Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0110990**
Facility Type	**Industrial**	APS ID	**1118232**
Major / Minor	**Minor**	Authorization ID	**1492999**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Central City Water Authority**	Facility Name	**Central City Water Authority Water System**
Applicant Address	314 Central Avenue Suite 203	Facility Address	237 Shade Street
	Central City, PA 15926-1100		Central City, PA 15926-1164
Applicant Contact	Darlene Custer	Facility Contact	Randy Kiser
Applicant Phone	(814) 754-4111	Facility Phone	(814) 754-4111
Client ID	39719	Site ID	4155
SIC Code	4941	Municipality	Shade Township
SIC Description	Trans. & Utilities - Water Supply	County	Somerset
Date Application Received	July 23, 2024	EPA Waived?	Yes
Date Application Accepted	July 23, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal

Summary of Review

The Department received a NPDES permit application for renewal coverage of the Central City Water Authority Water System on 7/23/2024. The prior permit was issued on 2/4/2020 with an effective date of 3/1/2020 and an expiration date of 2/28/2025.

Central City Water Authority Water System is a potable water treatment plant (WTP) that operates for about 8-10 hours per day. Raw groundwater is treated through valveless gravity filtration units, potassium permanganate added for iron removal, and liquified chlorine gas added for disinfection before being sent to the clearwell for distribution. A line drawing of the WTP wastewater stream is shown in Figure 1. The filtration units automatically backwash based on head loss and send batches of backwash wastewater into an unlined sedimentation basin (“surge lagoon” in Figure 1). The wastewater leaves the basin through a 4” gravity pipe that feeds parallel sets of two 2,000-gallon settling tanks in series (four 2,000-gallon tanks in total). Supernatant from the settling tanks is dechlorinated using sodium sulfate tablets and discharged via Outfall 001 at an average rate of 0.003 MGD but has been recorded reaching the maximum design flow of 0.024 MGD twice in the past two years. The Outfall 001 structure (Figure 2) consists of two PVC pipes connecting respectively to the parallel sets of settling tanks. Sludge from the basin and tanks is removed and disposed of at Mostoller Landfill.

Tributary 45350 to Dark Shade Creek was used as the receiving waters in the previous permit renewal in 2020, but Outfall 001 is separated from this tributary by surrounding topography. The point of discharge for Outfall 001 is an unnamed tributary to Dark Shade Creek in a shallow topographic depression that runs approximately 0.26-miles from the WTP to Dark Shade Creek. This tributary is not found in Department records nor the National Hydrography Dataset. A phone call on 9/5/2024 with Randy Kiser, Plant Operator, confirmed that ephemeral flow occurs during wet weather, but typically the only observable flow is from Outfall 001. Since the channel is an ephemeral stream, flow from Outfall 001 will be modeled as a

Approve	Deny	Signatures	Date
x		Jace William Marsh / Environmental Engineering Specialist	September 4, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	September 24, 2024

Summary of Review

direct discharge to the nearby point of first use: Dark Shade Creek. Dark Shade Creek has a 25 PA Code Chapter 93 Cold Water Fishes designation and is impaired for siltation from site clearance (land development or redevelopment) and pH & metals from acid mine drainage at the point of discharge. Given the nature of the facility as a WTP, no pollutant concentrations in the supernatant discharge should be high enough to pose any meaningful threat to groundwater quality as infiltration occurs over the 0.26-mile channel distance to Dark Shade Creek.

The emergency overflow from the clearwell is included in the draft permit as Outfall 002. While not listed in the application, its existence was gleaned from captioned photos in the report from a recent inspection mentioned in the following paragraph and was not been included in past permit coverage. Same as above, receiving waters will be considered Dark Shade Creek.

The permittee has no open violations. A NPDES compliance evaluation inspection was performed by Lisa Milsop on 4/5/2021 with no violations noted. The permittee has not exceeded their current effluent limits in at least the past two years.

Effluent limits for Outfall 001 in the draft permit originate from DEP Best Practicable Technology Currently Available (BPT) effluent limits for wastewater from treatment of WTP sludge and filter backwash and the Kiskiminetas-Conemaugh River Watersheds TMDL. Outfall 002 effluent limits are derived from DEP potable water discharge guidelines and the Kiskiminetas-Conemaugh River Watersheds TMDL.

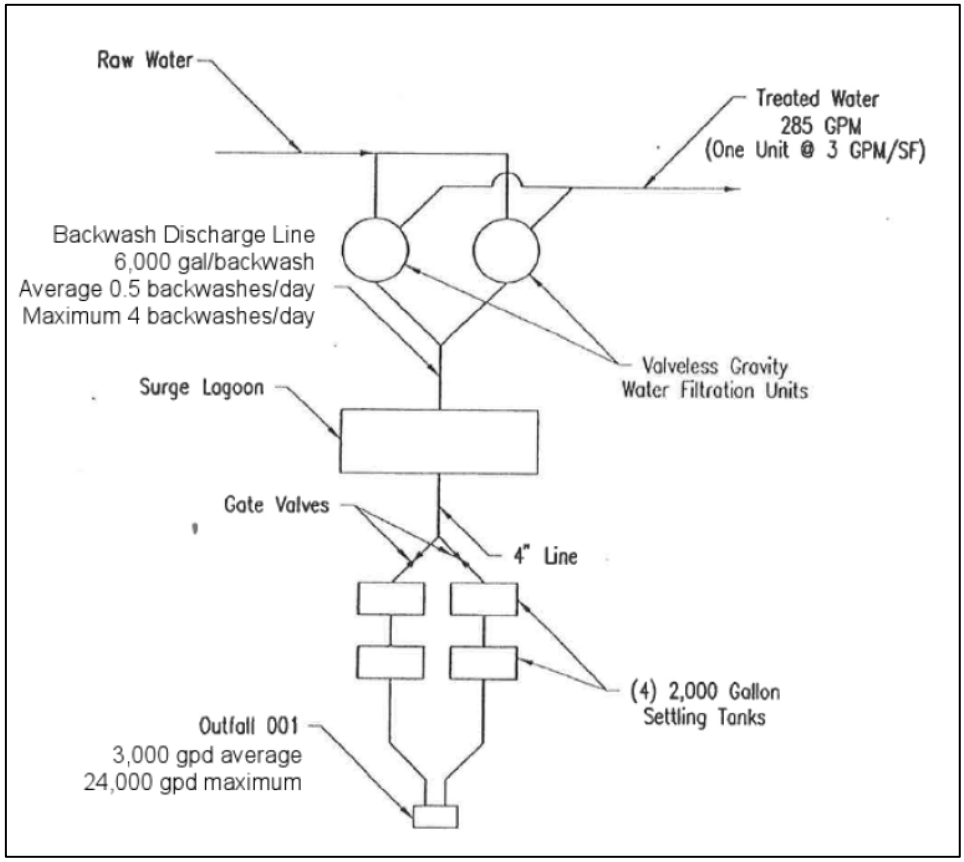

Figure 1. Central City Water Authority Water System wastewater stream

Summary of Review

Figure 2. Outfall 001 structure showing the two discharge pipes

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)	0.024
Latitude	40º 06' 34"	Longitude	-78º 47' 42.5"
Quad Name	Central City	Quad Code	1815
Wastewater Description:	Supernatant from filter backwash water settling tanks		
Receiving Waters	Dark Shade Creek (CWF)	Stream Code	45330
NHD Com ID	123716616	RMI	3.48
Drainage Area	11.8 mi^2	Yield (cfs/mi^2)	0.0713
Q_{7-10} Flow (cfs)	0.841	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	2161	Slope (ft/ft)	0.08 (mean basin slope)
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, pH, and metals		
Source(s) of Impairment	Site clearance (land development or redevelopment), acid mine drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	311	Distance from Outfall (mi)	>50 miles

Changes Since Last Permit Issuance: Receiving waters were previously Tributary 45350 to Dark Shade Creek which was incorrect and upstream of the facility separated by topography. Saltsburg Municipal Waterworks intake on the Conemaugh River is now inactive.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	n/a
Latitude	40º 06' 33.7"	Longitude	-78º 47' 42.03"
Quad Name	Central City	Quad Code	1815
Wastewater Description:	Emergency overflow from clearwell		
Receiving Waters	Dark Shade Creek (CWF)	Stream Code	45330
NHD Com ID	123716616	RMI	3.48
Drainage Area	11.8 mi^2	Yield (cfs/mi^2)	0.0713
Q_{7-10} Flow (cfs)	0.841	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	2161	Slope (ft/ft)	0.08 (mean basin slope)
Watershed No.	18-E	Chapter 93 Class.	CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, pH, and metals		
Source(s) of Impairment	Site clearance (land development or redevelopment), acid mine drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2390
PWS RMI	311	Distance from Outfall (mi)	>50 miles

Comment: This outfall is existing but was not been included in past permit coverage.

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	.02
Latitude	40º 06' 34"	**Longitude**	-78º 47' 42.5"

Wastewater Description: Supernatant from filter backwash water settling tanks

001.A. Technology-Based Effluent Limitations (TBEL)

Federal Effluent Limitation Guidelines

Central City Water Authority Water System is not subject to Federal Effluent Limitation Guidelines (ELGs).

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant with 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 1 below.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 1 below.

Pursuant to 25 Pa. Code § 92a.48(b) the imposition of technology-based Total Residual Chlorine (TRC) limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELG's or a facility specific BPJ evaluation as indicated in Table 1 below.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max	Instantaneous Max
Flow (MGD)	Monitor	Monitor	----
Iron, Dissolved	----	----	7.0 mg/L
pH (S.U.)	Wastes must have a pH of not less than 6.0 nor greater than 9.0		
Total Residual Chlorine	0.5 mg/L	----	----

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010, are exempt. The facility is not a new or expanding waste loading of TDS and therefore exempt from 25 Pa. Code § 95.10 treatment requirements.

Best Practicable Control Technology Currently Achievable (BPT)

The Department's reference document *Technology-Based Control Requirements for Water Treatment Plant Wastes* (DEP-ID 362-2183-003) established BPT for discharges of WTPs wastewater, which are shown in Table 2 below.

Table 2. BPT Limits for WTP Filter Backwash Wastewater

Parameter	Monthly Avg (mg/L)	Daily Max (mg/L)
Total Suspended solids (TSS)	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow	Monitor	----
pH (S.U.)	6-9 at all times	
Total Residual Chlorine	0.5	1.0

001.B. Water Quality-Based Effluent Limitations (WQBEL)

Total Maximum Daily Load (TMDL)

Wastewater discharges from the Central City Water Authority Water System are located within the Kiskiminetas-Conemaugh River Watersheds for which the Department has developed a TMDL. The TMDL was finalized on January 29, 2010 and establishes waste load allocations for the discharge of aluminum, iron and manganese within the Kiskiminetas-Conemaugh River Watersheds. Central City Water Authority Water System's permit, PA0110990, is listed in Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations and is displayed below in Table 3. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (codified at Title 40 of the Code of Federal Regulations Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Kiskiminetas-Conemaugh River Watersheds are included in the state's 2008 Section 303(d) list because of various impairments, including metals, pH and sediment. The TMDL includes consideration for each river and tributary within the target watershed and its impairment sources. Stream data is then used to calculate minimum pollutant reductions that are necessary to attain water quality criteria levels. Target concentrations published in the TMDL were based on established water quality criteria of 0.750 $^{mg}/_{L}$ total recoverable aluminum, 1.5 $^{mg}/_{L}$ total recoverable iron based on a 30-day average and 1.0 $^{mg}/_{L}$ total recoverable manganese. The reduction needed to meet the minimum water quality standards is then divided between each known point and non-point pollutant source in the form of a watershed allocation. TMDLs prescribe allocations that minimally achieve water quality criteria (i.e., 100 percent use of a stream's assimilative capacity).

Table 3. Kiskiminetas-Conemaugh River Watershed TMDL PA0110990 Load Allocations

Kiskiminetas River Watershed Major Non-Mining Wasteload Allocations

Region	SWS	PERMIT	PIPE	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
6	4167	PA0110990	001	Aluminum	244	4.00	46	0.75	81
6	4167	PA0110990	001	Iron	122	2.00	91	1.50	25
6	4167	PA0110990	001	Manganese	61	1.00	61	1.00	0
6	4167	PA0110990	002	Aluminum	3	0.75	3	0.75	0
6	4167	PA0110990	002	Iron	6	1.50	6	1.50	0
6	4167	PA0110990	002	Manganese	4	1.00	4	1.00	0

Aluminum: The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93.8(c). Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL. Accordingly, TMDL aluminum limits are proposed for Outfall 001 at 0.75 mg/L for both the AML and MDL.

Iron: The specific water quality criterion for iron is expressed as a 30-day average of 1.5 $^{mg}/_{L}$ in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers. The 2x multiplier was chosen for the MDL. Accordingly, TMDL iron limits are proposed for Outfall 001 at 1.5 mg/L for the AML and 3.0 mg/L for the MDL.

Manganese: The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply. Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 1 on Page 10 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL may be made less stringent according to procedures explained in the "Iron" section above. Accordingly, TMDL manganese limits are proposed for Outfall 001 at 1.0 mg/L for the AML and 2.0 mg/L for the MDL.

Table 4. TMDL Limits for Outfall 001

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

Toxics Management Spread Sheet

The Department of Environmental Protection has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The TMS is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The TMS is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the TMS recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the TMS. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the TMS. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion. The TMS is run with the discharge and receiving stream characteristics shown in Table 5. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL.

The maximum design discharge flow of 0.024 MGD was used. No WQBELs were recommended. The Output from the TMS is included in Attachment B.

Table 5. TMS Inputs for Outfall 001

Discharge Information	
Parameter	**Value**
River Mile Index	3.48
Discharge Flow (MGD)	0.024
Basin/Stream Information	
Parameter	**Value**
Drainage Area (mi^2)	11.8
Q_{7-10} (cfs)	0.841
Low-flow yield (cfs/mi^2)	0.0713
Elevation (ft)	2163

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 discharge chlorine demands for the receiving stream, 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 then proposed. The results of the modeling, included in Attachment C, indicate that average monthly limits of 0.5 mg/L and daily maximum limits of 1.17 mg/L are required for TRC.

Table 6. TRC limits from TRC_CALC

Parameter	Monthly Average (mg/L)	Daily Max (mg/L)
Total Residual Chlorine	0.5	1.17

001.C. Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l), and are displayed below in Table 5.

Table 7. Effluent limitations from previous permit

Parameter	Mass (pounds)		Concentration (mg/L)			Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	IMAX	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	—	2/month	Calculation
Total Residual Chlorine	—	—	0.27	—	0.64	2/month	Grab
Total Suspended Solids	—	—	30.0	60.0	—	2/month	Grab
Total Iron	—	—	1.5	3.0	—	2/month	Grab
Total Aluminum	—	—	0.75	0.75	—	2/month	Grab
Total Manganese	—	—	1.0	2.0	—	2/month	Grab
Hexavalent Chromium	—	—	Report	Report	—	2/month	Grab
pH (S.U.)	—	—	6.0-9.0			2/month	Grab

001.D. Proposed Effluent Limitations and Monitoring Requirements

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 8. Flow shall be measured as total flow from both pipes at the Outfall 001 structure and the grab sample shall be a composite consisting of the equal parts volume from both pipes.

Table 8. Effluent limits and monitoring requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/month	Measure
Total Residual Chlorine	—	—	0.5	1.0	2/month	Grab-Composite
Total Suspended Solids	—	—	30.0	60.0	2/month	Grab-Composite
Total Iron	—	—	1.5	3.0	2/month	Grab-Composite
Total Aluminum	—	—	0.75	0.75	2/month	Grab-Composite
Total Manganese	—	—	1.0	2.0	2/month	Grab-Composite
pH (S.U.)	—	—	6.0-9.0		2/month	Grab-Composite

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	n/a
Latitude	40º 06' 33.7"	**Longitude**	-78º 47' 42.03"

Wastewater Description: Emergency overflow from clearwell

002.A. Technology-Based Limitations

As discussed in section 001.A and shown in Table 9, TRC limitations and flow monitoring are imposed pursuant to 25 Pa. Code § 92a.48(b) and 25 Pa. Code § 92a.61(d)(1). Dissolved Iron and pH, included in section 001.A., are not included since this discharge is potable water which should already be compliant with industrial waste limitations set by 25 Pa. Code § 95.2.

Table 9. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max
Flow (MGD)	Monitor	Monitor
Total Residual Chlorine	0.5 mg/L	----

002.B. Water Quality-Based Limitations

No effluent quality data is available for a water quality analysis. Additionally, no water quality analysis is required for the discharge from this outfall because the discharge is finished potable water. The Department authorizes potable water discharges that do not contain measurable concentrations of Total Residual Chlorine. Therefore, a daily maximum limitation equal to the Department's quantitation limit will be imposed: 0.02 mg/L.

Total Maximum Daily Load (TMDL)

A historic stormwater discharge known as Outfall 002 was included in the Kiskiminetas-Conemaugh River Watersheds TMDL for this permit, but that outfall no longer exists. TMDL limits like in section 001.B. will not be imposed on Outfall 002 since this discharge is potable water and should already be compliant with TMDL metals concentration goals.

002.C. Proposed Effluent Limitations and Monitoring Requirements

Effluent limits applicable at Outfall 002 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 10.

Table 10. Effluent limits and monitoring requirements for Outfall 002

Parameter	Mass (pounds)		Concentration (mg/L)		Samples	
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	—	—	2/discharge	Measure
Total Residual Chlorine	—	—	—	0.02	2/discharge	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment B)
☒	TRC Model Spreadsheet (see Attachment C)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 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: Establishing Effluent Limits for Individual Industrial Permits (BCW-PMT-032)
☒	Other: USGS StreamStats (see Attachment A)

Attachment A:
USGS StreamStats at Point of Discharge

StreamStats Report: Central City Water Authority Water System PA0110990

Region ID: PA
Workspace ID: PA20240905151252715000
Clicked Point (Latitude, Longitude): 40.10809, -78.80019
Time: 2024-09-05 11:13:21 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.8095	degrees
DRNAREA	Area that drains to a point on a stream	11.8	square miles
ELEV	Mean Basin Elevation	2586	feet
PRECIP	Mean Annual Precipitation	43	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	11.8	square miles	2.33	1720
ELEV	Mean Basin Elevation	2586	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

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

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.84	ft^3/s	43	43
30 Day 2 Year Low Flow	2.51	ft^3/s	38	38
7 Day 10 Year Low Flow	0.841	ft^3/s	54	54

Attachment B:
Toxics Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Central City Water Authority Water System** NPDES Permit No.: **PA0110990** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW Process Effluent without ELG**

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
0.024	54.9	7.16						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		94									
	Chloride (PWS)	mg/L		9.8									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		8.2									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L		400									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		287									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	2									
	Hexavalent Chromium	µg/L	<	20									
	Total Cobalt	µg/L	<	5									
	Total Copper	mg/L		0.0015									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	20									
	Dissolved Iron	µg/L		280									
	Total Iron	µg/L		1340									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		1440									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		0.6									
	Total Phenols (Phenolics) (PWS)	µg/L	<	20									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	mg/L		0.0073									
	Total Molybdenum	µg/L	<	20									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										

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

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

Stream / Surface Water Information

Central City Water Authority Water System, NPDES Permit No. PA0110990, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Dark Shade Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	045330	3.48	2163	11.8			Yes
End of Reach 1	045330	2.54	2155	12.2			Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	3.48	0.0713										100	7		
End of Reach 1	2.54	0.0712													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	3.48														
End of Reach 1	2.54														

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All | ( ) Inputs | ( ) Results | ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 15 PMF: 0.830 Analysis Hardness (mg/l): 97.722 Analysis pH: 7.01

Pollutants	Stream Conc	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	14,851	
Total Antimony	0	0		0	1,100	1,100	21,782	
Total Arsenic	0	0		0	340	340	6,733	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	415,832	
Total Boron	0	0		0	8,100	8,100	160,392	
Total Cadmium	0	0		0	1.969	2.08	41.3	Chem Translator of 0.945 applied
Total Chromium (III)	0	0		0	559.113	1,769	35,036	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	323	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,881	
Total Copper	0	0		0	13.151	13.7	271	Chem Translator of 0.96 applied
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	62.981	79.3	1,570	Chem Translator of 0.794 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	32.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	459.198	460	9,111	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	3.092	3.64	72.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,287	
Total Zinc	0	0		0	114.915	118	2,327	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 21.789 PMF: 1 Analysis Hardness (mg/l): 98.094 Analysis pH: 7.01

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	5,205	
Total Arsenic	0	0		0	150	150	3,549	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	97,008	
Total Boron	0	0		0	1,600	1,600	37,857	
Total Cadmium	0	0		0	0.243	0.27	6.31	Chem Translator of 0.91 applied
Total Chromium (III)	0	0		0	72.955	84.8	2,007	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	246	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	450	
Total Copper	0	0		0	8.810	9.18	217	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	35,491	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.464	3.1	73.5	Chem Translator of 0.794 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	21.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.167	51.3	1,214	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	118	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	308	
Total Zinc	0	0		0	116.228	118	2,789	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 21.789 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	132	
Total Arsenic	0	0		0	10	10.0	237	
Total Barium	0	0		0	2,400	2,400	56,785	
Total Boron	0	0		0	3,100	3,100	73,348	
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	
Dissolved Iron	0	0		0	300	300	7,098	
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	23,661	
Total Mercury	0	0		0	0.050	0.05	1.18	
Total Nickel	0	0		0	610	610	14,433	
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	5.68	
Total Zinc	0	0		0	N/A	N/A	N/A	

☐ ***CRL*** CCT (min): 6.315 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	
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	

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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

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	Discharge Conc < TQL
Total Aluminum	9,519	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	56,785	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	37,857	µg/L	Discharge Conc < TQL
Total Cadmium	6.31	µg/L	Discharge Conc < TQL
Total Chromium (III)	2,007	µg/L	Discharge Conc < TQL
Hexavalent Chromium	207	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	450	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	0.17	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	7,098	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	35,491	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	73.5	µg/L	Discharge Conc < TQL
Total Manganese	23,661	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.18	µg/L	Discharge Conc < TQL
Total Nickel	1,214	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	118	µg/L	Discharge Conc < TQL
Total Silver	46.2	µg/L	Discharge Conc < TQL
Total Thallium	5.68	µg/L	Discharge Conc < TQL
Total Zinc	1.49	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

Attachment C:
TRC Model Spreadsheet

TRC EVALUATION

0.841	= Q stream (cfs)	0.5	= CV Daily
0.024	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.995	= 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 = 7.209	**1.3.2.iii**	WLA cfc = 7.056
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 2.686	**5.1d**	LTA_cfc = 4.102

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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)**