pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

South West Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0026981**
Facility Type	**Municipal**	APS ID	**956101**
Major / Minor	**Major**	Authorization ID	**1208327**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Pennsylvania-American Water Company**	Facility Name	**City of Duquesne STP**
Applicant Address	800 West Hersheypark Drive	Facility Address	North Duquesne Boulevard
	Hershey, PA 17033		Duquesne, PA 15110
Applicant Contact	Ms. Brandy Braun	Facility Contact	Same as Applicant
Applicant Phone	412.384.5115	Facility Phone	Same as Applicant
Client ID	87712	Site ID	262922
Ch 94 Load Status	Not Overloaded	Municipality	Duquesne City
Connection Status		County	Allegheny
Date Application Received	October 24, 2017	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility

Purpose of Application: Application for a renewal and transfer of an NPDES permit for discharge of treated Sewage

Summary of Review

The permittee has applied for a renewal and transfer of NPDES Permit No. PA0026981 from the Municipal Authority of the City of McKeesport (MACM) to Pennsylvania-American Water Company (PAWC).

NPDES Permit No. PA0026981 was previously issued by the Department on September 05, 2003. That permit expired on September 5, 2008.

The permit is being transferred from MACM, POTW, to PAWC, a publicly-traded investor-owned public utility. PAWC is also Purchasing Port Vue Borough, PA0254690, Dravosburg Borough, PA0028401 and City of McKeesport, PA0026913, collection and treatment facilities from MACM.

This permit will be issued directly to PAWC upon completion of the public comment period and sale of all assets from MACM to PAWC. PAWC has entered into a COA with the Department to manage the transfer of assets. The COA covers the transfer of all NPDES and WQM Permits, addresses operation and maintenance of the collection/treatment system (including NMC implementation), and submission of a revised Long Term Control Plan (LTCP).

Outfalls 002, 003, 005 & IMP 201 are again permitted to serve as CSOs. Please note that Outfall 004, Overland Avenue has been renamed IMP 201. Part C.III has been incorporated into the permit and all scheduled interim milestones were taken from the Departments LTCP Approval Letter, Dated February 17, 2009, which was based upon the City of Duquesne LTCP submission, dated September 24, 2008. The COA requires that another revision of the LTCP be submitted to the Department for review. Upon approval, this NPDES Permit will be amended to reflect revised scheduled interim milestones.

Part C.II.B., includes site specific NMC implementation and documentation obligations taken from the Pennsylvania American Water Company Nine Minimum Control Plan Update, dated December 5, 2017. All NMCs shall be implemented

Approve	Deny	Signatures	Date
X		/s/ William C. Mitchell, E.I.T. / Project Manager	01/08/2018
X		/s/ Donald J. Leone, P.E. / Environmental Engineer Manager	01/12/2018

Summary of Review

utilizing best professional judgement and best management practices to ensure maximum efficacy.

STP effluent sampling shall be taken at an Internal Monitoring Point (IMP) 101, which is located at the discharge pipe of the chlorine contact tank prior to combining with the flow from the CSO diversion chamber. CSO monitoring shall be taking at IMP 201, which is located at the diversion chamber of the CSO prior to combining with the effluent from the STP.

IMP 101 & IMP 201 are authorized to discharge from Outfall 002 to the Thompson Run, which is classified as a WWF, located in State Watershed No. 19-C.

When evaluating effluent limits the Point of First Use is the Monongahela River. Thompson Run is impaired for metals with the source being AMD. On Wednesday, December 6, 2017, I visited the STP to verify outfall location. Outfall 001 discharges to Thompson Run 49.2 feet from where Thompson Run is culverted, under the former US Steel Duquesne Works, to the Monongahela River. There are four pictures attached to showing evidence of AMD in the vicinity of the discharge prior to being culverted.

All pages of the permit have been revised to be consistent with NPDES Permit Language 3800-PM-BCW0012, Rev. 10/2017 for Individual Municipal NPDES Permits. All References to POTW have been removed as the facility and permitted CSO will no longer be owned by a Municipal Authority or Municipality.

Storm Water Outfall 010 is again permitted for the discharge of un-contaminated storm water runoff from areas in and around the treatment plant. These outfalls are subject to the Departments current storm water conditions listed in Part C.VI of the Permit. Please note that Outfall 010 was previously called SW-1.

Since PAWC owns both the McKeesport STP, PA002691 and the City of Duquesne STP, PA0026981 and their combined flow is greater than 5.0 MGD, PART C.III, Industrial Pretreatment Program Implementation, has been added to the permit.

The permittee currently submits their Discharge Monitoring Reports through DEP's electronic Discharges Monitoring System.

The applicant has complied with Act 14 Notifications and no comments were received.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.0
Latitude	40º 22' 47.05"	Longitude	-79º 51' 1.92"
Quad Name	Braddock	Quad Code	
Wastewater Description:	Combined Sewer Overflow & Sewage Effluent		

Receiving Waters	Thompson Run	Stream Code	37449
NHD Com ID	134839893	RMI	0.30
Drainage Area	5.32	Yield (cfs/mi^2)	0.0114
Q_{7-10} Flow (cfs)	0.0607	Q_{7-10} Basis	USGS StreamStats 4.0
Elevation (ft)	734	Slope (ft/ft)	
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Abandoned Mine Drainage		
TMDL Status	Final	Name	Thompson Run

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Pennsylvania-American Water Company, Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: NONE

Discharge, Receiving Waters and Water Supply Information

Outfall No.	Point of First Use for Outfall 001	Design Flow (MGD)	2.0
Latitude	40º 22' 53.40"	Longitude	-79º 50' 41.79"
Quad Name	Braddock	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Monongahela River	Stream Code	37185
NHD Com ID	99408094	RMI	12.26
Drainage Area	7180	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	1060	Q_{7-10} Basis	US Army Corp of Engineers & USGS StreamStats 4.0
Elevation (ft)	712	Slope (ft/ft)	0.00076
Watershed No.	19-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final	Name	Monongahela River TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Pennsylvania-American Water Company, Pittsburgh	
PWS Waters	Monongahela River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: NONE

Treatment Facility Summary

Treatment Facility Name: Duquesne STP

WQM Permit No.	Issuance Date
462S022	06/26/1962
462S022 A-1	08/2000

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge Facility Consisting of Trash Rack, Parshall Flume, Comminutor/Bypass Bar Screen Chamber, Grit Removal, 4 Aeration Tanks, 2 Clarifiers, Chlorine Contact Tank & Stabilization Tank.	Gas Chlorine	

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.0	2,780	Not Overloaded		

Changes Since Last Permit Issuance: NONE

Compliance History

Operations Compliance Check Summary Report

Facility: City of Duquesne STP

NPDES Permit No.: PA0026981

Compliance Review Period: 12/04/2012 – 12/04/2017

Open Violations By Client_Summary_Report

One open violation in eFACTS by Safe Drinking Water Program.

Inspection Summary

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC	# OF VIOLATIONS
2596245	05/04/2017	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted	0
2585208	04/05/2017	Compliance Evaluation	County Health Dept	Violation(s) Noted	5
2526799	10/06/2016	Incident-Response to Accident or Event	County Health Dept	Violation(s) Noted	2
2501494	07/06/2016	Compliance Evaluation	County Health Dept	Violation(s) Noted	3
2500286	05/11/2016	Chapter 94 Inspection	County Health Dept	No Violations Noted	0
2366970	03/26/2015	Compliance Evaluation	County Health Dept	Violation(s) Noted	1
2338124	01/13/2015	Routine/Partial Inspection	County Health Dept	Violation(s) Noted	1
2288405	05/08/2014	Compliance Evaluation	County Health Dept	Violation(s) Noted	2
2162787	04/10/2013	Compliance Schedule Evaluation	County Health Dept	Violation(s) Noted	5

Violation Summary

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
783707	04/05/2017	92A.61(D)	NPDES - Failure to monitor flow as required by the NPDES permit	
783708	04/05/2017	92A.41(A)10C	NPDES - Failure to collect representative samples	

783709	04/05/2017	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	
783710	04/05/2017	92A.41(A)10B	NPDES - Failure to utilize approved analytical methods	
783711	04/05/2017	92A.41(A)1	NPDES - Non-compliance with an issued permit, not classified by any other code	
770127	10/06/2016	92A.41(A)10C	NPDES - Failure to collect representative samples	
770128	10/06/2016	92A.41(A)1	NPDES - Non-compliance with an issued permit, not classified by any other code	
763669	07/06/2016	92A.61(D)	NPDES - Failure to monitor flow as required by the NPDES permit	08/25/2016
763670	07/06/2016	92A.41(A)10B	NPDES - Failure to utilize approved analytical methods	08/25/2016
763671	07/06/2016	92A.41(A)10C	NPDES - Failure to collect representative samples	08/25/2016
721835	03/26/2015	92A.61(D)	NPDES - Failure to monitor flow as required by the NPDES permit	07/07/2015
714483	01/13/2015	92A.61(D)	NPDES - Failure to monitor flow as required by the NPDES permit	07/07/2015
700951	05/08/2014	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	07/22/2014
700952	05/08/2014	94.12	Wasteload Management - Failure to submit a Chapter 94 report that meets regulatory requirements	07/22/2014
666929	04/10/2013	92A.41(5)O&M	Operation and Maintenance violations were present	12/11/2013
666930	04/10/2013	94.12MWMR	Chapter 94 Report not complete or inaccurate	12/11/2013
666931	04/10/2013	271.906	Biosolids - Permittee failed to collect and analyze representative samples for pathogens and pollutants according to the applicable standards	12/11/2013
666932	04/10/2013	92A.27LTCP	Long Term Control Plan not implemented	12/11/2013

666933	04/10/2013	91.33POLLINC	Pollution incident was not reported to DEP.	12/11/2013

Enforcement Summary

ENF ID	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	# OF VIOLATIONS	PENALTY AMOUNT
347235	Notice of Violation	08/25/2016	92A.41(A)10B; 92A.61(D)	2	
328763	Notice of Violation	07/07/2015	92A.61(D)	2	
313345	Notice of Violation	07/22/2014	92A.41(A)5; 94.12	2	
297103	Notice of Violation	05/01/2013	271.906; 91.33POLLINC; 92A.27LTCP; 92A.41(5)O&M; 94.12MWMR	5	

DMR Violation Summary

Current eDMR user.
Effluent limit violation summary in eDMR:
None listed in eDMR.

Compliance Status:

Facility had numerous violations in 2013 through 2017 for operational violations, which are to be addressed with transfer of facility to new client. New client has one open violation by Safe Drinking Water Program in eFACTs.

