pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0012416**
Facility Type	**Industrial**	APS ID	**1036276**
Major / Minor	**Minor**	Authorization ID	**1349736**

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

Applicant and Facility Information

Applicant Name	**PA American Water Co.**	Facility Name	**Rock Run WFP**
Applicant Address	852 Wesley Drive	Facility Address	198 Waterworks Road
	Mechanicsburg, PA 17055-4436		Coatesville, PA 19320-1774
Applicant Contact	May Kristin	Facility Contact	Thomas Horning
Applicant Phone	(484) 946-7453	Facility Phone	(610) 384-5070
Client ID	87712	Site ID	445585
SIC Code	4941	Municipality	West Caln
SIC Description	Trans. & Utilities - Water Supply	County	Chester
Date Application Received	March 25, 2021	EPA Waived?	No
Date Application Accepted		If No, Reason	TMDL

Purpose of Application: Permit Renewal.

Summary of Review

The applicant requests renewal of an NPDES permit to discharge treated filter backwash water and supernatant from sludge holding tanks into Rock Run Reservoir, a UNT to West Branch Brandywine Creek from the Rock Run Water Filtration Plant.

The water treatment facility withdraws water from Rock Run Reservoir and prepares it for potable public consumption, then pumps it through a distribution system piping network to residential, commercial, and industrial customers in a number of Boroughs and Townships. Raw water is pumped from the reservoir and dosed with PACL/ferric chloride, powdered carbon, caustic soda, and sodium permanganate and are mixed in a flash mix basin. The water then goes to flocculation basins (2), sedimentation basins (4), and mixed media filters (4) (sodium hypochlorite is added to the top of the filters), then to a clearwell, where fluoride, and sodium hypochlorite (only for emergency situations) are added to the finished water before being pumped into the distribution system.

Filter backwash water, sump pump water, and analyzer wastewater are discharged to the clarifier tanks. When needed wastewater is dechlorinated prior to entering the clarifier tanks. Sludge from the sedimentation basins is discharged into the sludge thickener tank. The sludge settles and the supernatant flows to the clarifier tanks for discharge. In 2013 a recycle line was added from the wastewater tanks to the raw water line. Wastewater is recycled when possible, however the rate of recycling is limited to 10% of plant flow. When this rate needs to be exceeded due to treatment challenges, the wastewater is discharged to the reservoir. The settled solids are removed from the sludge thickener tank by a tanker and transported for disposal. Sodium thiosulfate is used for dechlorination.

The following are the proposed upgrades at the facility. LT2 upgrades, including installation of post filtration UV disinfection, addition of chlorine dioxide, switching from 0.8% solution strength hypochlorite to 12.5% hypochlorite, filter change from dual media (anthracite/sand) to GAC and addition of coagulant aid and filter aid polymers.

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	June 1, 2021
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	06/02/2021

Summary of Review

All the chemicals listed in the application are used for the treatment of drinking water except sodium thiosulfate which is used for wastewater treatment (dechlorination).

Review of dmrs show few effluent violations during past year for TSS, Total Aluminum and Total Manganese.

The Christina River Basin Total Maximum Daily Load (TMDL) for nutrients and dissolved oxygen for low-flow conditions was issued by the EPA in January 2001 and revised in October 2002 and April 2006. Page 44 of the original report says that water filtration plant backwash facilities were not included in the allocation analysis, since a model run covering all small discharges (0.25 mgd or less) indicated that the daily average DO and minimum DO were protected at all locations in the Christina River Basin. Summary Table 13 in the TMDL report lists the permit number, a flow of 0.14 mgd, and values in the wasteload allocation columns that correspond to the characteristic (default) concentrations (except for $CBOD_5$) for Water Filtration Plants, listed in Table 6-4 in the EPA report Hydrodynamic and Water Quality Model of Christina River Basin. Default for $CBOD_5$ was listed as 2.0 mg/l but Table 13 lists 10 mg/l. The current NPDES permit included the TMDL parameters with limits, to be in consistent with EPA TMDL requirements.

