

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0252468
APS ID 995376
Authorization ID 1276978

Applicant and Facility Information

Applicant Name	<u>Kittanning Suburban Joint Water Authority</u>	Facility Name	<u>Kittanning Suburban Joint Water Authority</u>
Applicant Address	<u>710 Tarrtown Road</u> <u>Adrian, PA 16210</u>	Facility Address	<u>710 Tarrtown Road</u> <u>Adrian, PA 16210</u>
Applicant Contact	<u>Ron Riesmeyer</u>	Facility Contact	<u>Ron Riesmeyer</u>
Applicant Phone	<u>(724) 545-6395</u>	Facility Phone	<u>(724) 545-6395</u>
Client ID	<u>36328</u>	Site ID	<u>254522</u>
SIC Code	<u>4941</u>	Municipality	<u>East Franklin Township</u>
SIC Description	<u>Trans. & Utilities - Water Supply</u>	County	<u>Armstrong County</u>
Date Application Received	<u>June 3, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 17, 2019</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of industrial waste-related wastewater from a potable water treatment facility.</u>		

Summary of Review

Act 14 - Proof of Notification was submitted and received.

This facility is not subject to any ELGs.

A Part II Water Quality Management permit is not required at this time.

The applicant should be able to continue to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

- A. Right of Way
- B. Solids Handling
- C. NPDES Permit Supersedes WQM Permits
- D. Modification or Revocation for Changes to BAT or BCT
- E. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

- II. Chemical Additives
- III. Requirements Applicable to Stormwater Outfalls
- IV. Sedimentation Basin Cleaning

There are no open violations in efacts associated with the subject Client ID (36328) as of 5/7/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley	5/7/2021
		Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	
X		Justin C. Dickey	May 10, 2021
		Justin C. Dickey, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0614
Latitude	40° 50' 57.00"	Longitude	-79° 31' 17.00"
Quad Name	-	Quad Code	-
Wastewater Description: IW Process Effluent without ELG			
Receiving Waters	Unnamed Tributary to the Allegheny River (WWF)	Stream Code	N/A
NHD Com ID	123860357	RMI	N/A
Drainage Area	8973	Yield (cfs/mi ²)	0.23
Q ₇₋₁₀ Flow (cfs)	2070	Q ₇₋₁₀ Basis	USGS Streamstats
Elevation (ft)	773	Slope (ft/ft)	0.00033
Watershed No.	17-E	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-
Background/Ambient Data		Data Source	
pH (SU)	-		-
Temperature (°F)	-		-
Hardness (mg/L)	-		-
Other:	-		-
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Water Authority - Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2,576
PWS RMI	30.0	Distance from Outfall (mi)	16.0

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.0614MGD of Industrial Waste from an existing discharge of public water supply (PWS) filter backwash, clarifier sludge, filter-to-waste water, and stormwater runoff in East Franklin Township, Armstrong County.

Treatment permitted under WQM Permit 0303405 consists of: Potable water treatment backwash wastewater lagoons.

1. **Streamflow:** Allegheny River at Kittanning, PA (USGS Gage no. 03036500):

Q ₇₋₁₀ :	<u>2070</u>	cfs	(USGS StreamStats)
Drainage Area:	<u>8973</u>	sq. mi.	(USGS StreamStats)
Yieldrate:	<u>0.23</u>	cfs/m	(calculated)

2. **Wasteflow:** Outfall 001

Maximum discharge: 0.0614 MGD = 0.095 cfs

Runoff flow period: 24 hours Basis: Potable water treatment backwash with flow equalization

There is greater than 3 parts stream flow (Q₇₋₁₀) to 1 part effluent (design flow). In accordance with the SOP, the treatment requirements in document number 391-2000-014, titled, "Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers", dated April 12, 2008, are not required to be evaluated for this facility.

Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. **Parameters:**

The following parameters were evaluated: pH, Total Suspended Solids, and Total Residual Chlorine.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of technology-based limits for potable water treatment backwash wastewater from the Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania", dated October 1997.

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as a daily maximum.

