pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0216399**
Facility Type	**Industrial**	APS ID	**597798**
Major / Minor	**Minor**	Authorization ID	**1246966**

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

Applicant and Facility Information

Applicant Name	**Conemaugh Township Municipal Authority**	Facility Name	**Conemaugh Township Municipal Authority WTP**
Applicant Address	113 S Main Street Davidsville, PA 15928-9401	Facility Address	State Road 985 & Township Road 534 Davidsville, PA 15928-0429
Applicant Contact	Charles Carrico	Facility Contact	Zachary Teeter
Applicant Phone	(814) 479-7651	Facility Phone	(814) 659-6493
Applicant Email	info@ctmawater.com	Facility Email	Same as Applicant
Client ID	63929	Site ID	4157
SIC Code	4952	Municipality	Jenner Township
SIC Description	Trans. & Utilities - Sewerage Systems	County	Somerset
Date Application Received	October 1, 2018	EPA Waived?	Yes
Date Application Accepted	November 28, 2018	If No, Reason	
Purpose of Application	NPDES permit renewal coverage		

Summary of Review

The Department received an NPDES permit renewal application from the Conemaugh Township Municipal Water Authority (CTMA) for their Water Treatment Plant (WTP) in Jenner Township on October 1, 2018. The facility is a potable public water treatment plant with a SIC code of 4941, Water Supply. This permit technically expired before the renewal application was received. The Department and CTMA entered into a Consent Assessment of Civil Penalty (CACP) on December 13, 2021 to address the late permit application and effluent limitation exceedances. In July 2014, the Department approved an amendment to CTMA's WQM Part II permit (5695203 A-1). On November 8, 2021, CTMA's consultant confirmed that this approved change has not be implemented. Consequently, there have been no major documented changes to the site or its operations since the last permit issuance.

The CTMA WTP purifies raw water withdrawn from their reservoir for potable public consumption. Potable water treatment includes passage through one or more slow sand filtration units followed by the addition of chlorine before collection in a clear well. From there it is stored in one of two water storage tanks before it proceeds to the CTMA distribution system.

Backwash from the sand filters is conveyed to one of two (2), 500 gallon holding/settling tanks. A polymer-based coagulant is added to the sand filter rinse water prior to entering these settling tanks. Solids settled in these tanks are periodically removed and hauled away for offsite disposal. The decant water from the basins is discharged via Outfall 002

The site has three outfalls. Outfall 001 is the emergency reservoir replenishment during dry weather from CTMA's Well #1 which is located to the south of the reservoir. It was not documented when this outfall last discharged, but it is believed to have been years ago. When Outfall 001 does discharge, it is to the reservoir on the South Fork Bens Creek, designated in 25 PA Code Chapter 93 as an Exceptional Value Waters (EV). Outfall 002 discharges treated filter backwash supernatant,

Approve	Deny	Signatures	Date
X		Adam Olesnanik, P.E. / Environmental Engineer	June 17, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	June 25, 2024

Summary of Review

as mentioned above. Outfall 003 is for coverage of intermittent discharges from the filters as well as from the facility's foundation drains. Outfall 002 and 003 both discharge to an unnamed tributary to South Fork Bens Creek, designated in 25 PA Code Chapter 93 as a High-Quality Cold-Water Fishery (HQ-CWF).

The site discharges to HQ and EV waters, therefore an anti-degradation evaluation must be considered. A this point in time; CTMA is not proposing any new or expanding discharges; therefore, an anti-degradation evaluation is not required.

The site was last inspected on February 20, 2024, one violation was noted. The violation was for exceedances of effluent limits in Part A of the NPDES permit but the violation has since been resolved. The Permittee has nine (9) open violations with the Southwest Regional Office Safe Drinking Water Program.

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)	0.6192
Latitude	40º 14' 14"	Longitude	-79º 04' 19"
Quad Name	Boswell	Quad Code	1713
Wastewater Description:	IW Process Effluent without ELG (Emergency Reservoir Replenishment from Groundwater)		

Receiving Waters	South Fork Bens Creek (EV)	Stream Code	45132
NHD Com ID	123715769	RMI	9.5
Drainage Area	1.39	Yield (cfs/mi^2)	0.08
Q_{7-10} Flow (cfs)	0.118	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	2049	Slope (ft/ft)	0.07
Watershed No.	18-E	Chapter 93 Class.	EV
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Nearest Downstream Public Water Supply Intake	Conemaugh Township Municipal Authority (Secondary Reservoir)		
PWS Waters	South Fork Bens Creek	Flow at Intake (cfs)	0.17
PWS RMI	9.0	Distance from Outfall (mi)	0.5

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0.048
Latitude	40º 14' 03"	Longitude	-79º 04' 00"
Quad Name	Boswell	Quad Code	1713
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary to South Fork Bens Creek (HQ-CWF)	Stream Code	45176
NHD Com ID	123715772	RMI	0.02
Drainage Area	0.39	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	0.024	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1920	Slope (ft/ft)	0.05
Watershed No.	18-E	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Conemaugh Township Municipal Authority (Secondary Reservoir)		
PWS Waters	South Fork Bens Creek	Flow at Intake (cfs)	0.17
PWS RMI	9.0	Distance from Outfall (mi)	0.2

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0.021
Latitude	40º 14' 03"	Longitude	-79º 04' 00"
Quad Name	Boswell	Quad Code	1713
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary to South Fork Bens Creek (HQ-CWF)	Stream Code	45176
NHD Com ID	123715772	RMI	0.02
Drainage Area	0.39	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	0.024	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1920	Slope (ft/ft)	0.05
Watershed No.	18-E	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Conemaugh Township Municipal Authority (Secondary Reservoir)		
PWS Waters	South Fork Bens Creek	Flow at Intake (cfs)	0.17
PWS RMI	9.0	Distance from Outfall (mi)	0.2

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .6192
Latitude 40º 14' 14.00" **Longitude** -79º 04' 19.00"
Wastewater Description: IW Process Effluent without ELG (Emergency Reservoir Replenishment from groundwater)

Technology-Based Limitations

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of WTP sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which is imposed under Best Professional Judgement under 40 CFR § 125.3. The effluent limitations from this document are displayed below in Table 1.

Table 1: BPT Limits for WTP Sludge and Filter Backwash Wastewater

Parameter	Monthly Avg (mg/l)	Daily Max (mg/l)
Suspended solids	30.0	60.0
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow (MGD)	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 2 below.

Effluent standards for pH are imposed in accordance with 25 Pa. Code §§ 95.2(1) which is displayed in Table 2 below.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation which is displayed in Table 2 below

Table 2: Regulatory Effluent Standards and Monitoring Requirements for Outfall 001

Parameter	Monthly Average	Daily Maximum	Units
Flow	Monitor and Report		MGD
Total Residual Chlorine (TRC)	0.5	1.6	mg/L
pH	Not less than 6.0 nor greater than 9.0		S.U.

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) 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 Toxics Management Spreadsheet 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 Toxics Management Spread Sheet 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 Toxics Management Spread sheet 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 Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. 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 is 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 Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 3. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. 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 information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment B of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 4.

Table 3: TMS Inputs for Outfall 001

Parameter	**Value**
River Mile Index	9.5
Discharge Flow (MGD)	0.6192
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	1.39
Q_{7-10} (cfs)	0.118
Low-flow yield (cfs/mi^2)	0.08
Elevation (ft)	2049
Slope	0.07

Table 4: Water Quality Based Effluent Limitations at Outfall 001

Parameters	Average Monthly	Daily Maximum	Discharge Concentration	Department's QLs
Hexavalent Chromium (µg/L)	11.7	18.2	< 20.0	1.0
Total Nickel (µg/L)	Report	Report	< 5.0	4.0
Total Selenium (µg/L)	5.6	8.74	< 7.0	5.0
Total Silver (µg/L)	0.2	0.22	< 1.0	0.4

Table 4: Water Quality Based Effluent Limitations at Outfall 001

Parameters	Average Monthly	Daily Maximum	Discharge Concentration	Department's QLs
Total Zinc (µg/L)	Report	Report	7.53	-

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 results of the modeling, included in Attachment C, indicate that WQBELs are required for TRC. Outfall 001 will receive an average monthly limitation of 0.037 mg/L and a daily maximum limitation of 0.087 mg/L for TRC.

Total Maximum Daily Loads for Outfall 001

The Conemaugh Township Municipal Authority Water Treatment Plant is within the watershed area covered by the Kiskiminetas-Conemaugh Watershed TMDL, approved as final by EPA in 2010. This TMDL addresses certain impairments of water quality standards associated with elevated instream concentrations of iron, aluminum, and manganese. A pH impairment is addressed through a surrogate relationship with these metals. This TMDL establishes wasteload allocations for these metals for point sources, and load allocations for these metals for nonpoint sources in the watershed. DEP must assure that any effluent limitations assigned to point sources are consistent with the assumptions and requirements of any available wasteload allocation for the discharge pursuant to 40 CFR 130.7 (i.e., a final TMDL). The site's permit PA0216399 is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations. Wasteload allocations were delegated for Outfalls 001 and 002. These wasteload allocations are equivalent to the listed concentration limits under various flow scenarios. In this case, the concentration limits are proposed rather than the mass load limits to simplify compliance assessments. The effluent limits from the TMDL for Outfall 001 are displayed below in Table 5.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. 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.

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 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 (PWS). 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 and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively).

Table 5 – TMDL Limits for Outfall 001

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L
Iron, total	1.5	3.0	mg/L
Manganese, total	1.0	2.0	mg/L

Anti-Degradation

Outfall 001 discharge to South Fork Bens Creek, designed as an Exceptional Value stream, therefore, anti-degradation must be considered. However, at this time, Conemaugh Township Municipal Authority is not proposing any additional or increased discharges from its facility at this time; therefore, a non-degrading limitation evaluation will not be performed.

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 6.

Table 6: Current Effluent Limitation for Outfall 001

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	XXX	60.0	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	XXX	1.0	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	XXX	1.5	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	XXX	3.0	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	XXX	2.0	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Proposed Effluent Limitations for Outfall 001

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Tables 7 and 8. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been labeled as Daily Max, this has been changed to reflect what the guidance document states. Based on the limitation development above, the Outfall will receive new WQBELs. At this time Conemaugh Township Municipal Authority may not be able to achieve these new WQBELs upon permit issuance; therefore, in accordance with 25 Pa. Code § 92a.51(a) of DEP's regulations, the Department is granting a three-year compliance schedule for the permittee to come into compliance with the new limits. Monitor and report requirements will be imposed for the new parameters during the interim period and the current effluent limitation will be imposed for existing parameters during the interim period; and the final WQBELs will be imposed three years after the permit effective date. Please note that total silver is subject to water quality-based effluent limits (WQBELs) that are necessary to comply with state water quality standards, but may be less than quantitation limits (QLs), as defined in 25 Pa. Code § 252.1, that are generally achievable by conventional analytical technology. The permittee shall analyze the parameter using methods that will achieve the Department Target QL. For the purpose of compliance, a statistical value reported on the DMR that is less than the QL (i.e., "non-detect") will be considered to be in compliance. Additionally, Outfall 001 received new WQBELs for Hexavalent Chromium, Total Selenium, and Total Silver, and monitoring requirements for Total Nickel because of the reporting limit that was used during the analytical testing. The

reporting limits used were less stringent that the quantitation limitations that the Department requires, therefore, it is uncertain if the parameters are at concentrations above the Department QL. During the 30-day public comment period, the permittee may resample for Hexavalent Chromium, Selenium, Total Silver, and Total Nickel at the Department's QLs to verify that the parameters are not present in the discharge. If it is determined that the parameters are not present in the discharge at the Department's QL, the WQBELs may be removed from the Final Permit.

Table 7: Proposed Interim Effluent Limitation for Outfall 001

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	1.5	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	3.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Silver (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Table 8: Proposed Final Effluent Limitation for Outfall 001 (Effective Three Years After Permit Effective Date)

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.037	0.087	XXX	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	0.75	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	3.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	11.7	18.2	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	5.6	8.74	XXX	2/Month	Grab
Total Silver (µg/L)	XXX	XXX	XXX	0.2	0.22	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0.048
Latitude	40º 14' 03"	**Longitude**	-79º 04' 00"
Wastewater Description:	IW Process Effluent without ELG		

Technology-Based Limitations

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of WTP sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which is imposed under Best Professional Judgement under 40 CFR § 125.3. The effluent limitations from this document are displayed below in Table 9.

Table 9: BPT Limits for WTP Sludge and Filter Backwash Wastewater

Parameter	Monthly Avg (mg/l)	Daily Max (mg/l)
Suspended solids	30.0	60.0
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow (MGD)	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 10 below.

Effluent standards for pH are imposed in accordance with 25 Pa. Code §§ 95.2(1) which is displayed in Table 10 below.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation which is displayed in Table 10 below

Table 10: Regulatory Effluent Standards and Monitoring Requirements for Outfall 002

Parameter	Monthly Average	Daily Maximum	Units
Flow	Monitor and Report		MGD
Total Residual Chlorine (TRC)	0.5	1.6	mg/L
pH	Not less than 6.0 nor greater than 9.0		S.U.