On June 27, 2012 the Department of Environmental Protection (DEP) submitted "Alternate Reduction Scenario" to EPA's 2006 Addendum to Christina River Basin Low-Flow TMDL for review and approval to USEPA Region 3. On August 29, 2012, EPA provided written notification of their acceptance of DEP's proposed alternative reduction scenario for Christina River Basin Low-Flow TMDL in Chester County, PA. EPA's 2006 Addendum to the TMDL (Addendum) provides one scenario for load reductions that, together with other sources' reductions, result in achieving water quality standards throughout the length of the impaired waterbody. The Addendum contemplates the development of, and is sufficiently flexible to allow for, an alternative reduction scenario that also demonstrates that water quality standards are met throughout the length of the impaired waterbody, without the need for a formal TMDL revision, given the dynamic nature of NPDES permits in TMDL waters. The aggregate sum of the wasteload allocations is unchanged and there are no changes to the total loading by basin or subwatershed segment. The alternative reduction scenario, as approved by EPA with wasteload allocation for all the dischargers was published in PA Bulletin Document No. 12-2146d. The wasteload allocations for Rock Run WFP listed in the PA Bulletin are similar to the allocations in the original TMDL report except for TN.

Review of the records from last permit renewal indicates that there was an error in the Pennsylvania's Alternative Reduction Scenario for Christina River Basin Low-Flow TMDL dated June 27, 2012 for Rock Run WFP and assigned the original TMDL net wasteload allocations for NH3-N, TP and TN for this facility. Accordingly, the same limits are carried over to the new permit.

Christina River Basin High-Flow TMDL for Fecal Coliform=2 # /100 ml (Geo. Mean), and for TSS=20 mg/l for this facility. These existing limits are also carried over to the new permit.

File review shows that limits for $CBOD_5$ (10 mg/l Avg. Monthly) and TSS (20 mg/l Avg Monthly) have been continued in renewal permits since prior to the year 2000.

The Department's guidance document, Technology-Based Control Requirements for Water Treatment Plant Wastes (362-2183-003), includes BPT effluent requirements for filter backwash, as indicated in the following table. These have been applied previously and continue, except for parameters with WQ limits that are already lower (Suspended Solids and Aluminum).

Parameter	Monthly Avg (mg/l)	Daily Max (mg/l)
Suspended Solids	30	60
Iron (Total)	2	4
Aluminum (Total)	4	8
Manganese (total)	1	2
Flow	Monitor	
pH	6 – 9 at all times	
Total Residual Chlorine	0.5	1.0

DRBC Docket No. D-2006-036 CP-2 was approved for this discharge on September 10, 2014. The effluent limits in the current NPDES permit are consistent or more stringent than the effluent limits listed in the docket.

Summary of Review

A "Reasonable Potential Analysis" determined the following parameters were candidates for limitations & monitoring:

Parameter	Monthly Ave. Conc (ug/l)	Maximum Daily Conc. (ug/l)	Inst. Max. (ug/l)	Recommendation/Basis
Total Aluminum	750	1,145	1,145	Continue existing limit/TMS v.1.3
Hexavalent Chromium*	15.9	24.8	39.7	Monitoring/TMS v.1.3
Total Copper***	12.7	19.4	19.4	Report/TMS v.1.3
Dissolved Iron	Report	Report	Report	Monitoring/TMS v.1.3
Total Iron	Report	Report	Report	Existing limit/TMS v.1.3
Total Manganese	1,526	2,381	3,816	Continue existing limit/TMS v.1.3
Total Thallium**	0.37	0.57	0.92	Monitoring/TMS v.1.3
Chlorodibromomethane	4.91	7.67	12.3	Limit/TMS v.1.3
Chloroform	35.0	54.6	87.5	Limit/TMS v.1.3
Dichlorobromomethane	5.83	9.1	14.6	Limit/TMS v.1.3

*Only three samples are available. Recommend monitoring to collect more data and will be re-evaluated at the next renewal.

**Only three samples are available, and two results are reported as non-detectable. Recommend monitoring to collect more data and will be re-evaluated at the next renewal.

*** Review of copper data shows mostly non-detect results except for summer months which is directly linked to the addition of copper sulfate in the reservoir during summer months. This reservoir has a long history of having high nutrients due to the runoff from the adjacent Coatesville Country Club (Golf). This has caused major algae issues. Permittee has tried various different ways to reduce and control algae in the reservoir - discussion with golf course operations, various treatment trials and mechanisms in the reservoir including SolarBees, LG sonic units - and have had the most success using copper sulfate. Since intake water from, and the discharge to, the same water body, we want to collect data to see if the facility is contributing any copper to the discharge. Monitoring for Copper - intake, effluent and effluent net are incorporated into the new permit. The data will be evaluated at the next renewal. Currently the facility recycles the wastewater and there is no discharge for the past many months.

