pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0043443**
Facility Type	**Municipal**	APS ID	**17519**
Major / Minor	**Minor**	Authorization ID	**1396205**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Alexandria Borough & Porter Township Joint Sewer Authority Huntingdon County**	Facility Name	**Alexandria Borough Porter Township STP**
Applicant Address	PO Box 113, 5271 Grange Hall Road Alexandria, PA 16611-0113	Facility Address	5271 Grange Hall Road Alexandria, PA 16611-0113
Applicant Contact	Mike Peters	Facility Contact	John Buskirk
Applicant Phone	(814) 669-9309	Facility Phone	(814) 574-9271
Client ID	66645	Site ID	246212
Ch 94 Load Status	Not Overloaded	Municipality	Porter Township
Connection Status	No Limitations	County	Huntingdon
Date Application Received	May 12, 2022	EPA Waived?	Yes
Date Application Accepted	May 13, 2022	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

The Gwin Dobson & Foreman (GD & F) Engineers, Inc., on behalf of the Alexandria Borough Porter Township Joint Sewer Authority Wastewater Treatment Plant, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on September 8, 2017 and became effective on October 1, 2017. The permit will expire on September 30, 2022.

The facility has an average annual design flow of 0.24 MGD and a hydraulic design capacity of 0.30 MGD. The authorized discharge of treated sewage is from the existing treatment plant located in Porter Township, Huntingdon County into Frankstown Branch Juniata River.

In order of percent contribution, this facility serves 75% of Porter Township, and 25% of Alexandria Borough.

The WQM Part II Permit No. 3103401 issued on July 02, 2003 authorized construction of sewer extension in 5 areas and upgrade of treatment plant; and 3103401 A-1 amendment was issued on 1/25/2012 to upgrade the treatment facility, pump station, headworks, and sludge handling.

Sludge use and disposal description and location(s): N/A due to the sludge is hauled to Sandy Run Landfill by Green ForLife Environmental.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the permit.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	September 2, 2022
X		/s/ Daniel W. Martin, P.E. / Environmental Engineer Manager	September 19, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.24
Latitude	40º 33' 14.06"	Longitude	-78º 5' 40.13"
Quad Name	Alexandria	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Frankstown Branch Juniata River (WWF)	Stream Code	16061
NHD Com ID	65606354	RMI	4.13 miles
Drainage Area	379 mi.^{2}	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	See comments below
Elevation (ft)	688	Slope (ft/ft)	
Watershed No.	11-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	**none**	Name	**NA**

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)	150	WQN0216, median July-Sep, 1964-1987
Other:		

Nearest Downstream Public Water Supply Intake	Mifflintown Borough Municipal Authority Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37.37 miles	Distance from Outfall (mi)	Approximate 69.0 miles

Changes Since Last Permit Issuance: none

Drainage Area

The discharge is to Frankstown Branch Juniata River at RMI 4.13 miles. A drainage area upstream of the discharge is estimated to be 379 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow

Nearest USGS Stream gage is 01556000 on Frankstown Branch Juniata River. Recent stream flow retrievals resulted in a Q_{7-10}, and Q_{30-10} of 31.6 cfs, and 38.1 cfs. These values were obtained from the latest USGS StreamStats report. The drainage area is reported to be 289 mi.^{2} at the gage station. The drainage area at discharge point is found to be 379 mi.^{2} from USGS StreamStats. The flow calculations are shown below:

Q_{7-10} runoff rate = 31.6/289 = 0.11 cfs/mi.^{2}
Q_{30-10} / Q_{7-10} = 1.36
Q_{1-10} / Q_{7-10} = 0.64

The drainage area at discharge point is found to be 379 mi.^{2} from USGS StreamStats.

The Q_{7-10} at discharge = 0.11 cfs/mi.^{2} x 379 mi.^{2} = 41.69 cfs

For WQM modelling purposes, 25% of the flow will be used.

Q_{7-10} model = 41.69 cfs x 0.25 = 10.42 cfs

Frankstown Branch Juniata River

25 Pa. Code § 93.9n classifies Frankstown Branch Juniata River as warm water & migratory fishes (WWF & MF) surface water. Based on the 2022 Integrated Report, Frankstown Branch Juniata River-65606354, assessment unit IDs 867 & 16845, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply

The nearest downstream public water supply intake is Mifflintown Water Systems in Juniata County at RMI 69.0 miles downstream of the discharge. The discharge will not impact the intake because of the distance, dilution, and effluent limits.

Treatment Facility Summary

Treatment Facility Name: Alexandria Porter STP

WQM Permit No.	Issuance Date	Description
3103401 A-1	1/25/2012	Upgrade of the treatment facility, pump station, headworks, sludge handling
3103401	9/26/2003	Construction of sewer extension in 5 areas and upgrade of treatment plant

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Counter Current	Ultraviolet	0.24

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.3	500	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: none

Per the permit renewal application, the treatment process follows the below train:

Wastewater:

Raw influent from collection system → influent pump station → pump station meter vault → spiral mechanical bar screen with compactor → flow distribution box with alum and caustic soda injection → final clarifier → UV disinfection → cascade aerator → discharge through outfall 001

Biosolids:

Final clarifier →aerobic sludge digesters → sludge pump → polymer feed → sludge dewatering press → biosolids to landfill

The screenings from mechanical bar screen is placed in dumpster and is landfilled as solid waste. The digester supernatant is mixed with gravity drain line from final clarifier and sent to influent collection system to influent pump station.

The following chemicals are used in the treatment process: Alum for Coagulant, Caustic Soda for pH control, Polymer for Coagulant, and Sodium Hypochlorite (back up) for disinfection.

Per the most recent site inspection on January 14, 2020, the facility consists of the following treatment units:

1. One wet well with three pumps
2. One fine screen
3. Two Schrieber Tanks
4. Two UV disinfection train with two online
5. Two aerobic digesters
6. One rotary sludge press
7. Seven blowers with six online

The treated effluent is discharged to Frankstown Branch Juniata River through outfall 001. A process flow diagram is attached in the appendix.

Industrial/commercial users:

The renewal application indicated there are no significant or categorical industrial or commercial contributors to this treatment plant. A list of non-significant non-categorical contributors is summarized in the Table below.

Business	Type of Business	Flow-Average GPD
Acco Brands Corp	Manufacturing stationery, Tables, and related products	6,900
Dively's Garage	Mechanic Shop	35
Anders Automotive	Mechanic Shop	35
Galloways' Automotive	Mechanic Shop	35
Dollar General	Retail Store	70
Martin's Gas Station	Service Station	720
Paesano's Italian Restaurant	Restaurant	1,250
Alexandria Borough Authority WWTP	Wastewater Treatment Plant	850
	Total	**9,895**

Biosolids Management:

Aerobically digested sludge is hauled to San Run Landfill.

The total sewage sludge / biosolids production within the facility for the previous year was 9.8 dry tons.

Compliance History	
Summary of DMRs:	The DMRs reported from July 1, 2021 to June 30, 2022 are summarized in the Table below (Pages # 5, & 6).
Summary of Inspections:	1/5/2022: Mr. Clark, DEP's WQS, conducted a compliance evaluation inspection. The field test results were within permitted limits. There were no violations identified during inspection. The recommendation was to revise the pH and D.O. monthly and weekly averages on the November 2021 DMR. 1/14/2020: Mr. Clark, DEP's WQS, conducted a compliance evaluation inspection. The field test results were within permitted limits. Effluent appeared clear. There were no violations identified during inspection. The recommendation was to use military time or AM /PM when recording times on log sheets. 12/21/2018: Mr. Clark, DEP's WQS, conducted a compliance evaluation inspection. The field test results were within permitted limits. Effluent appeared clear. There were no violations identified during inspection. The recommendations were needed to place a thermometer in effluent compositor refrigerator and operators should review Standard Operating Procedure (SOP) & update as necessary.
Other Comments:	There are no open violations against the facility or the permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from July 1, 2021 to June 30, 2022)

Parameter	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21
Flow (MGD) Average Monthly	0.041	0.113	0.096	0.093	0.129	0.08	0.063	0.064	0.07	0.128	0.078	0.054
Flow (MGD) Daily Maximum	0.055	0.348	0.191	0.147	0.323	0.163	0.221	0.096	0.134	0.372	0.282	0.083
pH (S.U.) Minimum	6.98	6.87	6.93	6.93	6.95	7.05	6.69	6.91	6.99	6.95	6.94	6.96
pH (S.U.) Maximum	7.38	7.32	7.28	7.27	7.49	7.39	7.36	7.53	7.33	7.37	7.39	7.44
DO (mg/L) Minimum	6.17	5.36	6.28	6.81	7.06	7.16	6.71	7.11	6.85	5.86	5.52	5.9
CBOD5 (lbs/day) Average Monthly	< 1.0	< 3.0	< 4.0	< 3.0	< 5.0	< 2.0	< 1.0	< 2.0	< 2.0	< 3.0	< 2.0	< 1.0
CBOD5 (lbs/day) Weekly Average	< 2.0	< 6.0	9.0	6.0	13	< 3.0	< 2.0	< 2.0	3.0	< 4.0	< 3.0	< 2.0
CBOD5 (mg/L) Average Monthly	< 3.0	< 4.0	< 5.0	< 4.0	< 5.0	< 3.0	< 4.0	< 3.0	< 4.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	6.0	10.0	5.0	6.0	3.0	5.0	< 3.0	6.0	< 3.0	4.0	4.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	57	78	115	109	162	113	178	113	98	102	60	80
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	66	97	154	138	325	149	383	127	111	169	74	108
BOD5 (mg/L) Raw Sewage Influent Average Monthly	155	106	127	135	153	157	281	200	204	110	133	167
TSS (lbs/day) Average Monthly	< 0.8	< 2.0	2.0	< 2.0	4.0	< 2.0	< 1.0	< 0.8	< 0.8	< 1.0	< 0.9	< 0.8
TSS (lbs/day) Raw Sewage Influent Average Monthly	30	25	54	72	48	42	73	42	43	43	34	32
TSS (lbs/day) Raw Sewage Influent Daily Maximum	38	30	75	126	76	54	180	52	53	74	46	50
TSS (lbs/day) Weekly Average	1.0	6.0	4.0	4.0	6.0	5.0	2.0	1.0	0.9	2.0	< 1.0	< 0.9
TSS (mg/L) Average Monthly	< 2.0	< 2.0	3.0	< 3.0	5.0	< 3.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0	< 2.0

TSS (mg/L) Raw Sewage Influent Average Monthly	80	36	61	95	46	56	110	73	88	47	68	66
TSS (mg/L) Weekly Average	4.0	3.0	5.0	5.0	9.0	6.0	6.0	3.0	2.0	2.0	2.0	4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 23	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.0	< 1.0	< 2.0	< 3.0	13	7.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	387.3	3.1	1.0	3.0	2.0	< 1.0	14.5	< 1.0	3.0	73.3	95.9	33.6
Nitrate-Nitrite (mg/L) Average Monthly	< 2.02	< 1.2	< 1.2	< 1.384	< 1.2	< 1.2	< 3.855	< 16.1	< 8.976	< 4.666	< 2.039	< 0.8
Nitrate-Nitrite (lbs) Total Monthly	< 20	< 32	< 30	< 36	< 36	< 26	< 46.0	< 239	< 136	< 131	< 29	< 24
Total Nitrogen (mg/L) Average Monthly	< 2.779	< 3.903	< 1.99	< 4.123	< 4.688	< 3.451	< 7.05	< 16.72	< 9.476	< 5.205	< 3.734	< 2.0
Total Nitrogen (lbs) Total Monthly	< 27	< 117	< 48	< 100	< 123	< 69	< 95	< 249	< 143	< 145	< 52	< 47
Total Nitrogen (lbs) Total Annual										< 853		
Ammonia (mg/L) Average Monthly	< 0.105	< 2.021	0.585	2.11	2.743	1.826	2.689	< 0.1	< 0.1	< 0.1	1.438	< 0.6
Ammonia (lbs) Total Monthly	< 1.0	< 67	13	51	58	35	41	< 2.0	< 1.0	< 3.0	18	< 18
Ammonia (lbs) Total Annual										< 358		
TKN (mg/L) Average Monthly	< 0.764	2.703	< 0.79	2.739	3.488	< 2.251	3.195	< 0.62	< 0.5	< 0.539	< 1.695	< 0.7
TKN (lbs) Total Monthly	< 8.0	85	< 18	64	88	< 43	49	< 10	< 7.0	< 14	< 23	< 23
Total Phosphorus (mg/L) Average Monthly	4.03	1.73	1.614	1.078	1.386	1.273	3.96	3.85	4.68	2.311	3.46	2.0
Total Phosphorus (lbs) Total Monthly	40	36	37	26	30	24	54	57	69	52	53	61
Total Phosphorus (lbs) Total Annual										706		
UV Dosage (mjoules/cm^2) Daily Minimum	285	61	150	240	0.5	300	150	65	300	22	63	18

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.24
Latitude 40º 33' 14.06" **Longitude** -78º 5' 40.13"
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-Based Limitations

WQM 7.0 version 1.1 is a water quality model designed to assist DEP to determine appropriate effluent limits for $CBOD_5$, NH_3-N and D.O. The model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3-N and compares calculated instream D.O. concentrations to D.O. water quality criteria. Since WQM 7.0 assumes immediate and complete mix between the discharge and stream flow, Q_{7-10} was adjusted, as shown on page 2, to examine allowable wasteload allocations under appropriate mixing conditions. The model was utilized for this permit renewal by using adjusted Q_{7-10} and current background water quality levels of the river.

Ammonia (NH_3-N):
NH_3-N calculations were based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

*	Discharge pH	7.0	(Default per 391-2000-007)
*	Discharge Temperature	25°C	(Default per 391-2000-007)
*	Stream pH	7.0	(Default per 391-2000-006)
*	Stream Temperature	20°C	(Default for WWF per 391-2000-003)
*	Background NH_3-N	0 mg/L	(Assumed since no nearby upstream WWTPs)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 25.0 mg/L NH_3-N as a monthly average (AML) and 50.0 mg/L NH_3-N instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects. Recent DMR data show that the plant is discharging NH_3-N well below 25.0 mg/l year-round. Therefore, no NH_3-N limits are proposed in this renewal permit.

Dissolved Oxygen (D.O.):
The D.O. goal is 6.0 mg/L. However, a minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 1.9 revised March 22, 2021, and has been applied to other point source dischargers throughout the state.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit (AML) of 25.0 mg/L, 40.0 mg/L average weekly limit (AWL), & 50.0 mg/L IMAX will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit. Mass limits are calculated as follows:

Average monthly mass limit: 25.0 mg/L x 0.24 MGD x 8.34 = 50.04 (50.0) lbs/day
Average weekly mass limit: 40.0 mg/L x 0.24 MGD x 8.34 = 80.06 (80.0) lbs/day

The average monthly and average weekly mass loadings were calculated as 50.04 lbs/day and 80.06 lbs/day. These values are rounded down to 50.0 lbs/day and 80.0 lbs/day. The minimum monitoring frequency will remain the same as 1/week.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml, and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021, a routine monitoring for E. Coli will be included in the permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/quarter will be included in the permit to be consistent with the recommendation from this SOP.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units (S.U.) according to 25 Pa. Code § 95.2(1).

Toxics:
The data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BCW-PMT-033. Spreadsheet results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and IMAX limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL.
b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10%-50% of the WQBEL.

Pollutant testing results on the current (2021) application were reviewed in comparison with DEP's Toxic Management Spreadsheet, version 1.3, March 2021, output recommends no routine monitoring requirements. Therefore, no monitoring requirements are added in the proposed permit.

UV:
The UV system monitor and report the UV light dosage (mJoules/cm^2) will remain in the proposed permit.

Total Suspended Solids (TSS):
The existing limits of 30.0 mg/L average monthly, 45.0 mg/L average weekly, and 60.0 mg/L IMAX, which were agreed to during settlement negotiations, will remain in the proposed permit. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.240 MGD x 8.34 = 60.05 (60.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 0.24 MGD x 8.34 = 90.07 (90.0) lbs/day

The table below summarizes the influent/effluent testing results submitted along with the application.

Influent Testing Results

Parameter	Min/Max Value	Average Value
BOD_5 (mg/L)	41/468 mg/L	159 mg/L
BOD_5 (lbs/day)	23/383 lbs/day	99.0 lbs/day
TSS (mg/L)	14/284 mg/L	75.0 mg/L
TSS (lbs/day)	8/180 lbs/day	46.0 lbs/day
TN (mg/L)	< 20.8 mg/L	< 20.8 mg/L
TN (lbs/day)	<20.9 lbs/day	<20.9 lbs/day
TP (mg/L)	4.20 mg/L	4.20 mg/L
TP (lbs/day)	4.23 lbs/day	4.23 lbs/day
NH_3-N (mg/L)	19.6 mg/L	19.6 mg/L
NH_3-N (lbs/day)	19.78 lbs/day	19.78 lbs/day
TDS (mg/L)	312 mg/L	312 mg/L
TDS (lbs/day)	315 lbs/day	315 lbs/day
Fecal Coliform	No./100 mL	No./100 mL
TKN	26.58 mg/L	26.58 mg/L
NO_2-N + NO_3-N	< 1.2 mg/L	< 1.2 mg/L

Effluent Testing Results

Parameter	Min/Max Value	Average Value
pH (minimum)	6.61 S.U.	
pH (maximum)	8.38 S.U.	
D.O (minimum)	5.52 mg/L	7.54 mg/L
TRC	mg/L	mg/L
Fecal Coliform	<1/2419.6 No./100mL	5.54 No./100mL
$CBOD_5$	<3/8.16 mg/L	3.33 mg/L
TSS	<0.8/13 mg/L	2.13 mg/L
NH3-N	<0.1/20.22 mg/L	3.449 mg/L
TN	<1.7/<21.42 mg/L	< 6.02 mg/L
TP	0.24/8.02 mg/L	3.23 mg/L
Temp	F	F
TKN	<0.5/19.47mg/L	< 3.93 mg/L
NO_2-N + NO_3-N	<0.37/20.3 mg/L	< 2.05 mg/L
TDS	320/466 mg/L	410.66 mg/L
Chloride	104/131 mg/L	119.66 mg/L
Bromide	< 2.0 mg/L	< 2.0 mg/L
Sulfate	28.5/29.8 mg/L	28.9 mg/L
Oil and Grease	<5.2/<5.6 mg/L	< 5.32 mg/L
Total Copper	2.68/3.8 ug/L	3.29 mg/L
Total Lead	<0.17/0.33 ug/L	0.22 mg/L
Total Zinc	35.9/37.6 ug/L	36.53 mg/L

Chesapeake Bay Strategy:
The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases I, II, and III) dischargers will receive annual loading caps based on their design flow on August 29, 2005 and concentrations of 6.0 mg/L TN and 0.8 mg/L TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. Phase IV (0.2 -0.4 MGD) will be required to monitor and report TN and TP during permit renewal monthly and Phase V (below 0.2 MGD) will monitor during current permit renewal once a year. However, any facility in Phases IV and V that undergoes expansion is subjected to cap load right away. This plant is classified as a phase V, will be required to monitor and report for Total Phosphorus, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, and Total Nitrogen.

Additionally, according to SOP for establishing effluent limitation for individual sewage, monitoring frequency for nutrients should be equivalent to conventional pollutants in Table 6-3 of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) ("Permit Writer's Manual") where the facility discharges to nutrient-impaired waters, or a lesser frequency for discharges to waters not impaired for nutrients. Quarterly monitoring frequency is required for this discharge since the receiving stream is not nutrient impaired. These requirements will remain in the proposed permit.

Influent BOD_5 and TSS Monitoring:
The permit will include influent BOD_5 and TSS monitoring at the same frequency as is done for effluent in order to implement 25 Pa. Code § 94.12 and assess percent removal requirements, per DEP policy.

Total Dissolved Solids (TDS):
Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants is necessary under the following DEP Central Office directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- *Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.*
- *Where the concentration of bromide in a discharge exceeds 1.0 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.*

The facility has no record of monitoring these pollutants. However, the application shows a maximum influent concentration of 466.0 mg/L for TDS. The effluent concentration is not expected to exceed 1,000 mg/L. No monitoring is necessary.

Best Professional Judgment (BPJ) Limitations

Total Phosphorus:
The discharge is into a stream segment of Frankstown Branch Juniata River. DEP's Phosphorus guidance mentions that *"(a) Phosphorus controls for waste discharges to streams shall be established, under subsection (b) whenever the Department determines that instream phosphorus, alone or in combination with other pollutants or instream conditions, contribute to impairment of designated uses as defined in Chapter 93 (relating to water quality standards). No determination made under this subsection shall constitute a final Department action with respect to any person until a specific treatment or control requirement is imposed under subsection (b)."* Since Juniata Sub-basin doesn't have instream phosphorus related impairment, local Phosphorus limit is not necessary at this time. This determination may be re-evaluated in next permit term if regulation demands.

Total Residual Chlorine:
The application data indicated Sodium Hypochlorite is available as backup disinfection in case UV malfunction. The permittee will be required to report TRC when in use. A Part C, Item IV- Total Residual Chlorine (TRC) condition for reporting requirement is appropriate with a minimum monitoring frequency of 1/day. The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns at the discharge point. The Instantaneous Maximum (IMAX) limit will be 1.6 mg/l.

Biosolids Management:
Digested Sludge is sent out periodically to the drying beds.

Stormwater:
There is no stormwater outfall associated with this facility.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams:
The discharge is not located on a 303d listed stream segment. The stream segment that receive the discharge is listed as attaining its used for aquatic life and fish consumption.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

WQM 7.0:

The following data were used in the attached computer model (WQM 7.0) of the stream:

• Discharge pH	7.0	(Default per 391-2000-007)
• Discharge Temperature	25°C	(Default per 391-2000-007)
• Stream pH	7.0	(Default per 391-2000-006)
• Stream Temperature	20 °C	(Default for WWF per 391-2000-003)
• Background NH3-N	0 mg/L	(Assumed since no nearby upstream WWTPs)
• Stream Hardness	150 mg/l	(WQN 216, median July-Sep 1964-1987)

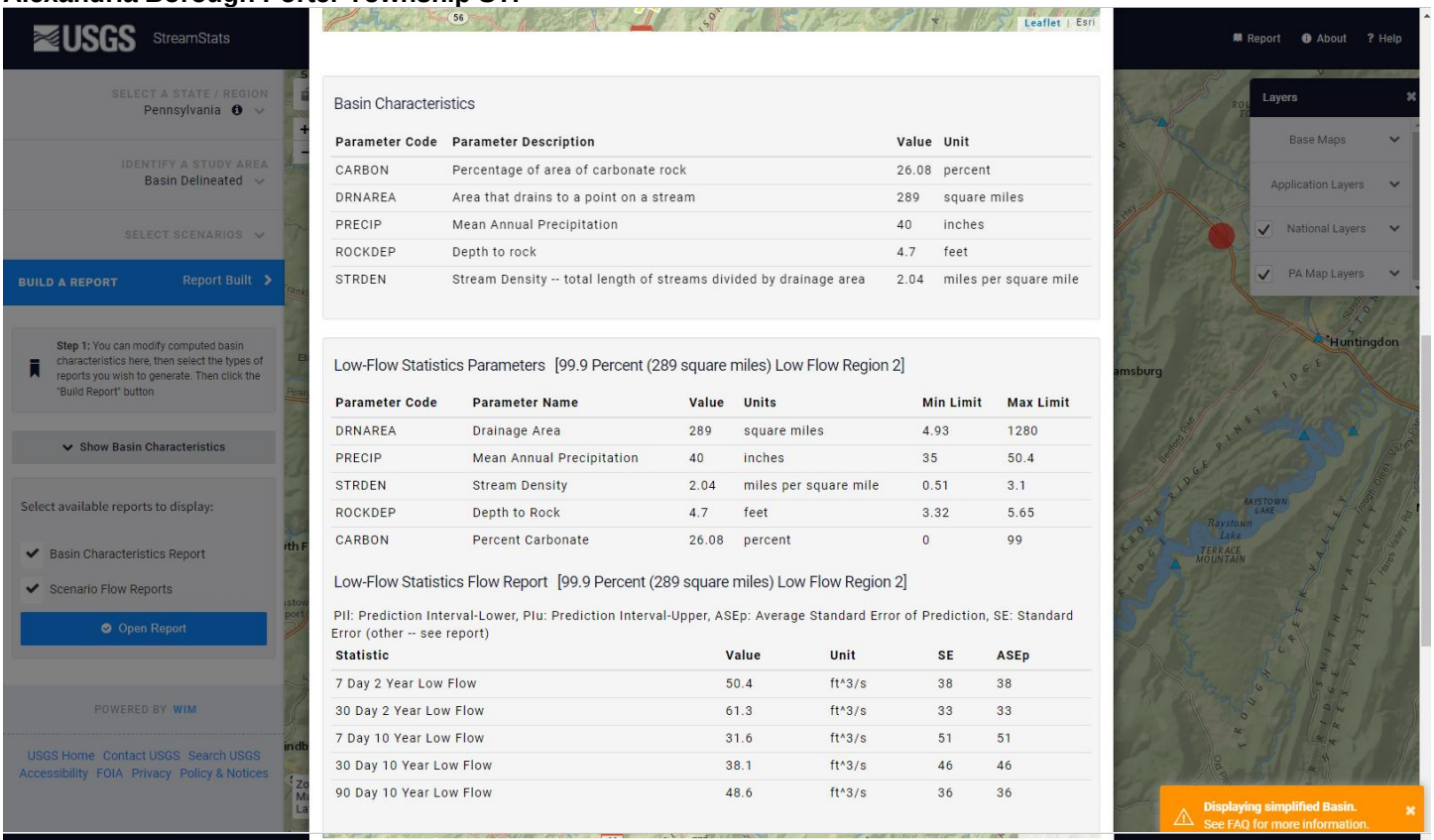
The following two nodes were used in modeling:

Node 1: Outfall 001 at Frankstown Branch Juniata River (16061)

Elevation:	688 ft (USGS)
Drainage Area:	379 $mi.^2$ (StreamStats)
River Mile Index:	4.13 (PA DEP eMapPA)
Low Flow Yield:	0.11 cfs/mi^2
Discharge Flow:	0.24 MGD
Q7-10:	10.42 cfs

Node 2: At the confluence with Little Juniata River (15664)

Elevation:	662 ft (USGS)
Drainage Area:	396 $mi.^2$ (StreamStats)
River Mile Index:	0.001 (PA DEP eMapPA)
Low Flow Yield:	0.11 $cfs/mi.^2$
Discharge Flow:	0.00 MGD



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	26.08	percent
DRNAREA	Area that drains to a point on a stream	289	square miles
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.7	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.04	miles per square mile

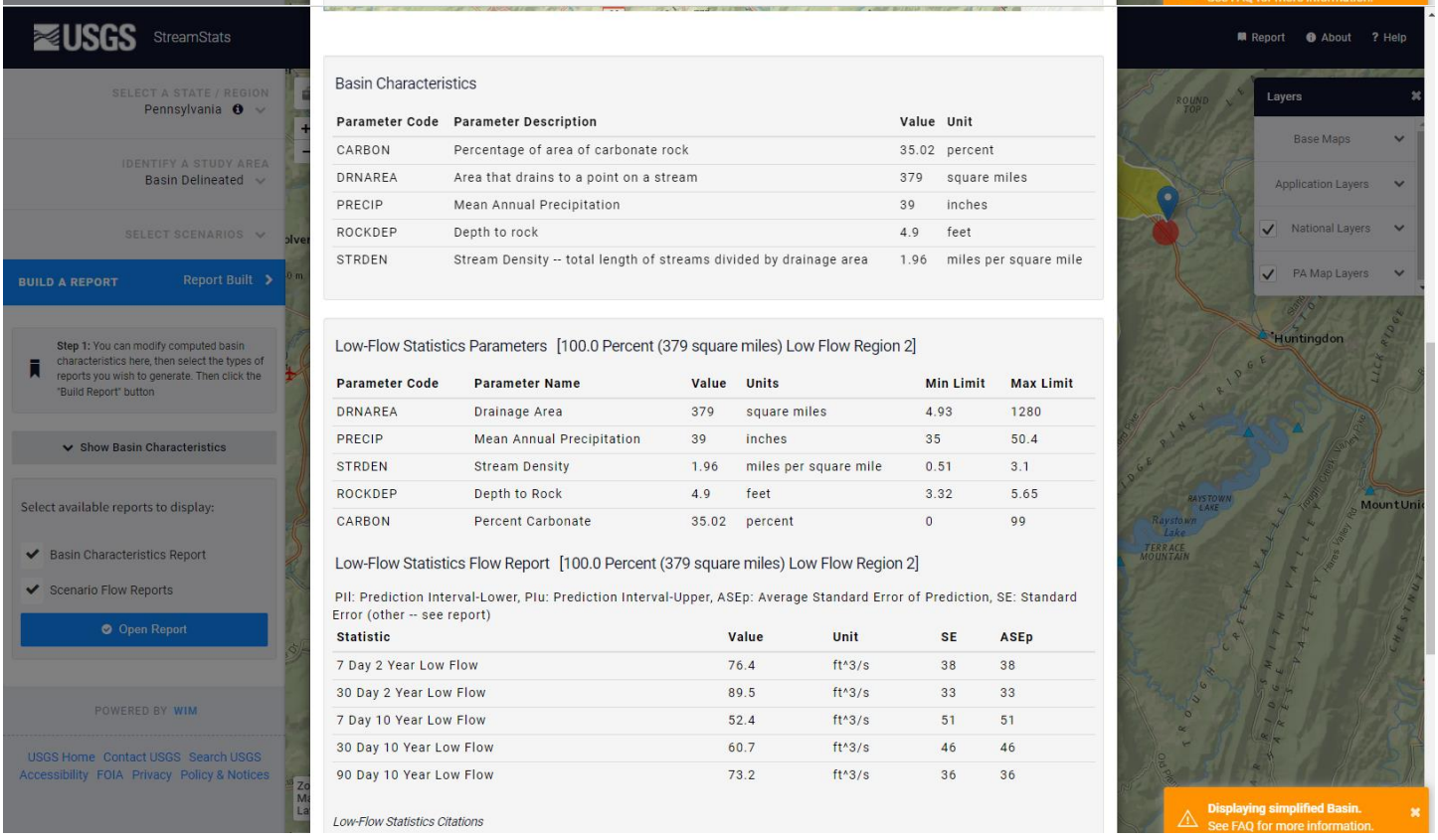
Low-Flow Statistics Parameters [99.9 Percent (289 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	289	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	2.04	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
CARBON	Percent Carbonate	26.08	percent	0	99

Low-Flow Statistics Flow Report [99.9 Percent (289 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	50.4	ft^3/s	38	38
30 Day 2 Year Low Flow	61.3	ft^3/s	33	33
7 Day 10 Year Low Flow	31.6	ft^3/s	51	51
30 Day 10 Year Low Flow	38.1	ft^3/s	46	46
90 Day 10 Year Low Flow	48.6	ft^3/s	36	36



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	35.02	percent
DRNAREA	Area that drains to a point on a stream	379	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	4.9	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.96	miles per square mile

Low-Flow Statistics Parameters [100.0 Percent (379 square miles) Low Flow Region 2]

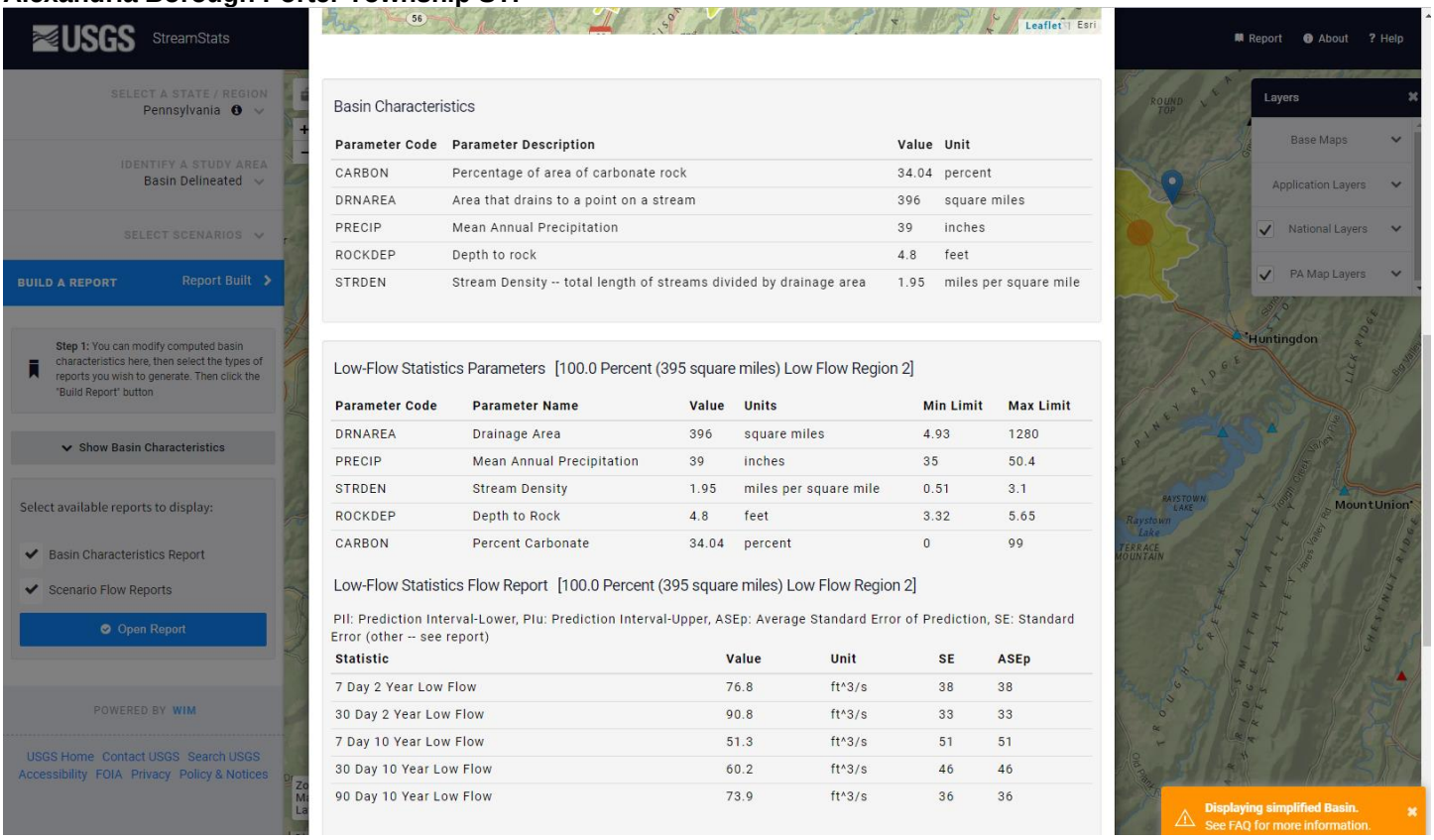
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	379	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	1.96	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.9	feet	3.32	5.65
CARBON	Percent Carbonate	35.02	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (379 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.4	ft^3/s	38	38
30 Day 2 Year Low Flow	89.5	ft^3/s	33	33
7 Day 10 Year Low Flow	52.4	ft^3/s	51	51
30 Day 10 Year Low Flow	60.7	ft^3/s	46	46
90 Day 10 Year Low Flow	73.2	ft^3/s	36	36

Low-Flow Statistics Citations



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	34.04	percent
DRNAREA	Area that drains to a point on a stream	396	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	4.8	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	1.95	miles per square mile

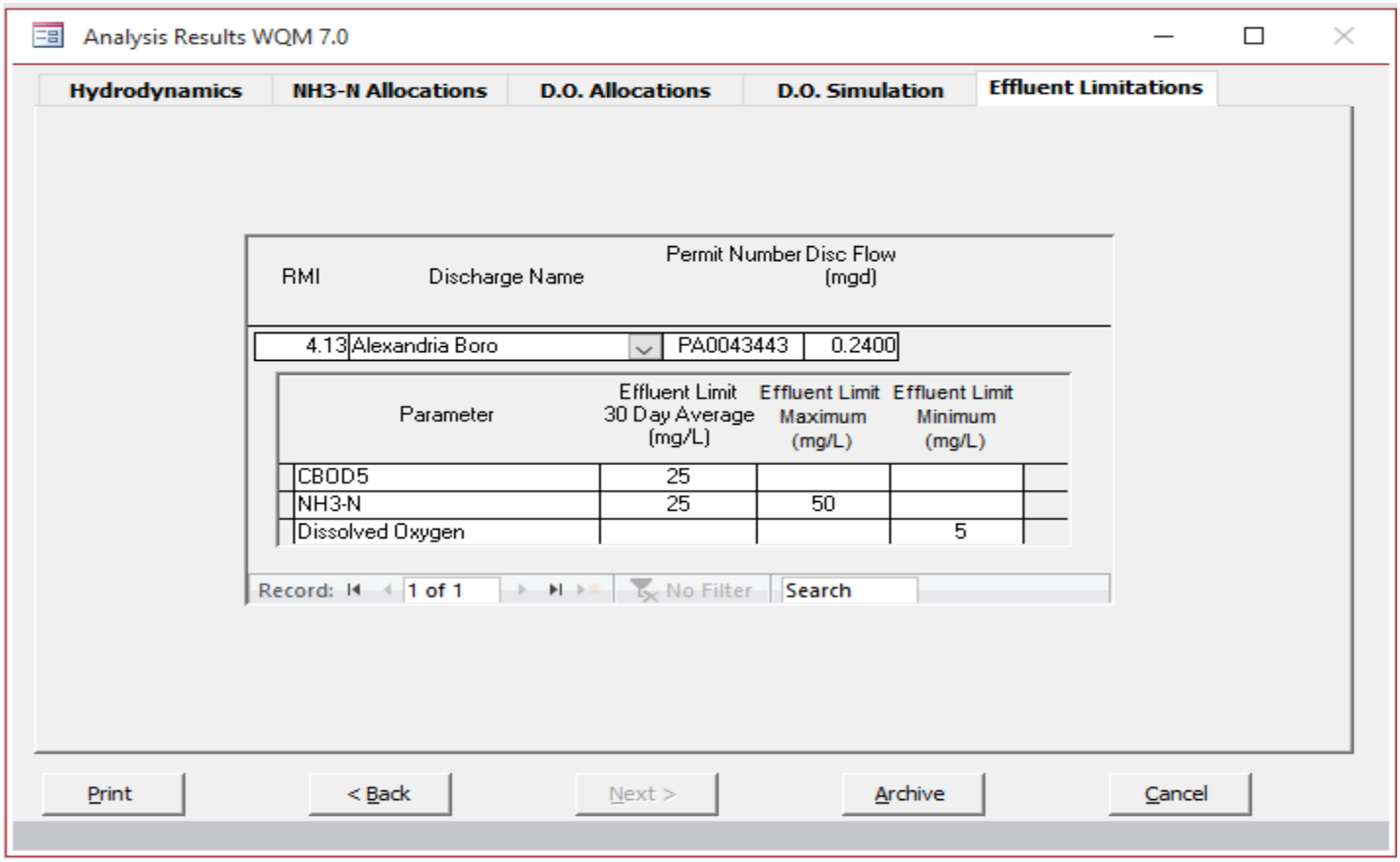
Low-Flow Statistics Parameters [100.0 Percent (395 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	396	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	1.95	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.8	feet	3.32	5.65
CARBON	Percent Carbonate	34.04	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (395 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	76.8	ft^3/s	38	38
30 Day 2 Year Low Flow	90.8	ft^3/s	33	33
7 Day 10 Year Low Flow	51.3	ft^3/s	51	51
30 Day 10 Year Low Flow	60.2	ft^3/s	46	46
90 Day 10 Year Low Flow	73.9	ft^3/s	36	36



rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11A	16061	FRANKSTOWN BRANCH JUNIATA 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)
4.130	Alexandria Boro	PA0043443	0.240	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11A	16061	FRANKSTOWN BRANCH JUNIATA 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
4.130	Alexandria Boro	16.4	50	16.4	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
4.130	Alexandria Boro	1.87	25	1.87	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
4.13	Alexandria Boro	25	25	25	25	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
11A	16061	FRANKSTOWN BRANCH JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.130	0.240	20.172	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/D Ratio	Reach Velocity (fps)
64.403	0.875	73.572	0.191
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
2.79	0.238	0.86	0.709
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
8.131	1.564	Tsivoglou	6
Reach Travel Time (days)			
1.318			

Subreach Results

Trav Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.132	2.71	0.78	7.89
0.264	2.62	0.71	7.72
0.395	2.54	0.65	7.61
0.527	2.47	0.59	7.55
0.659	2.39	0.54	7.52
0.791	2.32	0.49	7.53
0.923	2.25	0.45	7.56
1.055	2.18	0.41	7.59
1.186	2.11	0.37	7.63
1.318	2.05	0.34	7.69

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rptModelSpecs

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	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin: 11A | Stream Code: 16061 | Stream Name: FRANKSTOWN BRANCH JUNIATA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
4.130	10.42	0.00	10.42	.3713	0.00119	.875	64.4	73.57	0.19	1.318	20.17	7.00
Q1-10 Flow												
4.130	6.67	0.00	6.67	.3713	0.00119	NA	NA	NA	0.15	1.674	20.26	7.00
Q30-10 Flow												
4.130	14.17	0.00	14.17	.3713	0.00119	NA	NA	NA	0.23	1.115	20.13	7.00

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rptGeneral

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
11A	16061	FRANKSTOWN BRANCH JUNIATA R	4.130	668.00	379.00	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	0.110	10.42	0.00	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
Alexandria Boro	PA0043443	0.2400	0.2400	0.2400	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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rptGeneral

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
11A	16061	FRANKSTOWN BRANCH JUNIATA R	0.001	662.00	396.00	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	0.110	0.00	0.00	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
Alexandria Boro	PA0043443	0.0000	0.0000	0.0000	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

41.69	= Q stream (cfs)	0.5	= CV Daily
0.24	= 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 = 35.839	1.3.2.iii	WLA cfc = 34.932
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 13.354	5.1d	LTA_cfc = 20.308

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)**

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Alexandria Borough** NPDES Permit No.: **PA0043443** Outfall No.: **001**

Evaluation Type: **Custom / Additives** Wastewater Description: **Minor 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
0.24	150	8.38						

				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
Total Copper	µg/L		3.8									
Total Lead	µg/L		0.328									
Total Zinc	µg/L		37.6									

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Alexandria Borough, NPDES Permit No. PA0043443, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: _____ No. Reaches to Model: 1

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	016061	4.13	688	379			Yes
End of Reach 1	016061	0.001	662	396			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	4.13	0.11										150	7		
End of Reach 1	0.001	0.11													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	4.13														
End of Reach 1	0.001														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Alexandria Borough, NPDES Permit No. PA0043443, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.183 Analysis Hardness (mg/l): 150 Analysis pH: 7.02

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 Copper	0	0		0	19.692	20.5	441	Chem Translator of 0.96 applied
Total Lead	0	0		0	100.129	137	2,941	Chem Translator of 0.732 applied
Total Zinc	0	0		0	165.218	169	3,632	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): ####### PMF: 1 Analysis Hardness (mg/l): 150 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 Copper	0	0		0	12.664	13.2	1,494	Chem Translator of 0.96 applied
Total Lead	0	0		0	3.902	5.33	604	Chem Translator of 0.732 applied
Total Zinc	0	0		0	166.569	169	19,138	Chem Translator of 0.986 applied

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

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	

Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

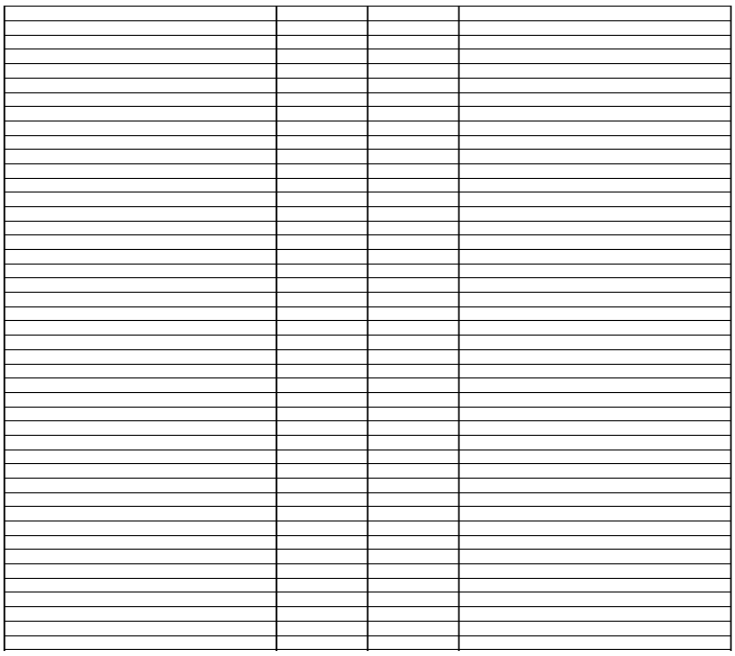
No. Samples/Month: 4

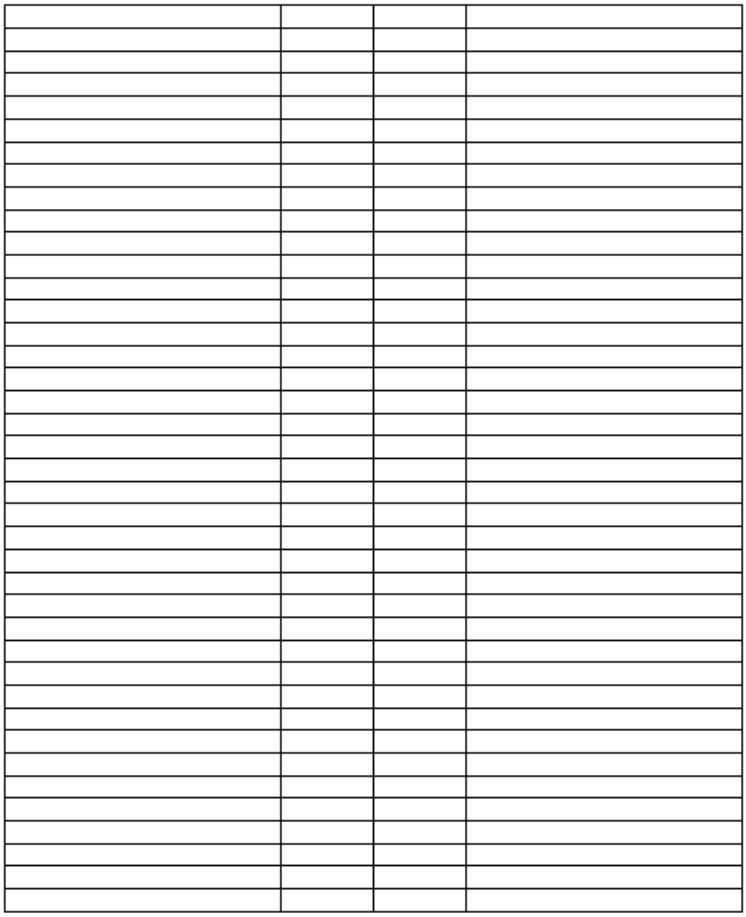
	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Copper	283	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	604	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	2,328	µg/L	Discharge Conc ≤ 10% WQBEL





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	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$	50	80	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	60	90	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
UV Dosage (mJoules/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Chesapeake Bay Tributary Strategy

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$	50.0	80.0 Wkly Avg	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	60.0	90.0 Wkly Avg	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Dosage (mJoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Compliance Sampling Location:

Other Comments:

Proposed Effluent Limitations and Monitoring Requirements

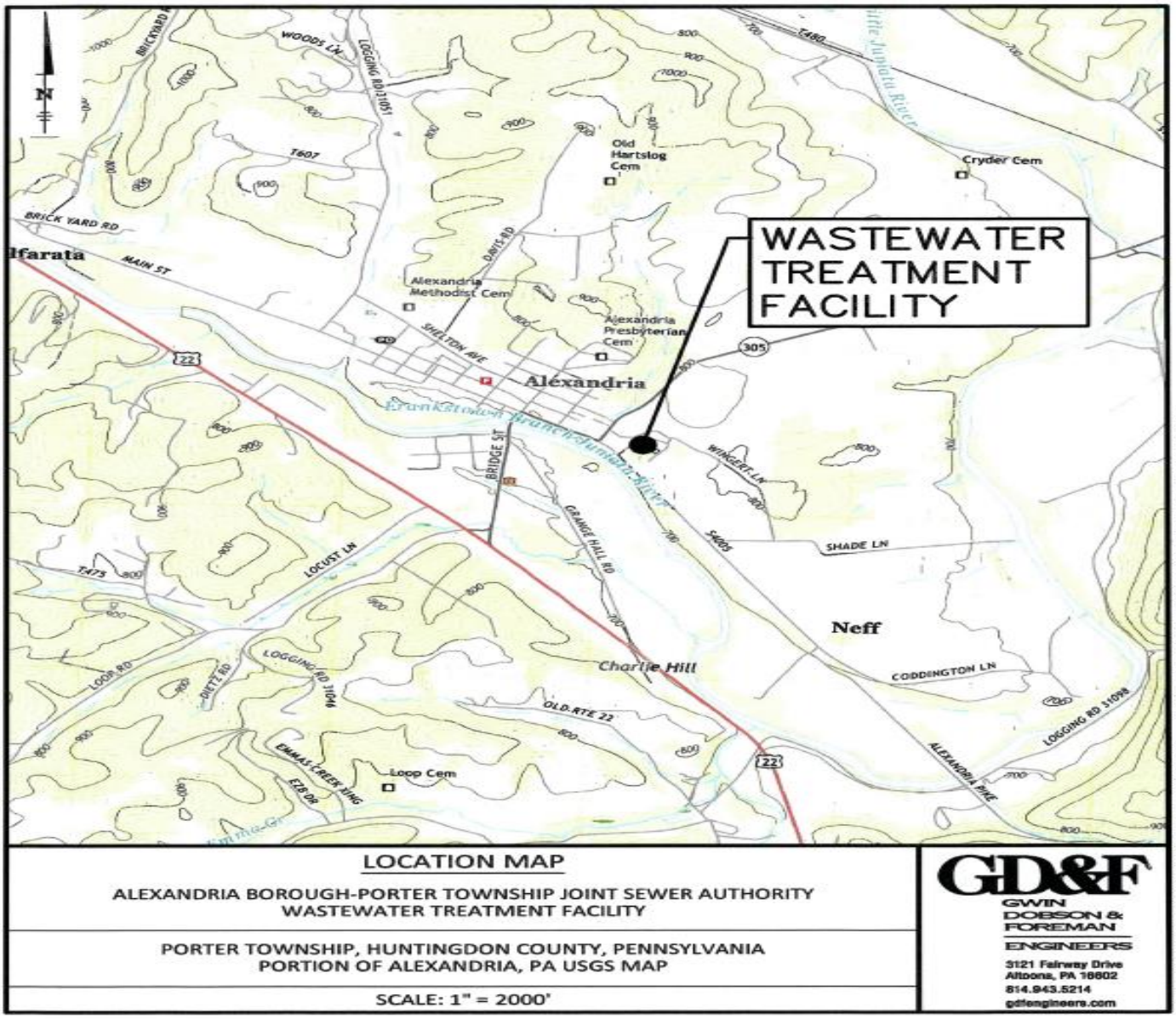
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

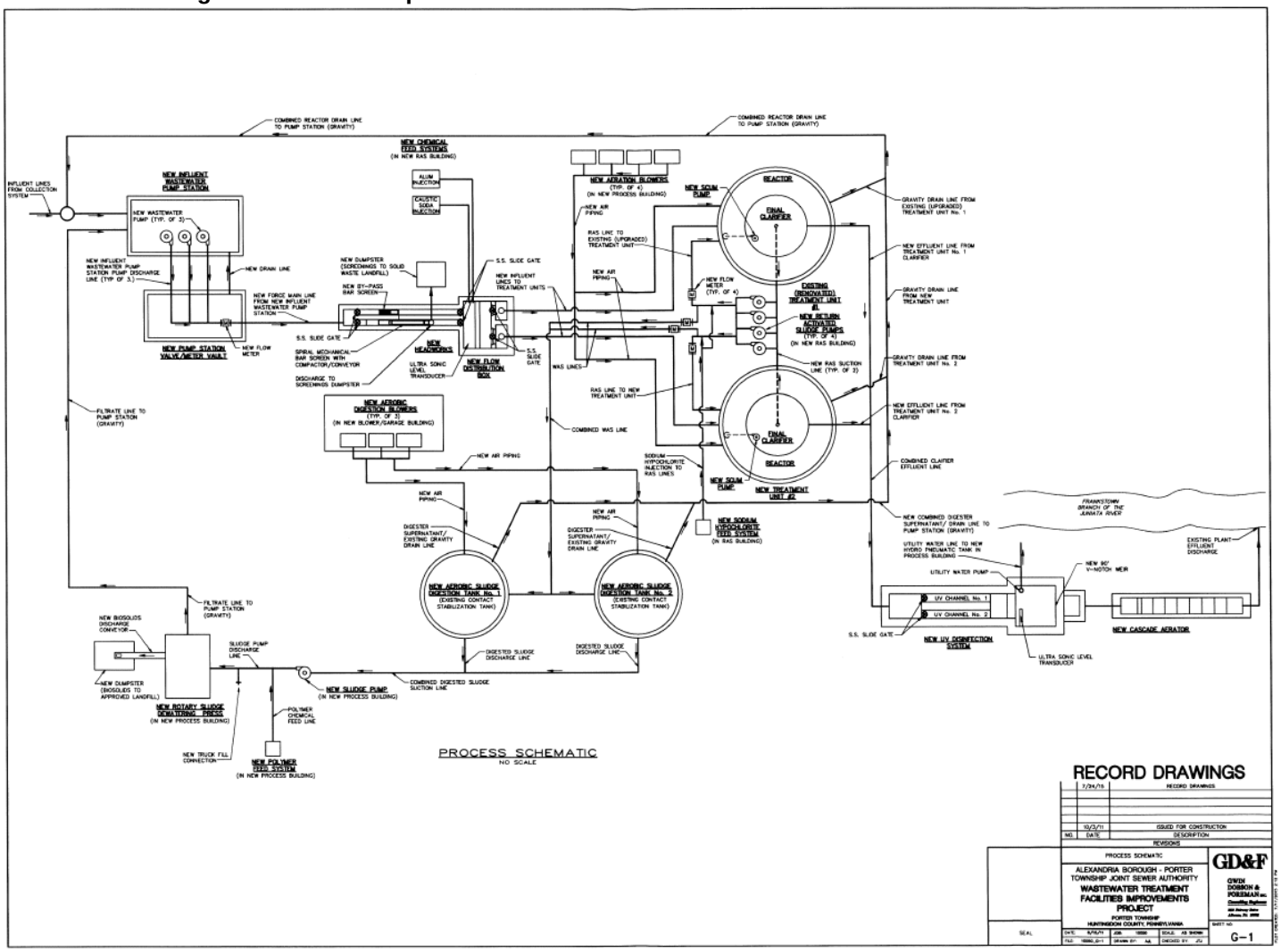
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/week	24-Hr Composite

Compliance Sampling Location:

Other Comments:


WASTEWATER TREATMENT FACILITY
Alexandria
Neff
Charlie Hill
Old Hartslog Cem
Cryder Cem
Alexandria Methodist Cem
Alexandria Presbyterian Cem
Loop Cem
BRICK YARD RD
MAIN ST
SHELTON AVE
BRIDGE ST
GRANGE HALL RD
LOCUST LN
SHADE LN
WINGERT LN
CODDINGTON LN
OLD RTE 22
LOGGING RD T1051
LOGGING RD T1046
LOGGING RD T1098
ALEXANDRIA PIKE
LOOP RD
DRIFT RD
EMMAS CREEK RING
WOODS LN
T1607
T1475
T1480
S4005
22
305
LOCATION MAP
ALEXANDRIA BOROUGH-PORTER TOWNSHIP JOINT SEWER AUTHORITY
WASTEWATER TREATMENT FACILITY
PORTER TOWNSHIP, HUNTINGDON COUNTY, PENNSYLVANIA
PORTION OF ALEXANDRIA, PA USGS MAP
SCALE: 1" = 2000'
GD&F
GWIN DOBSON & FOREMAN
ENGINEERS
3121 Fairway Drive
Altoona, PA 16602
814.943.5214
gdfengineers.com
PLOT CREATED: 3/9/2022, FILE: N:\CADD - ARCHIVE\13020\2022 WORK\LOCATION MAP.DWG


PROCESS SCHEMATIC
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RECORD DRAWINGS
ISSUED FOR CONSTRUCTION
ALEXANDRIA BOROUGH - PORTER TOWNSHIP JOINT SEWER AUTHORITY
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT
PORTER TOWNSHIP
HUNTINGDON COUNTY, PENNSYLVANIA
GD&F
G-1

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	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: