Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0028134**
Facility Type	**Industrial**	APS ID	**1129980**
Major / Minor	**Minor**	Authorization ID	**1514321**

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

Applicant and Facility Information

Applicant Name	**PA American Water Co.**	Facility Name	**PA American Water Kittanning Filter Plant**
Applicant Address	852 Wesley Drive	Facility Address	104 Watertower Road
	Mechanicsburg, PA 17055-4436		Kittanning, PA 16201
Applicant Contact	Stephen Straub	Facility Contact	Joel Hilliard (Senior Superintendent)
Applicant Phone	(724) 427-9699	Facility Phone	(724) 290-2388
Client ID	87712	Site ID	255172
SIC Code	4941	Municipality	Rayburn Township
SIC Description	Trans. & Utilities - Water Supply	County	Armstrong
Date Application Received	January 30, 2025	EPA Waived?	Yes
Date Application Accepted	February 5, 2025	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit for an existing discharge of industrial waste.

Summary of Review

Raw water is withdrawn from the Allegheny River and is purified by clarification, sedimentation and filtration for use by customers in Kittanning Borough and Rayburn Township.

The discharge consists of mainly of treated filter backwash water and minimal amount of miscellaneous wastewater from lab sample taps and analyzers. The filter backwash wastewater discharge occurs 20 hours/day, 7 days/week. The maximum discharge rate is 0.099 MGD and the long-term average discharge rate is 0.032 MGD.

PPC Plan for the facility was last updated in July 2024.

There are currently 6 open violations listed in EFACTS for this client at other drinking water and wastewater facilities (12/10/2025).

Act 14 Notifications:
Armstrong County – Received 10/21/2025
Kittanning Borough – Received 10/21/2025
Township of Rayburn – Received 10/21/2025

Special Conditions:
- Chlorine Optimization
- No PCBs May Be Discharged

Approve	Deny	Signatures	Date
X		***Marie Forney*** Marie Forney, PE / Environmental Engineer Consultant	December 12, 2025
X		***Sean Furjanic*** Sean M. Furjanic, P.E. / Environmental Program Manager	December 12, 2025

Summary of Review

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.032
Latitude	40º 49' 10"	Longitude	-79º 30' 47"
Quad Name	Kittanning	Quad Code	1209
Wastewater Description:	Filter backwash water and miscellaneous wastewater from lab sample taps and analyzers		
Receiving Waters	Allegheny River (WWF)	Stream Code	
	42122 NHD Com ID	123860342	RMI
	45.6		
Drainage Area	8980	Yield (cfs/mi^2)	---
Q_{7-10} Flow (cfs)	773	Q_{7-10} Basis	StreamStats
Elevation (ft)	772	Slope (ft/ft)	0.12218
Watershed No.	17-E	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	Add N	Exceptions to Criteria	Add TON
Assessment Status	Impaired		
Cause(s) of Impairment	POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default value in TMS
Temperature (°F)		
Hardness (mg/L)	100	Default value in TMS
Other:		

Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2070
PWS RMI	29.4	Distance from Outfall (mi)	16.2

Changes Since Last Permit Issuance: None

Other Comments: The stream segment is impaired for PCBs. There are no expected sources of PCB's from this facility beyond that in the source water, which is from the receiving stream. Therefore, monitoring of PCBs will not be proposed in the draft permit.

Treatment Facility Summary

Treatment Facility Name: Kittanning Filter Plant

WQM Permit No.	Issuance Date
0376202T1	11/03/2008

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Settling	Liquid dechlorination	0.032

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
		Not Overloaded	Disposal	

Changes Since Last Permit Issuance: None

Other Comments: Solids are removed on a yearly basis from the backwash holding tank and land applied. The above information pertains to a filter backwash holding tank.

Compliance History

DMR Data for Outfall 001 (from November 1, 2024 to October 31, 2025)

Parameter	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24
Flow (MGD) Average Monthly	0.031	0.029	0.034	0.04	0.041	0.041	0.041	0.04	0.042	0.038	0.043	0.042
Flow (MGD) Daily Maximum	0.053	0.057	0.056	0.081	0.08	0.049	0.05	0.05	0.05	0.05	0.049	0.049
pH (S.U.) Instantaneous Minimum	7.1	7.2	7.1	7.0	7.0	6.9	6.7	7.0	6.9	6.6	6.8	7.2
pH (S.U.) Instantaneous Maximum	8.5	7.7	8.9	9.0	7.5	7.4	7.5	7.5	7.8	8.0	7.6	7.8
TRC (mg/L) Average Monthly	0.07	0.08	0.1	0.12	0.13	0.13	0.09	0.06	0.42	0.39	0.39	0.35
TRC (mg/L) Instantaneous Maximum	0.15	0.11	0.14	0.17	0.21	0.20	0.22	0.09	0.88	0.68	0.76	0.48
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.00	< 2.0	< 2.0	< 2.0	2.5	< 2.0	< 2.0
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.00	< 2.0	2.0	< 2.0	3.0	< 2.0	< 2.0
Total Aluminum (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.1	< 0.10
Total Aluminum (mg/L) Instantaneous Maximum	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1	< 0.1
Total Iron (mg/L) Average Monthly	0.28	0.22	0.3	0.2	0.24	0.22	0.33	0.35	0.49	0.92	0.33	0.23
Total Iron (mg/L) Instantaneous Maximum	0.29	0.3	0.37	0.23	0.33	0.22	0.33	0.58	0.51	0.95	0.38	0.24
Total Manganese (mg/L) Average Monthly	0.09	0.11	0.1	0.18	0.18	0.23	0.17	0.15	0.06	0.13	0.11	0.08

Total Manganese (mg/L) Instantaneous Maximum	0.09	0.12	0.11	0.18	0.2	0.24	0.18	0.19	0.08	0.14	0.12	0.09

Summary of Inspections: An inspection was conducted on May 8, 2025 and no violations were identified.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.032
Latitude 40º 49' 10.00" **Longitude** -79º 30' 47.00"
Wastewater Description: IW Process Effluent without ELG

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation or Guidance
Total Suspended Solids	30	Average Monthly		386-2183-001
Total Suspended Solids	60	Daily Maximum		386-2183-001
Aluminum	4.0	Average Monthly		386-2183-001
Aluminum	8.0	Daily Maximum		386-2183-001
Manganese	1.0	Average Monthly		386-2183-001
Manganese	2.0	Daily Maximum		386-2183-001
Total Iron	2.0	Average Monthly		386-2183-001
Total Iron	4.0	Daily Maximum		386-2183-001
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Total Residual Chlorine	1.0	Daily Maximum		386-2183-001
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Comments: 386-2183-001 references the Department's technical guidance document entitled "Technology-based Control Requirements for Water Treatment Plant Wastes." The limits are BPT (Best Practical Control Technology) and are not based on actual regulation. The Department has identified the above requirements as the Best Available Treatment (BAT) that, as a minimum, the permittee will be required to meet. Since no federal effluent limitation guidelines (ELGs) have been promulgated, the Department's Best Professional Judgment of BAT, as outlined in the guidance document, satisfies the Federal requirements of the 40 CFR 125.3(d) regulations. All of the technology-based effluent limitations are documented in the Pollution Report for this facility and are incorporated herein as a reference.

Water Quality-Based Limitations

The Toxics Management Spreadsheet model was run (Attachment A) and determined that no toxic pollutants were candidates for limitations. The output files are attached.

The TRC spreadsheet was also run (Attachment B). The average monthly limit is 0.5 mg/L and the instantaneous maximum (IMAX) is 1.6 mg/L. The average monthly limit is the same as the limit in the current permit; however, the IMAX limit is less stringent in the current permit (1.0 mg/L). It is recommended to use the limitations in the current permit for the renewed permit to avoid backsliding.

Best Professional Judgment (BPJ) Limitations

BPJ Limitations were not established for this renewal.

Anti-Backsliding

The daily maximum limits found in the "Technology-Based Limitations" section above were previously applied as instantaneous maximum limits as a regional policy in the Southwest region and the limits have been able to be consistently achieved. Therefore, the limits will continue to be applied in the renewed NPDES Permit.

Other Considerations

Calcium thiosulfite is used as a wastewater treatment chemical to dechlorinate the filter backwash wastewater prior to discharge if needed.

Monitoring frequencies and sampling types in the permit are based on Table 6-4 of the Department's August 1993 "Technical Guidance for the Development and Specification of Effluent Limitations and Other Conditions in NPDES Permits" (Permit Writer's Guide).

The discharge from this facility is non-continuous and the characteristics of the wastewater are relatively constant. Based on the review of Discharge Monitoring Reports, this facility is in compliance with the current NPDES permit limits. Therefore, grab samples are specified instead of composite samples.

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.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	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/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Total Aluminum	XXX	XXX	XXX	4.0	XXX	8.0	2/month	Grab
Total Iron	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Grab
Total Manganese	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

Compliance Sampling Location: Outfall 001 (after disinfection)

Other Comments: None

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **A**)
☒	TRC Model Spreadsheet (see Attachment **B**)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: SOP for Establishing Effluent Limitations for Individual Industrial Permits; SOP No. BCW-PMT-032; Final, November 9, 2012; Revised, February 5, 2024; Version 1.7 SOP for New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications; SOP No. BCW-PMT-001; Final, November 9, 2012; Revised, August 12, 2025; Version 1.7 SOP for Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers; SOP No. BCW-PMT-037; Final, January 10, 2019; Revised, May 5, 2025; Version 1.6
☒	Other: PADEP Guidance Document Technology-Based Control Requirements for Water Treatment Plant Wastes; Document No. 386-2183-001; Effective, October 1, 1997; Revised, June 28, 2023.

Attachment A

TMS Inputs and Results

Discharge Information

Instructions | Discharge | Stream

Facility: **PAWC - Kittanning Plant** NPDES Permit No.: **PA0028134** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW process effluent without ELG**

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
0.032	86.467	7.485						

					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		154									
	Chloride (PWS)	mg/L		56.2									
	Bromide	mg/L	<	0.1									
	Sulfate (PWS)	mg/L		29.6									
	Fluoride (PWS)	mg/L		0.43									
Group 2	Total Aluminum	µg/L	<	5									
	Total Antimony	µg/L	<	0.5									
	Total Arsenic	µg/L	<	0.5									
	Total Barium	µg/L		35.3									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		36									
	Total Cadmium	µg/L	<	0.1									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L		1.3									
	Total Cobalt	µg/L	<	0.2									
	Total Copper	mg/L		3.8									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L	<	20									
	Total Iron	µg/L		336									
	Total Lead	µg/L	<	0.2									
	Total Manganese	µg/L		87.6									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		2.2									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	0.5									
	Total Silver	µg/L	<	0.1									
	Total Thallium	µg/L	<	0.1									
	Total Zinc	mg/L	<	2									
	Total Molybdenum	µg/L		0.8									
	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

PAWC - Kittanning Plant, NPDES Permit No. PA0028134, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Allegheny River**

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	042122	45.6	772	8980	0.12218		Yes
End of Reach 1	042122	44.805025	769	8981	0.12218		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	45.6	0.1	773									100	7		
End of Reach 1	44.805025	0.1	773									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	45.6														
End of Reach 1	44.805025														

Model Results

PAWC - Kittanning Plant, NPDES Permit No. PA0028134, Outfall 001

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

☐ ***Hydrodynamics***

☐ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 3.959 PMF: 1 Analysis Hardness (mg/l): 99.999 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	11,711,925	
Total Antimony	0	0		0	1,100	1,100	17,177,490	
Total Arsenic	0	0		0	340	340	5,309,406	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	#########	
Total Boron	0	0		0	8,100	8,100	#########	
Total Cadmium	0	0		0	2.014	2.13	33,311	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.759	1,803	28,156,032	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	254,434	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,483,510	
Total Copper	0	0		0	13.439	14.0	218,606	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	1,274,947	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	25,720	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.232	469	7,326,522	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	59,096	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,015,033	
Total Zinc	0	0		0	117.180	120	1,871,027	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 3.959 PMF: 1 Analysis Hardness (mg/l): 99.999 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	3,435,498	
Total Arsenic	0	0		0	150	150	2,342,385	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	64,025,189	
Total Boron	0	0		0	1,600	1,600	24,985,440	
Total Cadmium	0	0		0	0.246	0.27	4,226	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.114	86.2	1,345,764	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	162,327	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	296,702	
Total Copper	0	0		0	8.956	9.33	145,678	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	23,423,850	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	49,683	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	14,146	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.006	52.2	814,567	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	77,910	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	203,007	
Total Zinc	0	0		0	118.138	120	1,871,027	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 3.959 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	87,449	
Total Arsenic	0	0		0	10	10.0	156,159	
Total Barium	0	0		0	2,400	2,400	37,478,160	
Total Boron	0	0		0	3,100	3,100	48,409,289	
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	4,684,770	
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	15,615,900	
Total Mercury	0	0		0	0.050	0.05	781	
Total Nickel	0	0		0	610	610	9,525,699	
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	3,748	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 1.832 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

☐ ***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 Aluminum	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	37,478,160	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	24,985,440	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	4,226	µg/L	Discharge Conc < TQL
Total Chromium (III)	1,345,764	µg/L	Discharge Conc < TQL
Hexavalent Chromium	162,327	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	296,702	µg/L	Discharge Conc < TQL
Total Copper	140	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	4,684,770	µg/L	Discharge Conc < TQL
Total Iron	23,423,850	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	49,683	µg/L	Discharge Conc < TQL
Total Manganese	15,615,900	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	781	µg/L	Discharge Conc < TQL
Total Nickel	814,567	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	77,910	µg/L	Discharge Conc < TQL
Total Silver	37,878	µg/L	Discharge Conc < TQL
Total Thallium	3,748	µg/L	Discharge Conc < TQL
Total Zinc	1,199	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

Attachment B

TRC Worksheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

773	= Q stream (cfs)	0.5	= CV Daily
0.032	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 4981.172	1.3.2.iii	WLA cfc = 4856.245
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1856.104	5.1d	LTA_cfc = 2823.193

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		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)