pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0111635**
Facility Type	**Industrial**	APS ID	**1097477**
Major / Minor	**Minor**	Authorization ID	**1456054**

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

Applicant and Facility Information

Applicant Name	**Spring Township Municipal Authority**	Facility Name	**Spring Township Municipal Authority Water Treatment Plant**
Applicant Address	PO Box 133	Facility Address	732 Brick Plant Road
	Beaver Springs, PA 17812-0133		Beavertown, PA 17813
Applicant Contact	Steven Aumiller	Facility Contact	Steven Aumiller
Applicant Phone	(570) 658-9505	Facility Phone	(570) 658-9505
Client ID	82854	Site ID	4659
SIC Code	4941	Municipality	Beaver Township
SIC Description	Trans. & Utilities - Water Supply	County	Snyder
Date Application Received	September 25, 2023	EPA Waived?	Yes
Date Application Accepted	September 28, 2023	If No, Reason	
Purpose of Application	Renewal of an existing NPDES permit for the discharge of water treatment plant backwash.		

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.

Approve	Deny	Signatures	Date
X		Derek S. Garner / Project Manager	May 23, 2024
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	May 27, 2024

Facility Description

The Spring Township Municipal Authority Water Treatment Plant treats surface water from a reservoir source for potable water distribution in Beaver Springs in Spring Township, Snyder County. The wastewater from the filter backwash cycles enters two settling lagoons. Overflow from the lagoons is collected in a discharge box and is discharged to Kern Run via Outfall 001. Original construction and continued operation of the treatment units are covered under WQM Permit No. 5572202, originally issued March 30, 1973.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.040
Latitude	40º 44' 25.46"	Longitude	-77º 10' 44.63"
Quad Name	Beaver Springs	Quad Code	1328
Wastewater Description:	Water Treatment Effluent		

Receiving Waters	Kern Run	Stream Code	17873
NHD Com ID	54969973	RMI	2.97
Drainage Area (mi^2)	5.08	Yield (cfs/mi^2)	0.125
Q_{7-10} Flow (cfs)	0.635	Q_{7-10} Basis	Streamgage No. 01555000
Elevation (ft)	680	Slope (ft/ft)	0.00893
Watershed No.	6-A	Chapter 93 Class.	CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	pH		
Source(s) of Impairment	Atmospheric Deposition		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	SUEZ Water		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	688
PWS RMI	10.64	Distance from Outfall (mi)	64

Compliance History

The facility was most recently inspected by DEP on November 20, 2023. No violations were noted during the inspection and no impacts were noted downstream of the outfall in Kern Run.

The following effluent violations occurred during the existing permit's term:

Noncompliance Date	Noncompliance Description	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
10/19/2020	Violation of permit condition	Manganese, Total	1.7	>	1	mg/L	Avg Mo

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.040
Latitude 40º 44' 25.46" **Longitude** -77º 10' 44.63"
Wastewater Description: Water Treatment Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	State Regulation
pH	6.0 – 9.0 S.U.	IMIN - IMAX	95.2(1)
Iron, Dissolved (1)	7.0	IMAX	95.2(4)
Oil and Grease (1)	15	Average Monthly	95.2(2)(ii)
	30	IMAX	95.2(2)(ii)
Total Residual Chlorine	0.5	IMAX	92a.48(b)(2)

(1) Sample results for dissolved iron and oil and grease submitted with the application indicate that neither of the pollutants approach the above technology limits. Since effluent concentrations do not approach the technology-based standards it is not appropriate to establish limits or monitoring requirements for dissolved iron or oil and grease in the permit.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" was conducted in the Toxics Management Spreadsheet v1.4 ("TMS") to determine if WQBELs are necessary to protect the receiving surface water. Input values were taken from existing permit limits, when applicable, or the application's pollutant groups. The spreadsheet's recommendations are as follows:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	1.81	2.82	5.41	8.45	13.5	mg/l	5.41	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	Report	Report	Report	Report	Report	mg/l	16.9	CFC	Discharge Conc > 10% WQBEL (no RP)

Existing total residual chlorine limits were evaluated using the TRC Evaluation spreadsheet. The spreadsheet's results indicate that the existing limits are protective of Kern Run. Accordingly, DEP recommends that the existing limits remain in the permit.

Best Professional Judgment (BPJ) Limitations

Parameter	Limit (mg/l)	SBC	Guidance
Total Suspended Solids	30	Average Monthly	Technology-Based Control Requirements for Water Treatment Plant Wastes (362-2183-003, 10/1/97)
	60	Daily Maximum	
pH	6.0 – 9.0 S.U.	Min – Max	
Iron, Total	2.0	Average Monthly	
	4.0	Daily Maximum	
Aluminum, Total	4.0	Average Monthly	
	8.0	Daily Maximum	
Manganese, Total	1.0	Average Monthly	
	2.0	Daily Maximum	

The above effluent limits are recommended best practicable control technology currently available (BPT) for water treatment plant wastewater by DEP guidance *"Technology-Based Control Requirements for Water Treatment Plant*

Wastes" (362-2183-003, 10/1/97). These effluent limits reflect lagoon or settling tank treatment of different types of sludges (e.g., presettling, coagulant settling, softening sludge) and filter backwash wastewater. A higher degree of treatment such as best conventional pollutant control technology (BCT) or best available technology economically achievable (BAT) is only appropriate when recycle and/or reuse is employed by the permittee.
The BPT limits are both existing and more stringent than the abovementioned recommended TMS requirements. DEP recommends the BPT limits remain in the permit.

Chesapeake Bay Requirements

The discharge is not anticipated to contribute to the net loading of total nitrogen or total phosphorus in the watershed. Accordingly, per the Phase 3 Wastewater Supplemental to Pennsylvania's Chesapeake Bay Watershed Implementation Plan, no cap loads or reporting requirements are necessary.

Anti-Backsliding

No limitations in this proposed draft permit have been made less stringent consistent with the anti-back-sliding requirements of the Clean Water Act and 40 CFR 122.44(l).

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.0	XXX	1/day	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	XXX	1/month	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	XXX	1/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	4.0	XXX	1/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	2.0	XXX	1/month	Grab

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.5	1.0	XXX	1/day	Grab
TSS	XXX	XXX	XXX	30	60	XXX	1/month	Grab
Total Aluminum	XXX	XXX	XXX	4.0	8.0	XXX	1/month	Grab
Total Iron	XXX	XXX	XXX	2.0	4.0	XXX	1/month	Grab
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX	1/month	Grab

Compliance Sampling Location: Outfall 001

Discharge Information

Instructions | Discharge | Stream

Facility: **Spring Township Municipal Authority WTP**

NPDES Permit No.: **PA0111635**

Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste**

Wastewater Description: **Water treatment plant 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
0.04	10.1	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	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		84									
	Chloride (PWS)	mg/L		7.2									
	Bromide	mg/L	<	0.04									
	Sulfate (PWS)	mg/L		4.7									
	Fluoride (PWS)	mg/L		0.2									
Group 2	Total Aluminum	µg/L		685									
	Total Antimony	µg/L	<	0.07									
	Total Arsenic	µg/L	<	2.5									
	Total Barium	µg/L		20									
	Total Beryllium	µg/L	<	0.67									
	Total Boron	µg/L	<	0.06									
	Total Cadmium	µg/L	<	0.025									
	Total Chromium (III)	µg/L	<	0.0002									
	Hexavalent Chromium	µg/L	<	0.0003									
	Total Cobalt	µg/L		0.074									
	Total Copper	µg/L		1									
	Free Cyanide	µg/L	<	0.006									
	Total Cyanide	µg/L	<										
	Dissolved Iron	µg/L		32.9									
	Total Iron	µg/L		34.4									
	Total Lead	µg/L		0.13									
	Total Manganese	µg/L		236									
	Total Mercury	µg/L	<	0.0000932									
	Total Nickel	µg/L		0.331									
	Total Phenols (Phenolics) (PWS)	µg/L		0.005									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.014									
	Total Zinc	µg/L	<	0.708									
	Total Molybdenum	µg/L	<	0.04									
	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	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

Spring Township Municipal Authority WTP, NPDES Permit No. PA0111635, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Kern Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	017873	2.97	670	5.08			Yes
End of Reach 1	017873	0	640	12.3			Yes

Q *7-10*

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	2.97	0.125										100	7		
End of Reach 1	0	0.125										100	7		

Q *h*

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	2.97														
End of Reach 1	0														

Model Results

Spring Township Municipal Authority WTP, NPDES Permit No. PA0111635, Outfall 001

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

☑ ***Hydrodynamics***

Q 7-10

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.97	0.64		0.64	0.062	0.002	0.492	12.786	25.999	0.111	1.638	12.334
0	1.54		1.5375								

Q h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.97	5.00		5.00	0.062	0.002	1.176	12.786	10.87	0.336	0.54	3.918
0	10.821		10.82								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 12.334 PMF: 1 Analysis Hardness (mg/l): 92.017 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	8,446	
Total Antimony	0	0		0	1,100	1,100	12,388	
Total Arsenic	0	0		0	340	340	3,829	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	236,498	
Total Boron	0	0		0	8,100	8,100	91,221	
Total Cadmium	0	0		0	1.857	1.96	22.1	Chem Translator of 0.947 applied
Total Chromium (III)	0	0		0	532.235	1,684	18,968	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	183	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,070	

Total Copper	0	0		0	12.426	12.9	146	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	22	22.0	248	
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	58.982	73.4	827	Chem Translator of 0.803 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	18.5	Chem Translator of 0.85 applied
Total Nickel	0	0		0	436.413	437	4,925	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	2.788	3.28	36.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	732	
Total Zinc	0	0		0	109.205	112	1,258	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 12.334 PMF: 1 Analysis Hardness (mg/l): 92.017 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	2,478	
Total Arsenic	0	0		0	150	150	1,689	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	46,173	
Total Boron	0	0		0	1,600	1,600	18,019	
Total Cadmium	0	0		0	0.232	0.25	2.87	Chem Translator of 0.912 applied
Total Chromium (III)	0	0		0	69.233	80.5	907	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	117	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	214	
Total Copper	0	0		0	8.341	8.69	97.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	58.6	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	16,893	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.298	2.86	32.2	Chem Translator of 0.803 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	10.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	48.472	48.6	548	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	56.2	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	146	
Total Zinc	0	0		0	110.098	112	1,258	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 12.334 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	63.1	
Total Arsenic	0	0		0	10	10.0	113	
Total Barium	0	0		0	2,400	2,400	27,028	
Total Boron	0	0		0	3,100	3,100	34,912	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	45.0	
Dissolved Iron	0	0		0	300	300	3,379	
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	11,262	
Total Mercury	0	0		0	0.050	0.05	0.56	
Total Nickel	0	0		0	610	610	6,870	
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	2.7	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 3.918 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	

Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***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	5,414	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	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	27,028	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	18,019	µg/L	Discharge Conc < TQL
Total Cadmium	2.87	µg/L	Discharge Conc < TQL
Total Chromium (III)	907	µg/L	Discharge Conc < TQL
Hexavalent Chromium	117	µg/L	Discharge Conc < TQL

Total Cobalt	214	µg/L	Discharge Conc ≤ 10% WQBEL

Total Copper	93.4	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	45.0	µg/L	Discharge Conc < TQL
Dissolved Iron	3,379	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	16,893	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	32.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	11,262	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.56	µg/L	Discharge Conc < TQL
Total Nickel	548	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	56.2	µg/L	Discharge Conc < TQL
Total Silver	23.7	µg/L	Discharge Conc < TQL
Total Thallium	2.7	µg/L	Discharge Conc < TQL
Total Zinc	806	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS

	A	B	C	D	E	F	G
1							
2	**TRC EVALUATION**						
3	Input appropriate values in B4:B8 and E4:E7						
4		0.635	= Q stream (cfs)		0.5	= CV Daily	
5		0.04	= Q discharge (MGD)		0.5	= CV Hourly	
6		30	= no. samples		1	= AFC_Partial Mix Factor	
7		0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8		0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9		0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
		0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations	
11	TRC	1.3.2.iii	WLA afc = 3.293		1.3.2.iii	WLA cfc = 3.202	
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581	
13	PENTOXSD TRG	5.1b	LTA_afc= 1.227		5.1d	LTA_cfc = 1.862	
14							
15	Source		Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML MULT = 1.231				
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ		
18			INST MAX LIMIT (mg/l) = 1.635				

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)