****TMS report is also attached.

Following are the recommended effluent limits:

PARAMETER	AVERAGE MONTHLY LIMIT (mg/l)	BASIS
CBOD5	10	TMDL
Total Suspended Solids	20	TMDL
Ammonia-Nitrogen(effluent net)	0.10	TMDL
Total Nitrogen (effluent net)	0.24	TMDL
Total Phosphorus (effluent net)	0.10	TMDL
Dissolved Oxygen	5.0 Inst. Minimum	TMDL
pH	6.0 – 9.0 SU	BPT
Total Aluminum	0.8	Existing limit/previous calculation
Total Iron	2.0	BPT
Total Manganese	1.0	BPT
Total Residual Chlorine	0.5	BPT
Chlorodibromomethane*	Report/0.005 (final limit)	TMS
Dichlorobromomethane*	Report/0.006 (final limit)	TMS
Chloroform*	Report/0.035 (final limit)	TMS
Total Dissolved Solids	1,000	DRBC
Fecal Coliform	2 #/100 ml (Geo. Mean)	TMDL
Total Copper	Report	TMS/BPJ
Hexavalent Chromium	Report	TMS
Dissolved Iron	Report	TMS

Summary of Review

Total Thallium	Report	TMS

*Despite the continuing efforts by the facility to reduce the trihalomethanes (disinfection by-products), the discharge consistently shows elevated concentrations for chloroform, chlorodibromomethane, and dichlorobromomethane. Effluent limits for these parameters are included in the permit with a compliance time of 3 years.

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.

Act 14 Notifications:

West Caln Township - January 28, 2021
Chester County - January 28, 2021

Permit Conditions:

A. Acquire Necessary Property Rights
B. Proper Sludge Disposal
C. BAT/ELG Reopener
D. Chlorine Optimization
E. Intake Monitoring
F. Chemical Additives
G. Schedule of Compliance

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.14
Latitude	40º 0' 17.89"	Longitude	-75º 51' 13.23"
Quad Name	Wagontown	Quad Code	1839
Wastewater Description:	Water Treatment Effluent		
Receiving Waters	Unnamed Tributary to West Branch Brandywine Creek	Stream Code	00206
NHD Com ID	26105796	RMI	1.9
Drainage Area	5.12 mi^2		
Q_{7-10} Flow (cfs)	0.114*	Q_{7-10} Basis	usgs streamstats
Elevation (ft)	492.11		
Watershed No.	3-H	Chapter 93 Class.	TSF
Assessment Status	Not Assessed		

*Discharge is into the Rock Run Reservoir, Q7-10 is calculated at the upstream point of the Reservoir.

Discharge Information

Instructions | Discharge | Stream

Facility: **Rock Run WFP** NPDES Permit No.: **PA0012416** Outfall No.: **001**

Evaluation Type **Major Sewage / Industrial Waste** Wastewater Description: **Water Treatment 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
0.14	85	7.6						

					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		788									
	Chloride (PWS)	mg/L		62.7									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		15.4									
	Fluoride (PWS)	mg/L		0.09									
	Total Aluminum	µg/L		4500									
	Total Antimony	µg/L	<	0.4									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		62									
	Total Beryllium	µg/L	<	0.4									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.08									
	Total Chromium (III)	µg/L		0.9									
	Hexavalent Chromium	µg/L		650									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		70									
Group 2	Free Cyanide	µg/L											
	Total Cyanide	µg/L		7									
	Dissolved Iron	µg/L		95									
	Total Iron	µg/L		306									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		3030									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		3									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.05									
	Total Thallium	µg/L		0.5									
	Total Zinc	µg/L		3									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<	1500									
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										

Group 3	Chloroform	µg/L	<	48500										
	Dichlorobromomethane	µg/L	<	6700										
	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	<											
	Acenaphthene	µg/L	<											
	Acenaphthylene	µg/L	<											
	Anthracene	µg/L	<											
	Benzidine	µg/L	<											
	Benzo(a)Anthracene	µg/L	<											
	Benzo(a)Pyrene	µg/L	<											
Group 5	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

Rock Run WFP, NPDES Permit No. PA0012416, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT to West Branch Brandywine Creel** 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	000206	1.9	492.11	5.12			Yes
End of Reach 1	000206	0.75	375.97	7.72			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.9	0.1	0.114									100	7		
End of Reach 1	0.75	0.1	0.252												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.9														
End of Reach 1	0.75														

