pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0114740**
Facility Type	**Industrial**	APS ID	**1035767**
Major / Minor	**Minor**	Authorization ID	**1348892**

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

Applicant and Facility Information

Applicant Name	**Aqua Pennsylvania, Inc.**	Facility Name	**Roaring Creek Water Treatment Plant**
Applicant Address	204 E Sunbury Street	Facility Address	2133 State Route 54
	Shamokin, PA 17872-4826		Elysburg, PA 17824-7023
Applicant Contact	Stephen Draus	Facility Contact	David Fournier
Applicant Phone	(570) 648-5783	Facility Phone	(570) 672-3305
Client ID	309251	Site ID	1154
SIC Code	4941	Municipality	Coal Township
SIC Description	Trans. & Utilities - Water Supply	County	Northumberland
Date Application Received	April 6, 2021	EPA Waived?	Yes
Date Application Accepted	April 20, 2021	If No, Reason	

Purpose of Application: Renewal of an existing NPDES permit for the discharge of industrial wastewater.

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* Derek S. Garner / Project Manager	November 15, 2021
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	November 16, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.131
Latitude	40º 49' 28"	Longitude	-76º 30' 5"
Quad Name	Shamokin	Quad Code	1233
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	South Branch Roaring Creek	Stream Code	27462
NHD Com ID	65643425	RMI	6.73
Drainage Area	See Below (1)	Yield (cfs/mi^2)	See Below (1)
Q_{7-10} Flow (cfs)	1.0	Q_{7-10} Basis	See Below (1)
Elevation (ft)	826	Slope (ft/ft)	n/a
Watershed No.	5-E	Chapter 93 Class.	HQ-CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	15.67

(1) Water allocation permit WA49-81A, Special Condition No. 8 dictates that a continuous flow of not less than 0.1 cfs/mi^2 from the 5.57 square miles of watershed area above the Bear Gap No. 1 Reservoir shall be maintained at all times in South Branch Roaring Creek immediately below the dam.

Outfall No.	002	Design Flow (MGD)	n/a – emergency outfall
Latitude	40º 49' 30"	Longitude	-76º 30' 8"
Quad Name	Shamokin	Quad Code	1233

Wastewater Description: IW Process Effluent without ELG

Receiving Waters	South Branch Roaring Creek	Stream Code	27462
NHD Com ID	65643425	RMI	6.77
Drainage Area	See Below (1)	Yield (cfs/mi^2)	See Below (1)
Q_{7-10} Flow (cfs)	1.0	Q_{7-10} Basis	See Below (1)
Elevation (ft)	826	Slope (ft/ft)	n/a
Watershed No.	5-E	Chapter 93 Class.	HQ-CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a

Assessment Status: Attaining Use(s)
Cause(s) of Impairment: n/a
Source(s) of Impairment: n/a
TMDL Status: n/a Name: n/a

Nearest Downstream Public Water Supply Intake: Danville Municipal Water Authority

PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	15.67

(1) Water allocation permit WA49-81A, Special Condition No. 8 dictates that a continuous flow of not less than 0.1 cfs/mi^2 from the 5.57 square miles of watershed area above the Bear Gap No. 1 Reservoir shall be maintained at all times in South Branch Roaring Creek immediately below the dam.

Treatment Facility Summary

The Roaring Creek Water Treatment Plant ("RCWTP") withdraws and treats surface water for potable consumption. The wastewater generated through the treatment process is conveyed via gravity to two 480,000-gallon lined sludge lagoons. The supernatant is decanted from the lagoons and discharged through Outfall 001. The sludge is land applied. Outfall 002 is only to be used in emergency situations where a discharge via Outfall 001 is not possible.

The sludge lagoon liners may be replaced within the next five years.

Compliance History

The facility was most recently inspected by DEP on March 24, 221. No violations were noted during the inspection.

A compliance query did not result in any effluent or permit violations associated with the RCWTP. However, there are numerous open violations associated with the permittee statewide. The open violations are as follows:

Facility	Program	Permit	Violation ID	Violation Date	Violation
Aqua PA Schickshinny Lake (1)	Safe Drinking Water	2400029	919150	5/25/2021	Failure to sample at appropriate locations or follow sample collection protocols
Aqua PA Schickshinny Lake (1)	Safe Drinking Water	2400029	919151	5/25/2021	Failure to meet design and construction standards
Aqua PA Schickshinny Lake (1)	Safe Drinking Water	2400029	919152	5/25/2021	Failure to submit or revise a comprehensive monitoring plan
Aqua PA Wild Pines	Safe Drinking Water	2450141	875712	2/4/2020	Failure to meet design and construction standards
Aqua PA Wild Pines	Safe Drinking Water	2450141	875713	2/4/2020	Failure to operate and maintain the water system
Aqua PA Clarendon	Safe Drinking Water	SM2134712	934489	10/27/2021	Exceeded the chemical average maximum contaminant level

(1) Email correspondence with DEP's Northeast Regional Office states the Shickshinny Lake facility is not on a path towards compliance.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.131
Latitude 40º 49' 28" **Longitude** -76º 30' 5"
Wastewater Description: IW Process Effluent without ELG

Outfall 001 discharges supernatant from the sludge lagoons approximately 4 hours a day, 7 days a week.

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.	Min – Max	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 (2)	0.05	IMAX	92a.48(b)(3)

(1) Sample results for Dissolved Iron and Oil and Grease submitted with the application indicate that neither of the pollutants are present in the effluent. Since effluent concentrations to 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.

(2) The permittee is required to dechlorinate since the discharge is to a high-quality surface water. DEP generally establishes an instantaneous maximum limit of 0.02 mg/L to demonstrate effective dechlorination is taking place. However, when an existing limit of 0.1 mg/L or less has already been established DEP will accept this as demonstrating dechlorination *(SOP No. BCW-PMT-033 v1.9, Section II.C.4*). Accordingly, the existing instantaneous maximum limit of 0.05 mg/L will remain.

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.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" was conducted in the Toxics Management Spreadsheet v1.3 ("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	1.97	3.07	1802	2811	4505	µg/l	1802	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	6.14	9.58	5623	8772	14057	µg/l	5623	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	4.1	6.39	3748	5848	9371	µg/l	3748	THH	Discharge Conc ≥ 50% WQBEL (RP)

The input values for total aluminum, iron, and manganese are the existing daily maximum limits based on BPJ (see BPJ discussion above) since that is the maximum concentration the permittee is currently allowed to discharge. Out of the above TMS recommendations, only total aluminum is more stringent than the existing BPJ-based limits. Accordingly, the recommended WQBELs for total aluminum will be established in the permit while the existing BPJ-based limits for total iron and total manganese will remain.

The TMS doesn't recommend limits or monitoring requirements for any other pollutants.

Chesapeake Bay

The fact sheet developed for the previous renewal summarized five years of nutrient sampling. Based on the data, the fact sheet concluded that the facility does not contribute to the watershed's loading of total nitrogen or phosphorus.

Anti-Backsliding

No limits or monitoring requirements are proposed to be made less stringent.

Outfall No. 002 **Design Flow (MGD)** n/a – emergency outfall
Latitude 40º 49' 30.00" **Longitude** -76º 30' 8.00"
Wastewater Description: IW Process Effluent without ELG

Outfall 002 is an emergency outfall used to discharge lagoon supernatant during flooding events.

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.	Min – Max	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 (2)	0.05	IMAX	92a.48(b)(3)

(1) Sample results for Dissolved Iron and Oil and Grease submitted with the application indicate that neither of the pollutants are present in Outfall 001's effluent. Since Outfall 001's effluent is representative of what would be discharged via Outfall 002 and because the effluent concentrations to 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.

(2) The permittee is required to dechlorinate since the discharge is to a high-quality surface water. DEP generally establishes an instantaneous maximum limit of 0.02 mg/L to demonstrate effective dechlorination is taking place. However, when an existing limit of 0.1 mg/L or less has already been established DEP will accept this as demonstrating dechlorination (*SOP No. BCW-PMT-033 v1.9, Section II.C.4)*. Accordingly, the existing instantaneous maximum limit of 0.05 mg/L will remain.

Water Quality-Based Limitations

A "Reasonable Potential Analysis" was not conducted for Outfall 002 since it is only used for emergency purposes and would be the same quality as that discharged from Outfall 001. The above analysis for Outfall 001 is applicable to Outfall 002.

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.

Anti-Backsliding

No limits or monitoring requirements are proposed to be made less stringent.

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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	2/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	0.05	2/week	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	2/month	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	10	2/month	Grab
Iron, Total	XXX	XXX	XXX	2.0	4.0	5	2/month	Grab
Manganese, Total	XXX	XXX	XXX	1.0	2.0	2.5	2/month	Grab

Outfall 002, 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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when Discharging	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	XXX	XXX	0.05	Daily when Discharging	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	Daily when Discharging	Grab
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	10	Daily when Discharging	Grab
Iron, Total	XXX	XXX	XXX	2.0	4.0	5	Daily when Discharging	Grab
Manganese, Total	XXX	XXX	XXX	1.0	2.0	2.5	Daily when Discharging	Grab

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 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	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	2/week	Grab
TRC	XXX	XXX	XXX	XXX	XXX	0.05	2/week	Grab
TSS	XXX	XXX	XXX	30.0	60.0	75	2/month	Grab
Total Aluminum	XXX	XXX	XXX	1.80	2.81	4.5	2/month	Grab
Total Iron	XXX	XXX	XXX	2.0	4.0	5	2/month	Grab
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	2/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" (362-0400-001), SOPs and/or BPJ.

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Outfall 002, 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	Daily when Discharging	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	XXX	XXX	0.05	Daily when Discharging	Grab
TSS	XXX	XXX	XXX	30	60	75	Daily when Discharging	Grab
Total Aluminum	XXX	XXX	XXX	1.80	2.81	4.5	Daily when Discharging	Grab
Total Iron	XXX	XXX	XXX	2.0	4.0	5	Daily when Discharging	Grab
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	Daily when Discharging	Grab

Compliance Sampling Location: Outfall 002

Discharge Information

Instructions | Discharge | Stream

Facility: **Aqua PA Roaring Creek Water Treatment Plant**

NPDES Permit No.: **PA0114740**

Outfall No.: **001**

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

Wastewater Description: **Filter backwash**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.131	20.7	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		64									
	Chloride (PWS)	mg/L		12.4									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		6									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L		8000									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L	<	1.5									
	Total Barium	µg/L		19									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L		0.062									
	Total Cobalt	µg/L	<	2.5									
	Total Copper	µg/L	<	2.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L	<	60									
	Total Iron	µg/L		4000									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		2000									
	Total Mercury	µg/L		0.002									
	Total Nickel	µg/L	<	2.5									
	Total Phenols (Phenolics) (PWS)	µg/L		6									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		3.9									
	Total Molybdenum	µg/L	<	1									
	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

Aqua PA Roaring Creek Water Treatment Plant, NPDES Permit No. PA0114740, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **South Branch Roaring Creek**

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	027462	6.74	826	14.7			Yes
End of Reach 1	027462	4.46	688	19.2			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	6.74	0.1	0.557									100	7		
End of Reach 1	4.46	0.1	0.557									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	6.74														
End of Reach 1	4.46														

Model Results

Aqua PA Roaring Creek Water Treatment Plant, NPDES Permit No. PA0114740, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 3.804 PMF: 1 Analysis Hardness (mg/l): 78.845 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	2,811	
Total Antimony	0	0		0	1,100	1,100	4,123	
Total Arsenic	0	0		0	340	340	1,274	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	78,718	
Total Boron	0	0		0	8,100	8,100	30,363	
Total Cadmium	0	0		0	1.598	1.68	6.28	Chem Translator of 0.954 applied
Total Chromium (III)	0	0		0	468.977	1,484	5,563	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	61.1	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	356	
Total Copper	0	0		0	10.743	11.2	41.9	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	49.809	60.3	226	Chem Translator of 0.826 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.17	Chem Translator of 0.85 applied
Total Nickel	0	0		0	382.943	384	1,438	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	2.137	2.51	9.43	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	244	
Total Zinc	0	0		0	95.806	98.0	367	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 3.804 PMF: 1 Analysis Hardness (mg/l): 78.845 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	825	
Total Arsenic	0	0		0	150	150	562	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	15,369	
Total Boron	0	0		0	1,600	1,600	5,998	
Total Cadmium	0	0		0	0.209	0.23	0.85	Chem Translator of 0.919 applied
Total Chromium (III)	0	0		0	61.004	70.9	266	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	39.0	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	71.2	
Total Copper	0	0		0	7.310	7.61	28.5	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	5,623	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	1.941	2.35	8.81	Chem Translator of 0.826 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	42.533	42.7	160	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	18.7	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	48.7	
Total Zinc	0	0		0	96.589	98.0	367	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 3.804 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	21.0	
Total Arsenic	0	0		0	10	10.0	37.5	
Total Barium	0	0		0	2,400	2,400	8,996	
Total Boron	0	0		0	3,100	3,100	11,620	

Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	1,125	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	3,748	
Total Mercury	0	0		0	0.050	0.05	0.19	
Total Nickel	0	0		0	610	610	2,287	
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	0.9	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 1.956 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	

Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	1.97	3.07	1,802	2,811	4,505	µg/L	1,802	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	6.14	9.58	5,623	8,772	14,057	µg/L	5,623	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	4.1	6.39	3,748	5,848	9,371	µg/L	3,748	THH	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	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	8,996	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,998	µg/L	Discharge Conc < TQL
Total Cadmium	0.85	µg/L	Discharge Conc < TQL
Total Chromium (III)	266	µg/L	Discharge Conc < TQL
Hexavalent Chromium	39.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	71.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	26.9	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,125	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	8.81	µg/L	Discharge Conc < TQL
Total Mercury	0.19	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	160	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	18.7	µg/L	Discharge Conc < TQL
Total Silver	6.04	µg/L	Discharge Conc ≤ 10% WQBEL

Total Thallium	0.9	µg/L	Discharge Conc < TQL
Total Zinc	235	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS