pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0043681**
Facility Type	**Municipal**	APS ID	**1062792**
Major / Minor	**Major**	Authorization ID	**1395306**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Valley Joint Sewer Authority Bradford County**	Facility Name	**Valley Joint Sewer Authority WW Treatment Plant**
Applicant Address	1 S. River Street	Facility Address	1 S. River Street
	Athens, PA 18810-1701		Athens, PA 18810-1701
Applicant Contact	Scott Riley	Facility Contact	Craig Allis
Applicant Phone	(570) 888-2253	Facility Phone	(570) 888-2253
Client ID	62767	Site ID	257234
Ch 94 Load Status	Not Overloaded	Municipality	Athens Borough
Connection Status	No Limitations	County	Bradford
Date Application Received	May 4, 2022	EPA Waived?	No
Date Application Accepted	May 10, 2022	If No, Reason	Major Facility, Significant CB Discharge

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

Summary of Review

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

Approve	Deny	Signatures	Date
X		*Jonathan P. Peterman* Jonathan P. Peterman / Project Manager	February 21, 2023
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	February 22, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.25
Latitude	41º 58' 1.30"	Longitude	-76º 30' 48.97"
Quad Name	Sayre	Quad Code	0333
Wastewater Description:	Sewage Effluent		
Receiving Waters	Susquehanna River (WWF)	Stream Code	06685
NHD Com ID	46465865	RMI	289.41
Drainage Area	4,920	Yield (cfs/mi^2)	0.083
Q_{7-10} Flow (cfs)	408	Q_{7-10} Basis	Stream Gage No. 1515000
Elevation (ft)	742	Slope (ft/ft)	0.0008
Watershed No.	4-B	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	N/A
Exceptions to Use	None.	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY, POLYCHLORINATED BIPHENYLS (PCBS)		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final	Name	Susquehanna River PCB
Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1740
PWS RMI	124	Distance from Outfall (mi)	151

Changes Since Last Permit Issuance: The updated Q_{7-10} data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. A comparative analysis was conducted using the associated stream gage (01515000) which is located slightly upstream of the discharge location. The upstream gage data indicates that the Q_{7-10} above the discharge is 396 cfs. It was determined that the Q_{7-10} is 408 cfs which was used in previous reviews. Q_{7-10} calculations are attached in Appendix A.

Other Comments: None.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

TMDL Impairment

Susquehanna River PCB

The pollutants that are the causes for the designated use impairments in the Susquehanna River have been identified as organic Polychlorinated Biphenyls (PCBs). It is now illegal to manufacture, distribute, or use PCB in the United States. It is believed that the PCBs present in the Susquehanna River reside primarily in the sediment due to historic use. The main source of the PCBs was introduced into the environment while their use was unrestricted. However, occasional releases still occur. In addition, some permitted discharges and Superfund sites contribute PCB to surface water. It can be determined that a facility of this type with the associated industrial users, would not be a source for PCBs. In accordance with 40 CFR §122.44(d)(1)(ii)&(iii), it can be determined that the effluent from this facility has no "Reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant." Therefore, the permit will not be required to contain effluent limits for PCB's. The TMDL stipulates that natural attenuation may be the best implementation method because it involves less habitat disturbance/destruction than active removal of contaminated sediments.

Chesapeake Bay Requirements

In order to address the TMDL, Pennsylvania developed a Chesapeake Watershed Implementation Plan (WIP) – Phase I. Since the publication of Pennsylvania's Phase I Chesapeake WIP in January 2011 and the Chesapeake Bay TMDL, several activities have occurred that necessitated the development of the Phase II WIP. Initially, a phased approach was utilized which imposed TN and TP cap loads in reissued permits for significant sewage dischargers. Accordingly, Valley Joint Sewer Authority's renewed permit, issued 3/1/2011, included these TN and TP cap loads. A review of these caps loads indicated that the previous permit included 1,125 lbs of Total Nitrogen offsets in the cap load. Given that offsets can only be used for compliance and cannot be used for nutrient trading, and in accordance with the Phase II WIP the offsets were previously removed from the cap load and recognized in a footnote included in Part A of the permit. Per the April 6, 2015 revisions to the Chesapeake Bay Watershed Implementation Plan (WIP), Phase II, the monitoring frequencies for the Nitrogen series and Total Phosphorus were increased from 1/week to 2/week. Additionally, the Chesapeake Bay language at Part C I of the permit has been revised to reflect the revised WIP Phase III.

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy:

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

Discharge Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report		Report		2/week	24-Hr Comp.
Kjeldahl---N	Report			Report		2/week	24-Hr Comp.
Nitrate-Nitrite as N	Report			Report		2/week	24-Hr Comp.
Total Nitrogen	Report	Report		Report		1/month	Calculation
Total Phosphorus	Report	Report		Report		2/week	24-Hr Comp.
Net Total Nitrogen	Report	41,095*				1/month	Calculation
Net Total Phosphorus	Report	5,479**				1/month	Calculation

*TN = 2.25 MGD x 6.0 mg/l x 8.34 x 365 days/yr = 41,095 lb/yr
+ 1,125 lb/yr (Offsets) = 42,220 lb/yr (Previous cap load listed in permit)
**TP = 2.25 MGD x 0.8 mg/l x 8.34 x 365 days/yr = 5,479 lb/yr

Treatment Facility Summary

Treatment Facility Name: Valley Joint Sewer Authority WWTP
Tributary Sewer System Information: The Valley Joint Sewer Authority Wastewater Treatment Plant serves Athens Borough, Athens Township, Sayre Borough, and South Waverly Township. All sewer systems are 100% separated.

Municipality Served	Flow Contribution %
Athens Borough	22
Athens Township	29
Sayre Borough	45
South Waverly Township	8
Total	100

The discharge flow rates for the previous year (2021), in MGD, are as follows:

Existing Annual Average	Maximum Monthly Average	Month of Highest Flow
1.302	1.474	October 2021

Treatment Facility Summary

Treatment Facility Name: Valley Joint Sewer Authority WWTP

WQM Permit No.	Issuance Date	Comments
0811401	7/21/11	Upgrade and installation of 3 new SBRs.
0802401	6/28/02	Replace pumps, install new mechanical screens, and convert anaerobic digesters to aerobic digesters.
0897407	12/31/97	Rerating of the plants annual average flow from 2.0 to 2.25 MGD and the design hydraulic capacity to 2.57 MGD.
0897404	5/27/97	Installation of UV system.
0887401-T1	3/23/92	Transfer from Athens-Sayre Joint Authority to Valley Joint Sewer Authority.
0887401 A-1	7/22/88	Rerate from 1.6 to 2.0 MGD.
0887401	3/30/87	Addition of aeration tanks to existing treatment plant to meet secondary standards.
0873401	2/21/73	Upgrades to the existing plant.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	UV	2.25
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
2.25	5,048	Not Overloaded	Dewatering	Compost

New Treatment System Components (See Appendix E for Plant Process Flow Diagram):
- Two (2) Metering Flumes.
- One (1) Mechanical Screen with Manual Bar Rack.
- One (1) Raw Water Pump Station with Three (3) Raw Wastewater Pumps (2 duty, 1 standby).
- One (1) Grit/Grease Removal System.
- One (1) Distribution Box.
- Three (3) 17,600 Gallon SBR Tanks.
    - Five (5) Aeration Blowers.
- One (1) UV Disinfection System.
    - Two (2) Units (One per channel), Seven Modules Per Unit, Eight Lamps Per Module (112 Lamps).
- One (1) Outfall #001

- One (1) Sludge Holding Tank.
- One (1) Sludge Thickening Tank.
- One (1) Autothermal Thermophilic Aerobic Digester.
- One (1) Secondary Nitrification/Denitrification Reactor.
- One (1) Centrifuge Dewatering System.
- One (1) Sludge Storage Pad.

Compliance Sampling Location: Discharge from the UV tank.
Sewage sludge / biosolids disposal: NTSWA landfill.
Changes Since Last Permit Issuance: None.

Industrial Users

The Valley Joint Sewer Authority receives wastewater from the following industrial users:

Industrial User	Wastewater Flows (GPD)					Significant IU?	Pollutant Groups
	Process	NCCW	Sanitary	Other	Total		
Bimbo Bakeries USA, Inc.	-	14,380	535	560	15,475	No	-
Camco Manufacturing, Inc.	-	-	-	-	-	No	-
Clare Printing	-	-	-	-	-	No	-
G.E. Railcar Repair Services	24,000	-	2,300	-	26,300	No	-
Masco Cabinetry	10,200	-	1,200	-	11,400	No	-
TOTAL	34,200	-	4,035	-	53,175		

The Valley Joint Sewer Authority does not have any Significant Industrial Users (SIU) or and EPA approved pre-treatment program.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **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%, 60%, 30%, 2%, and 1%. See section below for TIWC. See Appendix F for WETT Spreadsheet.

Summary of Four Most Recent Test Results

NOEC/LC50 Data Analysis

	***Ceriodaphnia* Results (% Effluent)**			***Pimephales* Results (% Effluent)**			
Test Date	**NOEC Survival**	**NOEC Reproduction**	**LC50**	**NOEC Survival**	**NOEC Growth**	**LC50**	**Pass? ***
8/22/21-8/27/21	100	60	100	100	100	100	Yes
9/27/20-10/2/20	100	100	100	100	100	100	Yes
9/22/19-9/27/19	100	100	100	100	100	100	Yes
7/15/18-7/20/18	100	100	100	100	60	100	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**

Comments: No reasonable potential can be assumed.

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

Acute Partial Mix Factor (PMFa): **0.051** Chronic Partial Mix Factor (PMFc): **0.358**

1. Determine IWC – Acute (IWCa):

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

[(2.25 MGD x 1.547) / ((408 cfs x 0.051) + (2.25 MGD x 1.547))] x 100 = **14.33%**

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

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

No.

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

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

TIWCa = IWCa / 0.3 = N/A**%**

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

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

[(2.25 MGD x 1.547) / ((408 cfs x 0.358) + (2.25 MGD x 1.547))] x 100 = **2.33%**

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

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A.

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A.

Part C of the permit will contain following requirements for this major sewage facility:

1. Part C Condition 114 “Whole Effluent Toxicity (WET)”

Existing Effluent Limitations and Monitoring Requirements

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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	465	750	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	560	840	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Copper, Total (μg/L)	Report	Report	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite

The existing effluent limits for Outfall 001 were based on a design flow of 2.25 MGD.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.25
Latitude 41º 58' 4.90" **Longitude** -76º 30' 54.80"
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)

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD5, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the Toxics Management Spreadsheet.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen
The model was run using the latest information on Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The existing technology based effluent limit for $CBOD_5$ (25 mg/l) and NH3-N (25 mg/l) were used as inputs for the modeling. The DO minimum daily average criterion from §93.7 (5 mg/L for WWF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD5	25	N/A	N/A
Ammonia-N	25	50	N/A
Dissolved Oxygen	N/A	N/A	3

The model does not recommend water-quality based effluent limitations with regards to CBOD5, Ammonia-N, and dissolved oxygen. Refer to Appendix B for the WQM 7.0 inputs and results. Based on the model output, the existing limitations are appropriate and will be maintained.

Toxics Management Spreadsheet
This model is a single discharge wasteload allocation program for toxics that uses a mass-balance water quality analysis to determine recommended water quality-based effluent limits. The model incorporates consideration for mixing, first-order decay and other factors to computes a Wasteload Allocation (WLA) for each applicable criterion. Finally, the model determines a maximum water quality-based effluent limitation (WQBEL) for each parameter and outputs the more stringent of the WQBEL or the input concentration. The output of which is the recommends average monthly and maximum daily effluent limitations.

Sampling for pollutant Groups was submitted with the application. This sampling information and the receiving stream information was entered into the Toxics Management Spreadsheet. The modeling results indicated that monitoring requirements for Copper and Zinc are needed.

A "Reasonable Potential Analysis" (See Appendix C) determined that the following parameters were candidates for monitoring or limitations shown below:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	µg/L	63.4	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	543	AFC	Discharge Conc > 10% WQBEL (no RP)

Additional Considerations

None

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 the abovementioned 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) 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	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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	465	750	XXX	25.0	40.0	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	560	840	XXX	30.0	45.0	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	Continuous	Metered
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Copper, Total (μg/L)	Report	Report	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite
Zinc, Total (μg/L)	Report	Report	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite

*The proposed effluent limits for Outfall 001 were based on a design flow of 2.25 MGD.

General Information
All of the limits proposed above are consistent with other permits issued for major wastewater treatment plants in the region. The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits.

Flow
Reporting of the average monthly and daily maximum flow is consistent with monitoring requirements for other treatment plants of this size.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
The results of the WQM 7.0 model show that the previously applied secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for $CBOD_5$ are protective of water quality and will remain.

Total Suspended Solids (TSS)
The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS will remain as well.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH. The existing limits will remain.

Fecal Coliforms
The existing fecal coliform limits with I-max limits were updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5).

U.V. Transmittance
The facility a meter for this monitoring and the daily sample type (Meter) is appropriate. The output of the existing meter has been verified to report ultraviolet light transmittance in %.

Ammonia-Nitrogen (NH3-N)
The year-round monitoring of NH3-N concentrations in the effluent will be maintained as a minimum BPJ requirement. Effluent concentrations of NH3-N are not expected to exceed 25 mg/l.

Dissolved Oxygen (DO)
Given results of the WQM 7.0 model, a discharge of effluent from this facility with a DO concentration of 3 mg/l would not result in an exceedance of water quality requirements for this stream. It is anticipated, based on similar technology, that the DO concentration in the effluent would be greater than 3.0 mg/l. Therefore, based on BPJ, only monitoring will be required for this facility. This will also provide historical data to establish baseline DO levels in the effluent for future reviews.

E. Coli
25 PA Code § 92a.61 provide the basis of monitoring requirements for E. Coli. Monthly monitoring will be required going forward.

Influent BOD_5 and TSS
The Department requires the reporting of raw sewage influent monitoring for BOD_5 and TSS in all POTW permits. This provides the Department with the ability to monitor the percent removal of each parameter as stipulated in section 2 of the Part A conditions and maintain records of the BOD_5 loading as required by 25 Pa. Code Chapter 94. The monitoring frequencies and sample types are identical to the effluent sampling.

Other Comments: None.

Stormwater Requirements

The industrial activities associated with Valley Joint Sewer Authority's WWTP are identified in 40 CFR 122.26(b)(14)(ix) and thus the facility required to obtain an NPDES permit to discharge stormwater into waters of the Commonwealth of Pennsylvania. This NPDES PAG-03 assigns several control measures and Minimum Required Best Management Practices (BMPs) to all POTWs. The BMPs outlined in the PAG-03 will be established in this permit to prevent potential pollutants from contaminating the stormwater.

The application identifies one stormwater outfall (Outfall S01)

Significant Part C Conditions

Chesapeake Bay Nutrient Requirements
C110 – Solids Management for Non-Lagoon Systems
C114 – Whole Effluent Toxicity – No Permit Limits
C123 – Stormwater Requirements

Compliance History

Summary of Inspections –The last inspection was conducted by the Department on 10/19/22. The inspection did not reveal any issues and the facility was operating normally.
WMS Query Summary -A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed that there were no unresolved violations.

Compliance History

DMR Data for Outfall 001 (from January 1, 2022 to December 31, 2022)

Parameter	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22
Flow (MGD) Average Monthly	1.179	1.148	1.078	1.275	1.178	1.199	1.481	1.219	1.395	1.475	1.286	1.083
Flow (MGD) Daily Maximum	1.635	1.782	1.263	2.386	1.506	1.98	1.808	1.581	1.667	1.731	2.295	1.193
pH (S.U.) Minimum	6.81	6.98	7.01	7.08	7.01	7.02	6.75	6.71	6.93	6.92	6.84	6.93
pH (S.U.) Instantaneous Maximum	7.26	7.3	7.39	7.34	7.29	7.44	7.16	7.17	7.24	7.29	7.20	7.32
DO (mg/L) Minimum	4.11	4.01	4.09	4.01	4.1	4.10	4.11	4.11	4.08	4.07	4.02	4.05
CBOD5 (lbs/day) Average Monthly	< 47	< 33	62	87	< 26	< 62	< 39	< 30	< 33	< 43	< 30	< 32
CBOD5 (lbs/day) Weekly Average	87	62	76	148	31	92	63	42	53	69	< 30	< 41
CBOD5 (mg/L) Average Monthly	< 4.76	< 3.4	6.44	4.20	< 2.55	< 5.78	< 3.53	< 2.77	< 2.71	< 3.27	< 2.8	3.35
CBOD5 (mg/L) Weekly Average	9.0	6.37	8.08	4.25	3.18	7.98	5.93	3.9	4.35	4.96	< 3.11	< 4.22
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	2484	2378	2227	2622	1659	2616	2328	1827	2610	2198	2473	2518
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	3077	5141	2905	3622	2415	5209	3227	2648	3462	2873	2920	3244
BOD5 (mg/L) Raw Sewage Influent Average Monthly	250	242	232	223	159	246	205	168	217	169	237	265
TSS (lbs/day) Average Monthly	< 50	< 51	< 52	< 77	< 55	< 55	< 56	< 57	< 60	< 66	< 53	< 49
TSS (lbs/day) Raw Sewage Influent Average Monthly	2355	1715	1303	1678	1811	2440	2281	1931	2013	2251	1386	1835

TSS (lbs/day) Raw Sewage Influent Daily Maximum	3613	3457	2374	2171	3960	4210	3724	2502	3641	3060	2024	2793
TSS (lbs/day) Weekly Average	< 53	68	< 57	97	< 71	62	75	70	< 67	< 70	< 62	< 50
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Raw Sewage Influent Average Monthly	237	177	134	146	173	233	199	178	163	172	130	192
TSS (mg/L) Weekly Average	< 5.0	7.0	< 6.0	7.0	< 7.0	6.0	< 5.0	6.0	< 5.0	< 5.0	< 5.0	< 6.0
Fecal Coliform (No./100 ml) Geometric Mean	< 2.0	< 2	< 4.0	< 7	< 5	< 2.0	< 3	< 1	< 2	< 2	< 5	< 5.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	5.0	4	122	24	5	5.0	33	2	10	33	146	> 2420
UV Transmittance (%) Minimum	65	65	65	65	65	65	65	65	65	65	65	65
Nitrate-Nitrite (mg/L) Average Monthly	1.66	1.752	1.598	1.54	1.53	1.46	< 1.294	1.257	1.216	1.31	1.59	1.65
Nitrate-Nitrite (lbs) Total Monthly	512	518	476	559	500	474	< 429	423	448	523	470	486
Total Nitrogen (mg/L) Average Monthly	3.51	3.287	3.844	4.37	2.89	4.156	< 2.632	3.198	< 2.743	2.835	3.048	3.5
Total Nitrogen (lbs) Effluent Net Total Monthly	1087	967	1161	1557	940	1357	< 897	1077	1006	1140	900	1033
Total Nitrogen (lbs) Total Monthly	1087	967	1161	1557	940	1357	< 897	1077	< 1006	1140	900	1035
Total Nitrogen (lbs) Effluent Net Total Annual				< 12882								
Total Nitrogen (lbs) Total Annual				< 12882								
Ammonia (lbs/day) Average Monthly	< 7.0	< 8	< 10	< 17	< 8	< 8.0	< 9.0	< 9.0	< 19	< 10	< 8	< 8
Ammonia (mg/L) Average Monthly	< 0.8	< 0.8	< 1.0	< 1.49	< 0.805	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Ammonia (lbs) Total Monthly	< 232	< 234	< 305	< 511	< 261	< 260	< 271	< 269	< 290	< 321	< 238	< 236

Ammonia (lbs) Total Annual				< 3483								
TKN (mg/L) Average Monthly	1.85	1.53	2.25	2.83	1.35	1.476	1.72	1.94	< 1.527	1.528	1.461	1.86
TKN (lbs) Total Monthly	575	449	677	998	440	479	590	655	< 558	617	430	547
Total Phosphorus (lbs/day) Average Monthly	2.0	2	10	15	7	4.0	6.0	8	9	6.0	4.0	< 2
Total Phosphorus (mg/L) Average Monthly	0.17	0.21	0.99	1.22	0.66	0.39	0.52	0.7	0.72	0.46	0.35	< 0.22
Total Phosphorus (lbs) Effluent Net Total Monthly	54	61	305	458	218	126	179	233	256	184	106	< 66
Total Phosphorus (lbs) Total Monthly	54	61	305	458	216	126	179	233	256	184	106	< 66
Total Phosphorus (lbs) Effluent Net Total Annual				< 2221								
Total Phosphorus (lbs) Total Annual				< 2083								
Total Copper (lbs/day) Average Monthly	0.01	0.5	< 0.05	0.2	0.08	0.008	0.2	0.012	0.1	0.1	0.1	0.1
Total Copper (lbs/day) Daily Maximum	0.01	0.5	0.05	0.2	0.08	0.008	0.2	0.012	0.1	0.1	0.1	0.1
Total Copper (ug/L) Average Monthly	0.1	0.054	0.005	0.001	0.007	0.07	0.013	0.1	0.01	0.012	0.001	0.012
Total Copper (ug/L) Daily Maximum	0.1	0.054	0.005	0.001	0.007	0.07	0.013	0.1	0.01	0.012	0.001	0.012

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment B)
☒	Toxics Management Spreadsheet (see Attachment **C**)
☐	TRC Model Spreadsheet (see Attachment)
☐	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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

APPENDIX A

$Q_{7\text{-}10}$ ANALYSIS AND STREAM DATA

Q_{7-10} Analysis

Facility: Valley Joint Sewer Authority
Outfall: 001

NPDES Permit No.: PA0043681
RMI at Outfall: 289.41 **Elev.:** 742'

Reference Stream Gage Information	
Stream Name	Susquehanna River
Reference Gage	1515000
Station Name	Susquehanna River near Waverly, NY
Gage Drainage Area (sq. mi.)	4773
Q_{7-10} at gage (cfs)	396
Yield Ratio (cfs/mi^2)	0.0830

Was Ecoflows Used?	No
Correlation From Ecoflows	

Check Dilution Ratio		
Discharge at Outfall (wf) (mgd)	2.25	
	sf (cfs)	wf (cfs)
Dilution Ratio = sf/wf	408.1961	3.481264691
Dilution Ratio =	117.2551183 to 1	

Q_{7-10} at Outfall	
Drainage Area at site (sq. mi.)	4920
Q_{7-10} at discharge site (cfs)	408.1961
Q_{7-10} at discharge site (mgd)	263.8240
Low Flow Yield Ratio of 0.1 cfs/mi^2 (For Approx. Comparison Only)	
Q_{7-10} at discharge site (cfs)	492.0000
Q_{7-10} at discharge site (mgd)	317.9879

Q_{7-10} at Downstream Reach #1	
Drainage Area at Reach (sq. mi.)	4930
RMI	289.3
Q_{7-10} at reach (cfs)	409.0258
Q_{7-10} at reach (mgd)	264.3602

Elevation: 739'

Q_{7-10} at Downstream Reach #2	
Drainage Area at Reach (sq. mi.)	7550
RMI	285.94
Q_{7-10} at reach (cfs)	626.3985
Q_{7-10} at reach (mgd)	404.8519

Elevation: 728'

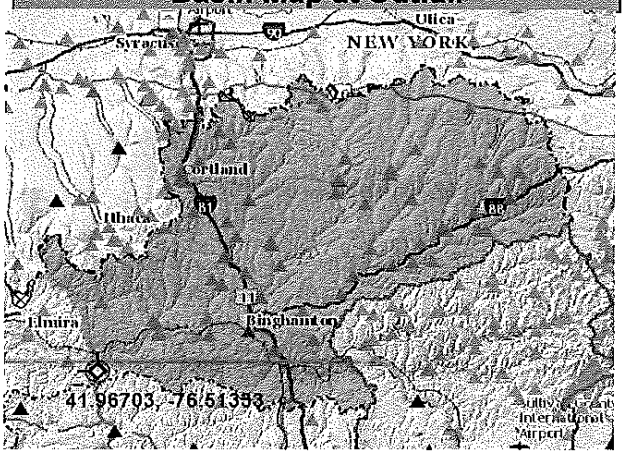
Q_{7-10} at Downstream Reach #3	
Drainage Area at Reach (sq. mi.)	
RMI	
Q_{7-10} at reach (cfs)	0.0000
Q_{7-10} at reach (mgd)	0.0000

Basin Characteristics Report at Reach #1

Date: Fri Mar 17, 2017 9:13:33 AM GMT-4
Study Area: Pennsylvania
NAD 1983 Latitude: 41.9657 (41 57 57)
NAD 1983 Longitude: -76.5139 (-76 30 50)

DRNAREA	4920
STRMTOT	9150.67
STRDEN	1.86
BSLOPD	6.8
CENTROXA83	193612.6
CENTROYA83	383557
OUTLETXA83	123175
OUTLETYA83	330375
LONG_OUT	-76.514
BSLOPDRAW	6.97
FOREST	69.9
PRECIP	39.7
URBAN	2.2
GLACIATED	99.8
ROCKDEP	4.5
CARBON	2.2
STORAGE	1.5
ELEV	1462.2
MAXTEMP	53.8
DRN	3.8
IMPNLCD01	0.8
LC01DEV	5.3
LC11IMP	0.95
LC11DEV	5.25

Basin Map at Outfall



USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01481500	[3]1948–1973	26	64.5	70.5	115	83.5	138	111
01482500	1941–2008	47	0	.7	2.6	1.5	4.8	3.4
01483200	1958–2008	51	<.1	.1	.3	.1	.6	.3
01483700	1959–2008	50	.3	.7	2.2	1.2	4.3	3.6
01484000	1933–2008	27	1.4	1.7	2.7	2.0	3.3	2.7
01484100	1960–2008	49	.2	.3	.9	.4	1.0	.5
01484270	1973–2005	11	4.0	4.3	7.2	4.6	7.6	5.4
[4]01493000	1949–2008	56	.7	—	—	5.1	8.4	6.3
[4]01493500	1953–2008	54	1.5	1.7	3.4	2.1	4.1	2.9
[4]01495000	1933–2008	76	7.7	8.7	19.4	11.1	23.2	16.3
[4]01496000	1950–1984	35	2.3	2.7	5.5	3.4	6.8	5.0
[4]01496200	1969–1992	24	1.2	1.3	2.5	1.7	3.0	2.6
01496500	1931–1995	59	3.3	3.7	9.4	4.9	13.6	7.8
01500000	[2]1951–2008	58	2.7	4.1	9.3	5.6	13.6	9.1
01500500	1940–2008	57	71.1	82.9	139	101	179	138
01502000	1940–1995	56	2.4	4.4	7.8	5.3	9.9	7.1
01502500	1931–2008	68	43.6	46.6	78.6	56.1	100	72.8
01503000	1914–2008	95	170	188	327	223	418	311
01505000	1940–2008	60	21.5	23.7	41.0	28.3	51.6	37.8
01508803	1968–1986	14	12.2	13.8	21.7	17.5	27.4	21.9
01509000	1940–2008	67	31.0	33.9	59.4	39.8	70.8	49.4
01510000	1940–2008	63	7.9	8.9	17.4	11.8	23.6	17.1
01512500	1914–2008	95	127	137	235	169	297	225
01515000	1938–2008	65	374	396	660	478	840	654
01516350	1978–2008	31	8.7	9.4	16.2	11.4	21.1	15.9
01516500	1956–2008	53	0	<.1	.3	.1	.5	.3
01518000	[2]1979–2008	30	21.4	24.2	39.1	26.0	43.9	29.6
01518000	[3]1940–1977	38	7.5	8.8	17.7	10.9	23.6	16.5
01518700	[2]1981–2008	28	26.3	28.8	47.8	31.8	53.6	36.5
01518862	1985–2008	24	.9	1.2	3.4	2.0	5.2	4.1
01520000	[2]1981–2008	28	7.6	8.1	16.0	10.0	20.2	12.4
01520000	[3]1953–1978	26	1.7	2.2	7.0	3.4	11.3	6.2
01520500	[2]1981–1995	15	37.4	41.5	72.7	44.5	80.5	53.6
01520500	[3]1931–1979	49	14.3	16.2	37.3	20.8	51.8	32.5
01521500	[2]1941–2008	68	.6	.7	1.4	.8	1.8	1.2
01523500	[2]1950–2008	59	2.0	3.4	7.4	5.8	9.2	7.0
01524500	1944–2008	65	11.3	12.9	20.1	15.2	24.4	17.8
01526500	[2]1980–2008	29	69.5	73.7	116	87.4	145	103
01526500	[3]1920–1978	59	34.8	38.5	72.6	48.6	99.4	70.3
01527000	1952–1981	30	2.7	3.1	6.2	4.3	7.5	5.9
01527500	1940–2008	12	12.2	13.2	25.9	14.8	33.9	18.5
01528000	1938–1995	58	.6	.7	2.2	1.0	2.9	1.6
01529000	1938–1982	45	.6	.7	2.1	1.1	2.5	1.7
01529500	1920–2008	89	20.3	23.5	42.7	28.4	52.5	38.4
01529950	[2]1980–2008	29	116	121	185	142	235	168

Used

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01508803	West Branch Tioughnioga River at Homer, N.Y.	42.638	-76.176	71.5	N
01509000	Tioughnioga River at Cortland, N.Y.	42.603	-76.159	292	N
01510000	Otselic River at Cincinnatus, N.Y.	42.541	-75.900	147	N
01512500	Chenango River near Chenango Forks, N.Y.	42.218	-75.848	1,483	N
01515000	Susquehanna River near Waverly, N.Y.	41.985	-76.501	4,773	N
01516350	Tioga River near Mansfield, Pa.	41.797	-77.080	153	N
01516500	Corey Creek near Mainesburg, Pa.	41.791	-77.015	12.2	N
01518000	Tioga River at Tioga, Pa.	41.908	-77.129	282	Y
01518700	Tioga River at Tioga Junction, Pa.	41.953	-77.115	446	Y
01518862	Cowanesque River at Westfield, Pa.	41.923	-77.532	90.6	N
01520000	Cowanesque River near Lawrenceville, Pa.	41.997	-77.140	298	Y
01520500	Tioga River at Lindley, N.Y.	42.029	-77.132	771	Y
01521500	Canisteo River at Arkport, N.Y.	42.396	-77.711	30.6	Y
01523500	Canacadea Creek near Hornell, N.Y.	42.335	-77.683	57.9	Y
01524500	Canisteo River below Canacadea Creek at Hornell, N.Y.	42.314	-77.651	158	Y
01526500	Tioga River near Erwins, N.Y.	42.121	-77.129	1,377	Y
01527000	Cohocton River at Cohocton, N.Y.	42.500	-77.500	52.2	N
01527500	Cohocton River at Avoca, N.Y.	42.398	-77.417	152	N
01528000	Fivemile Creek near Kanona, N.Y.	42.388	-77.358	66.8	N
01529000	Mud Creek near Savona, N.Y.	42.308	-77.197	76.6	Y
01529500	Cohocton River near Campbell, N.Y.	42.253	-77.217	470	N
01529950	Chemung River at Corning, N.Y.	42.146	-77.057	2,006	Y
01530332	Chemung River at Elmira, N.Y.	42.086	-76.801	2,162	Y
01530500	Newtown Creek at Elmira, N.Y.	42.105	-76.798	77.5	Y
01531000	Chemung River at Chemung, N.Y.	42.002	-76.635	2,506	Y
01531500	Susquehanna River at Towanda, Pa.	41.765	-76.441	7,797	Y
01532000	Towanda Creek near Monroeton, Pa.	41.707	-76.485	215	N
01532850	MB Wyalusing Creek near Birchardville, Pa.	41.863	-76.007	5.67	N
01533400	Susquehanna River at Meshoppen, Pa.	41.607	-76.050	8,720	Y
01533500	North Branch Mehoopany Creek near Lovelton, Pa.	41.531	-76.156	35.2	N
01533950	SB Tunkhannock Creek near Montdale, Pa.	41.575	-75.642	12.6	N
01534000	Tunkhannock Creek near Tunkhannock, Pa.	41.558	-75.895	383	N
01534300	Lackawanna River near Forest City, Pa.	41.680	-75.472	38.8	Y
01534500	Lackawanna River at Archbald, Pa.	41.505	-75.542	108	Y
01536000	Lackawanna River at Old Forge, Pa.	41.359	-75.744	332	Y
01536500	Susquehanna River at Wilkes-Barre, Pa.	41.251	-75.881	9,960	Y
01537000	Toby Creek at Luzerne, Pa.	41.281	-75.896	32.4	Y
01537500	Solomon Creek at Wilkes-Barre, Pa.	41.228	-75.904	15.7	N
01538000	Wapwallopen Creek near Wapwallopen, Pa.	41.059	-76.094	43.8	N
01539000	Fishing Creek near Bloomsburg, Pa.	41.078	-76.431	274	N
01539500	Little Fishing Creek at Eyers Grove, Pa.	41.080	-76.511	56.5	N
01540200	Trexler Run near Ringtown, Pa.	40.853	-76.280	1.77	N
01540500	Susquehanna River at Danville, Pa.	40.958	-76.619	11,220	Y
01541000	West Branch Susquehanna River at Bower, Pa.	40.897	-78.677	315	N
01541200	West Branch Susquehanna River near Curwensville, Pa.	40.961	-78.519	367	Y

Used

APPENDIX B

WQM 7.0 MODEL INPUT/OUTPUT

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**289.410**	742.00	4920.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	408.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
VJSA	PA0043681	2.2500	2.2500	2.2500	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
289.410	408.00	0.00	408.00	3.4808	0.00076	1.202	389.1	323.82	0.88	0.241	20.04	7.00
Q1-10 Flow												
289.410	385.15	0.00	385.15	3.4808	0.00076	NA	NA	NA	0.85	0.249	20.04	7.00
Q30-10 Flow												
289.410	492.46	0.00	492.46	3.4808	0.00076	NA	NA	NA	0.98	0.217	20.04	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.944	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.207	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
289.410	VJSA	16.7	50	16.7	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
289.410	VJSA	1.88	25	1.88	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
289.41	VJSA	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
289.410	2.250	20.042	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
389.100	1.202	323.815	0.880
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.19	0.123	0.21	0.702
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.199	3.140	Tsivoglou	5
Reach Travel Time (days)			
0.241			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.024	2.19	0.21	8.24
0.048	2.18	0.20	8.24
0.072	2.18	0.20	8.24
0.096	2.17	0.20	8.24
0.120	2.16	0.19	8.24
0.145	2.16	0.19	8.24
0.169	2.15	0.19	8.24
0.193	2.14	0.18	8.24
0.217	2.14	0.18	8.24
0.241	2.13	0.18	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
289.410	VJSA	PA0043681	2.250	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

APPENDIX C

TOXICS MANAGEMENT SPREADSHEET

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Valley Joint Sewer Authority** NPDES Permit No.: **PA0043681** Outfall No.: **001**

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

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
2.25	100	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		438									
	Chloride (PWS)	mg/L		149									
	Bromide	mg/L		0.325									
	Sulfate (PWS)	mg/L		30.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		87									
	Total Antimony	µg/L		0.5									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		43									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		275									
	Total Cadmium	µg/L	<	0.4									
	Total Chromium (III)	µg/L		33									
	Hexavalent Chromium	µg/L	<	5									
	Total Cobalt	µg/L	<	2									
	Total Copper	µg/L		22									
	Free Cyanide	µg/L	<	3									
	Total Cyanide	µg/L	<	3									
	Dissolved Iron	µg/L		259									
	Total Iron	µg/L		131									
	Total Lead	µg/L	<	0.6									
	Total Manganese	µg/L		65									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		14									
	Total Phenols (Phenolics) (PWS)	µg/L		6									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L		81									
	Total Molybdenum	µg/L		15									
	Acrolein	µg/L	<	1.3									
	Acrylamide	µg/L											
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.12									
	Bromoform	µg/L	<	0.37									

Group 3	Carbon Tetrachloride	µg/L	<	0.23									
	Chlorobenzene	µg/L	<	0.25									
	Chlorodibromomethane	µg/L	<	0.18									
	Chloroethane	µg/L	<	0.47									
	2-Chloroethyl Vinyl Ether	µg/L	<	3.1									
	Chloroform	µg/L	<	0.15									
	Dichlorobromomethane	µg/L	<	0.18									
	1,1-Dichloroethane	µg/L	<	0.05									
	1,2-Dichloroethane	µg/L	<	0.12									
	1,1-Dichloroethylene	µg/L	<	0.13									
	1,2-Dichloropropane	µg/L	<	0.26									
	1,3-Dichloropropylene	µg/L	<	0.47									
	1,4-Dioxane	µg/L	<	0.33									
	Ethylbenzene	µg/L	<	0.2									
	Methyl Bromide	µg/L	<	0.55									
	Methyl Chloride	µg/L	<	0.46									
	Methylene Chloride	µg/L	<	0.14									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.38									
	Tetrachloroethylene	µg/L	<	0.27									
	Toluene	µg/L		0.72									
	1,2-trans-Dichloroethylene	µg/L	<	0.08									
	1,1,1-Trichloroethane	µg/L	<	0.12									
	1,1,2-Trichloroethane	µg/L	<	0.13									
	Trichloroethylene	µg/L	<	0.29									
	Vinyl Chloride	µg/L	<	0.33									
Group 4	2-Chlorophenol	µg/L	<	0.39									
	2,4-Dichlorophenol	µg/L	<	0.44									
	2,4-Dimethylphenol	µg/L	<	0.47									
	4,6-Dinitro-o-Cresol	µg/L	<	1.8									
	2,4-Dinitrophenol	µg/L	<	2.9									
	2-Nitrophenol	µg/L	<	0.39									
	4-Nitrophenol	µg/L	<	1.4									
	p-Chloro-m-Cresol	µg/L	<	0.39									
	Pentachlorophenol	µg/L	<	1.8									
	Phenol	µg/L	<	0.26									
	2,4,6-Trichlorophenol	µg/L	<	0.47									
Group 5	Acenaphthene	µg/L	<	0.4									
	Acenaphthylene	µg/L	<	0.39									
	Anthracene	µg/L	<	0.4									
	Benzidine	µg/L	<	2.5									
	Benzo(a)Anthracene	µg/L	<	0.41									
	Benzo(a)Pyrene	µg/L	<	0.36									
	3,4-Benzofluoranthene	µg/L	<	0.4									
	Benzo(ghi)Perylene	µg/L	<	0.42									
	Benzo(k)Fluoranthene	µg/L	<	0.39									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.44									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.38									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.44									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.81									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.45									
	Butyl Benzyl Phthalate	µg/L	<	0.59									
	2-Chloronaphthalene	µg/L	<	0.4									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.4									
	Chrysene	µg/L	<	0.42									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.43									
	1,2-Dichlorobenzene	µg/L	<	0.43									
	1,3-Dichlorobenzene	µg/L	<	0.43									
	1,4-Dichlorobenzene	µg/L	<	0.43									
	3,3-Dichlorobenzidine	µg/L	<	1.1									
	Diethyl Phthalate	µg/L	<	0.57									
	Dimethyl Phthalate	µg/L	<	0.42									
	Di-n-Butyl Phthalate	µg/L	<	0.58									
	2,4-Dinitrotoluene	µg/L	<	0.45									

	2,6-Dinitrotoluene	µg/L	<	0.41									
	Di-n-Octyl Phthalate	µg/L	<	0.89									
	1,2-Diphenylhydrazine	µg/L	<	0.38									
	Fluoranthene	µg/L	<	0.43									
	Fluorene	µg/L	<	0.38									
	Hexachlorobenzene	µg/L	<	0.43									
	Hexachlorobutadiene	µg/L	<	0.49									
	Hexachlorocyclopentadiene	µg/L	<	0.74									
	Hexachloroethane	µg/L	<	0.37									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.4									
	Isophorone	µg/L	<	0.43									
	Naphthalene	µg/L	<	0.4									
	Nitrobenzene	µg/L	<	0.53									
	n-Nitrosodimethylamine	µg/L	<	1.1									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.42									
	n-Nitrosodiphenylamine	µg/L	<	0.49									
	Phenanthrene	µg/L	<	0.39									
	Pyrene	µg/L	<	0.42									
	1,2,4-Trichlorobenzene	µg/L	<	0.42									
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											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Valley Joint Sewer Authority, NPDES Permit No. PA0043681, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Susquehanna River**

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	006685	289.41	742	4920			Yes
End of Reach 1	006685	285.94	728	7550			Yes

Q_{7-10}

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	289.41	0.1	408									100	7		
End of Reach 1	285.94	0.1	626												

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	289.41														
End of Reach 1	285.94														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Valley Joint Sewer Authority, NPDES Permit No. PA0043681, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.052 Analysis Hardness (mg/l): 100 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	
Total Aluminum	0	0		0	750	750	5,299	
Total Antimony	0	0		0	1,100	1,100	7,771	
Total Arsenic	0	0		0	340	340	2,402	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	148,359	
Total Boron	0	0		0	8,100	8,100	57,224	
Total Cadmium	0	0		0	2.014	2.13	15.1	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	12,738	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	115	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	671	
Total Copper	0	0		0	13.439	14.0	98.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	155	
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	577	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	11.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	3,315	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	26.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	459	
Total Zinc	0	0		0	117.180	120	846	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	21.2	

Acrylonitrile	0	0		0	650	650	4,592	
Benzene	0	0		0	640	640	4,521	
Bromoform	0	0		0	1,800	1,800	12,717	
Carbon Tetrachloride	0	0		0	2,800	2,800	19,781	
Chlorobenzene	0	0		0	1,200	1,200	8,478	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	127,165	
Chloroform	0	0		0	1,900	1,900	13,423	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	105,971	
1,1-Dichloroethylene	0	0		0	7,500	7,500	52,985	
1,2-Dichloropropane	0	0		0	11,000	11,000	77,712	
1,3-Dichloropropylene	0	0		0	310	310	2,190	
Ethylbenzene	0	0		0	2,900	2,900	20,488	
Methyl Bromide	0	0		0	550	550	3,886	
Methyl Chloride	0	0		0	28,000	28,000	197,813	
Methylene Chloride	0	0		0	12,000	12,000	84,777	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	7,065	
Tetrachloroethylene	0	0		0	700	700	4,945	
Toluene	0	0		0	1,700	1,700	12,010	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	48,040	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	21,194	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	24,020	
Trichloroethylene	0	0		0	2,300	2,300	16,249	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	3,956	
2,4-Dichlorophenol	0	0		0	1,700	1,700	12,010	
2,4-Dimethylphenol	0	0		0	660	660	4,663	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	565	
2,4-Dinitrophenol	0	0		0	660	660	4,663	
2-Nitrophenol	0	0		0	8,000	8,000	56,518	
4-Nitrophenol	0	0		0	2,300	2,300	16,249	
p-Chloro-m-Cresol	0	0		0	160	160	1,130	
Pentachlorophenol	0	0		0	8.723	8.72	61.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	3,250	
Acenaphthene	0	0		0	83	83.0	586	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	2,119	
Benzo(a)Anthracene	0	0		0	0.5	0.5	3.53	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	211,942	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	31,791	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,907	

Benzo(a)Anthracene	0	0		0	0.001	0.001	0.22	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.022	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.22	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	2.2	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	6.61	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	70.5	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	26.4	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.022	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	11.0	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	11.0	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	11.0	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	6.61	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.018	
Hexachlorobutadiene	0	0		0	0.01	0.01	2.2	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	22.0	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.22	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.15	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	1.1	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	727	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML	MDL	AML	MDL	IMAX	Units	Governing	WQBEL	Comments

Pollutants	(lbs/day)	(lbs/day)	AML	MDL	IMAX	Units	WQBEL	Basis	Comments
Total Copper	Report	Report	Report	Report	Report	µg/L	63.4	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	543	AFC	Discharge Conc > 10% WQBEL (no RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

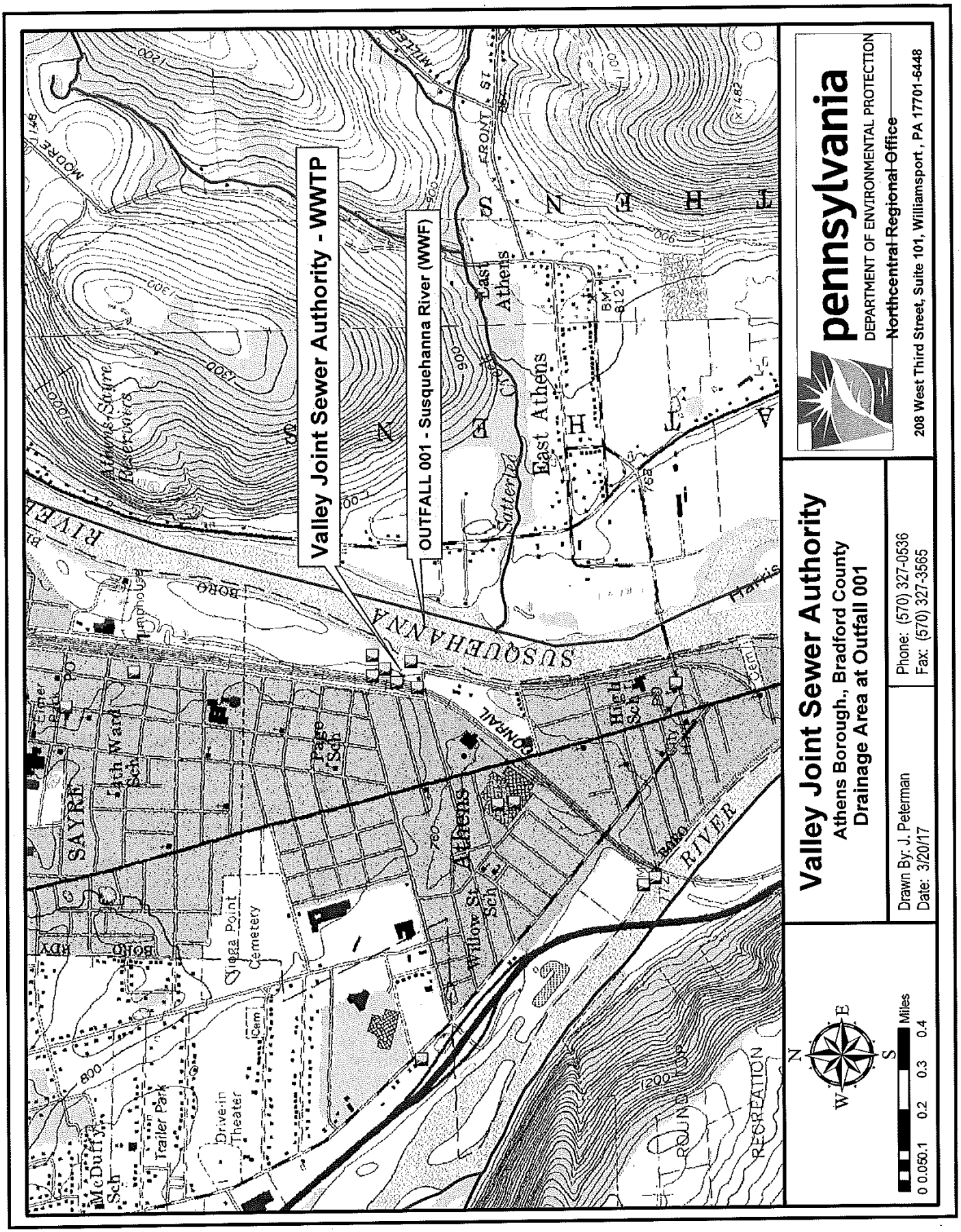
Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	3,396	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	241	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	95,092	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	36,678	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	9.66	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	3,707	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	73.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	430	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	99.6	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	12,905	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	177,324	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	137	µg/L	Discharge Conc < TQL
Total Manganese	43,018	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	2.15	µg/L	Discharge Conc < TQL
Total Nickel	2,125	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	215	µg/L	Discharge Conc < TQL
Total Silver	17.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	10.3	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	13.6	µg/L	Discharge Conc < TQL
Acrylonitrile	13.2	µg/L	Discharge Conc < TQL
Benzene	128	µg/L	Discharge Conc < TQL
Bromoform	1,541	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	88.1	µg/L	Discharge Conc < TQL
Chlorobenzene	4,302	µg/L	Discharge Conc < TQL
Chlorodibromomethane	176	µg/L	Discharge Conc < TQL

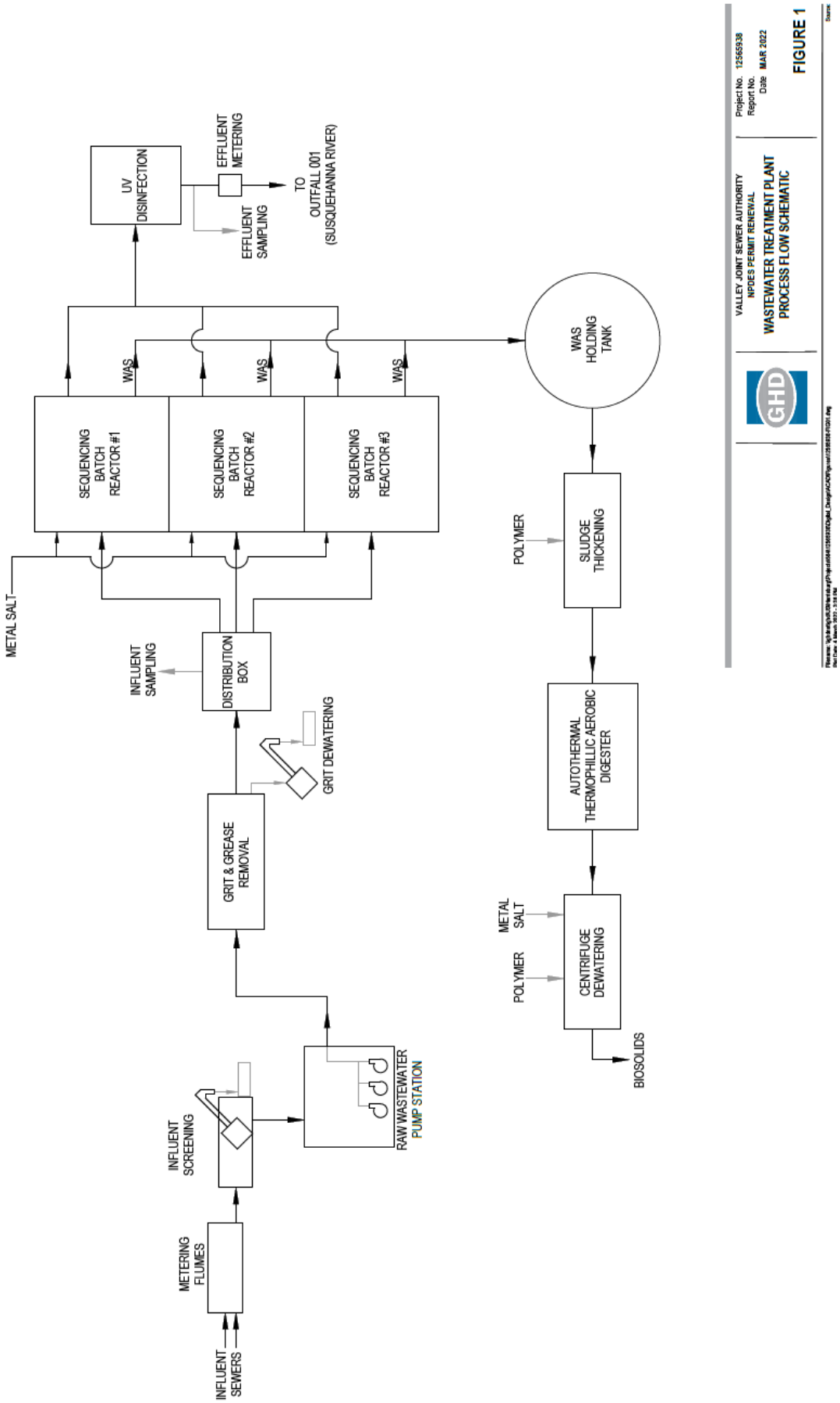
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	81,508	µg/L	Discharge Conc < TQL
Chloroform	245	µg/L	Discharge Conc < TQL
Dichlorobromomethane	209	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	2,180	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	1,420	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	198	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	59.5	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	2,925	µg/L	Discharge Conc < TQL
Methyl Bromide	2,491	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	126,790	µg/L	Discharge Conc < TQL
Methylene Chloride	4,404	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	44.0	µg/L	Discharge Conc < TQL
Tetrachloroethylene	2,202	µg/L	Discharge Conc < TQL
Toluene	2,452	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	4,302	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	13,585	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	121	µg/L	Discharge Conc < TQL
Trichloroethylene	132	µg/L	Discharge Conc < TQL
Vinyl Chloride	4.4	µg/L	Discharge Conc < TQL
2-Chlorophenol	1,291	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	430	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,989	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	86.0	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	430	µg/L	Discharge Conc < TQL
2-Nitrophenol	36,226	µg/L	Discharge Conc < TQL
4-Nitrophenol	10,415	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	725	µg/L	Discharge Conc < TQL
Pentachlorophenol	6.61	µg/L	Discharge Conc < TQL
Phenol	172,071	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	330	µg/L	Discharge Conc < TQL
Acenaphthene	376	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	12,905	µg/L	Discharge Conc < TQL
Benzidine	0.022	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.22	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.022	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.22	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	2.2	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	6.61	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	8,604	µg/L	Discharge Conc < TQL

Bis(2-Ethylhexyl)Phthalate	70.5	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,223	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	4.3	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	34,414	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	26.4	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.022	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	3,713	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	301	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	3,306	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	11.0	µg/L	Discharge Conc < TQL
Diethyl Phthalate	18,113	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	11,321	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	498	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	11.0	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	11.0	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	6.61	µg/L	Discharge Conc < TQL
Fluoranthene	860	µg/L	Discharge Conc < TQL
Fluorene	2,151	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.018	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	2.2	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	22.6	µg/L	Discharge Conc < TQL
Hexachloroethane	22.0	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.22	µg/L	Discharge Conc < TQL
Isophorone	1,463	µg/L	Discharge Conc < TQL
Naphthalene	634	µg/L	Discharge Conc < TQL
Nitrobenzene	430	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.15	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	1.1	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	727	µg/L	Discharge Conc < TQL
Phenanthrene	22.6	µg/L	Discharge Conc < TQL
Pyrene	860	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	3.01	µg/L	Discharge Conc < TQL

APPENDIX D

FACILITY MAP AND SCHEMATIC


Valley Joint Sewer Authority - WWTP
OUTFALL 001 - Susquehanna River (WWF)
SUSQUEHANNA RIVER
SAYRE
Athens
East Athens
Valley Joint Sewer Authority
Athens Borough., Bradford County
Drainage Area at Outfall 001
Drawn By: J. Peterman
Date: 3/20/17
Phone: (570) 327-0536
Fax: (570) 327-3565
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Northcentral Regional Office
208 West Third Street, Suite 101, Williamsport , PA 17701-6448
0 0.05 0.1 0.2 0.3 0.4 Miles


INFLUENT SEWERS
METERING FLUMES
INFLUENT SCREENING
RAW WASTEWATER PUMP STATION
GRIT & GREASE REMOVAL
GRIT DEWATERING
DISTRIBUTION BOX
INFLUENT SAMPLING
METAL SALT
SEQUENCING BATCH REACTOR #1
SEQUENCING BATCH REACTOR #2
SEQUENCING BATCH REACTOR #3
WAS
WAS
WAS
WAS HOLDING TANK
POLYMER
SLUDGE THICKENING
AUTOTHERMAL THERMOPHILLIC AEROBIC DIGESTER
METAL SALT
POLYMER
CENTRIFUGE DEWATERING
BIOSOLIDS
UV DISINFECTION
EFFLUENT METERING
EFFLUENT SAMPLING
TO OUTFALL 001 (SUSQUEHANNA RIVER)
VALLEY JOINT SEWER AUTHORITY
NPDES PERMIT RENEWAL
WASTEWATER TREATMENT PLANT
PROCESS FLOW SCHEMATIC
Project No. 12565938
Report No.
Date MAR 2022
FIGURE 1