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) 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 Toxics Management Spreadsheet 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 Toxics Management Spread Sheet 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 Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 002 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. 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 is 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 Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 11; the characteristics used for the model is from the mouth of the tributary that Outfall 002 discharges to due to the outfall being 0.02 miles from the mouth of the stream and the mixing would occur in the mouth of the stream. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. 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 information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment E of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 12.

Table 11: TMS Inputs for Outfall 002

Parameter	**Value**
River Mile Index	9.2
Discharge Flow (MGD)	0.048
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	2.01
Q_{7-10} (cfs)	0.171
Low-flow yield (cfs/mi^2)	0.08
Elevation (ft)	1918
Slope	0.04

Table 12: Water Quality Based Effluent Limitations at Outfall 002

Parameters	Average Monthly	Daily Maximum	Discharge Concentration	Department's QLs
Total Aluminum (mg/L)	1.58	2.47	2.21	-
Total Antimony (µg/L)	Report	Report	2.25	-
Total Cadmium (µg/L)	0.71	1.11	0.915	-
Hexavalent Chromium (µg/L)	34.3	53.6	< 20.0	1.0
Total Copper (µg/L)	Report	Report	8.02	-
Total Iron (mg/L)	4.95	7.7	2.6	-
Total Lead(µg/L)	Report	Report	2.93	-
Total Manganese (µg/L)	Report	Report	1.18	-
Total Nickel (µg/L)	Report	Report	21.8	-
Total Selenium (µg/L)	Report	Report	< 7.0	5.0
Total Silver (µg/L)	Report	Report	< 1.0	0.4
Total Zinc (µg/L)	Report	Report	54.3	-

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 results of the modeling, included in Attachment F, indicate that WQBELs are required for TRC. Outfall 002 will receive an average monthly limitation of 0.48 mg/L and a daily maximum limitation of 1.12 mg/L for TRC.

Total Maximum Daily Loads for Outfall 001

The Conemaugh Township Municipal Authority Water Treatment Plant is within the watershed area covered by the Kiskiminetas-Conemaugh Watershed TMDL, approved as final by EPA in 2010. This TMDL addresses certain impairments of water quality standards associated with elevated instream concentrations of iron, aluminum, and manganese. A pH impairment is addressed through a surrogate relationship with these metals. This TMDL establishes wasteload allocations for these metals for point sources, and load allocations for these metals for nonpoint sources in the watershed. DEP must assure that any effluent limitations assigned to point sources are consistent with the assumptions and requirements of any available wasteload allocation for the discharge pursuant to 40 CFR 130.7 (i.e., a final TMDL). The site's permit PA0216399 is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations. Wasteload allocations were delegated for Outfalls 001 and 002. These wasteload allocations are equivalent to the listed concentration limits under various flow scenarios. In this case, the concentration limits are proposed rather than the mass load limits to simplify compliance assessments. The effluent limits from the TMDL for Outfall 002 are displayed below in Table 13.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. 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.

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 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 (PWS). 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 and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively).

Table 13 – TMDL Limits for Outfall 002

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L
Iron, total	2.0	4.0	mg/L
Manganese, total	1.0	2.0	mg/L

Anti-Degradation

Outfall 002 discharge to an Unnamed Tributary to South Fork Bens Creek, designed as a High-Quality stream, therefore, anti-degradation must be considered. However, at this time, Conemaugh Township Municipal Authority is not proposing any additional or increased discharges from its facility at this time; therefore, a non-degrading limitation evaluation will not be performed.

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 14.

Table 14: Current Effluent Limitation for Outfall 002

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	XXX	60.0	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	XXX	1.0	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	XXX	1.5	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	2.0	XXX	4.0	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	XXX	2.0	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Proposed Effluent Limitations for Outfall 002

The proposed effluent limitations and monitoring requirements for Outfall 002 are shown below in Tables 15 and 16. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been labeled as Daily Max, this has been changed to reflect what the guidance document states. Based on the limitation development above, the Outfall will receive new WQBELs. At this time Conemaugh Township Municipal Authority may not be able to achieve these new WQBELs upon permit issuance; therefore, in accordance with 25 Pa. Code § 92a.51(a) of DEP's regulations, the Department is granting a three-year compliance schedule for the permittee to come into compliance with the new limits. Monitor and report requirements will be imposed for the new parameters during the interim period and the current effluent limitation will be imposed for existing parameters during the interim period; and the final WQBELs will be imposed three years after the permit effective date. Outfall 002 received new WQBELs for Hexavalent Chromium and monitoring requirements for Total Selenium, and Total Silver because of the reporting limit that was used during the analytical testing. The reporting limits used were less stringent that the quantitation limitations that the Department requires, therefore, it is uncertain if the parameters are at concentrations above the Department QL. During the 30-day public comment period, the permittee may resample for Hexavalent Chromium, Selenium, and Total Silver at the Department's QLs to verify that the parameters are not present in the discharge. If it is determined that the parameters are not present in the discharge at the Department's QL, the WQBELs may be removed from the Final Permit.

Table 15: Proposed Interim Effluent Limitation for Outfall 002

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	1.5	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	2.0	4.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Total Antimony (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Cadmium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Copper (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Lead(µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Silver (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Table 15: Proposed Final Effluent Limitation for Outfall 002 (Effective Three Years After Permit Effective Date)

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.48	1.0	XXX	2/Month	Grab

Table 15: Proposed Final Effluent Limitation for Outfall 002 (Effective Three Years After Permit Effective Date)

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	0.75	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	2.0	4.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Total Antimony (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Cadmium (µg/L)	XXX	XXX	XXX	0.71	1.11	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	34.3	53.6	XXX	2/Month	Grab
Total Copper (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Lead(µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Silver (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	0.021
Latitude	40º 14' 03"	**Longitude**	-79º 04' 00"
Wastewater Description:	IW Process Effluent without ELG		

Technology-Based Limitations

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of WTP sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which is imposed under Best Professional Judgement under 40 CFR § 125.3. The effluent limitations from this document are displayed below in Table 16.

Table 16: BPT Limits for WTP Sludge and Filter Backwash Wastewater

Parameter	Monthly Avg (mg/l)	Daily Max (mg/l)
Suspended solids	30.0	60.0
Iron (total)	2.0	4.0
Aluminum (total)	4.0	8.0
Manganese (total)	1.0	2.0
Flow (MGD)	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) which is displayed in Table 17 below.

Effluent standards for pH are imposed in accordance with 25 Pa. Code §§ 95.2(1) which is displayed in Table 17 below.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation which is displayed in Table 17 below

Table 17: Regulatory Effluent Standards and Monitoring Requirements for Outfall 003

Parameter	Monthly Average	Daily Maximum	Units
Flow	Monitor and Report		MGD
Total Residual Chlorine (TRC)	0.5	1.6	mg/L
pH	Not less than 6.0 nor greater than 9.0		S.U.

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) 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 Toxics Management Spreadsheet 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 Toxics Management Spread Sheet 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 Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 003

Discharges from Outfall 003 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. 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 is 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 Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 18. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. 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 information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment G of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 19.

Table 18: TMS Inputs for Outfall 003

Parameter	**Value**
River Mile Index	0.02
Discharge Flow (MGD)	0.021
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	0.39
Q_{7-10} (cfs)	0.024
Low-flow yield (cfs/mi^2)	0.06
Elevation (ft)	1920
Slope	0.05

Table 19: Water Quality Based Effluent Limitations at Outfall 003

Parameters	Average Monthly	Daily Maximum	Discharge Concentration	Department's QLs
Total Aluminum (mg/L)	3.0	4.6	2.21	-
Total Cadmium (µg/L)	1.51	2.36	0.915	-
Hexavalent Chromium (µg/L)	Report	Report	< 20.0	1.0

Table 19: Water Quality Based Effluent Limitations at Outfall 003

Parameters	Average Monthly	Daily Maximum	Discharge Concentration	Department's QLs
Total Copper (µg/L)	Report	Report	8.02	-
Total Iron (mg/L)	Report	Report	2.6	-
Total Lead(µg/L)	Report	Report	2.93	-
Total Manganese (µg/L)	Report	Report	1.18	-
Total Nickel (µg/L)	Report	Report	21.8	4.0
Total Selenium (µg/L)	Report	Report	< 7.0	5.0
Total Zinc (µg/L)	Report	Report	54.3	-

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 results of the modeling, included in Attachment H, indicate that no WQBELs are required for TRC at Outfall 003.

Total Maximum Daily Loads for Outfall 003

The Conemaugh Township Municipal Authority Water Treatment Plant is within the watershed area covered by the Kiskiminetas-Conemaugh Watershed TMDL, approved as final by EPA in 2010. This TMDL addresses certain impairments of water quality standards associated with elevated instream concentrations of iron, aluminum, and manganese. A pH impairment is addressed through a surrogate relationship with these metals. This TMDL establishes wasteload allocations for these metals for point sources, and load allocations for these metals for nonpoint sources in the watershed. DEP must assure that any effluent limitations assigned to point sources are consistent with the assumptions and requirements of any available wasteload allocation for the discharge pursuant to 40 CFR 130.7 (i.e., a final TMDL). The site's permit PA0216399 is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations. Wasteload allocations were delegated for Outfalls 001 and 002. These wasteload allocations are equivalent to the listed concentration limits under various flow scenarios. Wasteload allocations were not delegated for Outfall 003 didn't exists prior to the TMDL promulgation. When there are new or additional points source discharges to the Kiskiminetas-Conemaugh River Watersheds the discharge must meet the instream criterion values for Aluminum, Iron, and Manganese at the point of discharge In this case, the concentration limits are proposed rather than the mass load limits to simplify compliance assessments. The effluent limits from the TMDL for Outfall 003 are displayed below in Table 20.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. 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.

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 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 (PWS). 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 and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively).

Table 20 – TMDL Limits for Outfall 003

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L
Iron, total	1.5	3.0	mg/L
Manganese, total	1.0	2.0	mg/L

Anti-Degradation

Outfall 003 discharge to an Unnamed Tributary to South Fork Bens Creek, designed as a High-Quality stream, therefore, anti-degradation must be considered. However, at this time, Conemaugh Township Municipal Authority is not proposing any additional or increased discharges from its facility at this time; therefore, a non-degrading limitation evaluation will not be performed.

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 21.

Table 21: Current Effluent Limitation for Outfall 003

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	XXX	60.0	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	XXX	1.0	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	XXX	1.5	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	XXX	3.0	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	XXX	2.0	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Proposed Effluent Limitations for Outfall 003

The proposed effluent limitations and monitoring requirements for Outfall 003 are shown below in Tables 22 and 23. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been labeled as

Daily Max, this has been changed to reflect what the guidance document states. Based on the limitation development above, the Outfall will receive new WQBELs. At this time Conemaugh Township Municipal Authority may not be able to achieve these new WQBELs upon permit issuance; therefore, in accordance with 25 Pa. Code § 92a.51(a) of DEP's regulations, the Department is granting a three-year compliance schedule for the permittee to come into compliance with the new limits. Monitor and report requirements will be imposed for the new parameters during the interim period and the current effluent limitation will be imposed for existing parameters during the interim period; and the final WQBELs will be imposed three years after the permit effective date. Outfall 003 received new monitoring requirements for Hexavalent Chromium and Total Selenium because of the reporting limit that was used during the analytical testing. The reporting limits used were less stringent that the quantitation limitations that the Department requires, therefore, it is uncertain if the parameters are at concentrations above the Department QL. During the 30-day public comment period, the permittee may resample for Hexavalent Chromium and Total Selenium at the Department's QLs to verify that the parameters are not present in the discharge. If it is determined that the parameters are not present in the discharge at the Department's QL, the monitoring requirements may be removed from the Final Permit.

Table 22: Proposed Interim Effluent Limitation for Outfall 003

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	1.5	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	3.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Total Cadmium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Copper (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Lead(µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Table 23: Proposed Final Effluent Limitation for Outfall 003 (Effective Three Years After Permit Effective Date)

Parameters	Mass (lb/day)		Concentration				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measure
Total Suspended Solids (mg/L)	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine (mg/L)	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum (mg/L)	XXX	XXX	XXX	0.75	7.5	XXX	2/Month	Grab
Total Iron (mg/L)	XXX	XXX	XXX	1.5	3.0	XXX	2/Month	Grab
Total Manganese (mg/L)	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
Total Cadmium (µg/L)	XXX	XXX	XXX	1.51	2.36	XXX	2/Month	Grab
Hexavalent Chromium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Copper (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Lead(µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Nickel (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Selenium (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
Total Zinc (µg/L)	XXX	XXX	XXX	Report	Report	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 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:
☐	Other:

Attachments:

Attachment A: Outfall 001 StreamStats

Attachment B: Outfall 001 Toxics Management Spreadsheet

Attachment C: Outfall 001 TRC Model Spreadsheet

Attachment D: Outfall 002 and 003 Toxics StreamStats

Attachment E: Outfall 002 Toxics Management Spreadsheet

Attachment F: Outfall 002 TRC Model Spreadsheet

Attachment G: Outfall 003 Toxics Management Spreadsheet

Attachment H: Outfall 003 TRC Model Spreadsheet

Attachment I: Site Flow Diagrams

Attachment A:

Outfall 001 Stream Stats

001 StreamStats Report

Region ID: PA
Workspace ID: PA20240612152442059000
Clicked Point (Latitude, Longitude): 40.23775, -79.07152
Time: 2024-06-12 11:25:11 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.39	square miles
ELEV	Mean Basin Elevation	2604	feet
PRECIP	Mean Annual Precipitation	47	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	1.39	square miles	2.33	1720
ELEV	Mean Basin Elevation	2604	feet	898	2700
PRECIP	Mean Annual Precipitation	47	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.256	ft^3/s
30 Day 2 Year Low Flow	0.372	ft^3/s
7 Day 10 Year Low Flow	0.118	ft^3/s
30 Day 10 Year Low Flow	0.154	ft^3/s
90 Day 10 Year Low Flow	0.225	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B:

Outfall 001 Toxics Management Spreadsheet

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Conemaugh WTP** NPDES Permit No.: **PA0216339** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Emergency Reservoir Replenishment**

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
0.6192	8.01	7						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	<	18									
	Chloride (PWS)	mg/L		0.989									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L	<	0.2									
	Fluoride (PWS)	mg/L	<	1									
Group 2	Total Aluminum	µg/L	<	54.5									
	Total Antimony	µg/L	<	1.5									
	Total Arsenic	µg/L	<	0.8									
	Total Barium	µg/L		26.1									
	Total Beryllium	µg/L	<	0.05									
	Total Boron	µg/L	<	30									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	20									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L	<	2.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	2.9									
	Dissolved Iron	µg/L	<	8									
	Total Iron	µg/L		11.7									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		7.54									
	Total Mercury	µg/L	<	0.05									
	Total Nickel	µg/L	<	5									
	Total Phenols (Phenolics) (PWS)	µg/L	<	18.9									
	Total Selenium	µg/L	<	7									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.911									
	Total Zinc	µg/L		7.53									
	Total Molybdenum	µg/L	<	5									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **South Fork Bens 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	045132	9.5	2049	1.39	0.07		Yes
End of Reach 1	045132	9	1872	2.17			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	9.5	0.1	0.118									100	7		
End of Reach 1	9	0.1	0.17												

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	9.5														
End of Reach 1	9														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.007 PMF: 1 Analysis Hardness (mg/l): 18.099 Analysis pH: 7.00

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	842	
Total Antimony	0	0		0	1,100	1,100	1,236	
Total Arsenic	0	0		0	340	340	382	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	23,587	
Total Boron	0	0		0	8,100	8,100	9,098	
Total Cadmium	0	0		0	0.381	0.38	0.42	Chem Translator of 1.016 applied
Total Chromium (III)	0	0		0	140.512	445	499	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	107	
Total Copper	0	0		0	2.685	2.8	3.14	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	9.638	9.27	10.4	Chem Translator of 1.04 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.85	Chem Translator of 0.85 applied
Total Nickel	0	0		0	110.266	110	124	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	0.170	0.2	0.22	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	73.0	
Total Zinc	0	0		0	27.534	28.2	31.6	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.007 PMF: 1 Analysis Hardness (mg/l): 18.099 Analysis pH: 7.00

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	247	
Total Arsenic	0	0		0	150	150	168	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,605	
Total Boron	0	0		0	1,600	1,600	1,797	
Total Cadmium	0	0		0	0.075	0.076	0.086	Chem Translator of 0.981 applied
Total Chromium (III)	0	0		0	18.278	21.3	23.9	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.3	
Total Copper	0	0		0	2.079	2.17	2.43	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	1,685	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	0.376	0.36	0.41	Chem Translator of 1.04 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.02	Chem Translator of 0.85 applied
Total Nickel	0	0		0	12.247	12.3	13.8	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	5.6	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	14.6	
Total Zinc	0	0		0	27.759	28.2	31.6	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.007 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	6.29	
Total Arsenic	0	0		0	10	10.0	11.2	
Total Barium	0	0		0	2,400	2,400	2,696	
Total Boron	0	0		0	3,100	3,100	3,482	
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	337	
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	1,123	
Total Mercury	0	0		0	0.050	0.05	0.056	
Total Nickel	0	0		0	610	610	685	
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	0.27	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.108 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***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Hexavalent Chromium	0.06	0.094	11.7	18.2	29.2	µg/L	11.7	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	13.8	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.029	0.045	5.6	8.74	14.0	µg/L	5.6	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Silver	0.001	0.001	0.2	0.22	0.22	µg/L	0.2	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	28.2	AFC	Discharge Conc > 10% 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	Discharge Conc < TQL
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	750	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	2,696	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,797	µg/L	Discharge Conc < TQL
Total Cadmium	0.086	µg/L	Discharge Conc < TQL
Total Chromium (III)	23.9	µg/L	Discharge Conc < TQL
Total Cobalt	21.3	µg/L	Discharge Conc < TQL
Total Copper	2.43	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	337	µg/L	Discharge Conc < TQL
Total Iron	1,685	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	0.41	µg/L	Discharge Conc < TQL
Total Manganese	1,123	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.056	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Thallium	0.27	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment C:

Outfall 001 TRC Model Spreadsheet

TRC EVALUATION

0.118	= Q stream (cfs)	0.5	= CV Daily
0.6192	= 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 =	0.058	**1.3.2.iii**	WLA cfc =	0.049
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.022	**5.1d**	LTA_cfc =	0.029

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.037	AFC
		INST MAX LIMIT (mg/l) =	0.087	

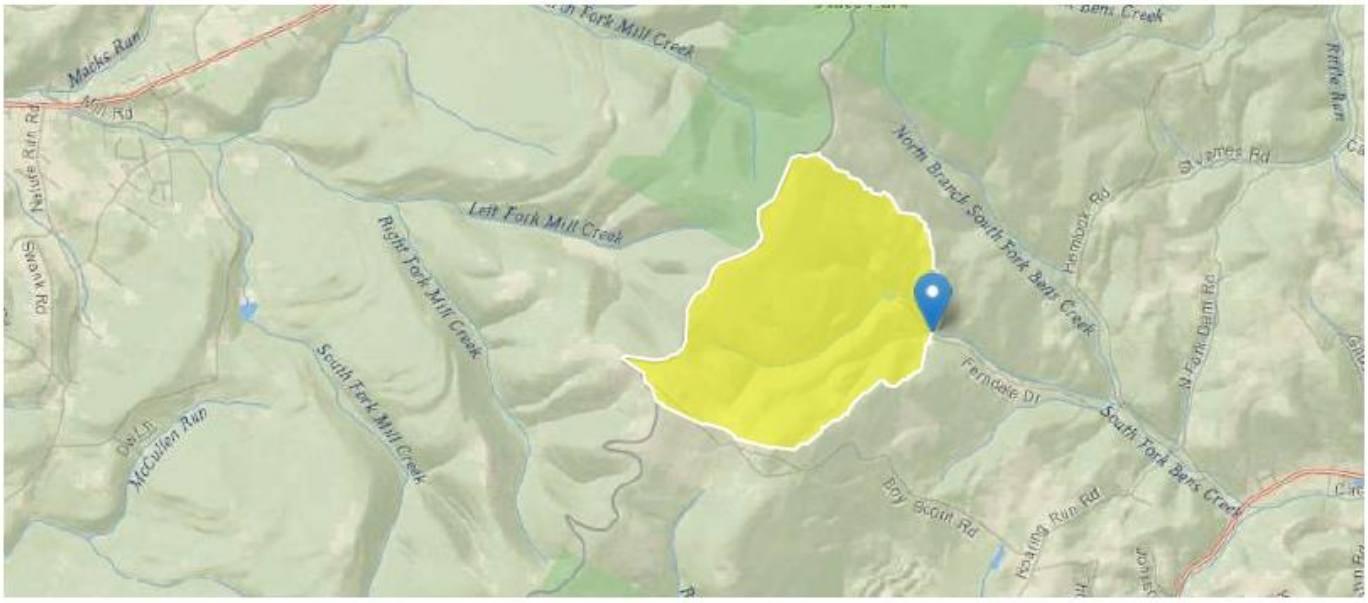
WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
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 D:

Outfall 002 and 003 StreamStats

002 and 003 StreamStats Report

Region ID: PA
Workspace ID: PA20240613135210586000
Clicked Point (Latitude, Longitude): 40.23448, -79.06639
Time: 2024-06-13 09:52:32 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.01	square miles
ELEV	Mean Basin Elevation	2519	feet
PRECIP	Mean Annual Precipitation	47	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	2.01	square miles	2.33	1720
ELEV	Mean Basin Elevation	2519	feet	898	2700
PRECIP	Mean Annual Precipitation	47	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.364	ft^3/s
30 Day 2 Year Low Flow	0.527	ft^3/s
7 Day 10 Year Low Flow	0.171	ft^3/s
30 Day 10 Year Low Flow	0.222	ft^3/s
90 Day 10 Year Low Flow	0.323	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.20.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment E:

Outfall 002 Toxics Management Spreadsheet

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Conemaugh WTP** NPDES Permit No.: **PA0216339** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Filter Backwash**

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
0.048	11	6						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		35.7									
	Chloride (PWS)	mg/L		1.08									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		9.6									
	Fluoride (PWS)	mg/L	<	1									
Group 2	Total Aluminum	µg/L		2210									
	Total Antimony	µg/L		2.25									
	Total Arsenic	µg/L		1.47									
	Total Barium	µg/L		59.1									
	Total Beryllium	µg/L		1.18									
	Total Boron	µg/L	<	30									
	Total Cadmium	µg/L		0.915									
	Total Chromium (III)	µg/L		2.03									
	Hexavalent Chromium	µg/L	<	20									
	Total Cobalt	µg/L		4.65									
	Total Copper	µg/L		8.02									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		2.9									
	Dissolved Iron	µg/L	<	8									
	Total Iron	µg/L		2620									
	Total Lead	µg/L		2.93									
	Total Manganese	µg/L		1180									
	Total Mercury	µg/L	<	0.05									
	Total Nickel	µg/L		21.8									
	Total Phenols (Phenolics) (PWS)	µg/L		146									
	Total Selenium	µg/L	<	7									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.911									
	Total Zinc	µg/L		54.3									
	Total Molybdenum	µg/L	<	5									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **South Fork Bens 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	045132	9.2	1918	2.01	0.04		Yes
End of Reach 1	045132	9	1872	2.17			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	9.2	0.1	0.171									100	7		
End of Reach 1	9	0.1	0.17												

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	9.2														
End of Reach 1	9														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 002

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.413 PMF: 1 Analysis Hardness (mg/l): 73.054 Analysis pH: 6.43

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	2,477	
Total Antimony	0	0		0	1,100	1,100	3,633	
Total Arsenic	0	0		0	340	340	1,123	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	69,360	
Total Boron	0	0		0	8,100	8,100	26,753	
Total Cadmium	0	0		0	1.484	1.55	5.12	Chem Translator of 0.957 applied
Total Chromium (III)	0	0		0	440.572	1,394	4,605	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	53.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	314	
Total Copper	0	0		0	9.998	10.4	34.4	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	45.808	54.7	181	Chem Translator of 0.837 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5.44	Chem Translator of 0.85 applied
Total Nickel	0	0		0	359.009	360	1,188	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	1.874	2.21	7.28	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	215	
Total Zinc	0	0		0	89.809	91.8	303	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.413 PMF: 1 Analysis Hardness (mg/l): 73.054 Analysis pH: 6.43

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	727	
Total Arsenic	0	0		0	150	150	495	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	13,542	
Total Boron	0	0		0	1,600	1,600	5,285	
Total Cadmium	0	0		0	0.198	0.21	0.71	Chem Translator of 0.922 applied
Total Chromium (III)	0	0		0	57.309	66.6	220	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	34.3	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	62.8	
Total Copper	0	0		0	6.848	7.13	23.6	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	4,954	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.785	2.13	7.05	Chem Translator of 0.837 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.99	Chem Translator of 0.85 applied
Total Nickel	0	0		0	39.875	40.0	132	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	16.5	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	42.9	
Total Zinc	0	0		0	90.543	91.8	303	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.413 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	18.5	
Total Arsenic	0	0		0	10	10.0	33.0	
Total Barium	0	0		0	2,400	2,400	7,927	
Total Boron	0	0		0	3,100	3,100	10,239	
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	991	
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	3,303	
Total Mercury	0	0		0	0.050	0.05	0.17	
Total Nickel	0	0		0	610	610	2,015	
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	0.79	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.219 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***

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	0.64	0.99	1,588	2,477	3,969	µg/L	1,588	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Antimony	Report	Report	Report	Report	Report	µg/L	18.5	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.0003	0.0004	0.71	1.11	1.77	µg/L	0.71	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	0.014	0.021	34.3	53.6	85.8	µg/L	34.3	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	22.0	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	1.98	3.09	4,954	7,729	12,386	µg/L	4,954	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	7.05	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	3,303	THH	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	132	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	16.5	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	4.67	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	194	AFC	Discharge Conc > 10% 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 Arsenic	33.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	7,927	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,285	µg/L	Discharge Conc < TQL
Total Chromium (III)	220	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	62.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	991	µg/L	Discharge Conc < TQL
Total Mercury	0.17	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Thallium	0.79	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment F:

Outfall 002 TRC Model Spreadsheet

TRC EVALUATION

0.171	= Q stream (cfs)	0.5	= CV Daily
0.048	= 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 =	0.750	**1.3.2.iii**	WLA cfc =	0.727
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.279	**5.1d**	LTA_cfc =	0.423

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.481	AFC
		INST MAX LIMIT (mg/l) =	1.125	

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 G:

Outfall 003 Toxics Management Spreadsheet

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Conemaugh WTP** NPDES Permit No.: **PA0216339** Outfall No.: **003**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Filter Backwash**

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
0.021	11	6						

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		35.7									
	Chloride (PWS)	mg/L		1.08									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		9.6									
	Fluoride (PWS)	mg/L	<	1									
Group 2	Total Aluminum	µg/L		2210									
	Total Antimony	µg/L		2.25									
	Total Arsenic	µg/L		1.47									
	Total Barium	µg/L		59.1									
	Total Beryllium	µg/L		1.18									
	Total Boron	µg/L	<	30									
	Total Cadmium	µg/L		0.915									
	Total Chromium (III)	µg/L		2.03									
	Hexavalent Chromium	µg/L	<	20									
	Total Cobalt	µg/L		4.65									
	Total Copper	µg/L		8.02									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		2.9									
	Dissolved Iron	µg/L	<	8									
	Total Iron	µg/L		2620									
	Total Lead	µg/L		2.93									
	Total Manganese	µg/L		1180									
	Total Mercury	µg/L	<	0.05									
	Total Nickel	µg/L		21.8									
	Total Phenols (Phenolics) (PWS)	µg/L		146									
	Total Selenium	µg/L	<	7									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.911									
	Total Zinc	µg/L		54.3									
	Total Molybdenum	µg/L	<	5									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 003

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **South Fork Bens 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	045132	9.2	1918	2.01	0.04		Yes
End of Reach 1	045132	9	1872	2.17			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	9.2	0.1	0.171									100	7		
End of Reach 1	9	0.1	0.17												

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	9.2														
End of Reach 1	9														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Conemaugh WTP, NPDES Permit No. PA0216339, Outfall 003

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.567 PMF: 1 Analysis Hardness (mg/l): 85.791 Analysis pH: 6.61

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	4,698	
Total Antimony	0	0		0	1,100	1,100	6,890	
Total Arsenic	0	0		0	340	340	2,130	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	131,537	
Total Boron	0	0		0	8,100	8,100	50,736	
Total Cadmium	0	0		0	1.735	1.83	11.4	Chem Translator of 0.95 applied
Total Chromium (III)	0	0		0	502.555	1,590	9,961	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	102	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	595	
Total Copper	0	0		0	11.632	12.1	75.9	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	54.635	67.2	421	Chem Translator of 0.813 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	10.3	Chem Translator of 0.85 applied
Total Nickel	0	0		0	411.298	412	2,581	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	2.471	2.91	18.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	407	
Total Zinc	0	0		0	102.911	105	659	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.567 PMF: 1 Analysis Hardness (mg/l): 85.791 Analysis pH: 6.61

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	1,378	
Total Arsenic	0	0		0	150	150	940	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	25,681	
Total Boron	0	0		0	1,600	1,600	10,022	
Total Cadmium	0	0		0	0.221	0.24	1.51	Chem Translator of 0.915 applied
Total Chromium (III)	0	0		0	65.372	76.0	476	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	65.1	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	119	
Total Copper	0	0		0	7.856	8.18	51.3	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	9,395	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.129	2.62	16.4	Chem Translator of 0.813 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	5.67	Chem Translator of 0.85 applied
Total Nickel	0	0		0	45.682	45.8	287	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	31.3	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	81.4	
Total Zinc	0	0		0	103.752	105	659	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.567 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	35.1	
Total Arsenic	0	0		0	10	10.0	62.6	
Total Barium	0	0		0	2,400	2,400	15,033	
Total Boron	0	0		0	3,100	3,100	19,417	
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	1,879	
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	6,264	
Total Mercury	0	0		0	0.050	0.05	0.31	
Total Nickel	0	0		0	610	610	3,821	
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	1.5	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.196 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***

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	0.53	0.82	3,011	4,698	7,528	µg/L	3,011	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Cadmium	0.0003	0.0004	1.51	2.36	3.78	µg/L	1.51	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	65.1	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	48.6	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	9,395	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	16.4	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	6,264	THH	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	31.3	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	422	AFC	Discharge Conc > 10% 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	35.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	62.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	15,033	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	10,022	µg/L	Discharge Conc < TQL
Total Chromium (III)	476	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	119	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,879	µg/L	Discharge Conc < TQL
Total Mercury	0.31	µg/L	Discharge Conc < TQL
Total Nickel	287	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable

Total Silver	11.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	1.5	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

Attachment H:

Outfall 003 TRC Model Spreadsheet

TRC EVALUATION

0.171	= Q stream (cfs)	0.5	= CV Daily
0.021	= 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)

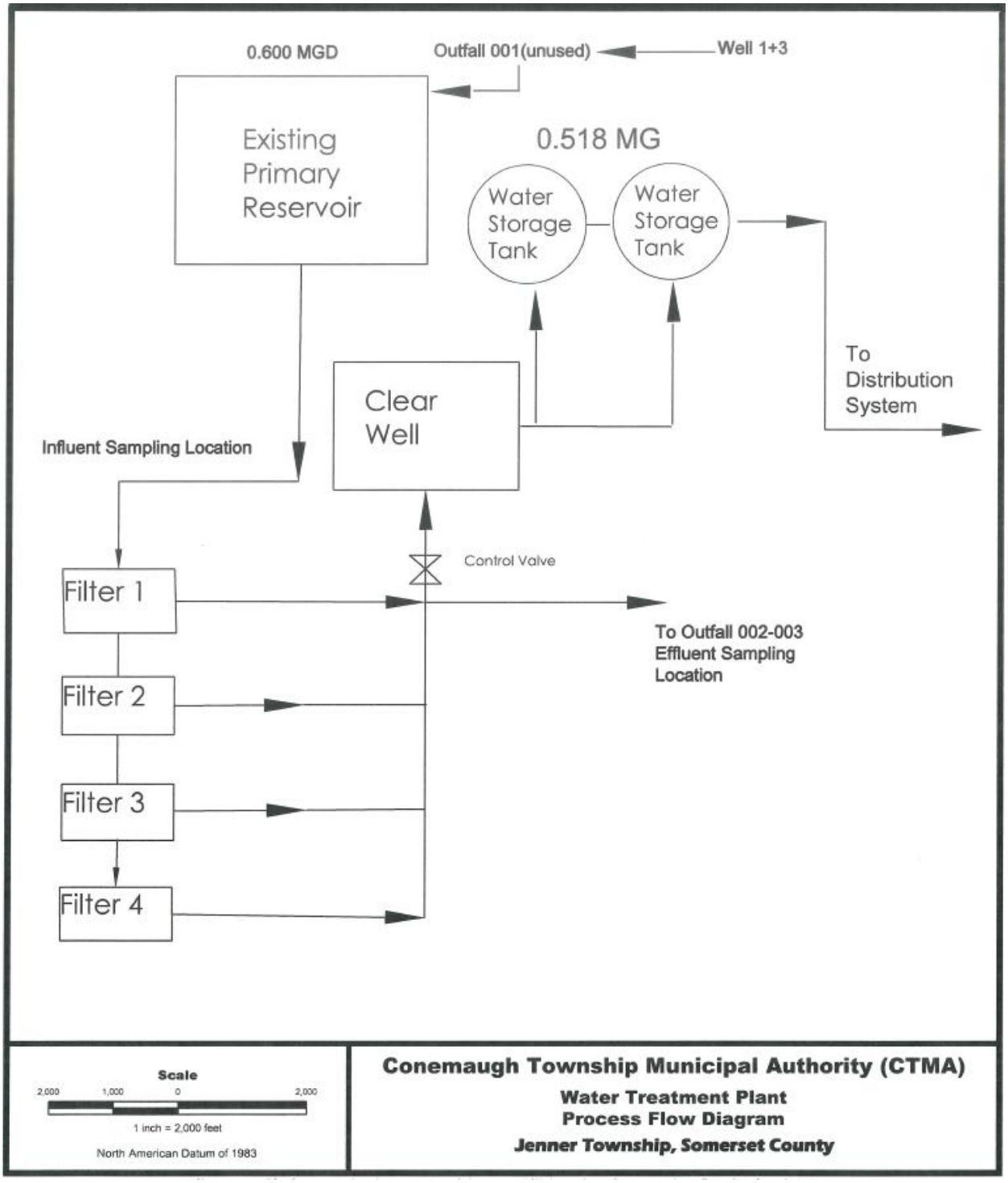
Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	1.690	**1.3.2.iii**	WLA cfc =	1.648
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.630	**5.1d**	LTA_cfc =	0.958

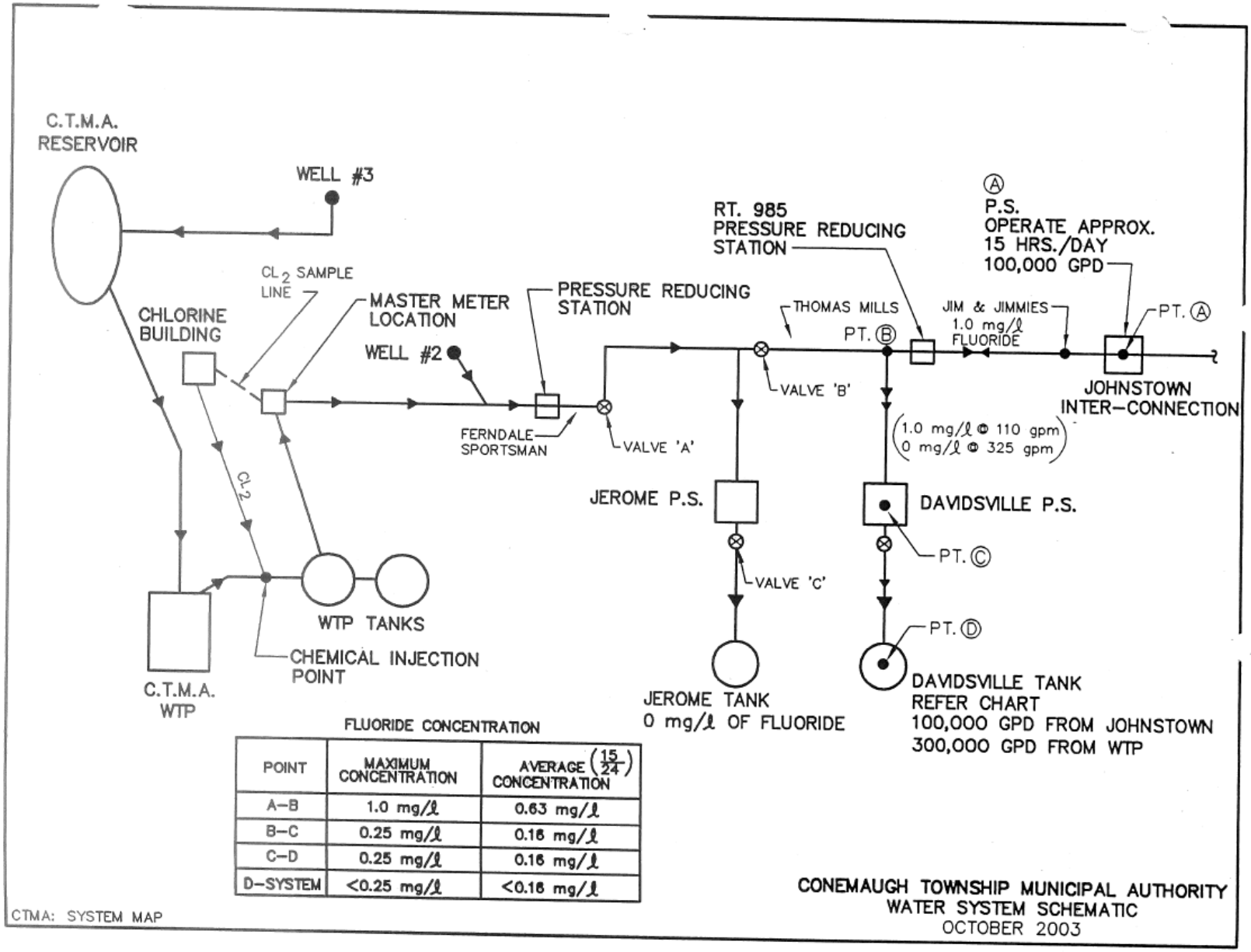
Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.170	

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)**

Attachment I:

Site Flow Diagrams


0.600 MGD
Outfall 001(unused)
Well 1+3
Existing Primary Reservoir
0.518 MG
Water Storage Tank
Water Storage Tank
To Distribution System
Clear Well
Influent Sampling Location
Control Valve
Filter 1
Filter 2
Filter 3
Filter 4
To Outfall 002-003 Effluent Sampling Location
Scale
2,000 1,000 0 2,000
1 inch = 2,000 feet
North American Datum of 1983
Conemaugh Township Municipal Authority (CTMA)
Water Treatment Plant
Process Flow Diagram
Jenner Township, Somerset County



FLUORIDE CONCENTRATION

POINT	MAXIMUM CONCENTRATION	AVERAGE $\left(\frac{15}{24}\right)$ CONCENTRATION
A–B	1.0 mg/ℓ	0.63 mg/ℓ
B–C	0.25 mg/ℓ	0.16 mg/ℓ
C–D	0.25 mg/ℓ	0.16 mg/ℓ
D–SYSTEM	<0.25 mg/ℓ	<0.16 mg/ℓ