Basis: Application of technology-based limits for potable water treatment backwash wastewater from the Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania", dated October 1997.

c. Total Residual Chlorine (TRC)

☒ No limit necessary

☐ TRC limits: 0.5 mg/l (monthly average)
1.6 mg/l (instantaneous maximum)

Basis: The technology-based TRC limits above were calculated using the Department's TRC Calculation Spreadsheet (see Attachment 1). The instantaneous maximum limit set in the previous NPDES Permit of 1.0 mg/l, based on the Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania", dated October 1997, will be retained as it is attainable.

4. **Reasonable Potential Analysis:**

A Reasonable Potential Analysis was performed in accordance with State practices for Outfall 001 by the Department's Toxics Management Spreadsheet (see Attachment 2). Based on the spreadsheet, none of the parameters sampled in the renewal application will be required to be monitored or will be given limits.

Median stream pH to be used: 7.0 Standard Units (S.U.)

Stream hardness to be used: 126 mg/l

Basis: Default value for pH and application data for hardness

Median discharge pH to be used: 7.85 Standard Units (S.U.)

Discharge hardness to be used: 109 mg/l

Basis: Renewal application sampling

Result: No new WQBELs are necessary for this renewal.

5. TDS, Chloride, Sulfate, Fluoride, Phenolics, NO₂-NO₃, and Bromide:

The Toxics Management Spreadsheet (see Attachment 2) did not recommend monitoring or limits for TDS, Chloride, Bromide, Sulfate, Fluoride, Phenolics, and NO₂-NO₃. However, since the sample data was provided, mass-balance calculations were performed (see below).

Nearest Downstream potable water supply (PWS): Buffalo Township Municipal Water Authority - Freeport

Distance downstream from the point of discharge: 16.0 miles (approximate)

PWS Evaluation:

Stream flow (sf) at the potable water supply intake = 2,576 cfs

Waste flow (wf) from the treatment facility = 0.0614 MGD = 0.095 cfs

Total Flow = 2,576.095 cfs

Background Concentrations: no data (background concentrations set to zero)

Mass balance for TDS at the potable water supply intake:

$$(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)$$

$$(2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) = (2,576.095 \text{ cfs})(500 \text{ mg/l})$$

$$x = 13,558,394 \text{ mg/l (renewal application maximum was 207 mg/l - ok)}$$

Mass balance for Chloride at the potable water supply intake:

$$(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)$$

$$(2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) = (2,576.095 \text{ cfs})(250 \text{ mg/l})$$

$$x = 6,779,197 \text{ mg/l (renewal application maximum was 19 mg/l - ok)}$$

Mass balance for Sulfate at the potable water supply intake:

$$(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)$$

$$(2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) = (2,576.095 \text{ cfs})(250 \text{ mg/l})$$

$$x = 13,558,394 \text{ mg/l (renewal application maximum was 32.1 mg/l - ok)}$$

Mass balance for Fluoride at the potable water supply intake:

$$(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)$$

$$(2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) = (2,576.095 \text{ cfs})(2 \text{ mg/l})$$

$$x = 54,233 \text{ mg/l (renewal application maximum was 0.34 mg/l - ok)}$$

Mass balance for Phenolics at the potable water supply intake:

$$(sf @ PWS)(bkrd. conc.) + (wf)(x) = (tot. flow)(criteria)$$

$$(2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) = (2,576.095 \text{ cfs})(0.005 \text{ mg/l})$$

$$x = 135.5 \text{ mg/l (renewal application maximum was 0.02 mg/l - ok)}$$

Mass balance for Nitrate-Nitrite at the potable water supply intake:

$$\begin{aligned} (\text{sf @ PWS})(\text{bkrd. conc.}) + (\text{wf})(x) &= (\text{tot. flow})(\text{criteria}) \\ (2,576 \text{ cfs})(0) + (0.095 \text{ cfs})(x) &= (2,576.095 \text{ cfs})(10 \text{ mg/l}) \end{aligned}$$

$$x = 271,167 \text{ mg/l (renewal application maximum was N/A mg/l - ok)}$$

Bromide has been linked to the formation of disinfection byproducts at increased levels in public water systems. Where the concentration of Bromide in a discharge exceeds 1 mg/L, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. The permitted discharge is less than 0.1 MGD (0.0614 MGD), and the maximum reported sample data for Bromide was <0.1 mg/l, monitoring will not be added to this renewal permit.

- ☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available

6. Total Dissolved Solids (TDS):

TDS were also evaluated to protect the water quality standards in the receiving stream.

To calculate the TDS capacity for the Allegheny River at the outfall, the Q_{7-10} low flow is needed. From prior work, the Q_{7-10} low flow for the Allegheny River at the outfall was calculated as 2,070 cfs. Since no background TDS data is readily available, an assumed value of 150 mg/l will be used for this evaluation. Subtracting the 150 mg/l from the allowable 500 mg/l yields a remaining assimilative capacity of 350 mg/l. Multiplying the 350 mg/l by the Allegheny River Q_{7-10} low flow rate of 2,070 cfs and then by 5.4 for conversions yields a total assimilative capacity of 3,912,300 lbs/day of TDS at the outfall.

In order to remain exempt from the treatment requirements in Chapter 95.10, the annual average daily load must remain under 5,000 lbs/day of TDS, which would be more protective than the 3,912,300 lbs/day limit calculated above. If that 5,000 lbs/day is divided by the flowrate of 0.0614 MGD and the 8.34 conversion factor, the resulting TDS concentration limit would be 9,764 mg/l, which is well above the 207 mg/l maximum that was reported in the renewal NPDES Permit application. The Chapter 95 Treatment Requirements special condition will not be necessary with this renewal at this time.

7. Antibacksliding:

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

8. Attachment List:

- Attachment 1 - TRC_Calc Spreadsheet
- Attachment 2 - Toxics Management Spreadsheet

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from April 1, 2020 to March 31, 2021)

Parameter	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20
Flow (MGD) Average Monthly	0.045	0.035	0.022	0.032	0.029	0.023	25	0.043	0.060	0.055	0.050	0.042
Flow (MGD) Daily Maximum	1.34	3060	0.060	0.070	0.087	0.77	59	0.078	0.244	0.095	0.112	0.051
pH (S.U.) Minimum	7.67	7.74	7.94	7.93	7.84	7.86	7.74	8.10	7.74	7.65	7.65	7.83
pH (S.U.) Maximum	7.74	7.81	8.13	8.07	7.89	8.02	8.11	8.15	7.81	7.95	7.75	7.97
TRC (mg/L) Average Monthly	0.04	0.08	0.05	0.02	0.06	0.05	0.19	0.05	0.23	0.07	0.01	0.06
TRC (mg/L) Instantaneous Maximum	0.07	0.11	0.06	0.04	0.08	0.05	0.37	0.08	0.28	0.10	0.01	0.10
TSS (mg/L) Average Monthly	1	2	2	5	1	3	7	13	5	1	3	5
TSS (mg/L) Instantaneous Maximum	2	2	2	7	2	5	8	21	6	1	4	8
Total Aluminum (mg/L) Average Monthly	0.038	0.148	0.067	0.044	0.063	0.138	0.160	0.410	0.250	0.141	0.061	0.087
Total Aluminum (mg/L) Instantaneous Maximum	0.077	0.241	0.072	0.054	0.098	0.151	0.187	0.462	0.267	0.189	0.081	0.090
Total Iron (mg/L) Average Monthly	0.02	0.04	0.01	0.02	0.02	0.005	0.03	0.06	0.12	0.05	0.01	0.03
Total Iron (mg/L) Instantaneous Maximum	0.04	0.04	0.01	0.02	0.03	0.01	0.03	0.10	0.15	0.08	0.01	0.03
Total Manganese (mg/L) Average Monthly	0.067	0.078	0.039	0.049	0.047	0.083	0.285	0.260	0.234	0.437	0.100	0.880
Total Manganese (mg/L) Instantaneous Maximum	0.087	0.083	0.049	0.057	0.049	0.088	0.457	0.389	0.250	0.555	0.129	1.201

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.

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.

Flow is monitor only based on Chapter 92a.61. The limits for pH (S.U.), TRC, TSS, Total Aluminum, Total Iron, and Total Manganese are technology-based on the Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania", dated October 1997.

Attachment 1

TRC EVALUATION					
Input appropriate values in A3:A9 and D3:D9					
2070	= Q stream (cfs)	0.5	= CV Daily		
0.0614	= 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)	0	= Decay Coefficient (K)		
Source	Reference	AFC Calculations		Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 6951.900		1.3.2.iii	WLA cfc = 6777.550
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 2590.444		5.1d	LTA_cfc = 3940.150
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	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc})] \dots$ $\dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd) \cdot (1 - FOS / 100)$				
LTAMULT afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$				
LTA_afc	wla_afc * LTAMULT_afc				
WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc})] \dots$ $\dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd) \cdot (1 - FOS / 100)$				
LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1)^{0.5})$				
LTA_cfc	wla_cfc * LTAMULT_cfc				
AML MULT	$EXP(2.326 \cdot LN((cvd^2 / no_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$				
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)				



Discharge Information

Instructions Discharge Stream

Facility: **Kittanning Suburban Joint Water Authority**

NPDES Permit No.: **PA0252468**

Outfall No.: **001**

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

Wastewater Description: **Potable water 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
0.0614	109	7.85						

	Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
				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	207									
	Chloride (PWS)	mg/L	19									
	Bromide	mg/L	< 0.1									
	Sulfate (PWS)	mg/L	32.1									
	Fluoride (PWS)	mg/L	0.34									
Group 2	Total Aluminum	µg/L	411									
	Total Antimony	µg/L	< 0.4									
	Total Arsenic	µg/L	< 1									
	Total Barium	µg/L	60									
	Total Beryllium	µg/L	< 0.4									
	Total Boron	µg/L	< 100									
	Total Cadmium	µg/L	< 0.4									
	Total Chromium (III)	µg/L	< 1									
	Hexavalent Chromium	µg/L	< 5									
	Total Cobalt	µg/L	< 1									
	Total Copper	µg/L	11									
	Free Cyanide	µg/L	<									
	Total Cyanide	µg/L	< 5									
	Dissolved Iron	µg/L	< 20									
	Total Iron	µg/L	60									
	Total Lead	µg/L	< 1									
	Total Manganese	µg/L	266									
	Total Mercury	µg/L	0.1									
	Total Nickel	µg/L	1									
	Total Phenols (Phenolics) (PWS)	µg/L	20									
	Total Selenium	µg/L	< 5									
	Total Silver	µg/L	< 0.05									
	Total Thallium	µg/L	< 2									
	Total Zinc	µg/L	9									
	Total Molybdenum	µg/L										
	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	<																	
Group 5	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	<																	
	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)Anthracene	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	<																	

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Stream / Surface Water Information

Kittanning Suburban Joint Water Authority, NPDES Permit No. PA0252468, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: 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	042122	16	773	8973			Yes
End of Reach 1	042122	0	745	11200			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	16	0.23										126	7		
End of Reach 1	0	0.23													

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	16														
End of Reach 1	0														



Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Kittanning Suburban Joint Water Authority, NPDES Permit No. PA0252468, Outfall 001

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

☒ Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
16	2063.79		2063.79	0.095	0.00033	0.91	1196.643	1314.798	1.895	0.516	124152.78
0	2576.00		2,576								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
16	5861.47		5861.47	0.095	0.00033	1.441	1196.643	830.605	3.4	0.288	62342.737
0	7114.682		7114.68								

☒ Wasteload Allocations

☒ AFC

CCT (min): 15

PMF: 0.011

Analysis Hardness (mg/l): 125.93

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	179,866	
Total Antimony	0	0		0	1,100	1,100	263,804	
Total Arsenic	0	0		0	340	340	81,539	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	5,036,261	
Total Boron	0	0		0	8,100	8,100	1,942,558	
Total Cadmium	0	0		0	2,520	2.7	647	Chem Translator of 0.934 applied
Total Chromium (III)	0	0		0	688.173	2,178	522,276	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	3,907	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	22,783	

Total Copper	0	0	0	16.700	17.4	4,172	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	82.932	109	26,259	Chem Translator of 0.757 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	1.400	1.65	395	Chem Translator of 0.85 applied
Total Nickel	0	0	0	569.077	570	136,751	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	4.782	5.63	1,349	Chem Translator of 0.85 applied
Total Thallium	0	0	0	65	65.0	15,588	
Total Zinc	0	0	0	142.460	146	34,934	Chem Translator of 0.978 applied

☒ CFC

CCT (min): 720

PMF: 0.076

Analysis Hardness (mg/l): 125.99

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	0	N/A	N/A	N/A	
Chloride (PWS)	0	0	0	0	N/A	N/A	N/A	
Sulfate (PWS)	0	0	0	0	N/A	N/A	N/A	
Fluoride (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Aluminum	0	0	0	0	N/A	N/A	N/A	
Total Antimony	0	0	0	0	220	220	364,234	
Total Arsenic	0	0	0	0	150	150	248,341	Chem Translator of 1 applied
Total Barium	0	0	0	0	4,100	4,100	6,787,988	
Total Boron	0	0	0	0	1,600	1,600	2,648,971	
Total Cadmium	0	0	0	0	0.289	0.32	532	Chem Translator of 0.899 applied
Total Chromium (III)	0	0	0	0	89.553	104	172,400	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0	0	0	10	10.4	17,210	Chem Translator of 0.962 applied
Total Cobalt	0	0	0	0	19	19.0	31,457	
Total Copper	0	0	0	0	10.910	11.4	18,816	Chem Translator of 0.96 applied
Dissolved Iron	0	0	0	0	N/A	N/A	N/A	
Total Iron	0	0	0	0	1,500	1,500	32,592,529	WQC = 30 day average; PMF = 1
Total Lead	0	0	0	0	3.233	4.27	7,069	Chem Translator of 0.757 applied
Total Manganese	0	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0	0.770	0.91	1,500	Chem Translator of 0.85 applied
Total Nickel	0	0	0	0	63.233	63.4	105,003	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Selenium	0	0	0	0	4.600	4.99	8,260	Chem Translator of 0.922 applied
Total Silver	0	0	0	0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0	0	0	13	13.0	21,523	
Total Zinc	0	0	0	0	143.684	146	241,261	Chem Translator of 0.986 applied

☒ THH

CCT (min): 720

PMF: 0.076

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc	Fate	WQC	WQ Obj	WLA (µg/L)	Comments
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Model Results

5/7/2021

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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	9,271	
Total Arsenic	0	0		0	10	10.0	16,556	
Total Barium	0	0		0	2,400	2,400	3,973,457	
Total Boron	0	0		0	3,100	3,100	5,132,382	
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	496,682	
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	1,655,607	
Total Mercury	0	0		0	0.050	0.05	82.8	
Total Nickel	0	0		0	610	610	1,009,920	
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	397	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ CRL

CCT (min): 720

PMF: 0.107

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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☒ **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	115,287	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	3,228,040	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,245,101	µg/L	Discharge Conc < TQL
Total Cadmium	415	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	172,400	µg/L	Discharge Conc < TQL
Hexavalent Chromium	2,505	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	14,603	µg/L	Discharge Conc < TQL
Total Copper	2,674	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS

Dissolved Iron	496,682	µg/L	Discharge Conc < TQL
Total Iron	32,592,529	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7,069	µg/L	Discharge Conc < TQL
Total Manganese	1,655,607	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	82.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	87,652	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	8,260	µg/L	Discharge Conc < TQL
Total Silver	865	µg/L	Discharge Conc < TQL
Total Thallium	397	µg/L	Discharge Conc < TQL
Total Zinc	22,391	µg/L	Discharge Conc ≤ 10% WQBEL