Completed by: David Roote

Completed date: 12/4/2017

Development of Effluent Limitations

IMP	IMP 101 Point of First Use is Monongahela River	**Design Flow (MGD)**	2
Latitude Outfall 001	40º 22' 47.05"	**Longitude Outfall 001**	-79º 51' 03.61"

Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: Water Quality Analysis Modeling for CBOD5, DO and Ammonia-Nitrogen are not necessary and we will again re-impose Federal Minimum Secondary Effluent Limitations due to the large dilution available in the Monongahela River. Q7-10 flow of the Monongahela River is 1060 cfs.

Water Quality-Based Limitations

A "Reasonable Potential Analysis determined that Benzo(a)Anthracene, Benzo(a)Pyrene, Bis(2-Ethylhexyl) Phthalate, Chrysene, Free Cyanide & Dichlorobromomethane were candidates for Water Quality Modeling using PENTOXSD Version 2.0c. Please see the attached Toxics Screening Analysis Spreadsheet and PENTOXSD Modeling Data for more details.

No limitations resulted from water quality modeling using PENTOXSD and there will be no WQBELs imposed on this facility during this permit cycle.

Please note that no reporting requirement will be imposed for 1,4-Dioxane due to the fact that there are no significant industrial user tributary to the City of Duquesne STP. All three samples collected for 1,4-Dioxane were listed none detect with 20 ug/l being the minimum detection level used by the lab. There currently no Aquatic Life or Human Health Criteria for 1,4-Dioxane.

Best Professional Judgment (BPJ) Limitations

A Dissolved Oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment. This is an additional limit that was not previously imposed on the facility.

Additional Considerations

The Average Monthly and Instantaneous Maximum Total Residual Chlorine (TRC) effluent limitations imposed in the previous NPDES permit were 1.4 mg/l and 3.3 mg/l, respectively. At that time, those values were considered BAT

limitations per the SWRO's TRC Implementation for Sewage Facilities Planning Section Interim Guidance, dated June 20, 1995 for an existing minor facility having a design flow <= 0.1 mgd permitted before July 1995. An average monthly limitation of 0.5 mg/l for TRC is now a regulatory standard under §§92a.47(a)(8) and 92a.48(b) and will be imposed.

Nutrient monitoring is required to establish the nutrient load from the waste water treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/quarter monitor and report requirement for Total N & Total P has been added to the permit as per Chapter 92.a.61.

Average Monthly Mass loading limits are applicable for this facility. Current policy also requires an average weekly mass loading limit be established for CBOD5, TSS. Average monthly mass loading limits (lbs/day) are based on the formula: design flow (MGD) x concentration limit (mg/L) x conversion factor (8.34).

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations.

For facilities with design flows greater than 2,000 GPD influent BOD_5 and TSS monitoring must be established in the permit, and the monitoring should be consistent with the same frequency and sample type as is used for other effluent parameters.

For existing discharges, with federal minimum secondary effluent limitations, a year-round monitoring requirement for ammonia-nitrogen, will be established. The monitoring requirements for ammonia nitrogen are consistent with $CBOD_5$, TSS, and Fecal Coliform and Table 6-3 of the Permits Writers Manual.

The permit does not include a monitor and report requirements for TDS, sulfate, and chloride because the concentration of TDS in the discharge does not exceed 1,000 mg/L and the discharge flow exceeds 0.1 MGD.

The discharge is to the Thompson Run, which has a Final TMDL and is impaired by metals and pH. This sewage discharge is not expected to contribute to the stream impairment for which abandoned mine drainage is source of such impairment. A 1/quarter report requirement for Iron, Manganese, and Aluminum is established in the permit to verify that the sewage discharge is not contributing to the impairment. The same sample type for these parameters is used as for the other main parameters in the permit such as $CBOD_5$, and TSS. They are to be specified as Daily Max Reporting. The monitoring frequency is quarterly for plants rated greater than 0.499 MGD.

The STP discharges indirectly to the Monongahela River which has an EPA Approved TMDL and is impaired by PCBs and Chlordane. No WLAs have been developed for this sewage discharge as neither PCB nor Chlordane is typically found in sewage, but instead found in legacy sediments.

Anti-Backsliding

Not Applicable

Whole Effluent Toxicity (WET)

For IMP 101, ☒ **Acute** ☐ **Chronic** WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 50%, 25%, 12.5%, and 6.25%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 9.63.

Summary of Four Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
09/04/2008			95			90	Yes
11/07/2008			100			95	Yes
01/07/2009			90			95	Yes
02/07/2009			95			95	Yes

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.098** Chronic Partial Mix Factor (PMFc): **0.67**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.0 MGD x 1.547) / ((1060 cfs x 0.098) + (2.0 MGD x 1.547))] x 100 = **2.89%**

Is IWCa < 1%? ☐ **YES** ☒ **NO** **(YES - Acute Tests Required OR NO - Chronic Tests Required)**

Type of Test for Permit Renewal: **Chronic Tests Required**

2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = 2.89 / 0.3 = 9.63**%**

2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.0 MGD x 1.547) / ((1060 cfs x 0.679) + (2.0 MGD x 1.547))] x 100 = **0.43% PART C.V. States TIWC = 1%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 60%, 30%, 2%, and 1%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

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.