Model Results

Rock Run WFP, NPDES Permit No. PA0012416, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.304 PMF: 1 Analysis Hardness (mg/l): 90.173 Analysis pH: 7.29

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,145	
Total Antimony	0	0		0	1,100	1,100	1,679	
Total Arsenic	0	0		0	340	340	519	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	32,054	
Total Boron	0	0		0	8,100	8,100	12,364	
Total Cadmium	0	0		0	1.821	1.92	2.93	Chem Translator of 0.948 applied
Total Chromium (III)	0	0		0	523.481	1,657	2,529	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	24.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	145	
Total Copper	0	0		0	12.191	12.7	19.4	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	57.692	71.6	109	Chem Translator of 0.806 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.51	Chem Translator of 0.85 applied
Total Nickel	0	0		0	429.001	430	656	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	2.692	3.17	4.83	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	99.2	
Total Zinc	0	0		0	107.347	110	168	Chem Translator of 0.978 applied
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	1,900	1,900	2,900	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 0.304 PMF: 1 Analysis Hardness (mg/l): 90.173 Analysis pH: 7.29

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	336	
Total Arsenic	0	0		0	150	150	229	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	6,258	
Total Boron	0	0		0	1,600	1,600	2,442	
Total Cadmium	0	0		0	0.229	0.25	0.38	Chem Translator of 0.913 applied
Total Chromium (III)	0	0		0	68.094	79.2	121	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	15.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	29.0	
Total Copper	0	0		0	8.198	8.54	13.0	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	2,290	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.248	2.79	4.26	Chem Translator of 0.806 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.38	Chem Translator of 0.85 applied
Total Nickel	0	0		0	47.649	47.8	72.9	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	7.62	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	19.8	
Total Zinc	0	0		0	108.225	110	168	Chem Translator of 0.986 applied
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	390	390	595	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 0.304 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	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	8.55	
Total Arsenic	0	0		0	10	10.0	15.3	
Total Barium	0	0		0	2,400	2,400	3,663	
Total Boron	0	0		0	3,100	3,100	4,732	
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	458	
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	1,526	
Total Mercury	0	0		0	0.050	0.05	0.076	
Total Nickel	0	0		0	610	610	931	
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	0.37	
Total Zinc	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.716 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	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	
Chlorodibromomethane	0	0		0	0.8	0.8	4.91	
Chloroform	0	0		0	5.7	5.7	35.0	
Dichlorobromomethane	0	0		0	0.95	0.95	5.83	

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	0.88	1.34	750	1,145	1,145	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	0.019	0.029	15.9	24.8	39.7	µg/L	15.9	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.015	0.023	12.7	19.4	19.4	µg/L	12.7	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	458	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	2,290	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	1.78	2.78	1,526	2,381	3,816	µg/L	1,526	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	0.0004	0.0007	0.37	0.57	0.92	µg/L	0.37	THH	Discharge Conc ≥ 50% WQBEL (RP)
Chlorodibromomethane	0.006	0.009	4.91	7.67	12.3	µg/L	4.91	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Chloroform	0.041	0.064	35.0	54.6	87.5	µg/L	35.0	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dichlorobromomethane	0.007	0.011	5.83	9.1	14.6	µg/L	5.83	CRL	Discharge Conc ≥ 50% WQBEL (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	3,663	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,442	µg/L	Discharge Conc < TQL
Total Cadmium	0.38	µg/L	Discharge Conc < TQL
Total Chromium (III)	121	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	29.0	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Total Lead	4.26	µg/L	Discharge Conc < TQL
Total Mercury	0.076	µg/L	Discharge Conc < TQL
Total Nickel	72.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	7.62	µg/L	Discharge Conc < TQL
Total Silver	3.17	µg/L	Discharge Conc < TQL
Total Zinc	110	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

The parameters and values used in the TMS:

Point of discharge:

RMI = 1.9
Drainage area = 5.12 sq.mi.
Q_{7-10} = 0.144 cfs
Elevation = 492.11 ft

End of Reach 1:

RMI = 0.75
Drainage area = 7.72 sq.mi.
Q_{7-10} = 0.252 cfs
Elevation = 375.97 ft

Compliance History

DMR Data for Outfall 001 (from March 1, 2020 to February 28, 2021)

Parameter	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20
Flow (MGD) Average Monthly							0.17	0.182	0.173	0.161	0.138	0.15
Flow (MGD) Daily Maximum							0.288	0.421	0.307	0.308	0.266	0.326
pH (S.U.) Instantaneous Minimum							7.08	7.19	7.22	7.31	7.41	7.32
pH (S.U.) Instantaneous Maximum							7.37	7.75	7.76	7.63	7.80	7.92
DO (mg/L) Instantaneous Minimum							6.22	E	7.4	E	9.52	13.7
TRC (mg/L) Average Monthly							0.3	0.3	0.1	0.2	0.2	0.2
TRC (mg/L) Instantaneous Maximum							0.48	0.94	0.3	0.48	0.27	0.58
CBOD5 (lbs/day) Average Monthly							< 2.3	E	< 3.1	< 2.0	< 2.5	< 0.6
CBOD5 (mg/L) Average Monthly							< 2.0	E	< 2.0	< 2.0	< 2.0	< 2.0
CBOD5 (mg/L) Daily Maximum							< 2	E	< 2.0	< 2.0	< 2.0	< 2.0
TSS (lbs/day) Average Monthly							41.4	E	< 12.5	< 3.6	10.8	< 1.2
TSS (mg/L) Average Monthly							36	E	8	< 4	9	< 4
TSS (mg/L) Daily Maximum							36	E	8	7.6	8.8	4
Total Dissolved Solids (mg/L) Average Monthly							788.0	E	178.00	156.0	276.00	140.0
Total Dissolved Solids (mg/L) Daily Maximum							788.0	E	178.0	156.0	276.0	140.0

Fecal Coliform (No./100 ml) Geometric Mean							< 1	E	< 1	< 2	< 1	< 1
Total Nitrogen (lbs/day) Effluent Net Average Monthly							0.5	E	0.4	0.5	0.2	0.06
Total Nitrogen (lbs/day) Influent Average Monthly							3	E	5	3	4	1
Total Nitrogen (mg/L) Effluent Net Average Monthly							0.46	E	0.28	0.02	0.2	0.18
Total Nitrogen (mg/L) Influent Average Monthly							2.79	E	2.9	3.22	3.47	3.72
Total Nitrogen (mg/L) Effluent Net Daily Maximum							0.46	E	0.28	0.02	0.16	0.18
Total Nitrogen (mg/L) Influent Daily Maximum							2.79	E	2.9	3.22	3.47	3.72
Ammonia (lbs/day) Effluent Net Average Monthly							< 0.1	E	< 0.03	< 0.09	< 0.1	< 0.03
Ammonia (lbs/day) Influent Average Monthly							0.2	E	< 0.2	< 0.09	< 0.1	< 0.03
Ammonia (mg/L) Effluent Net Average Monthly							< 0.1	E	< 0.02	< 0.1	< 0.1	< 0.1
Ammonia (mg/L) Influent Average Monthly							0.21	E	< 0.1	< 0.1	< 0.1	< 0.1
Ammonia (mg/L) Effluent Net Daily Maximum							< 0.1	E	< 0.02	< 0.1	< 0.1	< 0.1
Ammonia (mg/L) Influent Daily Maximum							0.21	E	< 0.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (lbs/day) Average Monthly							0.2	E	0.2	0.09	< 0.1	< 0.03

Total Phosphorus (lbs/day) Effluent Net Average Monthly							0.010	E	0.050	0.009	< 0.100	< 0.030
Total Phosphorus (lbs/day) Influent Average Monthly							0.2	E	0.2	0.09	< 0.1	< 0.03
Total Phosphorus (mg/L) Average Monthly							0.15	E	0.1	0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Effluent Net Average Monthly							0.01	E	0.03	0.01	< 0.10	< 0.10
Total Phosphorus (mg/L) Influent Average Monthly							0.21	E	0.13	0.11	< 0.1	< 0.1
Total Phosphorus (mg/L) Daily Maximum							0.15	E	0.1	0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Effluent Net Daily Maximum							0.01	E	0.03	0.01	< 0.1	< 0.1
Total Phosphorus (mg/L) Influent Daily Maximum							0.21	E	0.13	0.11	< 0.1	< 0.1
Total Aluminum (lbs/day) Average Monthly							5.16	E	1.79	0.70	0.40	0.04
Total Aluminum (mg/L) Average Monthly							4.5	E	1.1	0.8	0.3	0.1
Total Aluminum (mg/L) Daily Maximum							4.48	E	1.14	0.762	0.323	0.125
Total Copper (mg/L) Average Monthly							0.07	E	0.023	< 0.01	< 0.01	< 0.01
Total Copper (mg/L) Daily Maximum							0.07	E	0.023	< 0.01	< 0.01	< 0.01
Total Iron (lbs/day) Average Monthly							0.4	E	< 0.08	0.08	< 0.06	< 0.02

Total Iron (mg/L) Average Monthly							0.3	E	< 0.1	0.1	< 0.1	< 0.1
Total Iron (mg/L) Daily Maximum							0.306	E	< 0.05	0.09	< 0.05	< 0.05
Total Manganese (lbs/day) Average Monthly							2.9	E	1.6	0.3	2.0	0.1
Total Manganese (mg/L) Average Monthly							2.6	E	1.0	0.3	1.7	0.3
Total Manganese (mg/L) Daily Maximum							2.56	E	0.995	0.308	1.65	0.317
Chlorodibromo-methane (mg/L) Daily Maximum							1.4	E	0.6	0.6	1.2	0.8
Dichlorobromo-methane (mg/L) Daily Maximum							6.2	E	4.3	4.5	5.4	4.8
Chloroform (mg/L) Daily Maximum							48.5	E	23.8	19.9	24.3	18.7

Compliance History

Effluent Violations for Outfall 001, from: April 1, 2020 To: February 28, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	08/31/20	Avg Mo	41.4	lbs/day	23.4	lbs/day
TSS	08/31/20	Avg Mo	36	mg/L	20	mg/L
Total Aluminum	08/31/20	Avg Mo	5.16	lbs/day	0.93	lbs/day
Total Aluminum	06/30/20	Avg Mo	1.79	lbs/day	0.93	lbs/day
Total Aluminum	06/30/20	Avg Mo	1.1	mg/L	0.8	mg/L
Total Aluminum	08/31/20	Avg Mo	4.5	mg/L	0.8	mg/L
Total Aluminum	08/31/20	Daily Max	4.48	mg/L	1.6	mg/L
Total Manganese	04/30/20	Avg Mo	2.0	lbs/day	1.2	lbs/day
Total Manganese	06/30/20	Avg Mo	1.6	lbs/day	1.2	lbs/day
Total Manganese	08/31/20	Avg Mo	2.9	lbs/day	1.2	lbs/day
Total Manganese	08/31/20	Avg Mo	2.6	mg/L	1.0	mg/L
Total Manganese	04/30/20	Avg Mo	1.7	mg/L	1.0	mg/L
Total Manganese	08/31/20	Daily Max	2.56	mg/L	2.0	mg/L

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" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Completion of Year 3 of the Permit*.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chlorodibromomethane	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Dichlorobromomethane	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Chloroform	Report	Report	XXX	Report	Report	XXX	1/month	Grab

Outfall 001, Effective Period: Beginning of Year 4 of the Permit through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chlorodibromomethane	0.006	0.009	XXX	0.005	0.008	0.012	1/month	Grab
Dichlorobromomethane	0.007	0.011	XXX	0.006	0.009	0.015	1/month	Grab
Chloroform	0.041	0.064	XXX	0.035	0.055	0.088	1/month	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/discharge	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/discharge	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/month	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	1/discharge	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	11.7	XXX	XXX	10.0	Report	XXX	1/month	Grab
Total Suspended Solids	23.4	46.7	XXX	20.0	40.0	50	1/month	Grab
Total Dissolved Solids	1168	2335	XXX	1000.0	2000.0	2500	1/month	Grab
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	2 Geo Mean	XXX	XXX	1/month	Grab
Total Nitrogen Effluent Net	0.280	XXX	XXX	0.24	Report	XXX	1/month	Calculation
Total Nitrogen	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Nitrogen Intake	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Ammonia-Nitrogen Effluent Net	0.117	XXX	XXX	0.10	Report	XXX	1/month	Calculation
Ammonia-Nitrogen Intake	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Phosphorus Intake	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Phosphorus	Report	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Phosphorus Effluent Net	0.117	XXX	XXX	0.10	Report	XXX	1/month	Calculation

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Aluminum, Total	0.93	1.87	XXX	0.8	1.6	2.1	1/month	Grab
Chromium, Hexavalent	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Copper, Total Intake	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Copper, Total Effluent Net	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Iron, Dissolved	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Iron, Total	2.3	4.7	XXX	2.0	4.0	5	1/month	Grab
Manganese, Total	1.2	2.4	XXX	1.0	2.0	2.5	1/month	Grab
Thallium, Total	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab