pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0097306**
Facility Type	**Industrial**	APS ID	**1095127**
Major / Minor	**Minor**	Authorization ID	**1451365**

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

Applicant and Facility Information

Applicant Name	**Municipal Authority of the Township of Robinson**	Facility Name	**Groveton Water Filtration Plant**
Applicant Address	4200 Campbells Run Road	Facility Address	Station Street
	Pittsburgh, PA 15205-1306		Coraopolis, PA 15108
Applicant Contact	Leo Gismondi	Facility Contact	Gary Hasek
Applicant Phone	(412) 923-2411	Facility Phone	Same as Applicant
Applicant email	lgismondi@robinsonwater.com	Facility email	Same as Applicant
Client ID	74269	Site ID	263698
SIC Code	4941	Municipality	Robinson Township
SIC Description	Trans. & Utilities - Water Supply	County	Allegheny
Date Application Received	August 16, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: NPDES Permit coverage renewal

Summary of Review

The Department received a timely renewal NPDES permit application from the Municipal Authority of the Township of Robinson (MATR) for their Water Treatment Plant located in Robinson Township, Allegheny County on August 16, 2023. The Facility has a SIC Code of 4941 (Water Supply) and a NAICS code of 221310 (Water supply and irrigation systems).

The WTP produces potable water for MATR municipal water distribution system. The WTP takes raw water from the Ohio River. The discharge to the Ohio River is wastewater resulting from the water treatment process. That wastewater is the contents of the filter backwash equalization basin.

The principal water treatment processes are filtration and sedimentation / clarification. Clarifier blowdown is directed to the clarifier Blowdown Equalization Basin. Sludge from the Clarifier Blowdown Equalization Basin is directed to the Sludge Thickener. The following are directed to the Filter Backwash Equalization Basin:

- Filter backwash
- Supernatant from the Clarifier Blowdown Equalization Basin
- Overflow from the sludge Thickener

The contents of the Filter Backwash Equalization are normally discharged to the Ohio River through Outfall 001. In optional operation, they are discharged to a sanitary sewer or returned to the head end of the plant.

Approve	Deny	Signatures	Date
X		Angela Rohrer / Environmental Engineering Specialist	May 7, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	May 17, 2024

Summary of Review

The site was last inspected on April 14, 2023 by Anthony Ascolillo. Two violations were noted.

- 25 Pa. Code 92A.44: Violation of effluent limits in Part A of permit.
- 25 Pa. Code 92A. 46: Violation of Part C permit condition(s).

These violations were resolved on January 5, 2024

The facility has an open violation with the 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)	0.058
Latitude	40º 30' 34"	Longitude	-80º 08' 15"
Quad Name	Ambridge	Quad Code	1404
Wastewater Description:	Treated supernatant from filter backwash or clarifier blowdown equalization basins		
Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	99684170	RMI	971.36
Drainage Area	19,500	Yield (cfs/mi^2)	0.121
Q_{7-10} Flow (cfs)	2,365	Q_{7-10} Basis	US Army Corp of Engineers
Elevation (ft)	703	Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Pathogens, Polychlorinated Biphenyls (PCBS), Dioxin		
Source(s) of Impairment	Unknown		
TMDL Status	Final	Name	Ohio River TMDL
Nearest Downstream Public Water Supply Intake	Moon Township Municipal Authority (5.0 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	968.31	Distance from Outfall (mi)	3.05

Changes Since Last Permit Issuance:

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0058
Latitude 40º 30' 34" **Longitude** -80º 08' 15"
Wastewater Description: Treated supernatant from filter backwash or clarifier blowdown equalization basins

Technology-Based Effluent limitations:

Regulatory Effluent Standards and Monitoring Requirements

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

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code §§ 95.2(1) which is displayed in Table 1 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 1 below.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Avg	Daily Max	IMAX
Flow	Monitor	Monitor	----
pH	6-9 at all times		----
TRC	0.5 mg/l	----	1.6 mg/l

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 falls under Best Professional Judgement under 40 CFR § 125.3 and the limits imposed are displayed in Table 2 below.

Table 2. 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	Monitor	----
pH	6-9 at all times	
Total Residual Chlorine	0.5	1.0

Water Quality-Based Effluent 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 are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The 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 C of this Fact Sheet. The Toxics Management Spread Sheet recommended monitoring requirements of Total Aluminum for Outfall 001.

Table 3: TMS Inputs for Outfall 001

Parameter	**Value**
River Mile Index	971.36
Discharge Flow (MGD)	0.058
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	19,500
Q_{7-10} (cfs)	2,365
Low-flow yield (cfs/mi^2)	0.121
Elevation (ft)	703
Slope	0.0001

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 D, indicate that no WQBELs are required for TRC.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous limitations for Outfall 001 are displayed below in Table 4.

Table 4: Current Effluent Limitation at Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)				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	Measured
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum	XXX	XXX	XXX	4.0	8.0	XXX	2/Month	Grab
Total Iron	XXX	XXX	XXX	2.0	4.0	XXX	2/Month	Grab
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	2/Month	Grab

Final Effluent Limitations

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Table 5. Note that pH values were incorrectly labeled as Daily Minimum and Daily Maximum value in the previous permit when they should have been label as Instant Minimum and IMAX respectively, this has been changed to reflect existing permitting practices. The monitoring frequency will remain the same as the current permit, twice per month.

In accordance with Section I.C.2 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 95.2(2)(ii), DEP has determined that if the maximum concentration of Oil and Grease in the discharge is 4 mg/L or greater, monitoring requirement should be established. The concentration reported in the application for Oil and Grease at Outfall 001 is 6.0 mg/L, therefore, monthly reporting of Oil and Grease will be required.

Table 5: Proposed Effluent Limitation at Outfall 001

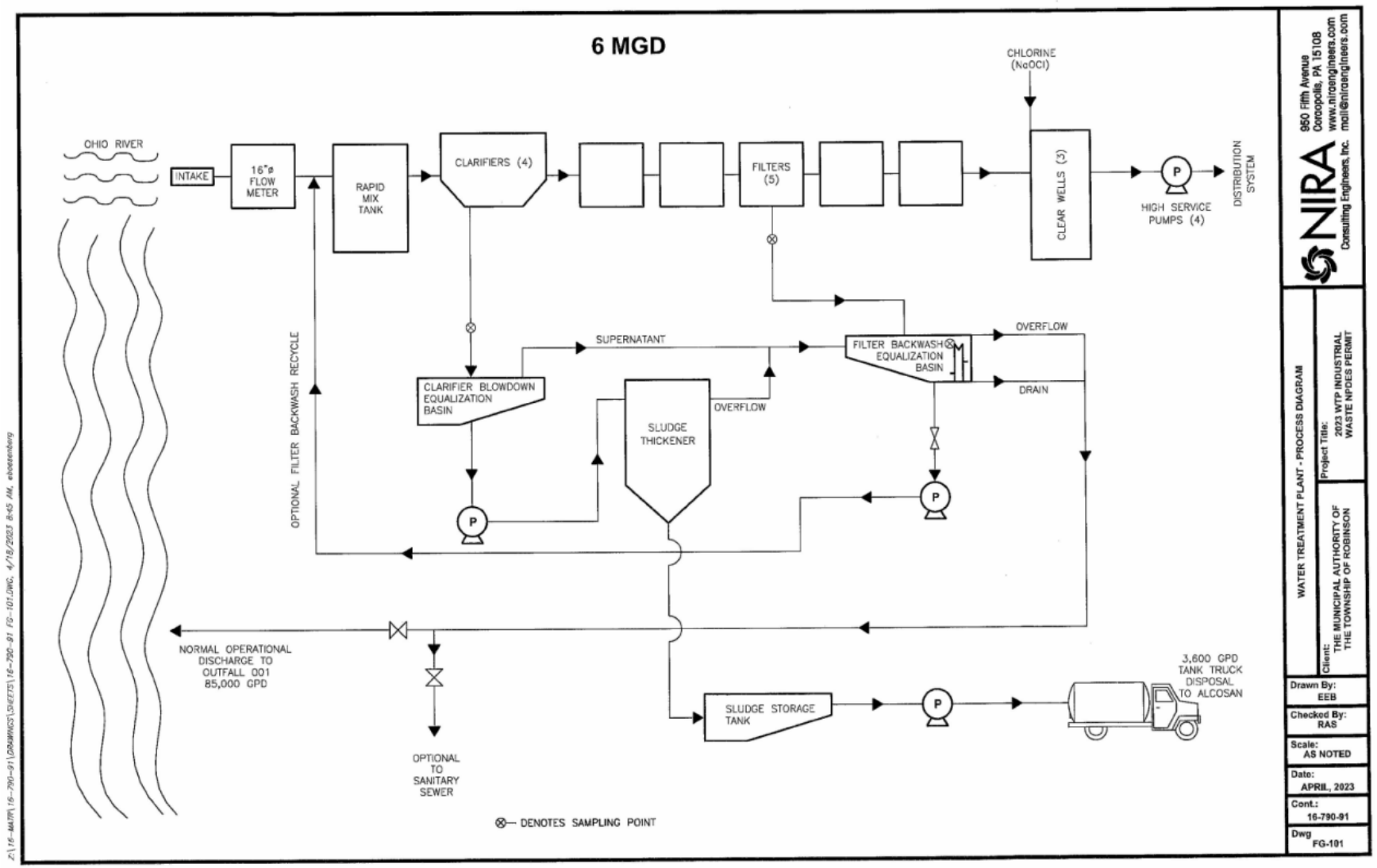
Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/Month	Measured
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX	2/Month	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	1.0	XXX	2/Month	Grab
Total Aluminum	XXX	XXX	XXX	4.0	8.0	XXX	2/Month	Grab
Total Iron	XXX	XXX	XXX	2.0	4.0	XXX	2/Month	Grab

Table 5: Proposed Effluent Limitation at Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Frequency	Sample Type
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX	2/Month	Grab
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/Month	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/Month	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment C)
☒	TRC Model Spreadsheet (see Attachment D)
☐	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:

Attachment A: Process Diagram


6 MGD
OHIO RIVER
INTAKE
16"ø FLOW METER
RAPID MIX TANK
CLARIFIERS (4)
FILTERS (5)
CLEAR WELLS (3)
CHLORINE (NaOCl)
HIGH SERVICE PUMPS (4)
DISTRIBUTION SYSTEM
OPTIONAL FILTER BACKWASH RECYCLE
SUPERNATANT
FILTER BACKWASH EQUALIZATION BASIN
OVERFLOW
DRAIN
CLARIFIER BLOWDOWN EQUALIZATION BASIN
SLUDGE THICKENER
OVERFLOW
NORMAL OPERATIONAL DISCHARGE TO OUTFALL 001 85,000 GPD
OPTIONAL TO SANITARY SEWER
SLUDGE STORAGE TANK
3,600 GPD TANK TRUCK DISPOSAL TO ALCOSAN
⊗— DENOTES SAMPLING POINT
NIRA Consulting Engineers, Inc.
950 Fifth Avenue
Coraopolis, PA 15108
www.niraengineers.com
mail@niraengineers.com
WATER TREATMENT PLANT - PROCESS DIAGRAM
Project Title: 2023 WTP INDUSTRIAL WASTE NPDES PERMIT
Client: THE MUNICIPAL AUTHORITY OF THE TOWNSHIP OF ROBINSON
Drawn By: EEB
Checked By: RAS
Scale: AS NOTED
Date: APRIL, 2023
Cont.: 16-790-91
Dwg FG-101

Attachment B: StreamStats Report

PA0097306 - Groveton Water Filtration Plant

Region ID: PA
Workspace ID: PA20240507172757835000
Clicked Point (Latitude, Longitude): 40.51590, -80.13625
Time: 2024-05-07 13:28:40 -0400

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	19500	square miles
ELEV	Mean Basin Elevation	1674	feet
FOREST	Percentage of area covered by forest	72.4357	percent
PRECIP	Mean Annual Precipitation	45	inches
URBAN	Percentage of basin with urban development	4.2239	percent

Low-Flow Statistics

Low-Flow Statistics Parameters [58.0 Percent (11200 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19500	square miles	2.33	1720
ELEV	Mean Basin Elevation	1674	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Parameters [42.0 Percent (8190 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19500	square miles	2.26	1400
ELEV	Mean Basin Elevation	1674	feet	1050	2580

Low-Flow Statistics Disclaimers [58.0 Percent (11200 square miles) Low Flow Region 3]

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

Low-Flow Statistics Flow Report [58.0 Percent (11200 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2820	ft^3/s
30 Day 2 Year Low Flow	3550	ft^3/s
7 Day 10 Year Low Flow	2000	ft^3/s
30 Day 10 Year Low Flow	2320	ft^3/s
90 Day 10 Year Low Flow	3100	ft^3/s

Low-Flow Statistics Disclaimers [42.0 Percent (8190 square miles) Low Flow Region 4]

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

Low-Flow Statistics Flow Report [42.0 Percent (8190 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2860	ft^3/s
30 Day 2 Year Low Flow	3550	ft^3/s

Base Flow Statistics

Base Flow Statistics Parameters [Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19500	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	45	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99

Attachment C: Toxic Management Spreadsheet for Outfall 001

Discharge Information

Instructions | Discharge | Stream

Facility: **Groveton Water Filtration Plant** NPDES Permit No.: **PA0097306** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW Process Effluent**

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
0.058	124	7.58						

					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		252									
	Chloride (PWS)	mg/L		38.1									
	Bromide	mg/L		0.168									
	Sulfate (PWS)	mg/L		84.2									
	Fluoride (PWS)	mg/L		0.15									
Group 2	Total Aluminum	µg/L		330000									
	Total Antimony	µg/L		22.3									
	Total Arsenic	µg/L	<	2									
	Total Barium	µg/L		43.9									
	Total Beryllium	µg/L	<	0.8									
	Total Boron	µg/L		51.2									
	Total Cadmium	µg/L		0.084									
	Total Chromium (III)	µg/L	<	4									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	0.8									
	Total Copper	µg/L		1.86									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	µg/L		19									
	Total Iron	µg/L		730									
	Total Lead	µg/L	<	0.8									
	Total Manganese	µg/L		440									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	2.38									
	Total Phenols (Phenolics) (PWS)	µg/L	<	2.8									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.3									
	Total Thallium	µg/L	<	0.8									
	Total Zinc	µg/L	<	4									
	Total Molybdenum	µg/L		3.31									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<	0.3									
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<	0.25									
	PCB-1221	µg/L	<	0.25									
	PCB-1232	µg/L	<	0.25									
	PCB-1242	µg/L	<	0.25									
	PCB-1248	µg/L	<	0.25									
	PCB-1254	µg/L	<	0.25									
	PCB-1260	µg/L	<	0.25									
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Groveton Water Filtration Plant, NPDES Permit No. PA0097306, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Ohio River**

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	032317	971.36	703	19500	0.0001		Yes
End of Reach 1	032317	968.31	696	19501	0.0001	5	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	971.36	0.1	2,365			692	18					100	7		
End of Reach 1	968.31	0.1	4,730			1,144	18								

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	971.36														
End of Reach 1	968.31														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Groveton Water Filtration Plant, NPDES Permit No. PA0097306, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.132 Analysis Hardness (mg/l): 100.01 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	2,612,434	
Total Antimony	0	0		0	1,100	1,100	3,831,570	
Total Arsenic	0	0		0	340	340	1,184,304	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	73,148,163	
Total Boron	0	0		0	8,100	8,100	28,214,291	
Total Cadmium	0	0		0	2.014	2.13	7,431	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.796	1,803	6,280,817	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	56,753	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	330,908	
Total Copper	0	0		0	13.440	14.0	48,765	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	64.586	81.7	284,415	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	5,737	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.263	469	1,634,344	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	13,184	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	226,411	
Total Zinc	0	0		0	117.187	120	417,374	Chem Translator of 0.978 applied
Chlordane	0	0		0	2.4	2.4	8,360	

☑ ***CFC*** CCT (min): 720 PMF: 0.915 Analysis Hardness (mg/l): 100 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	5,307,876	
Total Arsenic	0	0		0	150	150	3,619,006	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	98,919,499	
Total Boron	0	0		0	1,600	1,600	38,602,731	
Total Cadmium	0	0		0	0.246	0.27	6,529	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	2,079,249	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	250,797	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	458,407	
Total Copper	0	0		0	8.956	9.33	225,078	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	39,538,535	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	76,762	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	21,856	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	1,258,533	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	120,372	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	313,647	
Total Zinc	0	0		0	118.140	120	2,890,800	Chem Translator of 0.986 applied
Chlordane	0	0		0	0.0043	0.004	104	

☑ ***THH*** CCT (min): 720 THH PMF: 0.915 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

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	#########	WQC applied at RMI 968.31 with a design stream flow of 4730 cfs
Chloride (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 968.31 with a design stream flow of 4730 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	#########	WQC applied at RMI 968.31 with a design stream flow of 4730 cfs
Fluoride (PWS)	0	0		0	1,000	1,000	24,126,707	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	135,110	
Total Arsenic	0	0		0	10	10.0	241,267	
Total Barium	0	0		0	1,000	1,000	24,126,707	
Total Boron	0	0		0	3,100	3,100	74,792,792	

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	1,300	1,300	31,364,719	
Dissolved Iron	0	0		0	300	300	7,238,012	
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	24,126,707	
Total Mercury	0	0		0	0.012	0.012	290	
Total Nickel	0	0		0	610	610	14,717,291	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	263,585	WQC applied at RMI 968.31 with a design stream flow of 4730 cfs
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	5,790	
Total Zinc	0	0		0	7,400	7,400	##########	
Chlordane	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): ####### 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	50	50.0	3,679,382	

Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	22.1	

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	Report	Report	Report	Report	Report	µg/L	1,674,465	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)	26,358,523	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	13,179,262	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	13,179,262	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	24,127	mg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	135,110	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	24,126,707	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	18,084,222	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	4,763	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	2,079,249	µg/L	Discharge Conc < TQL
Hexavalent Chromium	36,377	µg/L	Discharge Conc < TQL
Total Cobalt	212,099	µg/L	Discharge Conc < TQL
Total Copper	31,257	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	7,238,012	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	39,538,535	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	76,762	µg/L	Discharge Conc < TQL
Total Manganese	24,126,707	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.012	µg/L	Discharge Conc < TQL
Total Nickel	1,047,549	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)	263,585	µg/L	Discharge Conc < TQL
Total Selenium	120,372	µg/L	Discharge Conc < TQL
Total Silver	8,450	µg/L	Discharge Conc < TQL
Total Thallium	5,790	µg/L	Discharge Conc < TQL

Total Zinc	267,520	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Chlordane	0.0003	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS

Attachment D: TRC Modeling Results for Outfall 001

TRC EVALUATION - Outfall 001

2,365	= Q stream (cfs)	0.5	= CV Daily
0.058	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.132	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.915	= 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 = 1109.903	1.3.2.iii	WLA cfc = 7500.582
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 413.576	5.1d	LTA_cfc = 4360.486

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)**