000
October	24,743,000	28,975,000	18,313,000	34,934,000	37,057,000
November	39,468,000	31,803,000	29,011,000	30,835,000	33,909,000
December	33,392,000	29,872,000	28,265,000	31,890,000	33,920,000
Annual Withdrawal Volume (Gallons)	410,890,000	240,559,000	358,765,000	385,291,000	400,195,000
Annual Average Intake Flow (MGD) †	1.126	0.659	0.983	1.056	1.096
Five-Year Annual Average Intake Flow (MGD)	0.984				

† Annual Average Intake Flow = Annual Withdrawal Volume ÷ 365 days

Based on the withdrawal data supplied to DEP by CGE, CTWA's Actual Intake Flow is 0.984 MGD.

Public Water System Exemption

DEP previously exempted CGE from 316(b) requirements based on 40 CFR § 125.91(c), which states:

> (c) Obtaining cooling water from a public water system, using reclaimed water from wastewater treatment facilities or desalination plants, or recycling treated process wastewater effluent as cooling water does not constitute use of a cooling water intake structure for purposes of this subpart.

EPA explained consideration for public water systems (PWSs) in the 316(b) regulations in Essay 14 of EPA's "Response to Public Comment: National Pollutant Discharge Elimination System Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities (40 CFR Parts 122 and 125) Docket # EPA-HQ-OW-2008-0667" as follows:

> Under § 125.91(c) and § 125.92 (definition of cooling water) the rule refers to PWSs. The term PWS is defined under the SDWA [Safe Drinking Water Act] regulations and generally refers to drinking water systems of a certain size (see 40 CFR 142.2). EPA references PWSs in the above-referenced provisions because these are established terms and reflect potential reuse of PWS-derived water for cooling. … Subsections 125.91(c) and 125.92 address the reuse of cooling water before or after manufacturing, so there is no need to expand the definition of PWS under this rule to include entities that provide non-potable water to manufacturers.

The definition of "public water system" in 40 CFR § 142.2 states:

> *Public water system or PWS* means a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes:
>
> Any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system" as defined in § 141.2.

While the portions of CTWA's collection facilities used to supply, treat, and store water for human consumption are regulated by the Safe Drinking Water Act and CTWA is a regulated public water supplier in that context (PWSID 4110006), CGE is not obtaining cooling water from a system used to provide water to the public for human consumption. The portion of

CTWA's collection facilities used to supply CGE with cooling water are <u>not</u> regulated by the Safe Drinking Water Act. CGE's use of water supplied by CTWA does not reflect the reuse of PWS-derived water for cooling (i.e., does not reflect the reuse of water treated for human consumption).

In addition, CTWA's intake is not used primarily in connection with the provision of water to the public for human consumption. Based on total design intake capacity (i.e., CGE supply + CTWA potable water supply), CTWA's intake structure is primarily used to supply raw, non-potable water to CGE for use as cooling water:

$$1.728 \text{ MGD} \div (1.728 \text{ MGD} + 0.504 \text{ MGD}) \times 100 = 77.4\% \text{ of total intake capacity used for CGE supply}$$

For these reasons, CTWA is classified as an independent supplier, defined in 40 CFR § 125.92(p) as follows:

> *Independent supplier* means an entity, other than the regulated facility, that owns and operates its own cooling water intake structure and directly withdraws water from waters of the United States. The supplier provides the cooling water to other facilities for their use, but may itself also use a portion of the water. An entity that provides potable water to residential populations (e.g., public water system) is not a supplier for purposes of this subpart.

As discussed above, while CTWA does provide potable water to residential populations, CTWA's provision of water to CGE does not reflect the supply or reuse of potable water. As explained in the DIF section above, CTWA's provision of water to CGE is separate and distinct from CTWA's potable water supply treatment and distribution facilities. Therefore, DEP concludes that the public water system exemption in 40 CFR § 125.91(c) does not apply to CTWA's intake with respect to that intake's use as a cooling water supply for CGE.

<u>Applicability Criteria of 40 CFR Part 125, Subpart J</u>

CGE is an "existing facility" as defined in 40 CFR § 125.92(k). Existing facilities are subject to 40 CFR Part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act if they meet the applicability criteria given by § 125.91(a), as follows:

(a) The owner or operator of an existing facility, as defined in §125.92(k), is subject to the requirements at §§125.94 through 125.99 if:

  (1) The facility is a point source;

  (2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and

  (3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

CGE is a point source and uses between 90% and 99% of its AIF for cooling purposes. However, CGE's DIF is 1.728 MGD, which is less than the 2 MGD threshold. Therefore, the facility is not subject to the requirements of §§ 125.94 through 125.99. 40 CFR § 125.90(b) states: "Cooling water intake structures not subject to requirements under §§ 125.94 through 125.99 or subparts I or N of this part must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis."

CGE does not meet the applicability requirements under § 125.91 to be subject to the requirements of §§ 125.94 through 125.99. Therefore, CGE is subject to requirements under section 316(b) of the CWA established by the Director (DEP according to its delegated authority) on a case-by-case, best professional judgment (BPJ) basis.

<u>BTA for Impingement Mortality and Entrainment</u>

DEP's "Standard Operating Procedure (SOP) for Clean Water Program, Establishing Best Technology Available (BTA) Using Best Professional Judgement (BPJ) for Cooling Water Intake Structures at Existing NPDES Facilities" [SOP No. BCW-PMT-038, 12/7/2021] describes the procedures DEP uses to establish BPJ of BTA determinations for existing cooling water intake structures under 40 CFR § 125.90(b).

Pursuant to Section II.A.1 of the aforementioned SOP, facilities that have a closed-cycle recirculating system are considered to have BTA for impingement mortality unless there is evidence that the permittee's operation of its cooling water intake structure is causing adverse environmental impacts due to impingement, as determined by DEP biologists. Currently, DEP does not have information to indicate that CTWA's intake causes adverse environmental impacts due to impingement. Therefore, BTA for impingement mortality for CGE will be operation of a closed-cycle recirculating system.

Similarly, pursuant to Section II.B.1 of the aforementioned SOP, facilities that have a closed-cycle recirculating system are considered to have BTA for entrainment unless there is evidence that the permittee's operation of its cooling water intake structure is causing adverse environmental impacts due to entrainment or that site-specific factors show more stringent technologies are needed. Currently, DEP does not have information to indicate that CTWA's intake causes adverse environmental impacts due to entrainment. Therefore, entrainment BTA for CGE will be operation of a closed-cycle recirculating system.

Attachment A to the SOP includes permit conditions for facilities subject to 40 CFR § 125.90(b). The 316(b) conditions for CGE will be as follows:

COOLING WATER INTAKE STRUCTURES

A. Nothing in this permit authorizes a take of endangered or threatened species under the Endangered Species Act.

B. Technology and operational measures employed at the cooling water intake structures must be operated in a way that minimizes impingement mortality and entrainment to the smallest amount, extent, or degree reasonably possible.

C. The location, design, construction or capacity of the intake structure(s) may not be altered without prior approval of DEP.

D. The permittee must notify DEP before changing its source of cooling water.

E. The permittee shall retain data and other records for any information developed pursuant to Section 316(b) of the Clean Water Act for a minimum of ten (10) years.

F. Throughout the permit term, the permittee shall continue to operate and maintain the following technologies or BMPs that constitute Best Technology Available (BTA) for reducing impingement:

- Closed-cycle recirculating cooling system.

G. Throughout the permit term, the permittee shall continue to operate and maintain the following technologies or BMPs that constitute Best Technology Available (BTA) for reducing entrainment:

- Closed-cycle recirculating cooling system.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment A)
☒	TRC Model Spreadsheet (see Attachment B)
☒	Temperature Model Spreadsheet (see Attachment C)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☒	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Standard Operating Procedure for Clean Water Program New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, SOP No. BCW-PMT-001, February 5, 2024, Version 1.7.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Industrial Permits, SOP No. BCW-PMT-032, February 5, 2024, Version 1.7.
☒	SOP: Standard Operating Procedure for Clean Water Program Establishing Best Technology Available (BTA) Using Best Professional Judgement (BPJ) for Cooling Water Intake Structures at Existing NPDES Facilities, SOP No. BCW-PMT-038, December 7, 2021, Version 1.0.
☐	Other:

ATTACHMENT A

Toxics Management Spreadsheet Results for Outfall 001

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Colver Power Plant

NPDES Permit No.: PA0204269

Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: Low volume waste & cooling tower blowdo

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
0.53	186	7.44						

	Discharge Pollutant	Units		Max Discharge Conc	Trib Conc (0 if left blank)	Stream Conc (0 if left blank)	Daily CV (0.5 if left blank)	Hourly CV (0.5 if left blank)	Stream CV (0 if left blank)	Fate Coeff (0 if left blank)	FOS (0 if left blank)	Criteria Mod (1 if left blank)	Chem Transl (1 if left blank)
Group 1	Total Dissolved Solids (PWS)	mg/L		4630									
	Chloride (PWS)	mg/L		96.3									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		2560									
	Fluoride (PWS)	mg/L		0.5									
Group 2	Total Aluminum	µg/L		4240									
	Total Antimony	µg/L	<	0.5									
	Total Arsenic	µg/L		1.4									
	Total Barium	µg/L		114									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		60									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L		10									
	Hexavalent Chromium	µg/L		0.9									
	Total Cobalt	µg/L	<	0.2									
	Total Copper	µg/L		369									
	Free Cyanide	µg/L		0.46									
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		20									
	Total Iron	µg/L		110									
	Total Lead	µg/L	<	0.2									
	Total Manganese	µg/L		25									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		2.5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		3.5									
	Total Silver	µg/L		0.1									
	Total Thallium	µg/L	<	0.1									
	Total Zinc	µg/L		32.3									
	Total Molybdenum	µg/L		39.8									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<	5000									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.2									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.2									
	Chlorobenzene	µg/L	<	0.2									
	Chlorodibromomethane	µg/L	<	0.4									
	Chloroethane	µg/L	<	0.2									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L		3									
	Dichlorobromomethane	µg/L	<	0.2									
	1,1-Dichloroethane	µg/L	<	0.2									
	1,2-Dichloroethane	µg/L	<	0.2									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.2									
	1,3-Dichloropropylene	µg/L	<	0.2									
	1,4-Dioxane	µg/L	<	0.1									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.2									
	Methylene Chloride	µg/L	<	0.4									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.2									
	Tetrachloroethylene	µg/L	<	0.4									
	Toluene	µg/L	<	0.2									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.2									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.2									
	Vinyl Chloride	µg/L	<	0.2									
Group 4	2-Chlorophenol	µg/L	<	0.2									
	2,4-Dichlorophenol	µg/L	<	0.2									
	2,4-Dimethylphenol	µg/L	<	0.2									
	4,6-Dinitro-o-Cresol	µg/L	<	1.02									
	2,4-Dinitrophenol	µg/L	<	1.02									
	2-Nitrophenol	µg/L	<	0.51									
	4-Nitrophenol	µg/L	<	0.51									
	p-Chloro-m-Cresol	µg/L	<	0.2									
	Pentachlorophenol	µg/L	<	0.51									
	Phenol	µg/L	<	0.2									
	2,4,6-Trichlorophenol	µg/L	<	0.2									
Group 5	Acenaphthene	µg/L	<	0.1									
	Acenaphthylene	µg/L	<	0.1									
	Anthracene	µg/L	<	0.1									
	Benzidine	µg/L	<	0.51									
	Benzo(a)Anthracene	µg/L	<	0.1									
	Benzo(a)Pyrene	µg/L	<	0.1									
	3,4-Benzofluoranthene	µg/L	<	0.1									
	Benzo(ghi)Perylene	µg/L	<	0.1									
	Benzo(k)Fluoranthene	µg/L	<	0.1									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.1									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.1									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.1									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.04									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.1									
	Butyl Benzyl Phthalate	µg/L	<	1.02									
	2-Chloronaphthalene	µg/L	<	0.1									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.1									
	Chrysene	µg/L	<	0.1									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.1									
	1,2-Dichlorobenzene	µg/L	<	0.1									
	1,3-Dichlorobenzene	µg/L	<	0.1									
	1,4-Dichlorobenzene	µg/L	<	0.1									
	3,3-Dichlorobenzidine	µg/L	<	0.51									
	Diethyl Phthalate	µg/L	<	1.02									
	Dimethyl Phthalate	µg/L	<	1.02									
	Di-n-Butyl Phthalate	µg/L	<	1.02									
	2,4-Dinitrotoluene	µg/L	<	0.2									

	2,6-Dinitrotoluene	µg/L	<	0.2									
	Di-n-Octyl Phthalate	µg/L	<	1.02									
	1,2-Diphenylhydrazine	µg/L	<	0.1									
	Fluoranthene	µg/L	<	0.1									
	Fluorene	µg/L	<	0.1									
	Hexachlorobenzene	µg/L	<	0.1									
	Hexachlorobutadiene	µg/L	<	0.1									
	Hexachlorocyclopentadiene	µg/L	<	0.51									
	Hexachloroethane	µg/L	<	0.1									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.1									
	Isophorone	µg/L	<	0.2									
	Naphthalene	µg/L	<	0.1									
	Nitrobenzene	µg/L	<	0.1									
	n-Nitrosodimethylamine	µg/L	<	0.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.1									
	n-Nitrosodiphenylamine	µg/L	<	0.1									
	Phenanthrene	µg/L	<	0.1									
	Pyrene	µg/L	<	0.1									
	1,2,4-Trichlorobenzene	µg/L	<	0.1									
Group 6	Aldrin	µg/L	<										
Group 6	alpha-BHC	µg/L	<										
Group 6	beta-BHC	µg/L	<										
Group 6	gamma-BHC	µg/L	<										
Group 6	delta BHC	µg/L	<										
Group 6	Chlordane	µg/L	<										
Group 6	4,4-DDT	µg/L	<										
Group 6	4,4-DDE	µg/L	<										
Group 6	4,4-DDD	µg/L	<										
Group 6	Dieldrin	µg/L	<										
Group 6	alpha-Endosulfan	µg/L	<										
Group 6	beta-Endosulfan	µg/L	<										
Group 6	Endosulfan Sulfate	µg/L	<										
Group 6	Endrin	µg/L	<										
Group 6	Endrin Aldehyde	µg/L	<										
Group 6	Heptachlor	µg/L	<										
Group 6	Heptachlor Epoxide	µg/L	<										
Group 6	PCB-1016	µg/L	<										
Group 6	PCB-1221	µg/L	<										
Group 6	PCB-1232	µg/L	<										
Group 6	PCB-1242	µg/L	<										
Group 6	PCB-1248	µg/L	<										
Group 6	PCB-1254	µg/L	<										
Group 6	PCB-1260	µg/L	<										
Group 6	PCBs, Total	µg/L	<										
Group 6	Toxaphene	µg/L	<										
Group 6	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
Group 7	Total Beta	pCi/L	<										
Group 7	Radium 226/228	pCi/L	<										
Group 7	Total Strontium	µg/L	<										
Group 7	Total Uranium	µg/L	<										
Group 7	Osmotic Pressure	mOs/kg											

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Colver Power Plant, NPDES Permit No. PA0204269, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Elk Creek

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	044523	5.93	1717	3.6	0.011		Yes
End of Reach 1	044523	5.66	1701	3.67	0.011		Yes

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

Location	RMI	LFY (cfs/mi²)*	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	5.93	0.0639										100	7		
End of Reach 1	5.66	0.0639													

Q_h

Location	RMI	LFY (cfs/mi²)	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	5.93														
End of Reach 1	5.66														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Colver Power Plant, NPDES Permit No. PA0204269, Outfall 001

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

☑ ***Hydrodynamics***

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

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
5.93	0.23		0.23	0.82	0.011	0.505	11.951	23.655	0.174	0.095	0.25
5.66	0.23		0.235								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
5.93	2.06		2.06	0.82	0.011	0.787	11.951	15.182	0.306	0.054	1.366
5.66	2.092		2.09								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.250 PMF: 1 Analysis Hardness (mg/l): 167.16 Analysis pH: 7.30

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	960	
Total Antimony	0	0		0	1,100	1,100	1,409	
Total Arsenic	0	0		0	340	340	435	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	26,892	
Total Boron	0	0		0	8,100	8,100	10,373	
Total Cadmium	0	0		0	3.318	3.6	4.61	Chem Translator of 0.923 applied
Total Chromium (III)	0	0		0	867.831	2,746	3,517	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	20.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	122	
Total Copper	0	0		0	21.807	22.7	29.1	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	22	22.0	28.2	
Dissolved Iron	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	112.452	157	201	Chem Translator of 0.716 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.11	Chem Translator of 0.85 applied
Total Nickel	0	0		0	723.152	725	928	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	7.784	9.16	11.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	83.2	
Total Zinc	0	0		0	181.097	185	237	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.84	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	832	
Benzene	0	0		0	640	640	820	
Bromoform	0	0		0	1,800	1,800	2,305	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,586	
Chlorobenzene	0	0		0	1,200	1,200	1,537	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	23,050	
Chloroform	0	0		0	1,900	1,900	2,433	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	19,209	
1,1-Dichloroethylene	0	0		0	7,500	7,500	9,604	
1,2-Dichloropropane	0	0		0	11,000	11,000	14,086	
1,3-Dichloropropylene	0	0		0	310	310	397	
Ethylbenzene	0	0		0	2,900	2,900	3,714	
Methyl Bromide	0	0		0	550	550	704	
Methyl Chloride	0	0		0	28,000	28,000	35,856	
Methylene Chloride	0	0		0	12,000	12,000	15,367	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,281	
Tetrachloroethylene	0	0		0	700	700	896	
Toluene	0	0		0	1,700	1,700	2,177	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	8,708	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,842	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	4,354	
Trichloroethylene	0	0		0	2,300	2,300	2,945	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	717	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,177	
2,4-Dimethylphenol	0	0		0	660	660	845	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	102	
2,4-Dinitrophenol	0	0		0	660	660	845	
2-Nitrophenol	0	0		0	8,000	8,000	10,245	
4-Nitrophenol	0	0		0	2,300	2,300	2,945	
p-Chloro-m-Cresol	0	0		0	160	160	205	
Pentachlorophenol	0	0		0	11.778	11.8	15.1	

Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	589	
Acenaphthene	0	0		0	83	83.0	106	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	384	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.64	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	38,417	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	5,763	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	346	
Butyl Benzyl Phthalate	0	0		0	140	140	179	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,050	
1,3-Dichlorobenzene	0	0		0	350	350	448	
1,4-Dichlorobenzene	0	0		0	730	730	935	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	5,122	
Dimethyl Phthalate	0	0		0	2,500	2,500	3,201	
Di-n-Butyl Phthalate	0	0		0	110	110	141	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,049	
2,6-Dinitrotoluene	0	0		0	990	990	1,268	
1,2-Diphenylhydrazine	0	0		0	15	15.0	19.2	
Fluoranthene	0	0		0	200	200	256	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	12.8	
Hexachlorocyclopentadiene	0	0		0	5	5.0	6.4	
Hexachloroethane	0	0		0	60	60.0	76.8	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	12,806	
Naphthalene	0	0		0	140	140	179	
Nitrobenzene	0	0		0	4,000	4,000	5,122	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	21,770	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	384	
Phenanthrene	0	0		0	5	5.0	6.4	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	166	

☑ *CFC* CCT (min): 0.250 PMF: 1 Analysis Hardness (mg/l): 167.16 Analysis pH: 7.30

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	282	
Total Arsenic	0	0		0	150	150	192	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,250	
Total Boron	0	0		0	1,600	1,600	2,049	
Total Cadmium	0	0		0	0.351	0.4	0.51	Chem Translator of 0.888 applied
Total Chromium (III)	0	0		0	112.887	131	168	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	13.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	24.3	
Total Copper	0	0		0	13.892	14.5	18.5	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	6.66	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,921	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	4.382	6.12	7.84	Chem Translator of 0.716 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.16	Chem Translator of 0.85 applied
Total Nickel	0	0		0	80.320	80.6	103	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	6.39	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	16.6	
Total Zinc	0	0		0	182.578	185	237	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.84	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	166	
Benzene	0	0		0	130	130	166	
Bromoform	0	0		0	370	370	474	
Carbon Tetrachloride	0	0		0	560	560	717	
Chlorobenzene	0	0		0	240	240	307	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,482	
Chloroform	0	0		0	390	390	499	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,970	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,921	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,817	
1,3-Dichloropropylene	0	0		0	61	61.0	78.1	
Ethylbenzene	0	0		0	580	580	743	
Methyl Bromide	0	0		0	110	110	141	
Methyl Chloride	0	0		0	5,500	5,500	7,043	
Methylene Chloride	0	0		0	2,400	2,400	3,073	

1,1,2,2-Tetrachloroethane	0	0		0	210	210	269	
Tetrachloroethylene	0	0		0	140	140	179	
Toluene	0	0		0	330	330	423	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,793	
1,1,1-Trichloroethane	0	0		0	610	610	781	
1,1,2-Trichloroethane	0	0		0	680	680	871	
Trichloroethylene	0	0		0	450	450	576	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	141	
2,4-Dichlorophenol	0	0		0	340	340	435	
2,4-Dimethylphenol	0	0		0	130	130	166	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	20.5	
2,4-Dinitrophenol	0	0		0	130	130	166	
2-Nitrophenol	0	0		0	1,600	1,600	2,049	
4-Nitrophenol	0	0		0	470	470	602	
p-Chloro-m-Cresol	0	0		0	500	500	640	
Pentachlorophenol	0	0		0	9.036	9.04	11.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	117	
Acenaphthene	0	0		0	17	17.0	21.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	75.6	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.13	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	7,683	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,165	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	69.2	
Butyl Benzyl Phthalate	0	0		0	35	35.0	44.8	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	205	
1,3-Dichlorobenzene	0	0		0	69	69.0	88.4	
1,4-Dichlorobenzene	0	0		0	150	150	192	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,024	
Dimethyl Phthalate	0	0		0	500	500	640	
Di-n-Butyl Phthalate	0	0		0	21	21.0	26.9	
2,4-Dinitrotoluene	0	0		0	320	320	410	
2,6-Dinitrotoluene	0	0		0	200	200	256	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.84	
Fluoranthene	0	0		0	40	40.0	51.2	

Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.56	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.28	
Hexachloroethane	0	0		0	12	12.0	15.4	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,689	
Naphthalene	0	0		0	43	43.0	55.1	
Nitrobenzene	0	0		0	810	810	1,037	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	4,354	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	75.6	
Phenanthrene	0	0		0	1	1.0	1.28	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	33.3	

☑ ***THH*** CCT (min): 0.250 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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	7.17	
Total Arsenic	0	0		0	10	10.0	12.8	
Total Barium	0	0		0	2,400	2,400	3,073	
Total Boron	0	0		0	3,100	3,100	3,970	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	5.12	
Dissolved Iron	0	0		0	300	300	384	
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	1,281	
Total Mercury	0	0		0	0.050	0.05	0.064	
Total Nickel	0	0		0	610	610	781	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.31	

Total Zinc	0	0		0	N/A	N/A	N/A		
Acrolein	0	0		0	3	3.0	3.84		
Acrylamide	0	0		0	N/A	N/A	N/A		
Acrylonitrile	0	0		0	N/A	N/A	N/A		
Benzene	0	0		0	N/A	N/A	N/A		
Bromoform	0	0		0	N/A	N/A	N/A		
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A		
Chlorobenzene	0	0		0	100	100.0	128		
Chlorodibromomethane	0	0		0	N/A	N/A	N/A		
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A		
Chloroform	0	0		0	5.7	5.7	7.3		
Dichlorobromomethane	0	0		0	N/A	N/A	N/A		
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A		
1,1-Dichloroethylene	0	0		0	33	33.0	42.3		
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A		
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A		
Ethylbenzene	0	0		0	68	68.0	87.1		
Methyl Bromide	0	0		0	100	100.0	128		
Methyl Chloride	0	0		0	N/A	N/A	N/A		
Methylene Chloride	0	0		0	N/A	N/A	N/A		
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A		
Tetrachloroethylene	0	0		0	N/A	N/A	N/A		
Toluene	0	0		0	57	57.0	73.0		
1,2-trans-Dichloroethylene	0	0		0	100	100.0	128		
1,1,1-Trichloroethane	0	0		0	10,000	10,000	12,806		
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A		
Trichloroethylene	0	0		0	N/A	N/A	N/A		
Vinyl Chloride	0	0		0	N/A	N/A	N/A		
2-Chlorophenol	0	0		0	30	30.0	38.4		
2,4-Dichlorophenol	0	0		0	10	10.0	12.8		
2,4-Dimethylphenol	0	0		0	100	100.0	128		
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.56		
2,4-Dinitrophenol	0	0		0	10	10.0	12.8		
2-Nitrophenol	0	0		0	N/A	N/A	N/A		
4-Nitrophenol	0	0		0	N/A	N/A	N/A		
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A		
Pentachlorophenol	0	0		0	N/A	N/A	N/A		
Phenol	0	0		0	4,000	4,000	5,122		
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A		
Acenaphthene	0	0		0	70	70.0	89.6		
Anthracene	0	0		0	300	300	384		
Benzidine	0	0		0	N/A	N/A	N/A		
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A		
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A		
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A		

Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	256	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.13	
2-Chloronaphthalene	0	0		0	800	800	1,024	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,281	
1,3-Dichlorobenzene	0	0		0	7	7.0	8.96	
1,4-Dichlorobenzene	0	0		0	300	300	384	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	768	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,561	
Di-n-Butyl Phthalate	0	0		0	20	20.0	25.6	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	25.6	
Fluorene	0	0		0	50	50.0	64.0	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	5.12	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	43.5	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	12.8	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	25.6	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.09	

☑ *CRL* CCT (min): 1.366 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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	

Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	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 Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylamide	0	0		0	0.07	0.07	0.25	
Acrylonitrile	0	0		0	0.06	0.06	0.21	
Benzene	0	0		0	0.58	0.58	2.04	
Bromoform	0	0		0	7	7.0	24.6	
Carbon Tetrachloride	0	0		0	0.4	0.4	1.4	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2.81	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	3.33	
1,2-Dichloroethane	0	0		0	9.9	9.9	34.7	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	3.16	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.95	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	70.2	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.7	
Tetrachloroethylene	0	0		0	10	10.0	35.1	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	

1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.93	
Trichloroethylene	0	0		0	0.6	0.6	2.11	
Vinyl Chloride	0	0		0	0.02	0.02	0.07	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.11	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	5.26	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0004	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.004	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0004	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.004	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.035	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.11	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1.12	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.42	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0004	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.18	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.18	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.18	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.11	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.035	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.35	

Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.004	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.002	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.018	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	11.6	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	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 Aluminum	3.32	4.25	750	960	960	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Arsenic	Report	Report	Report	Report	Report	µg/L	12.8	THH	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.082	0.13	18.5	28.9	46.3	µg/L	18.5	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Selenium	0.028	0.044	6.39	9.97	16.0	µg/L	6.39	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	185	AFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.001	0.002	0.25	0.38	0.61	µg/L	0.25	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Chloroform	Report	Report	Report	Report	Report	µg/L	7.3	THH	Discharge Conc > 25% WQBEL (no 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 Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Barium	3,073	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,049	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.51	µg/L	Discharge Conc < TQL
Total Chromium (III)	168	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	13.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	24.3	µg/L	Discharge Conc < TQL

Free Cyanide	5.12	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	384	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,921	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7.84	µg/L	Discharge Conc < TQL
Total Manganese	1,281	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.064	µg/L	Discharge Conc < TQL
Total Nickel	103	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Silver	9.16	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.31	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.0	µg/L	Discharge Conc < TQL
Acrylonitrile	0.21	µg/L	Discharge Conc < TQL
Benzene	2.04	µg/L	Discharge Conc < TQL
Bromoform	24.6	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1.4	µg/L	Discharge Conc < TQL
Chlorobenzene	128	µg/L	Discharge Conc < TQL
Chlorodibromomethane	2.81	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	4,482	µg/L	Discharge Conc < TQL
Dichlorobromomethane	3.33	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	34.7	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	42.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	3.16	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.95	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	87.1	µg/L	Discharge Conc < TQL
Methyl Bromide	128	µg/L	Discharge Conc < TQL
Methyl Chloride	7,043	µg/L	Discharge Conc < TQL
Methylene Chloride	70.2	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	0.7	µg/L	Discharge Conc < TQL
Tetrachloroethylene	35.1	µg/L	Discharge Conc < TQL
Toluene	73.0	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	128	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	781	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.93	µg/L	Discharge Conc < TQL
Trichloroethylene	2.11	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.07	µg/L	Discharge Conc < TQL
2-Chlorophenol	38.4	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	12.8	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	128	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.56	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	12.8	µg/L	Discharge Conc < TQL

2-Nitrophenol	2,049	µg/L	Discharge Conc < TQL
4-Nitrophenol	602	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	160	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.11	µg/L	Discharge Conc < TQL
Phenol	5,122	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	5.26	µg/L	Discharge Conc < TQL
Acenaphthene	21.8	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	384	µg/L	Discharge Conc < TQL
Benzidine	0.0004	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.004	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0004	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.004	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.035	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.11	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	256	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1.12	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	69.2	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.13	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,024	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.42	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.0004	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	205	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	8.96	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	192	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.18	µg/L	Discharge Conc < TQL
Diethyl Phthalate	768	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	640	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	25.6	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.18	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.18	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.11	µg/L	Discharge Conc < TQL
Fluoranthene	25.6	µg/L	Discharge Conc < TQL
Fluorene	64.0	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.035	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	1.28	µg/L	Discharge Conc < TQL
Hexachloroethane	0.35	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.004	µg/L	Discharge Conc < TQL
Isophorone	43.5	µg/L	Discharge Conc < TQL
Naphthalene	55.1	µg/L	Discharge Conc < TQL

Nitrobenzene	12.8	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.002	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.018	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	11.6	µg/L	Discharge Conc < TQL
Phenanthrene	1.28	µg/L	Discharge Conc < TQL
Pyrene	25.6	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.09	µg/L	Discharge Conc < TQL

ATTACHMENT B

TRC Modeling Results

TRC EVALUATION – Outfall 001

0.23	= Q stream (cfs)	0.5	= CV Daily
0.53	= Q discharge (MGD)	0.5	= CV Hourly
4	= 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)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	0.108	**1.3.2.iii**	WLA cfc =	0.098
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.040	**5.1d**	LTA_cfc =	0.057

Source	Reference	Effluent Limit Calculations		
PENTOXSD TRG	**5.1f**	AML MULT =	1.720	
PENTOXSD TRG	**5.1g**	AVG MON LIMIT (mg/l) =	0.070	AFC
		INST MAX LIMIT (mg/l) =	0.163	

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)**

ATTACHMENT C

Temperature Modeling Results for Outfall 001

Facility: Colver Green Energy
Permit Number: PA0204269
Stream Name: Elk Creek
Analyst/Engineer: Ryan Decker
Stream Q7-10 (cfs): 0.23

PMF
1.000

	Facility Flows				**Stream Flows**		
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	1.728	1.198	0.53	0.74	0.74	1.56
Feb 1-29	0	1.728	1.198	0.53	0.81	0.81	1.62
Mar 1-31	0	1.728	1.198	0.53	1.61	1.61	2.43
Apr 1-15	0	1.728	1.198	0.53	2.14	2.14	2.96
Apr 16-30	0	1.728	1.198	0.53	2.14	2.14	2.96
May 1-15	0	1.728	1.198	0.53	1.17	1.17	1.99
May 16-30	0	1.728	1.198	0.53	1.17	1.17	1.99
Jun 1-15	0	1.728	1.198	0.53	0.69	0.69	1.51
Jun 16-30	0	1.728	1.198	0.53	0.69	0.69	1.51
Jul 1-31	0	1.728	1.198	0.53	0.39	0.39	1.21
Aug 1-15	0	1.728	1.198	0.53	0.32	0.32	1.14
Aug 16-31	0	1.728	1.198	0.53	0.32	0.32	1.14
Sep 1-15	0	1.728	1.198	0.53	0.25	0.25	1.07
Sep 16-30	0	1.728	1.198	0.53	0.25	0.25	1.07
Oct 1-15	0	1.728	1.198	0.53	0.28	0.28	1.10
Oct 16-31	0	1.728	1.198	0.53	0.28	0.28	1.10
Nov 1-15	0	1.728	1.198	0.53	0.37	0.37	1.19
Nov 16-30	0	1.728	1.198	0.53	0.37	0.37	1.19
Dec 1-31	0	1.728	1.198	0.53	0.55	0.55	1.37

Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017

NOTE: The user can only edit fields that are blue.

NOTE: MGD x 1.547 = cfs.

Facility: **Colver Green Energy**
Permit Number: PA0204269
Stream: Elk Creek

	WWF Criteria (ºF)	**CWF Criteria** (ºF)	**TSF Criteria** (ºF)	**316 Criteria** (ºF)	**Q7-10 Multipliers** (Used in Analysis)	**Q7-10 Multipliers** (Default - Info Only)
Jan 1-31	40	38	40	0	3.2	3.2
Feb 1-29	40	38	40	0	3.5	3.5
Mar 1-31	46	42	46	0	7	7
Apr 1-15	52	48	52	0	9.3	9.3
Apr 16-30	58	52	58	0	9.3	9.3
May 1-15	64	54	64	0	5.1	5.1
May 16-31	72	58	68	0	5.1	5.1
Jun 1-15	80	60	70	0	3	3
Jun 16-30	84	64	72	0	3	3
Jul 1-31	87	66	74	0	1.7	1.7
Aug 1-15	87	66	80	0	1.4	1.4
Aug 16-31	87	66	87	0	1.4	1.4
Sep 1-15	84	64	84	0	1.1	1.1
Sep 16-30	78	60	78	0	1.1	1.1
Oct 1-15	72	54	72	0	1.2	1.2
Oct 16-31	66	50	66	0	1.2	1.2
Nov 1-15	58	46	58	0	1.6	1.6
Nov 16-30	50	42	50	0	1.6	1.6
Dec 1-31	42	40	42	0	2.4	2.4

Notes:
WWF = Warm water fishes
CWF = Cold water fishes
TSF = Trout stocking

Facility: **Colver Green Energy**
Permit Number: PA0204269
Stream: Elk Creek

PMF
1.00

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	**WWF** Daily WLA[2] (Million BTUs/day)	**WWF** Daily WLA[3] (ºF)	at Discharge Flow (MGD)
Jan 1-31	34	0	38	N/A -- Case 2	41.6	0.53
Feb 1-29	35	0	38	N/A -- Case 2	40.9	0.53
Mar 1-31	39	0	42	N/A -- Case 2	47.9	0.53
Apr 1-15	46	0	48	N/A -- Case 2	53.2	0.53
Apr 16-30	52	0	53	N/A -- Case 2	55.6	0.53
May 1-15	55	0	56	N/A -- Case 2	57.4	0.53
May 16-31	59	0	60	N/A -- Case 2	61.4	0.53
Jun 1-15	63	0	64	N/A -- Case 2	64.8	0.53
Jun 16-30	67	0	68	N/A -- Case 2	68.8	0.53
Jul 1-31	71	0	72	N/A -- Case 2	72.5	0.53
Aug 1-15	70	0	71	N/A -- Case 2	71.4	0.53
Aug 16-31	70	0	71	N/A -- Case 2	71.4	0.53
Sep 1-15	66	0	67	N/A -- Case 2	67.3	0.53
Sep 16-30	60	0	61	N/A -- Case 2	61.3	0.53
Oct 1-15	55	0	56	N/A -- Case 2	56.3	0.53
Oct 16-31	51	0	52	N/A -- Case 2	52.3	0.53
Nov 1-15	46	0	47	N/A -- Case 2	47.4	0.53
Nov 16-30	40	0	42	N/A -- Case 2	42.9	0.53
Dec 1-31	35	0	40	N/A -- Case 2	43.4	0.53

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.

[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.

[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.