IMP 101, 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	2/week	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	417.0	626.0	XXX	25.0	37.5	50	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	500.0	751.0	XXX	30.0	45.0	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000.0	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Ammonia	Report	XXX	XXX	Report	XXX	Report	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

IMP 101 , Continued (from 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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location: IMP 101, located at the discharge pipe of the chlorine contact tank prior to combining with flow from CSO diversion chamber.

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1060	= Q stream (cfs)	0.5	= CV Daily
2	= 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 = 109.308	1.3.2.iii	WLA cfc = 106.559
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 40.731	5.1d	LTA_cfc = 61.948

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)

Applicant:	Pennsylvania-American Water Company
Name of plant:	Duquesne STP
Permit Number:	PA0026981
Municipality:	City of Duquesne
County:	Allegheny County
Receiving stream:	Thompson Run, Point of First Use is Monongahela River

The following program will calulate partial mix factors for acute and chronic conditions:

calculated fields

net stream flow (Qs cfs)=	**1060**
discharge flow (Qd mgd)=	**2**
velocity (fps)=	**0.157**
width (feet) =	**845**
depth (feet) =	**8**
slope (ft/ft) =	**0.00076**

complete mix time (min) = **1559.78**

FOR ACUTE CONDIT IONS: IF COMPLETE MIX TIME < 15 MINUTES
THEN PMF = 1, IF > 15 MINUTES CALCULATE PMFa

PMFa = **0.098**
or **9.81 %**

FOR CHRONIC CONDITIONS: IF COMPLETE MIX TIME < 720 MINUTES
THEN PMF = 1, IF > 720 MINUTES CALCULATE PMFc

PMFc = **0.679**
or **67.94 %**

IWCc=[Qd * 1.547] / [(Qs*PMFc) + (Qd * 1.547)] = **0.0043**

Target IWCc=IWCc/1= **0.004** **0.43 %**

IWCa=[Qd * 1.547] / [(Qs*PMFa) + (Qd * 1.547)] = **0.0289**

Target IWCa=IWCa/0.3= **0.096** **or** **9.63 %**

WET tests should pass if percentage for C.dubia LC50 and P.promelas LC50 are greater than the target IWCa (acute) or NOEC > target IWCc (chronic).

Program run by : William C. Mitchell **on** **December 8, 2017**

For Department use only

Date: December 8, 2017

Subject: WETT Testing Results
Pennsylvania-American Water Company
Duquesne STP
PA0026981
City of Duquesne
Allegheny County

To: Donald J. Leone, P.E.
Planning Chief
Water Management

From: William C. Mitchell
Planning Engineer
Water Management

I have reviewed all four quarterly Whole Effluent Toxicity Tests (WETT) conducted by EnviroScience, Inc. for the referenced sewage treatment plant. The results are as follows:

$Q_{discharge}$ (mgd) =	2
Q_{7-10} (cfs)=	1060
PMF_a %=	9.81
PMF_c %=	67.94
$TIWC_a$%=	9.63

Tests: Acute, 48-hour *Ceriodaphnia dubia*
Acute, 96-hour *Pimephales promelas*
Dilution Series: 100, 50, 25, 12.5, 6.25%

Acute WETT Summary

Quarter	1	2	3	4
96 hr LC_{50} mg/l (minnow) info only	0.0067	0.0058	0.0064	0.0062
48 hr LC_{50} mg/l (daphnia) info only	0.0017	0.0015	0.0017	0.0020
$LC_{50\ (Pp\text{-}96)}$%	90	95	95	95
$LC_{50\ (Cd\text{-}48)}$%	95	100	90	95
$Tu_{a\ permit}$ (minnow)	10.379	10.379	10.379	10.379
$Tu_{a\ permit}$ (daphnia)	10.379	10.379	10.379	10.379
$Tu_{a\ endpoint}$ (minnow)	1.1111	1.0526	1.0526	1.0526
$Tu_{a\ endpoint}$ (daphnia)	1.0526	1.0000	1.1111	1.0526

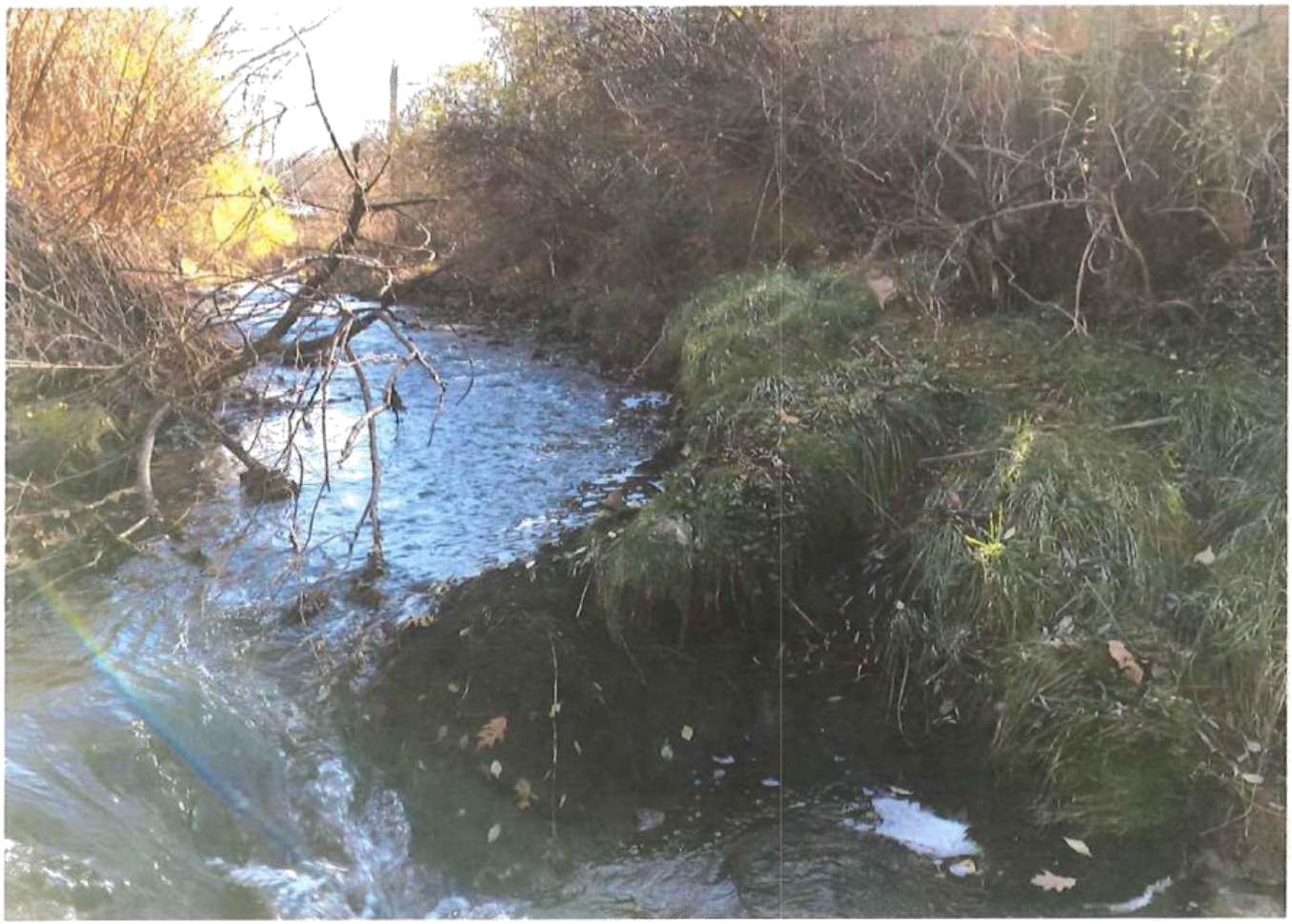
Reasonable potential to exceed Pennsylvania's narrative WET criterion is defined by the following equations:

