

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0021539
APS ID 658791
Authorization ID 1380798

Applicant and Facility Information

Applicant Name	<u>Williamsburg Municipal Authority Blair County</u>	Facility Name	<u>Williamsburg Municipal Authority STP</u>
Applicant Address	<u>305 E 2nd Street</u> <u>Williamsburg, PA 16693-1041</u>	Facility Address	<u>826 Recreation Drive</u> <u>Williamsburg, PA 16693</u>
Applicant Contact	<u>Edgar Patterson</u>	Facility Contact	<u>Joseph Lansberry</u>
Applicant Phone	<u>(814) 832-2051</u>	Facility Phone	<u>(814) 832-2051</u>
Client ID	<u>65879</u>	Site ID	<u>452630</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Williamsburg Borough</u>
Connection Status	<u>No Limitations</u>	County	<u>Blair</u>
Date Application Received	<u>December 30, 2021</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>January 12, 2022</u>	If No, Reason	<u>Significant CB Discharge</u>
Purpose of Application	<u>This is an application for NPDES renewal.</u>		

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	January 14, 2022
X		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	January 25, 2022
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	January 25, 2022

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Williamsburg WWTP located at 826 Recreation Drive, Williamsburg, PA 16693 in Blair County, municipality of Catherine. The existing permit became effective on and July 1, 2017 expires(d) on June 30, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on December 30, 2021.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.331 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 2) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Blair County Commissioners and Catherine Township Supervisors and the notice was received by the parties on December 15, 2021. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Frankstown Branch Juniata River. The sequence of receiving streams that the Frankstown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for trout stocking fish (TSF) and migratory fish (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Frankstown Branch Juniata River is a Category 2 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life and fish consumption. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Due to EPA Triennial Review, E. coli shall be monitored 1x/quarter.**

Sludge use and disposal description and location(s): Digested sludge is either land applied in liquid form or dewatered and disposed at a landfill. Disposal locations are: (a) Laurel Highlands Landfill; Jackson Township, Cambria County; (b) Sandy Run Landfill; Broadtop Township, Bedford County; (c) Jeff Allison Farm; Huston Township, Blair County

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name: Williamsburg WWTP

NPDES Permit # PA0021539

Physical Address: 826 Recreation Drive
Williamsburg, PA 16693

Mailing Address: 305 East 2nd Street
Williamsburg, PA 16693

Contact: Joseph Lansberry
Borough Manager/ WWTP Operator
Jll16693@gmail.com

Consultant: Tobias Nagle
Sr. Environmental Scientist
Stiffler, McGraw and Assoc, Inc.
(814) 696-6280
tnagle@stiffler-mcgraw.com

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 826 Recreation Drive, Williamsburg, PA 16693. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

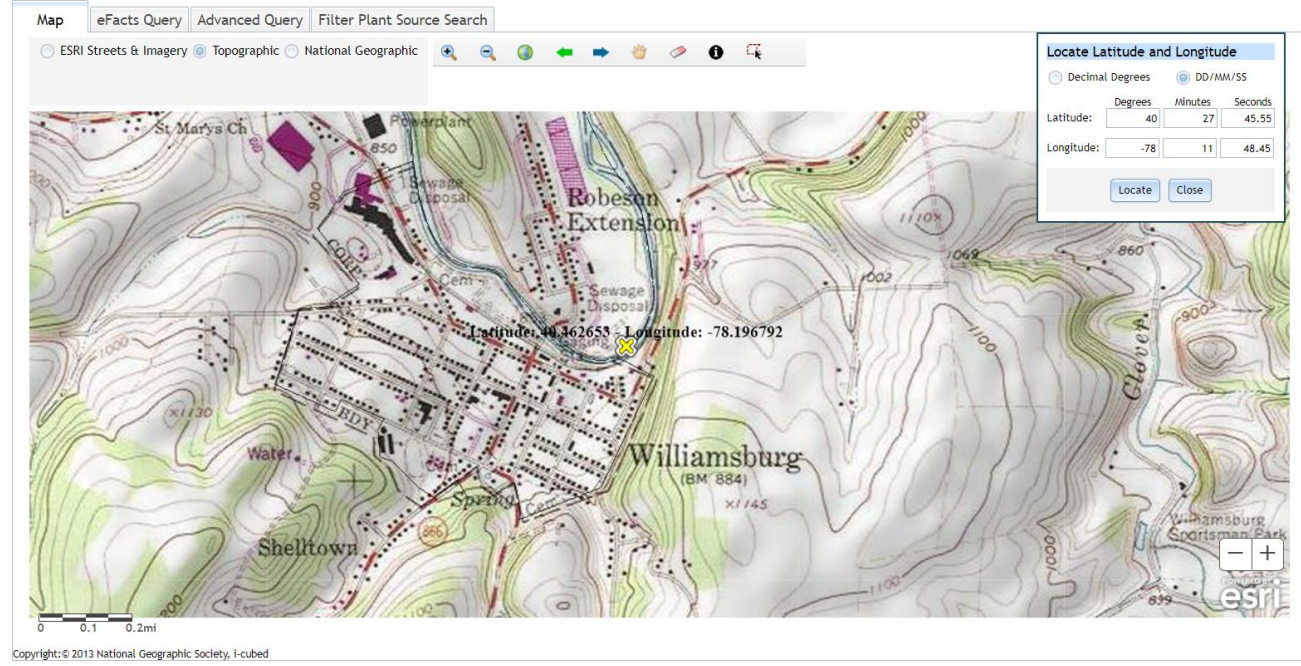
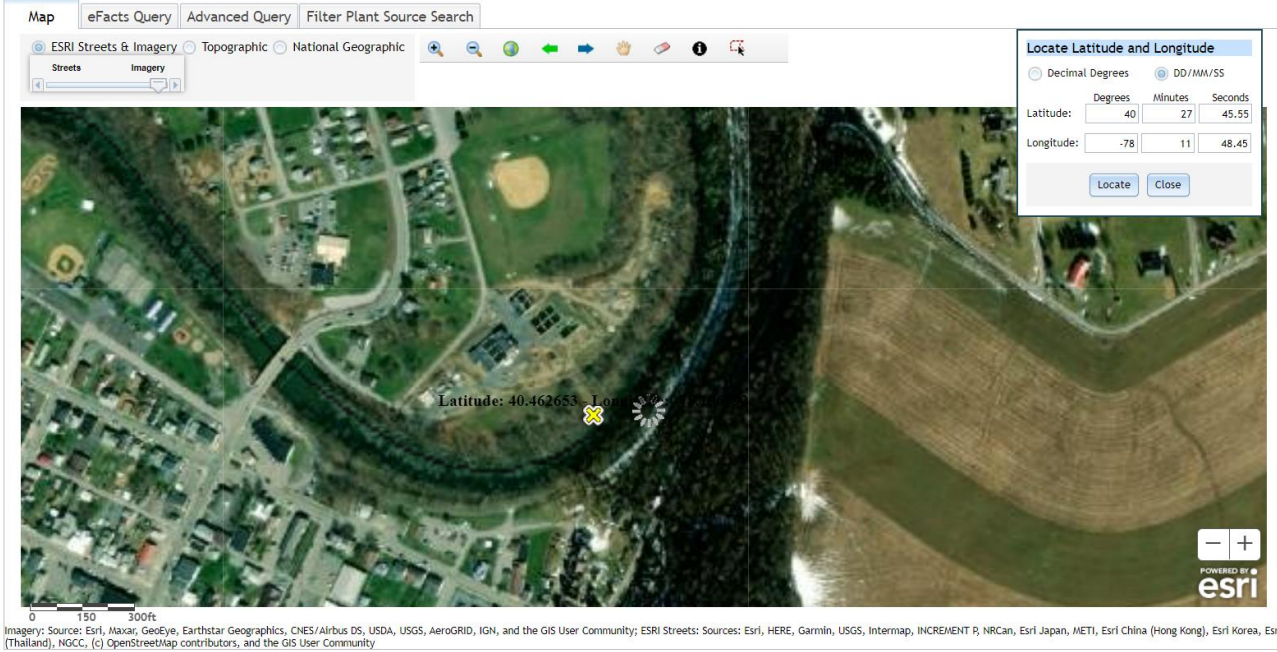


Figure 2: Aerial Photograph of the subject facility



2.1.2 Sources of Wastewater/Stormwater

The facility receives wastewater from the following municipalities.

Municipalities Served	Flow Contribution (%)	Population
Williamsburg	73	1254
Woodbury Township	17	414
Catherine Township	10	209
<i>Total</i>	<i>100</i>	

The facility receives wastewater from the following industrial / commercial sources. The facility reported there is no EPA-approved pretreatment program.

WILLIAMSBURG NON-RESIDENTIAL SANITARY SEWER CUSTOMER LIST

CUSTOMER NAME	BUSINESS TYPE	AVERAGE DAILY USAGE (GPD)
MARTIN OIL CO	Convenience Store	440
DANIEL N SHOCK (SEASONAL APR-OCT)	Ice Cream Store	47
KALYANI REAL ESTATE LLC (10 UNITS)	Apartments	880
RIVERVIEW BANK	Bank	20
KENNETH RHODES (113 HIGH ST) (5 UNITS)	Apartments	210
KENNETH RHODES (121 HIGH ST) (7 UNITS)	Apartments	470
TOM AKE (320 E 2ND ST) (5 UNITS)	Apartments	420
ALFREDA HITE (7 UNITS)	Apartments	300
DOLLAR GENERAL STORE #B468	Convenience Store	60
WILLIAMSBURG AREA IMP DWELLINGS (200 E 2ND ST) (18 UNITS)	Apartments	650
ERNEST C HETRICK (3 UNITS)	Apartments	140
APOSTOLIC CHURCH/GARY G. IRVIN	Church	10
DBM INVESTMENTS LLP (137-141 E 2ND ST) (3 UNITS)	Apartments	210
DBM INVESTMENTS LLP (143-151 E 2ND ST) (3 UNITS)	Apartments	240
WILLIAMSBURG BOROUGH BLDG	Municipal Building	70
MICHAEL FAY (315 E 2ND ST) (8 UNITS)	Apartments	440
WILLIAMSBURG C&MA CHURCH	Church	80
DBM INVESTMENTS LLP (213-223 LIBERTY ST) (6 UNITS)	Apartments	370
WILLIAMSBURG AREA IMP DWELLINGS (321 HIGH ST) (7 UNITS)	Apartments	240
WILLIAMSBURG AREA IMP DWELLINGS (223 HIGH ST) (7 UNITS)	Apartments	180
TOLLGATE HOLDINGS LLC (7 UNITS)	Apartments	490
WILLIAMSBURG RIVERSIDE PARK (APR-OCT)	Municipal Park	420
GALEN R. REIGH (400 W 1ST ST) (4 UNITS)	Apartments	330
STEVEN PHEASANT (4 UNITS)	Apartments	300
PROUGH'S MASONRY LLC	Contractor	30
MILL HILL FARM SUPPLY INC	Farm Supplies Store	10
ST. JOSEPH HALL & RECTORY	Church	30
HARRY EVANS JR.	Auto Repair Garage	10
STEVEN HARKER (SIZZLER)	Restaurant	330
NIC'S TOBACCO INC	Convenience Store	60
ROSCOE'S AUTO & CYCLE MECH	Auto Repair Garage	10
CORDELL EBERSOLE (3 UNITS)	Apartments	300
WMSBURG FIREMANS' AUXILIARY	Meeting Hall	20
WILL & TYLER LLC	Funeral Home	10
THOMAS R. AKE II (532 W 2ND ST)(4 UNITS)	Apartments	330
WILLIAMSBURG PUBLIC LIBRARY	Library	210
WMSBURG UNITED METHODIST CHURCH	Church	10
BLAIR SENIOR SERVICES	Senior Center	70
PEACE REALTY LLC	Counseling Center/Hairdresser/Apartment	120
MICHAEL L. FAY (202 HIGH ST)(4 UNITS)	Apartments	160
MICHAEL L. FAY (2ND ST)(4 UNITS)	Apartments	120
OUR VALLEY PROPERTIES LLC	Laundry Mat	360
PA POSTAL HOLDINGS	Post Office	20
WILLIAMSBURG AREA IMP DWELLINGS (403 W 3RD ST)(15 UNITS)	Apartments	330
LUTHERAN CHURCH/PARSONAGE	Church/Parsonage	20
SHAKIRAH DIXON (514 W 3RD ST)(4 UNITS)	Apartments	150
WMSB.CHURCH OF THE BRETHREN	Church	30
WILLIAMSBURG HIGH SCHOOL (515 W 3RD ST)	School	130
UPMC ALTOONA	Doctor's Office	80
WILLIAMSBURG HIGH SCHOOL (WEIGHT RM)	School	300
WILLIAMSBURG HIGH SCHOOL (SAGE HILL DR)	School	480
WILLIAMSBURG HIGH SCHOOL (FOOTBALL FIELD)	School	270

WILLIAMSBURG NON-RESIDENTIAL SANITARY SEWER CUSTOMER LIST

CUSTOMER NAME	BUSINESS TYPE	AVERAGE DAILY USAGE (GPD)
CENVEO CORPORATION (F BUILDING)	Factory	320
CENVEO CORPORATION (W BUILDING)	Factory	3260
RAYSTOWN TRANSIT SERVICE	Bus Garage/Office	20
COVE HOLDINGS LLC (6 UNITS)	Apartments	330
CRC HEALTH GROUP	Rehab Halfway House	560
CRC HEALTH GROUP	Rehab Halfway House	420
WILLIAMSBURG BOROUGH SEWER PLANT A	Municipal Wastewater Treatment Plant	5610
WSBRG VETERANS MEM CENTER	Community Center	150
WBURG COMMUNITY FARM SHOW	Farm Show Building	130
AMERICAN LEGION HOME ASSOC	Social Hall	100
GRACE POINTE COMMUNITY CHURCH	Church	150
CHRISTIAN MISSIONARY ALLIANCE (unmetered estimate)	Church	60
WOODBURY TOWNSHIP (unmetered estimate)	Municipal Building	50

The facility did not receive hauled-in wastes in the past three years and also does not anticipate receiving hauled-in wastes over the next five years.

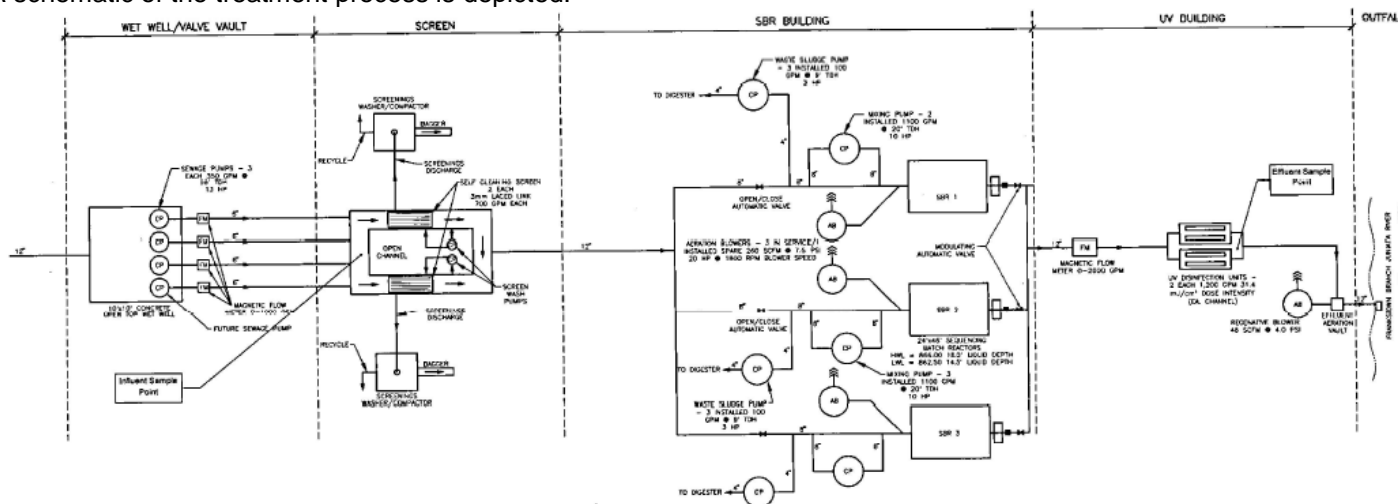
2.2 Description of Wastewater Treatment Process

The subject facility is a 0.331 MGD average annual design flow facility. The hydraulic design flow rate is 0.50 MGD. The subject facility treats wastewater using a SBR(s), a UV disinfection unit(s), an effluent aeration vault, and an outfall for discharge. The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, fecal coliform, UV disinfection, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Williamsburg STP				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Total Nitrogen Reduction	Activated Sludge	UV disinfection	0.331
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.5	850	Not Overloaded		

A schematic of the treatment process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.331</u>
Latitude	<u>40° 27' 45.00"</u>	Longitude	<u>-78° 11' 48.00"</u>
Wastewater Description: <u>Sewage Effluent</u>			

The subject facility outfall is within the vicinity of another sewage/wastewater outfall. The downstream outfall is Cove Forge Behavioral Health Treatment Center (PA0087785) which is about 3.3 miles from the subject facility. This facility has a flow rate of 0.025 MGD. No interaction between Williamsburg WWTP and Cove Forge Behavioral Health is expected.

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Sodium hydroxide for pH adjustment and alkalinity addition
- Aluminum sulfate for flocculation
- Polymer for sludge dewatering

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001, Latitude 40° 27' 45.00", Longitude 78° 11' 48.00", River Mile Index 18.6, Stream Code 16061

Receiving Waters: Frankstown Branch Juniata River

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from July 1, 2017 through June 30, 2022.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	8.0	XXX	8.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	89	110	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	83	124	XXX	30.0	45.0	80	1/week	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Ultraviolet light dosage (micules/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001, Latitude 40° 27' 45.00", Longitude 78° 11' 48.00", River Mile Index 18.6, Stream Code 16081

Receiving Waters: Frankstown Branch Juniata River

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **July 1, 2017** through **June 30, 2022**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	7,308	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 001

Footnotes:

- (1) See Part C for Chesapeake Bay Requirements.
- (2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.
- (3) The permittee is authorized to use 3,925lbs/year as Total Nitrogen (TN) offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 157 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

07/11/2017:

- The NPDES effective 7/1/2017 required increase testing for nutrients and tracking of UV dosage.
- Operators should be tracking both the grab time and analysis time for daily effluent testing.
- The facility had issues with industrial discharges to the plant. Red dye was sent to the plant which discolored the influent and mixed liquor. A separate incident involved someone disposing a large amount of detergent into a sanitary drain which caused an abundance of foam in the effluent.

10/02/2018:

- Operators are now recording both the grab time and analysis time for daily effluent testing.
- The flow meter was overdue for calibration. The previous calibration was completed on September 7, 2017.
- The SOP for daily checks of the plant was updated.
- A flooding event near the plant caused creek water to flow into an influent manhole and several toilets at the public park. The plant experienced a discharge of solids into the receiving stream. DEP was notified.

10/10/2019:

- Flow meter was overdue for calibration
- The effluent compositor refrigerator read a temperature of -1.8 C. The temperature should be adjusted to about 4 C. The influent compositor was later replaced.

02/04/2021:

- The facility was advised to utilize the most current Chesapeake Bay supplemental form.
- Minor errors were noted for total nitrogen.
- No credits of nitrogen or phosphorus was sold.

11/23/2021:

- One of the three influent pumps was replaced with new grinder pump. The other two pumps may be replaced in the near future.
- The facility holds a land disposal for biosolids but sludge is usually hauled to the landfill.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.195 MGD. The design capacity of the treatment system is 0.331 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at 2019 9th Avenue, Altoona, PA 16602.

DMR Data for Outfall 001 (from December 1, 2020 to November 30, 2021)

Parameter	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20
Flow (MGD) Average Monthly	0.148	0.154	0.195	0.149	0.127	0.126	0.132	0.132	0.145	0.133	0.129	0.143
Flow (MGD) Daily Maximum	0.201	0.254	0.688	0.572	0.165	0.175	0.194	0.192	0.225	0.226	0.172	0.330
pH (S.U.) Minimum	7.1	7.1	7.0	7.1	7.0	7.1	7.1	7.1	7.0	7.0	7.1	7.0
pH (S.U.) Maximum	7.5	7.5	7.5	7.5	7.5	7.4	7.6	7.4	7.4	7.4	7.3	7.3
DO (mg/L) Minimum	6.0	6.1	6.0	6.3	6.1	6.0	6.0	6.0	6.0	6.1	6.2	6.0
CBOD5 (lbs/day) Average Monthly	< 4	< 4	< 4	< 3	3	< 3	< 3	< 3	< 4	< 3	< 3	< 7
CBOD5 (lbs/day) Weekly Average	< 4	< 4	< 5	< 3	3	< 3	4	4	< 6	< 3	< 3	15
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 7.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	< 3.0	< 3.0	3.0	< 3.0	3.0	4.0	< 3.0	< 3.0	< 3.0	15.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	211	607	286	259	241	256	189	237	252	235	267	307
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	277	1639	386	383	296	352	238	304	374	346	380	399
BOD5 (mg/L) Raw Sewage Influent Average Monthly	152.0	425	185	224	212	219	142	206	174	194	231	266
TSS (lbs/day) Average Monthly	< 3	< 2	< 3	< 2	2	< 3	< 2	2	< 2	< 2	2	2
TSS (lbs/day) Raw Sewage Influent Average Monthly	331	358	398	301	356	323	351	408	435	313	316	340
TSS (lbs/day) Raw Sewage Influent Daily Maximum	383	640	656	493	479	476	683	585	570	399	445	483
TSS (lbs/day) Weekly Average	6	2	4	4	2	4	5	2	4	3	5	4

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TSS (mg/L) Average Monthly	< 3.0	< 2.0	< 2.0	< 2.0	2.0	< 3.0	< 2.0	2.0	< 2.0	< 2.0	2.0	2.0
TSS (mg/L) Raw Sewage Influent Average Monthly	240.0	267	250	247	306	276	266	349	299	263	265	247
TSS (mg/L) Weekly Average	5.0	2.0	3.0	5.0	2.0	4.0	4.0	2.0	4.0	3.0	5.0	3.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 3.0	< 2.0	< 1.0
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	3.1	2420.0	2.0	1.0	< 1.0	< 1.0	2.0	2.0	3.0	6.2	6.3	4.1
Nitrate-Nitrite (mg/L) Average Monthly	< 2.9	2.8	2.7	2.7	2.4	< 2.0	2.6	2.1	< 2.2	2.6	2.9	4.1
Nitrate-Nitrite (lbs) Total Monthly	< 105	108	136	102	77	< 67	79	63	< 85	84	94	134
Total Nitrogen (mg/L) Average Monthly	< 3.7	< 3.6	< 3.4	< 3.2	< 3.0	< 2.5	< 4.4	< 2.6	< 2.7	< 3.2	< 4.1	6.7
Total Nitrogen (lbs) Effluent Net Total Monthly	< 131	< 139	< 168	< 121	< 98	< 83	< 143	< 80	< 105	< 105	< 129	220
Total Nitrogen (lbs) Total Monthly	< 131	< 139	< 168	< 121	< 98	< 83	< 143	< 80	< 105	< 105	< 129	220
Total Nitrogen (lbs) Effluent Net Total Annual			< -2479									
Total Nitrogen (lbs) Total Annual			< 1446									
Ammonia (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10	< 0.11	< 0.10	< 0.10	< 1.02	< 0.10	< 0.19	< 0.19	< 0.71	< 0.10
Ammonia (lbs) Total Monthly	< 4	< 4	< 5	< 4	< 3	< 3	< 35	< 3	< 8	< 6	< 21	< 3
Ammonia (lbs) Total Annual			< 100									
TKN (mg/L) Average Monthly	< 0.7	< 0.8	< 0.6	< 0.5	< 0.6	< 0.5	< 1.9	< 0.5	< 0.5	< 0.6	< 1.1	2.6
TKN (lbs) Total Monthly	< 26	< 30	< 30	< 19	< 20	< 16	< 64	< 16	< 20	< 21	< 35	85
Total Phosphorus (mg/L) Average Monthly	0.294	0.330	0.23	0.278	0.479	0.501	0.312	0.162	0.219	0.261	0.242	0.151

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Total Phosphorus (lbs) Effluent Net Total Monthly	11	13	12	10	15	16	10	5	9	8	8	5
Total Phosphorus (lbs) Total Monthly	11	13	12	10	15	16	10	5	9	8	8	5
Total Phosphorus (lbs) Effluent Net Total Annual			120									
Total Phosphorus (lbs) Total Annual			120									
UV Dosage (mjoules/cm ²) Minimum	116.2	112.20	104.8	101.7	98.1	92.9	67.6	103.2	109.6	118.4	120.3	123

3.2.1 Chesapeake Bay Truing

The table summarizes the facility’s compliance/noncompliance with Chesapeake Bay cap loads. The facility appears to be meeting the Chesapeake Bay cap load limits.

Chesapeake Bay Annual Nutrient Summary				
Williamsburg WWTP				
PA0021539				
Year for Truing Period (Oct 1 - Nov 28)	Net Effluent Limits		Compliant with Permit Limits (Yes/No)	
	Nitrogen (lbs)	Phosphorus (lbs)	Nitrogen	Phosphorus
	7,306	974		
2017	2,660	115	Yes	Yes
2018	3,155	210	Yes	Yes
2019	2,534	237	Yes	Yes
2020	1,603	156	Yes	Yes
2021	1,446	120	Yes	Yes

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in July 1, 2017 to January 12, 2022, the following were observed effluent non-compliances.

Non-Compliance Date	Non Compliance Type Description	Non-Compliance Category
4/30/2019	Late DMR Submission	Other Violations

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in July 1, 2017 to January 12, 2022, there were no observed enforcement actions.

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2021			
Sewage Sludge / Biosolids Production Information			
Hauled Off-Site			
Date (YEAR)	Tons Dewatered	% Solids	Dry Tons
January	23.58	11.15	2.626
February	10.35	12.04	1.246
March	9.90	11.60	1.148
April	20.68	12.50	2.582
May	32.39	11.81	3.825
June	11.91	12.31	1.466
July	34.84	12.27	4.278
August	0.00	0.00	0
September	11.29	11.45	1.293
October	23.12	11.22	2.597
November	25.03	12.16	3.048
Notes:			
Laurel Highlands Landfill; Jackson Township, Cambria County			
Sandy Run Landfill; Broadtop Township, Bedford County			
Jeff Allison Farm; Huston Township, Blair County			

3.5 Open Violations

No open violations existed as of January 2022.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Frankstown Branch Juniata River. The sequence of receiving streams that the Frankstown Branch Juniata River discharges into are the Juniata River and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Mifflintown MA (PWS ID #4340008) located approximately 83 miles downstream of the subject facility on the Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2020 Integrated List of All Waters (303d Listed Streams):

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life and fish consumption. The designated use has been classified as protected waters for trout stocking fishes (TSF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Frankstown Branch Juniata River station (WQN224). This WQN station is located approximately 1.7 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Frankstown Branch Juniata River station at Williamsburg, PA (USGS station number 1556000). This gauge station is located approximately 0.18 miles upstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 7.84 and the stream water temperature was estimated to be 22 C.

The hardness of the stream was estimated from the water quality network to be 136 mg/l CaCO₃.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data		
USGS Station Number	1556000	
Station Name	Frankstown Branch Juniata River at Williamsburg, PA	
Q710	47.8	ft ³ /sec
Drainage Area (DA)	291	mi ²
Calculations		
The low flow yield of the gauge station is:		
Low Flow Yield (LFY) = Q710 / DA		
LFY = (47.8 ft ³ /sec / 291 mi ²)		
LFY =	0.1643	ft ³ /sec/mi ²
The low flow at the subject site is based upon the DA of		
	291	mi ²
Q710 = (LFY@gauge station)(DA@Subject Site)		
Q710 = (0.1643 ft ³ /sec/mi ²)(291 mi ²)		
Q710 =	47.800	ft ³ /sec

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.331</u>
Latitude	<u>40° 27' 46.93"</u>	Longitude	<u>-78° 11' 46.31"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Frankstown Branch Juniata River (TSF)</u>	Stream Code	<u>16061</u>
NHD Com ID	<u>65607966</u>	RMI	<u>18.9</u>
Drainage Area	<u>291</u>	Yield (cfs/mi ²)	<u>0.1643</u>
Q ₇₋₁₀ Flow (cfs)	<u>47.8</u>	Q ₇₋₁₀ Basis	<u>StreamStats/Streamgauge</u>
Elevation (ft)	<u>291</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>11-A</u>	Chapter 93 Class.	<u>TSF, MF</u>
Existing Use	<u>Same as Chapter 93 class</u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Attaining Use(s) supports aquatic life and fish consumption</u>		
Cause(s) of Impairment	<u>Not applicable</u>		
Source(s) of Impairment	<u>Not applicable</u>		
TMDL Status	<u>Not applicable</u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u>7.84</u>	<u>Median Jul to Sept; WQN224</u>	
Temperature (°C)	<u>22</u>	<u>Median Jul to Sept; WQN224</u>	
Hardness (mg/L)	<u>136</u>	<u>Historical Median; WQN224</u>	
Other:	<u></u>	<u></u>	
Nearest Downstream Public Water Supply Intake	<u>Mifflintown MA</u>		
PWS Waters	<u>Juniata River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u>37</u>	Distance from Outfall (mi)	<u>83</u>

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	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)

5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity \left(\frac{lb}{day} \right) = (MGD)(Concentration)(8.34)$$

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chlorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1 (Modeling Point #1)	Type	Default	Input Value	Units
Stream Code	R		16061	
River Mile Index	R		18.9	miles
Elevation	R		837	feet
Latitude			40.462653	
Longitude			-78.196792	
Drainage Area	R		291	sq miles
Reach Slope	O		Default	ft/ft
Low Flow Yield	R	0.1	0.1643	cfs/sq mile
Potable Water Supply Withdrawal	O	0	Default	mgd
General Data 2 (Modeling Point #2)	Type	Default	Input Value	Units
Stream Code	R		16061	
River Mile Index	R		16.2	miles
Elevation	R		807	feet
Latitude			40.480592	
Longitude			-78.173146	
Drainage Area	R		346	sq miles
Reach Slope	O		Default	ft/ft
Low Flow Yield	R	0.1	0.1643	cfs/sq mile
Potable Water Supply Withdrawal	O	0	Default	mgd

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH₃-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH₃-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

- (a) a minimum concentration for DO in the discharge as 30-day average;
- (b) a 30-day average concentration for CBOD5 in the discharge;
- (c) a 30-day average concentration for the NH₃-N in the discharge;
- (d) 24-hour average concentration for NH₃-N in the discharge.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. **The toxics reviewed for reasonable potential were the following pollutants: TDS, chloride, bromide, sulfate, total copper, total lead, and total zinc.**

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

- (a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or 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.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \sum WLAs + \sum LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector A discharger. The supplement defines Sector A as a sewage facility is considered significant if it has a design flow of at least 0.4 MGD.

Phase 3 WIP Wastewater Supplement (Phase 3 WIP) itemizes Williamsburg Borough having a cap load flow of 0.4 MGD and a TMDL flow of 0.5 MGD. Refer to Table 4 of the Phase 3 WIP. Phase 3 WIP categorizes Williamsburg as a significant discharger.

Table 5 of the Phase 3 WIP (revised September 13, 2021) presents all NPDES permits for Significant Sewage dischargers with Cap Loads. The NPDES Permit No., phase, facility name, latest permit issuance date, expiration date, Cap Load compliance start date, TN and TP Cap Loads, and TN and TP Delivery Ratios are presented. In addition, if TN Offsets were incorporated into the TN Cap Loads when the permit was issued, the amount is shown; these Offsets will be removed from Cap Loads upon issuance of renewed permits to implement Section IV of this document (i.e., a facility may use Offsets for compliance but may not register them as credits).

The total nitrogen (TN) and total phosphorus (TP) cap loads itemized by Table 5 for the subject facility are as follows:

TN Cap Load (lbs/yr)	7,306
TN Delivery Ratio	0.88
TP Cap Load (lbs/yr)	974
TP Delivery Ratio	0.436

Expansions by any Significant Sewage discharger will not result in any increase in Cap Loads. Where non-significant facilities expand to a design flow of 0.4 MGD or greater, the lesser of baseline Cap Loads of 7,306 lbs/yr TN and 974 lbs/yr TP or existing performance will be used for permits, and the load will be moved from the Non-Significant sector load to the Significant Sewage sector load. If considered necessary for environmental protection, DEP may decide to move load from the Point Source Reserve to the Significant Sewage sector in the future.

The minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for Significant Sewage dischargers is 2/week.

This facility is subject to Sector A monitoring requirements. Monitoring shall be required at least 2x/wk.

Reporting

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30.

Facilities with NPDES permits must use DEP's eDMR system for reporting, except small flow treatment facilities. An Annual DMR must be submitted by the end of the Truing Period, November 28. As attachments to the Annual DMR a facility must submit a completed Annual Chesapeake Bay Spreadsheet, available through DEP's Supplemental Reports website, which contains an Annual Nutrient Monitoring worksheet and an Annual Nutrient Budget worksheet. This Spreadsheet will be submitted once per Compliance Year only, and reflect all nutrient sample results (for the period October 1 – September 30), Credit transactions (including the Truing Period) and Offsets applied during the Compliance Year.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.1.1 and 40 CFR 122.1.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

- a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
- b) a summary of changes from the existing NPDES permit to the proposed permit; and
- c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection and (b) Nitrogen Species and Phosphorus.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Williamsburg WWTP; PA0021539			
Parameter	Permit Limitation Required by ¹ :	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-3).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 69 lbs/day and 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 1/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 83 lbs/day and 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD. Since the TBEL is more stringent than TBEL, TBEL will apply.
UV disinfection	SOP	Monitoring:	The monitoring frequency is 1/day. The facility will be required to recording the UV dosage.
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised January 10, 2019), the facility will be required to have routine monitoring for UV transmittance, UV dosage, or UV intensity.
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 1x/wk as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (Table 6-3).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.331 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus			
Williamsburg WWTP; PA0021539			
Parameter	Permit Limitation Required by ¹ :	Recommendation	
Ammonia-Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as a calculation
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 2x/wk.
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	Effluent limits shall not exceed 7,306 lbs/yr
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Net Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	Effluent limits shall not exceed 974 lbs/yr
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Notes:			

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.331 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

Changes in Permit Monitoring or Effluent Quality		
Parameter	Existing Permit	Draft Permit
E.coli	No monitoring or effluent limits.	Due to EPA Triennial Review, monitoring shall be 1x/quarter.

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001, Latitude 40° 27' 45.00", Longitude 78° 11' 48.00", River Mile Index 18.9, Stream Code 16061

Receiving Waters: Frankstown Branch Juniata River (TSF)

Type of Effluent: Sewage Effluent

- The permittee is authorized to discharge during the period from Permit Effective Date through Permit Expiration Date.
- Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average Report Daily Max	Instantaneous 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
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	69	110	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	83	124	XXX	30.0	45.0	60	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Grab

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Ultraviolet light dosage (mjoules/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001, Latitude 40° 27' 45.00", Longitude 78° 11' 48.00", River Mile Index 18.9, Stream Code 16061

Receiving Waters: Frankstown Branch Juniata River (TSF)

Type of Effluent: Sewage Effluent

- The permittee is authorized to discharge during the period from Permit Effective Date through Permit Expiration Date.
- Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl -N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	7306	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	974	XXX	XXX	XXX	XXX	1/year	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Footnotes:

- See Part C for Chesapeake Bay Requirements.
- This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.
- The permittee is authorized to use 3,925lbs/year as Total Nitrogen (TN) offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets

must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 157 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- SBR Batch Discharge Condition
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: New and Reissuance Sewage Individual NPDES Permit Applications, rev January 6, 2020
<input type="checkbox"/>	Other: [redacted]

Attachment A

Stream Stats/Gauge Data

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 (mi ²)	Regulated ¹
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

26 Selected Streamflow Statistics for Streamgauge Locations in and near Pennsylvania

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

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

Streamgauge number	Period of record used in analysis ¹	Number of years used in analysis	1-day, 10-year (ft ³ /s)	7-day, 10-year (ft ³ /s)	7-day, 2-year (ft ³ /s)	30-day, 10-year (ft ³ /s)	30-day, 2-year (ft ³ /s)	90-day, 10-year (ft ³ /s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	² 1971–2008	38	28.2	109	151	131	172	153
01547500	³ 1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	² 1971–2000	25	142	151	206	178	241	223
01548005	³ 1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	² 1963–2008	46	520	578	1,020	678	1,330	919
01551500	³ 1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	² 1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	³ 1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	² 1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	³ 1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	² 1974–2008	35	—	—	—	112	266	129
01563200	³ 1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	² 1974–2008	35	384	415	519	441	580	493
01563500	³ 1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

Attachment B

WQM 7.0 Modeling Output Values

Toxics Management Spreadsheet Output Values

WQM 7.0 Effluent Limits

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
11A	16061	FRANKSTOWN BRANCH JUNIATA RIVER					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
18.900	Williamsburg	PA0021539	0.331	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
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
18.900	Williamsburg	4.59	50	4.59	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
18.900	Williamsburg	.86	25	.86	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
18.90	Williamsburg	25	25	25	25	5	5	0	0

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	18.900	837.00	291.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.164	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.00	7.84	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
Williamsburg	PA0021539	0.3310	0.3310	0.3310	0.000	16.00	7.25

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

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	16.200	807.00	346.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.164	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.00	7.84	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
		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	3.00	8.24	0.00	0.00			
NH3-N	25.00	0.00	0.00	0.70			

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
11A	16061	FRANKSTOWN BRANCH JUNIATA RIVER		
<hr/>				
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
18.900	0.331	21.936	7.827	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
102.997	0.953	108.089	0.492	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.24	0.140	0.26	0.812	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.209	5.060	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.335	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>
	(days)	(mg/L)	(mg/L)	(mg/L)
	0.034	2.23	0.26	7.96
	0.067	2.22	0.25	7.96
	0.101	2.21	0.24	7.96
	0.134	2.20	0.24	7.96
	0.168	2.19	0.23	7.96
	0.201	2.18	0.22	7.96
	0.235	2.16	0.22	7.96
	0.268	2.15	0.21	7.96
	0.302	2.14	0.21	7.96
	0.335	2.13	0.20	7.96

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
11A		16061				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)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
18.900	47.81	0.00	47.81	.5121	0.00210	.953	103	108.09	0.49	0.335	21.94	7.83
Q1-10 Flow												
18.900	43.51	0.00	43.51	.5121	0.00210	NA	NA	NA	0.47	0.353	21.93	7.83
Q30-10 Flow												
18.900	54.98	0.00	54.98	.5121	0.00210	NA	NA	NA	0.53	0.310	21.94	7.83

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.91	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		



Discharge Information

Instructions Discharge Stream

Facility: Williamsburg MA NPDES Permit No.: PA0021539 Outfall No.: 001

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

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
0.331	100	7.25						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1											
Total Dissolved Solids (PWS)	mg/L	332									
Chloride (PWS)	mg/L	63.7									
Bromide	mg/L	< 2									
Sulfate (PWS)	mg/L	57.8									
Fluoride (PWS)	mg/L										
Group 2											
Total Aluminum	µg/L										
Total Antimony	µg/L										
Total Arsenic	µg/L										
Total Barium	µg/L										
Total Beryllium	µg/L										
Total Boron	µg/L										
Total Cadmium	µg/L										
Total Chromium (III)	µg/L										
Hexavalent Chromium	µg/L										
Total Cobalt	µg/L										
Total Copper	mg/L	0.0062									
Free Cyanide	µg/L										
Total Cyanide	µg/L										
Dissolved Iron	µg/L										
Total Iron	µg/L										
Total Lead	mg/L	0.00145									
Total Manganese	µg/L										
Total Mercury	µg/L										
Total Nickel	µg/L										
Total Phenols (Phenolics) (PWS)	µg/L										
Total Selenium	µg/L										
Total Silver	µg/L										
Total Thallium	µg/L										
Total Zinc	mg/L	0.0698									
Total Molybdenum	µg/L										
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									



Stream / Surface Water Information

Williamsburg MA, NPDES Permit No. PA0021539, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: Frankstown Branch Juniata 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	016061	18.9	837	291			Yes
End of Reach 1	016061	16.2	807	346			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	18.9	0.1643										136	7.84		
End of Reach 1	16.2	0.1643										136	7.84		

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	18.9														
End of Reach 1	16.2														

Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

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