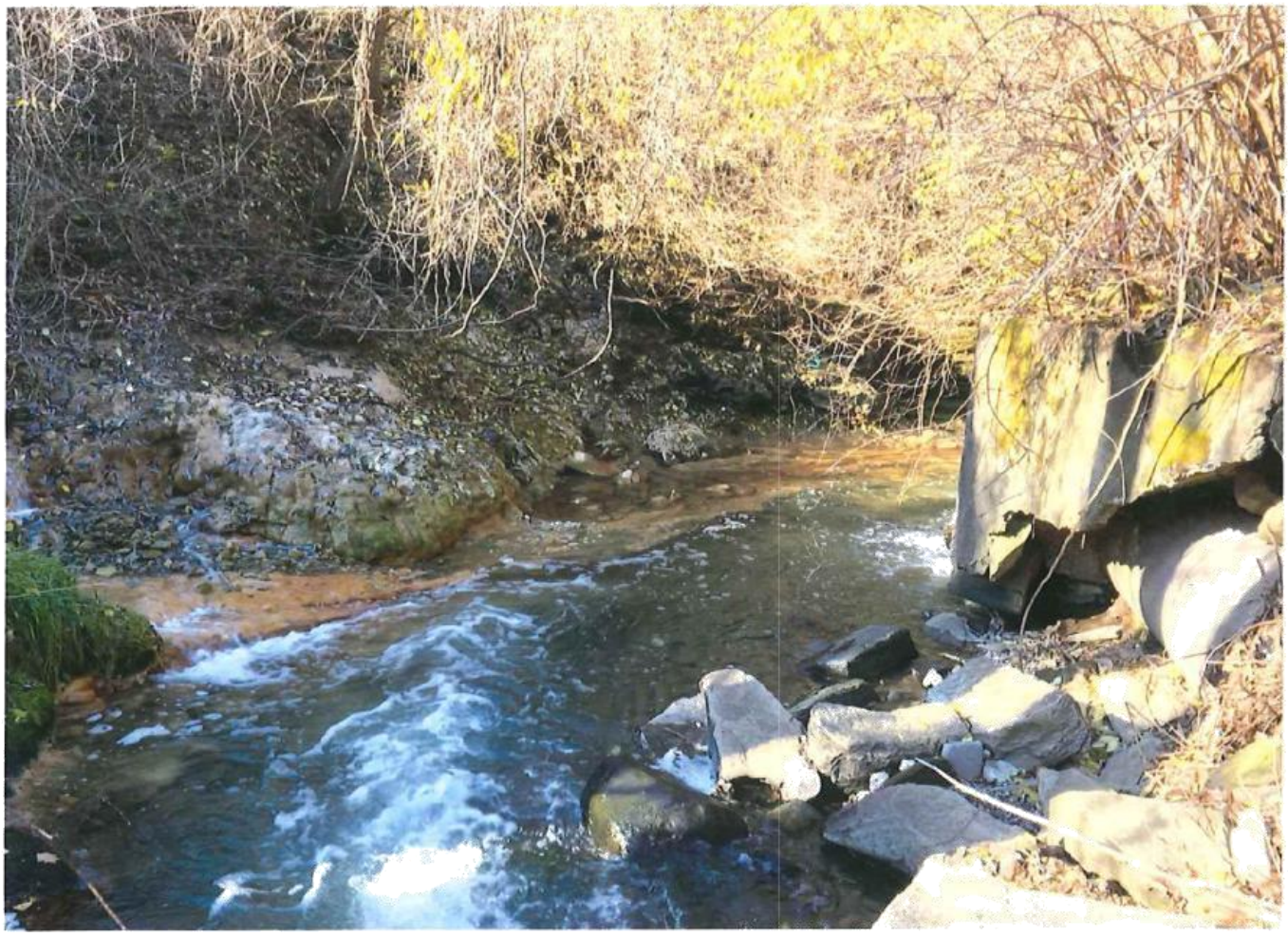
$Tu_{a\ (endpoint)} > Tu_{a\ (permit)}$

$LC_{50} < TIWC_a$

Potential failure for minnow	None	None	None	None
Potential failure for daphnia	None	None	None	None
$LC_{50\ (Pp\text{-}96)}$ Results	Pass	Pass	Pass	Pass
$LC_{50\ (Cd\text{-}48)}$ Results	Pass	Pass	Pass	Pass

Conclusion: Reasonable potential to exceed Pennsylvania's narrative WET criterion was not demonstrated for all four quarters.





TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.4

Facility: Duquesne STP | NPDES Permit No.: PA0026981 | Outfall: IMP 101
Analysis Hardness (mg/L): 100 | Discharge Flow (MGD): 2 | Analysis pH (SU): 7

	Parameter		Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		550000	500000	Yes		
	Chloride		200000	250000	No		
	Bromide		1000	N/A	No		
	Sulfate		100000	250000	No		
Group 2	Total Aluminum		73	750	No		
	Total Antimony		0.5	5.6	No		
	Total Arsenic		0.6	10	No		
	Total Barium		17.2	2400	No		
	Total Beryllium		0.5	N/A	No		
	Total Boron		187	1600	No		
	Total Cadmium		0.1	0.271	No		
	Total Chromium		5.5	N/A	No		
	Hexavalent Chromium		0.5	10.4	No		
	Total Cobalt		2	19	No		
	Total Copper		4.4	9.3	No		
	Free Available Cyanide	<	10	5.2	Yes	487.475	No Limits/Monitoring
	Total Cyanide		10	N/A	No		
	Dissolved Iron		30	300	No		
	Total Iron		163	1500	No		
	Total Lead		0.6	3.2	No		
	Total Manganese		67.5	1000	No		
	Total Mercury		0.0031	0.05	No		
	Total Nickel		10.2	52.2	No		
	Total Phenols (Phenolics)		2.5	5	No		
	Total Selenium		1	5.0	No		
	Total Silver		0.1	3.8	No		
	Total Thallium		0.1	0.24	No		
	Total Zinc		38.5	119.8	No		
	Total Molybdenum		10	N/A	No		
Group 3	Acrolein	<	1	3	No (Value < QL)		
	Acrylonitrile	<	0.5	0.051	No (Value < QL)		
	Benzene	<	0.2	1.2	No (Value < QL)		
	Bromoform	<	0.2	4.3	No (Value < QL)		
	Carbon Tetrachloride	<	0.2	0.23	No (Value < QL)		
	Chlorobenzene	<	0.2	130	No (Value < QL)		
	Chlorodibromomethane	<	0.4	0.4	No (Value < QL)		
	Chloroethane	<	0.2	N/A	No (Value < QL)		
	2-Chloroethyl Vinyl Ether	<	0.5	3500	No (Value < QL)		
	Chloroform		4.6	5.7	No		
	Dichlorobromomethane		1.9	0.55	Yes	572.332	No Limits/Monitoring
	1,1-Dichloroethane	<	0.2	N/A	No (Value < QL)		
	1,2-Dichloroethane	<	0.2	0.38	No (Value < QL)		
	1,1-Dichloroethylene	<	0.2	33	No (Value < QL)		
	1,2-Dichloropropane	<	0.2	2200	No (Value < QL)		
	1,3-Dichloropropylene	<	0.2	0.34	No (Value < QL)		
	1,4-Dioxane	<	20	N/A	No		Monitor
	Ethylbenzene	<	0.2	530	No (Value < QL)		
	Methyl Bromide	<	0.5	47	No (Value < QL)		
	Methyl Chloride	<	0.2	5500	No (Value < QL)		
	Methylene Chloride	<	0.2	4.6	No (Value < QL)		
	1,1,2,2-Tetrachloroethane	<	0.2	0.17	No (Value < QL)		
	Tetrachloroethylene	<	0.2	0.69	No (Value < QL)		
	Toluene		1.2	330	No		
	1,2-trans-Dichloroethylene	<	0.5	140	No (Value < QL)		
	1,1,1-Trichloroethane	<	0.2	610	No (Value < QL)		
	1,1,2-Trichloroethane	<	0.5	0.59	No (Value < QL)		
	Trichloroethylene	<	0.2	2.5	No (Value < QL)		
	Vinyl Chloride	<	0.2	0.025	No (Value < QL)		
Group 4	2-Chlorophenol	<	0.21	81	No (Value < QL)		
	2,4-Dichlorophenol	<	0.21	77	No (Value < QL)		
	2,4-Dimethylphenol	<	0.21	130	No (Value < QL)		
	4,6-Dinitro-o-Cresol			13			
	2,4-Dinitrophenol	<	1.03	69	No (Value < QL)		
	2-Nitrophenol	<	0.21	1600	No (Value < QL)		
	4-Nitrophenol	<	0.21	470	No (Value < QL)		
	p-Chloro-m-Cresol			30			
	Pentachlorophenol	<	0.2	0.27	No (Value < QL)		
	Phenol	<	0.2	10400	No (Value < QL)		
	2,4,6-Trichlorophenol		0.3	1.4	No		
	Acenaphthene	<	0.1	17	No (Value < QL)		

Duquesne STP Toxics Screening Analysis Spreadsheet (v 2.3), 12/18/2017

Group 5	Acenaphthylene	<	0.1	N/A	No (Value < QL)		
	Anthracene	<	0.1	8300	No (Value < QL)		
	Benzidine	<	0.1	0.000086	No (Value < QL)		
	Benzo(a)Anthracene		0.4	0.0038	Yes	3.954	No Limits/Monitoring
	Benzo(a)Pyrene		0.3	0.0038	Yes	3.954	No Limits/Monitoring
	3,4-Benzofluoranthene	<	0.1	0.0038	No (Value < QL)		
	Benzo(ghi)Perylene	<	0.1	N/A	No (Value < QL)		
	Benzo(k)Fluoranthene	<	0.1	0.0038	No (Value < QL)		
	Bis(2-Chloroethoxy)Methane	<	0.1	N/A	No (Value < QL)		
	Bis(2-Chloroethyl)Ether	<	0.1	0.03	No (Value < QL)		
	Bis(2-Chloroisopropyl)Ether	<	0.1	1400	No (Value < QL)		
	Bis(2-Ethylhexyl)Phthalate		1.7	1.2	Yes	1248.723	No Limits/Monitoring
	4-Bromophenyl Phenyl Ether	<	0.1	54	No (Value < QL)		
	Butyl Benzyl Phthalate	<	1.03	35	No (Value < QL)		
	2-Chloronaphthalene	<	0.1	1000	No (Value < QL)		
	4-Chlorophenyl Phenyl Ether	<	0.1	N/A	No (Value < QL)		
	Chrysene		0.3	0.0038	Yes	3.954	No Limits/Monitoring
	Dibenzo(a,h)Anthrancene	<	0.1	0.0038	No (Value < QL)		
	1,2-Dichlorobenzene	<	0.1	160	No (Value < QL)		
	1,3-Dichlorobenzene	<	0.1	69	No (Value < QL)		
	1,4-Dichlorobenzene	<	0.1	150	No (Value < QL)		
	3,3-Dichlorobenzidine	<	0.1	0.021	No (Value < QL)		
	Diethyl Phthalate	<	1.03	800	No (Value < QL)		
	Dimethyl Phthalate	<	1.03	500	No (Value < QL)		
	Di-n-Butyl Phthalate	<	1.03	21	No (Value < QL)		
	2,4-Dinitrotoluene	<	0.1	0.05	No (Value < QL)		
	2,6-Dinitrotoluene	<	0.1	0.05	No (Value < QL)		
	Di-n-Octyl Phthalate	<	1.03	N/A	No (Value < QL)		
	1,2-Diphenylhydrazine	<	0.1	0.036	No (Value < QL)		
	Fluoranthene		1	40	No		
	Fluorene	<	0.1	1100	No (Value < QL)		
	Hexachlorobenzene	<	0.1	0.00028	No (Value < QL)		
	Hexachlorobutadiene	<	0.1	0.44	No (Value < QL)		
	Hexachlorocyclopentadiene	<	0.1	1	No (Value < QL)		
	Hexachloroethane	<	0.1	1.4	No (Value < QL)		
	Indeno(1,2,3-cd)Pyrene	<	0.1	0.0038	No (Value < QL)		
	Isophorone	<	0.1	35	No (Value < QL)		
	Naphthalene	<	0.1	43	No (Value < QL)		
	Nitrobenzene	<	0.1	17	No (Value < QL)		
	n-Nitrosodimethylamine	<	0.1	0.00069	No (Value < QL)		
	n-Nitrosodi-n-Propylamine	<	0.1	0.005	No (Value < QL)		
	n-Nitrosodiphenylamine	<	0.1	3.3	No (Value < QL)		
	Phenanthrene		0.4	1	No		
	Pyrene		0.6	830	No		
	1,2,4-Trichlorobenzene	<	0.1	26	No (Value < QL)		
Group 6	Aldrin	<		0.000049			
	alpha-BHC	<		0.0026			
	beta-BHC	<		0.0091			
	gamma-BHC	<		0.098			
	delta BHC	<		N/A			
	Chlordane	<		0.0008			
	4,4-DDT	<		0.00022			
	4,4-DDE	<		0.00022			
	4,4-DDD	<		0.00031			
	Dieldrin	<		0.000052			
	alpha-Endosulfan	<		0.056			
	beta-Endosulfan	<		0.056			
	Endosulfan Sulfate	<		N/A			
	Endrin	<		0.036			
	Endrin Aldehyde	<		0.29			
	Heptachlor	<		0.000079			
	Heptachlor Epoxide	<		0.000039			
	Toxaphene	<		0.0002			
	2,3,7,8-TCDD	<		0.000000005			
Group 7	Gross Alpha (pCi/L)	<		N/A			
	Total Beta (pCi/L)	<		N/A			
	Radium 226/228 (pCi/L)	<		N/A			
	Total Strontium	<		4000			
	Total Uranium	<		N/A			

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
37185	12.26	712.00	7180.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.147	0	1060	0	845	8	0	0	100	7	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
Duquesne STP	PA0026981	0	0	2	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
BENZO(a)ANTHRACENE	1E+07	0	0.5	0.5	0	0	0	0	1	0
BENZO(a)PYRENE	1E+07	0	0.5	0.5	0	0	0	0	1	0
BIS(2-ETHYLHEXYL) PHTHALATE	1E+07	0	0.5	0.5	0	0	0	0	1	0
CHRYSENE	1E+07	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	1E+07	0	0.5	0.5	0	0	0	0	1	0
DICHLOROBROMOMETHANE	1E+07	0	0.5	0.5	0	0	0	0	1	0

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
37185	11.76	710.00	7190.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.147	0	0	0	0	0	0	0	100	7	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
		0	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
BENZO(a)ANTHRACENE	0	0	0.5	0.5	0	0	0	0	1	0
BENZO(a)PYRENE	0	0	0.5	0.5	0	0	0	0	1	0
BIS(2-ETHYLHEXYL) PHTHALATE	0	0	0.5	0.5	0	0	0	0	1	0
CHRYSENE	0	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	0	0	0.5	0.5	0	0	0	0	1	0
DICHLOROBROMOMETHANE	0	0	0.5	0.5	0	0	0	0	1	0

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
19A	37185	MONONGAHELA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
Q7-10 Hydrodynamics											
12.260	1060	0	1060	3.094	0.0008	8	845	105.63	0.1573	0.1943	1000+
11.760	1061.5	0	1061.5	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
12.260	3274.2	0	3274.2	3.094	0.0008	13.129	845	64.362	0.2954	0.1034	746.052
11.760	3278.2	0	3278.2	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
12.26	Duquesne STP	PA0026981

AFC

Q7-10: CCT (min) 15 **PMF** 0.097 **Analysis pH** 7 **Analysis Hardness** 100

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CYANIDE, FREE	0	0	0	0	22	22	760.539
DICHLOROBROMOMETHANE	0	0	0	0	NA	NA	NA
BENZO(a)ANTHRACENE	0	0	0	0	0.5	0.5	17.285
BENZO(a)PYRENE	0	0	0	0	NA	NA	NA
BIS(2-ETHYLHEXYL) PHTHALATE	0	0	0	0	4500	4500	155564.7
CHRYSENE	0	0	0	0	NA	NA	NA

CFC

Q7-10: CCT (min) 720 **PMF** 0.678 **Analysis pH** 7 **Analysis Hardness** 100

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CYANIDE, FREE	0	0	0	0	5.2	5.2	1214.612
DICHLOROBROMOMETHANE	0	0	0	0	NA	NA	NA
BENZO(a)ANTHRACENE	0	0	0	0	0.1	0.1	23.358
BENZO(a)PYRENE	0	0	0	0	NA	NA	NA
BIS(2-ETHYLHEXYL) PHTHALATE	0	0	0	0	910	910	212557.2
CHRYSENE	0	0	0	0	NA	NA	NA

THH

Q7-10: CCT (min) 720 **PMF** 0.678 **Analysis pH** NA **Analysis Hardness** NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CYANIDE, FREE	0	0	0	0	140	140	32701.11
DICHLOROBROMOMETHANE	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number							
12.26	**Duquesne STP**	**PA0026981**							
	BENZO(a)ANTHRACENE		0	0	0	0	NA	NA	NA
	BENZO(a)PYRENE		0	0	0	0	NA	NA	NA
	BIS(2-ETHYLHEXYL) PHTHALATE		0	0	0	0	NA	NA	NA
	CHRYSENE		0	0	0	0	NA	NA	NA

CRL

Qh: **CCT (min)** 720 **PMF** 0.982

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CYANIDE, FREE	0	0	0	0	NA	NA	NA
DICHLOROBROMOMETHANE	0	0	0	0	0.55	0.55	572.332
BENZO(a)ANTHRACENE	0	0	0	0	0.004	0.004	3.954
BENZO(a)PYRENE	0	0	0	0	0.004	0.004	3.954
BIS(2-ETHYLHEXYL) PHTHALATE	0	0	0	0	1.2	1.2	1248.723
CHRYSENE	0	0	0	0	0.004	0.004	3.954

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
19A	37185	MONONGAHELA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
12.26	Duquesne STP	PA0026981	2.0000

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
BENZO(a)ANTHRACENE	3.954	CRL	6.169	3.954	CRL
BENZO(a)PYRENE	3.954	CRL	6.169	3.954	CRL
BIS(2-ETHYLHEXYL) PHTHALATE	1248.723	CRL	1948.209	1248.723	CRL
CHRYSENE	3.954	CRL	6.169	3.954	CRL
CYANIDE, FREE	487.475	AFC	760.539	487.475	AFC
DICHLOROBROMOMETHANE	572.332	CRL	892.929	572.332	CRL