

Application Type Renewal  
Facility Type Municipal  
Major / Minor Major

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0080519  
APS ID 1006727  
Authorization ID 1414829

**Applicant and Facility Information**

Applicant Name	<u>Antrim Township Municipal Authority Franklin County</u>	Facility Name	<u>Antrim Township STP</u>
Applicant Address	<u>PO Box 130 10655 Antrim Church Road Greencastle, PA 17225-0130</u>	Facility Address	<u>13431 Worleytown Road Greencastle, PA 17255</u>
Applicant Contact	<u>Roger Nowell</u>	Facility Contact	<u>Roger Nowell</u>
Applicant Phone	<u>(717) 597-3818</u>	Facility Phone	<u>(717) 597-9798</u>
Client ID	<u>144135</u>	Site ID	<u>451969</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Antrim Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Franklin</u>
Date Application Received	<u>October 21, 2022</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>November 2, 2022</u>	If No, Reason	<u>Major Facility, 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)	April 5, 2024
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	April 17, 2024
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	April 17, 2024

### Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Antrim Township Municipal Authority WWTP located at 13431 Worleytown Road, Greencastle, PA 17255 in Franklin County, municipality of Antrim. The existing permit became effective on May 1, 2018 and expired on April 30, 2023. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on October 21, 2022.

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 1.2 MGD annual average design flow treatment facility. The hydraulic design flow is 1.9 MGD. On May 30, 2022, an upgrade consisting of rehabilitating the two ICEAS basins and addition of two additional ICEAS basins was completed. 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 Major Sewage Facility ( $\geq 1$  MGD and  $< 5$  MGD) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Franklin County Board of Commissioners and Antrim Township Board of Supervisors and the notice was received by the parties on July 8, 2022. 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 the Conococheague Creek. The sequence of receiving streams that the Conococheague Creek discharges into are Potomac 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 warm water fishes (WWF) and migratory fishes (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 Conococheague Creek is a Category 2 stream listed in the 2024 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports fish consumption, aquatic life, and recreational uses. 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:

- **DEP/EPA have discontinued monitoring for total dissolved solids, chloride, sulfate, and bromide. These parameters have been eliminated from monitoring.**
- **Due to the EPA triennial review, monitoring shall be required for E. Coli.**
- **Monitoring for PFAS parameters**

Sludge use and disposal description and location(s): Biosolids/Sewage Sludge disposed at Mountain View Reclamation in Antrim Township. Franklin 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: Antrim Township Municipal Authority

NPDES Permit # PA0080519

Physical Address: 13431 Worleytown Road  
Greencastle, PA 17225

Mailing Address: PO Box 130  
Greencastle, PA 17225

Contact: Roger Nowell  
Public Works Director  
[rnowell@twp.antrim.pa.us](mailto:rnowell@twp.antrim.pa.us)  
(717) 597-9798

Consultant: Nancy Adams  
Project Manager  
GHD  
[Nancy.adams@ghd.com](mailto:Nancy.adams@ghd.com)  
(717) 585-6355

### **1.2 Permit History**

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data
- WET Testing Data

## **2.0 Treatment Facility Summary**

### **2.1.1 Site location**

The physical address for the facility is 13431 Worleytown Road, Greencastle, PA 17225. 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

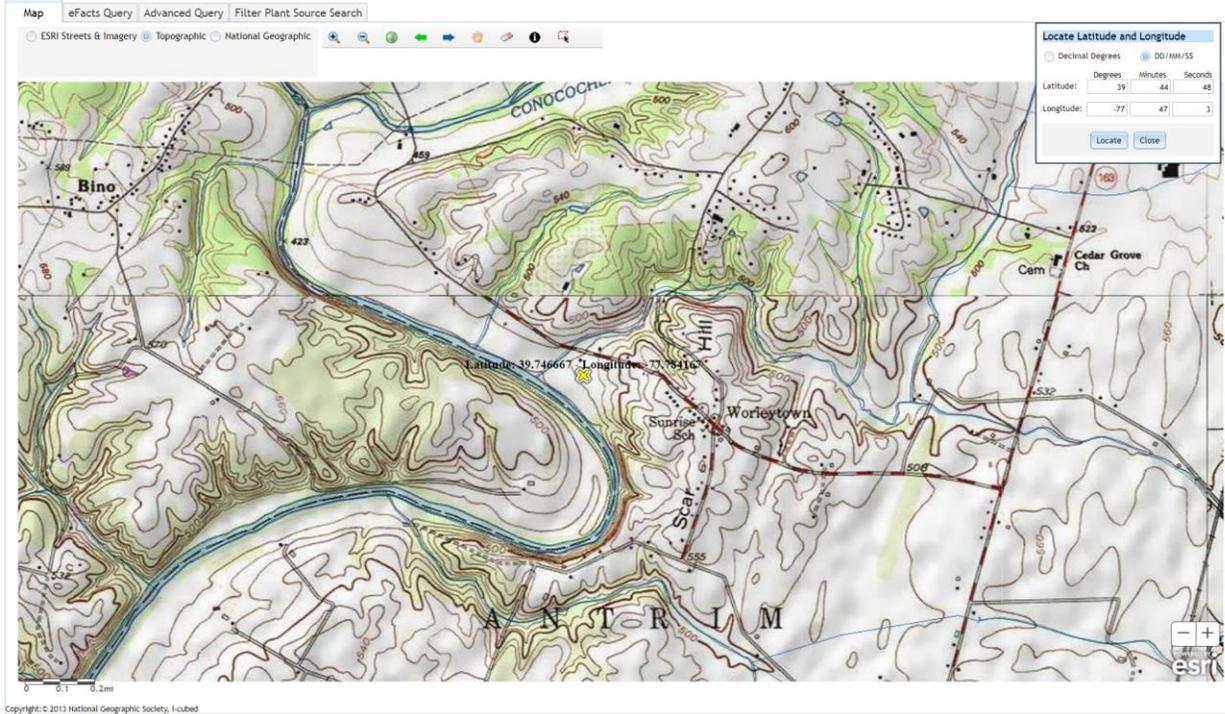
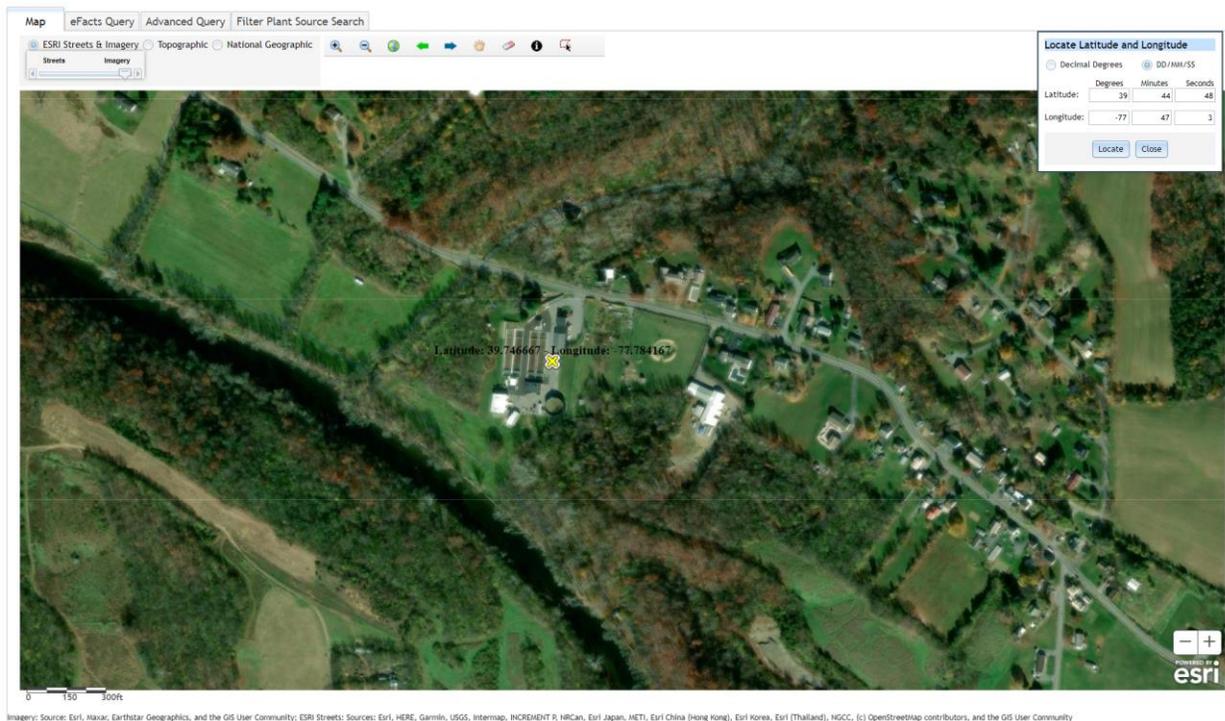


Figure 2: Aerial Photograph of the subject facility



**2.1.2 Sources of Wastewater/Stormwater**

The wastewater treatment plant receives all of their wastewater contributions from Antrim Township.

The table summarizes industrial/commercial users.

Summary of Industrial/Commercial Users										
Industrial User Name	Address	Categorical Industry (Yes/No)	Description of Industry and Waste Characteristics	Significant Industrial User (Yes/No)	Non-Significant Categorical Industrial User (Yes/No)	Has an industrial user permit been issued by the POTW/permittee (Yes/No)	Wastewater Flows			
							Process	NCCW	Sanitary	Total
Grove US, LLC	1565 Buchanan Trail E., Shady Grove, PA 17256	No	Manufacturer of mobile hydraulic cranes. Process operations include sheet metal cutting, forming, machining, welding, painting welded parts and assembly of crane parts into mobile hydraulic cranes.	Yes	No	Yes	4,000	0	7,000	11,000
Pete and Gerry's Organics, LLC	104 Commerce Ave., Greencastle, PA 17225	No	Receipt, washing and packaging of organic and free-range eggs; washing.	Yes	No	Yes	11,500	0	18,500	30,000
JLG Industries, Inc.	1080 Hykes Rd., Greencastle, PA 17225	Yes	Manufacturer of telescopic material handler, mobile elevated work platform and rollback automotive truck body components. Process operations include metal fabrication including metal cutting, machining, welding, parts sanding and blasting and parts storage.	Yes	No	Yes	4,200	0	2,300	6,500
Mountain View Reclamation	9446 Letzburg Rd., Greencastle, PA 17225	No	Non-hazardous, municipal solid waste landfill	Yes	No	Yes	38,800	0	200	39,000
Westlake Royal Stone, LLC	181 Antrim Commons Dr., Greencastle, PA 17225	No	Manufacturer of concrete cultured stone veneer. Cement mixing, molding, painting. Finished molded cement is de-molded, packaged and prepared for shipment. Process currently recycles 100% of wastewater; IU Permit is maintained in case of discharge.	Yes	No	Yes	2,300	0	3,500	5,800

The facility did receive hauled-in wastes in the past three years. The type of hauled in wastes received were residual wastes (i.e. landfill leachate). The annual average volume received was 1,127,000 gallons. The facility anticipates the same type of hauled-in wastes over the next five years.

The facility received sludge from Quincy Township from October 1, 2021 to September 30, 2022. Approximately 49,000 gallons was received.

The facility has the following outfall information for stormwater.

<b>Outfall No.</b>	<u>S01</u>	<b>Design Flow (MGD)</b>	<u></u>
<b>Latitude</b>	<u>39° 44' 42"</u>	<b>Longitude</b>	<u>-77° 47' 12"</u>
<b>Wastewater Description:</b>	<u>Stormwater</u>		

**2.2 Description of Wastewater Treatment Process**

The subject facility is a 1.2 MGD average annual design flow facility. The subject facility treats wastewater using a 4-basin Intermittent Cycle Extended Aeration (ICEAS) which is an advanced sequencing batch reactor (SBR), a UV unit for disinfection, and a dissolved oxygen addition prior to discharge through the outfall. Sludge from the SBR is aerobically

digested then pumped to an automated screw press for dewatering. Dewatered sludge is hauled to the landfill for final disposal.

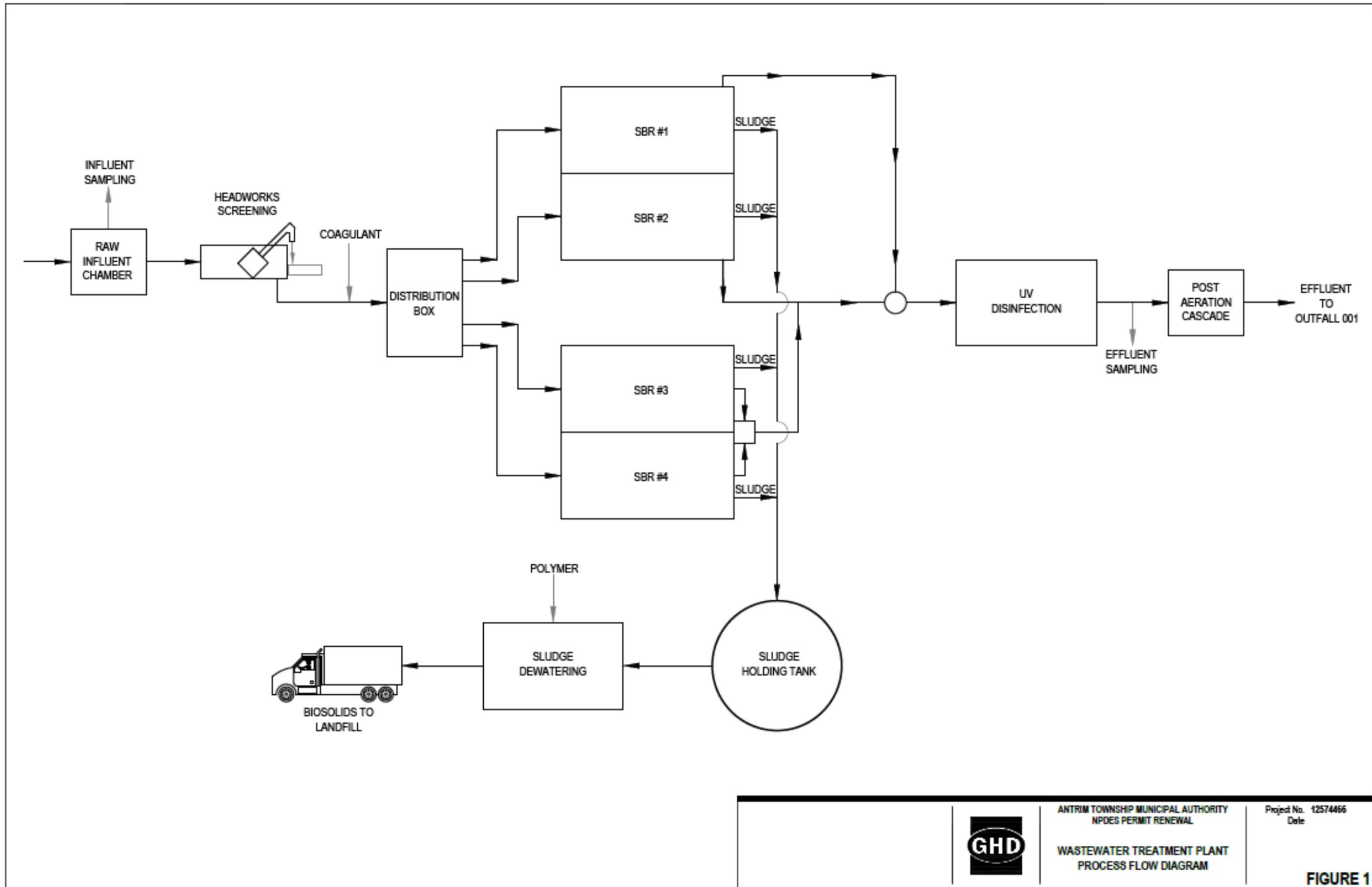
The facility is being evaluated for flow, pH, dissolved oxygen, CBOD5, TSS, dissolved solids, fecal coliform, UV, nitrogen species, phosphorus, sulfate, chloride, and bromide.. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

<b>Treatment Facility Summary</b>				
<b>Treatment Facility Name:</b> Antrim Township Municipal Authority STP				
<b>WQM Permit No.</b>		<b>Issuance Date</b>		
2898403		02/21/2020		
2898403 A-2		01/18/2018		
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Sewage	Secondary With Total Nitrogen Reduction	Sequencing Batch Reactor	Ultraviolet	1.2
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
1.9	3502	Not Overloaded	Combination	Landfill

A plan view drawing of the facility and a process flow diagram are shown in the next two figures.





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Plot Date: 02 October 2022 9:32 AM



ANTRIM TOWNSHIP MUNICIPAL AUTHORITY  
NPDES PERMIT RENEWAL  
WASTEWATER TREATMENT PLANT  
PROCESS FLOW DIAGRAM

Project No. 12574466  
Date

FIGURE 1

**2.3 Facility Outfall Information**

The facility has the following outfall information for wastewater.

<b>Outfall No.</b>	<u>001</u>	<b>Design Flow (MGD)</b>	<u>1.2</u>
<b>Latitude</b>	<u>39° 44' 45.00"</u>	<b>Longitude</b>	<u>-77° 47' 9.00"</u>
<b>Wastewater Description:</b>	<u>Sewage Effluent</u>		

**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.

- Aluminum chloride for phosphorus removal
- Polymer at the sludge screw press

**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 39° 44' 45.00", Longitude 77° 47' 9.00", River Mile Index 3.83, Stream Code 59346

Receiving Waters: Conococheague Creek (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **January 1, 2019** through **April 30, 2023**.
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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	250	400 Wkly Avg	XXX	25.0	40.0 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	300	450 Wkly Avg	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Dissolved Solids	XXX	Report	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab

Outfall001 , Continued (from January 1, 2019 through April 30, 2023)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ultraviolet light intensity (mW/cm <sup>2</sup> )	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	20	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Sulfate, Total	XXX	Report	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Chloride	XXX	Report	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Bromide	XXX	Report	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite

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

at discharge from facility

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

I. B. For Outfall 001, Latitude 39° 44' 45.00", Longitude 77° 47' 9.00", River Mile Index 3.83, Stream Code 59346

Receiving Waters: Conococheague Creek (WWF)

Type of Effluent: Sewage Effluent

- The permittee is authorized to discharge during the period from **May 1, 2018** through **April 30, 2023**.
- 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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> 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	24-Hr Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	21918	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2922	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 discharge from facility

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.

### **3.0 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.

01/21/2020:

- The stormwater inspection included inspection of stormwater outfall SO1. The outfall was not discharging at the time of inspection.
- The facility had an on-site fueling station. Spill kits were not located on site.
- An open five-gallon bucket containing oil was observed in the maintenance shop. The open five-gallon bucket containing a green liquid was observed in the sludge dewatering building.

04/22/2020:

- The inspection was completed to follow up on complaint that was submitted on 4/16/2020. The complaint stated that excess foam was present in the Antrim Township STP's discharge at outfall 001. John Clairmont (Certified Operator) stated that the plant had not experienced any upsets recently and that samples have been within their permitted limits. Contact was made with the complainant on 4/22/2020 via phone call. Complainant stated that he observed excess foam in the sewage plant's discharge during January 2020.

04/30/2020:

- The facility was contacted during Covid-19. The operator stated that there were no staffing issues related to Covid-19. The facility was operating under normal hours. Operators were on call 24 hours a day. No bypasses or storm mode entries occurred recently. All treatment units were operable. No treatment units were shut down for maintenance since last inspection. Spare parts were kept on site. No sampling/analysis issues. Sampling was being performed as usual. No operational changes. No SSOs or other emergencies.

09/22/2020:

- DEP received notification of home heating oil spill at a residence in Antrim Township. Franklin County Emergency Management reported that an estimated 50 gallons of home heating oil leaked from a holding tank and entered the sanitary sewer collection system through a basement sump pump. The spill occurred late evening, September 20, 2020. On September 21, Roger Nowell said that the township was aware of the problem. The facility turned off the pumps at the pump station that transfers sewage from the effected part of the collection system. Roger confirmed that there was an accumulation of fuel oil at the pump station. There was also a minor fuel odor at the treatment plant and a light petroleum sheen in the pre-react tanks of the SBR units. DEP recommended the facility coordinate with the Franklin County EMA on a plan to have the as much fuel pumped out from the pump station well as possible. Roger notified the homeowner that their basement sump pump needs to be disconnected from the sanitary sewer system and that the township would be performing an inspection to confirm the disconnection was made.

12/21/2020:

- An administrative review of Antrim Township Municipal Authority STP Chesapeake Bay nutrient monitoring for the compliance year 2019-2020, was conducted. The facility's TP annual net mass load of 2,104 pounds was below their permit TP cap load limit of 2,922 pounds. The facility's TN annual net mass load of < 14,869 pounds was below their permit TP cap load limit of 21,918 pounds.

07/28/2021:

- DEP discussed the facility's current upgrade process. The upgrades were outlined in WQM Permit No: 2898403 A-3. The facility was currently in Phase 1 of the treatment plant upgrade which was scheduled to be completed by the end of August 2021. Phase 1 included the following upgrades: Two new SBR basins in addition to the two existing SBR basins, new programming, new aerators, and a new generator. Phase 2 was planned to address the facility's current SBR tanks of the upgrade. This was scheduled to begin in September 2021 and included the following: Upgrade existing SBR tanks, new decanters, new diffusers, new mixers, new blowers, new probes, new actuators, new waste pumps, new wastelines, new air lines, new MCC panel, and New PLC. The upgrade will also include a new headworks which will include the following: New building, new bar screen, solids collection, and a 4-way splitter box

05/03/2023:

- DEP advised the facility to (1) fill in Beneficial Use Information for the November 2022 Sewage Sludge / Biosolids Production and Disposal supplemental report and future supplemental reports. (2) review and document an annual review of the PPC Plan. (3) ensure the high-level float is operable for the potable water storage tank

### **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 1.169 MGD in January 2024. The hydraulic design capacity of the treatment system is 1.9 MGD.

The off-site laboratory used for the analysis of the parameters was ALS located at 301 Fulling Mill Road, Middletown, PA 17057 and Franklin Analytical located at 419 Limekiln Drive, Chambersburg, PA 17201 and Fairway Labs located at 2019 9<sup>th</sup> Avenue, Altoona, PA 16603.

The off-site laboratory used for the WET analysis of the parameters was EnviroScience, Inc., located at 5070 Stow Road, Stow, OH 44224.

DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	1.169	0.722	0.592	0.597	0.593	0.592	0.601	0.575	0.574	0.614	0.727	0.579
Flow (MGD) Daily Maximum	2.249	1.353	1.019	0.722	0.775	0.703	0.793	0.641	0.675	0.787	1.286	0.678
pH (S.U.) Daily Minimum	7.04	7.23	7.19	7.22	7.20	7.18	7.23	7.17	7.18	6.95	6.69	6.92
pH (S.U.) Daily Maximum	7.51	7.51	7.56	7.62	7.97	7.77	7.49	7.49	7.52	7.42	7.30	7.33
DO (mg/L) Daily Minimum	9.3	8.4	8.2	7.5	7.2	7.3	6.8	7.6	8.3	8.8	9.3	9.5
CBOD5 (lbs/day) Average Monthly	< 26	< 15	< 11	< 12	< 11	< 13	< 14	< 10	< 10	< 10	< 13	< 10
CBOD5 (lbs/day) Weekly Average	< 50	< 19	< 17	15	< 12	< 20	< 19	< 10	< 12	< 12	18	< 11
CBOD5 (mg/L) Average Monthly	< 2.4	< 2.5	< 2.1	< 2.5	< 2.1	< 2.5	< 2.7	< 2.0	< 2.1	< 2.0	< 2.2	< 2.1
CBOD5 (mg/L) Weekly Average	< 3.2	< 3.0	< 2.2	2.9	< 2.4	< 3.9	< 4.0	< 2.0	< 2.3	< 2.1	2.7	< 2.2
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	2630	1756	1687	1705	1633	1357	1519	1413	1409	1325	1625	1336
BOD5 (lbs/day) Raw Sewage Influent   Daily Maximum	6875	2022	2643	2464	2339	1606	2735	1644	1585	1691	2570	1719
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	256	297	305	343	324	267	296.0	292	294	260	299	273
TSS (lbs/day) Average Monthly	33	14	< 15	13	< 12	21	17	16	15	29	< 16	21
TSS (lbs/day) Raw Sewage Influent   Average Monthly	2074	1705	1992	1742	1927	1963	1843	1971	1599	1601	1455	1673
TSS (lbs/day) Raw Sewage Influent   Daily Maximum	5308	2404	3059	2271	2711	2293	2302	2494	1856	2057	1775	2682

**NPDES Permit Fact Sheet  
Antrim Township STP**

**NPDES Permit No. PA0080519**

TSS (lbs/day) Weekly Average	61	17	< 18	15	15	40	19	17	19	50	30	45
TSS (mg/L) Average Monthly	3.3	2.2	< 2.8	2.7	< 2.5	4.2	3.4	3.3	3.2	5.5	< 2.8	4.4
TSS (mg/L) Raw Sewage Influent   Average Monthly	208	280	359	350	381	400	362	406	333	313	266	341
TSS (mg/L) Weekly Average	6.3	2.5	3.5	2.8	3.0	8.3	3.8	3.5	4.0	9.8	4.5	9.8
Total Dissolved Solids (lbs/day) Daily Maximum		5988.4			7243.9			5276.2			6233	
Total Dissolved Solids (mg/L) Daily Maximum		1300			1350			1010.0			1290	
Fecal Coliform (No./100 ml) Geometric Mean	< 5	13	12	< 12	15	11	< 10	8.0	< 6	< 4	< 2	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	165	25	80	163	40	27	36	17.0	20	22	6	6
UV Intensity (mW/cm <sup>2</sup> ) Daily Minimum	0.485	0.707	0.76	0.628	0.742	0.615	0.547	0.635	1.039	1.135	1.060	1.355
Nitrate-Nitrite (mg/L) Average Monthly	< 1.488	< 1.516	< 1.548	< 1.603	< 2.611	< 4.096	< 5.04	3.944	< 2.608	< 1.96	< 3.06	< 3.09
Nitrate-Nitrite (lbs) Total Monthly	< 502	< 289	< 259	< 291	< 393	< 625	< 796	< 572	< 388	< 296	< 551	< 428
Total Nitrogen (mg/L) Average Monthly	< 3.585	< 2.61	< 2.592	< 3.474	< 4.924	< 6.958	< 7.074	< 5.409	< 4.003	< 3.51	< 4.24	< 4.5
Total Nitrogen (lbs) Effluent Net   Total Monthly	< 1140	< 494	< 431	< 538	< 745	< 1061	< 1110	< 784	< 595	< 533	< 752	< 622
Total Nitrogen (lbs) Total Monthly	< 1140	< 494	< 431	< 538	< 745	< 1061	< 1110	< 784	< 595	< 533	< 752	< 622
Total Nitrogen (lbs) Effluent Net   Total Annual					< 8606							
Total Nitrogen (lbs) Total Annual					< 8606							

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Ammonia (lbs/day) Average Monthly	< 6	< 3	< 3	< 3	< 3	< 3	< 3.0	< 3	< 2	< 3	< 3	< 2
Ammonia (mg/L) Average Monthly	< 0.539	< 0.5	< 0.5	0.593	< 0.56	< 0.597	< 0.5	< 0.529	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia (lbs) Total Monthly	< 176	< 94	< 83	< 92	< 85	< 91	< 79	< 77	< 74	< 76	< 86	< 69
Ammonia (lbs) Total Annual					< 984							
TKN (mg/L) Average Monthly	< 2.1	< 1.09	< 1.04	< 1.871	< 2.313	< 2.862	< 2.03	< 1.46	< 1.39	1.55	< 1.18	< 1.41
TKN (lbs) Total Monthly	< 638	< 204	< 172	< 291	< 351	< 436	< 314	< 212	< 207	236	< 201	< 195
Total Phosphorus (lbs/day) Average Monthly	7	4	5	5	5	5	5	6	5	5	5	5
Total Phosphorus (mg/L) Average Monthly	0.7	0.7	0.8	1.0	1.0	0.9	1.0	1.2	1.1	1.1	1.0	1.0
Total Phosphorus (lbs) Effluent Net   Total Monthly	232	131	138	148	146	144	162	175	163	164	166	135
Total Phosphorus (lbs) Total Monthly	232	131	138	148	146	144	162	175	163	164	166	135
Total Phosphorus (lbs) Effluent Net   Total Annual					1821							
Total Phosphorus (lbs) Total Annual					1821							
Sulfate (lbs/day) Daily Maximum		70.2			332.7			288.9			285.1	
Sulfate (mg/L) Daily Maximum		61.3			62.0			55.3			59.0	
Chloride (lbs/day) Daily Maximum		2745.4			3181.9			2711.2			2652.6	
Chloride (mg/L) Daily Maximum		596			593			519.0			549.0	
Bromide (lbs/day) Daily Maximum		< 9.21			< 10.732			< 10.45			< 9.66	

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Bromide (mg/L) Daily Maximum		< 2.00			< 2.0			< 2.00			< 2.00	
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**3.2.1 Chesapeake Bay Truing**

The table summarizes the facility’s compliance/noncompliance with Chesapeake Bay cap loads.

Chesapeake Bay Annual Nutrient Summary								
Antrim Township								
PA0080519								
Year for Truing Period (Oct 1 - Sept 30)	Nitrogen (lbs)			Phosphorus (lbs)			Compliant with Permit Limits (Yes/No)	
	Annual Total Mass Load	Lbs Credit Purchased	Annual Net Mass Load	Annual Total Mass Load	Lbs Credit Purchased	Annual Net Mass Load	Nitrogen	Phosphorus
2017	15,755		15,755	1,247		1,247	Yes	Yes
2018	17,862		17,862	2,324		2,324	Yes	Yes
2019	25,102	3,344	21,758	2,232		2,232	Yes	Yes
2020	14,869		14,869	2,104		2,104	Yes	Yes
2021	17,768		17,768	2,016		2,016	Yes	Yes
2022	12,961		12,961	2,531		2,531	Yes	Yes
2023	8,606		8,606	1,821		1,821	Yes	Yes
Notes:								
Nitrogen Annual Net Mass CAP Load =			21,915	lbs				
Phosphorus Annual Net Mass CAP Load =			2,922	lbs				

**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 January 1, 2019 to April 2, 2024, there were no observed effluent non-compliances.

**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 January 1, 2019 to April 2, 2024, 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.

2023			
Sewage Sludge / Biosolids Production Information			
Hauled Off-Site			
2023	Tons Dewatered	% Solids	Dry Tons
January	175.4	15.66	27.38
February	285.11	16.88	48.56
March	109.11	17.34	18.93
April	113.89	16.47	18.72
May	111.02	15.7	17.48
June	88.76	15.62	13.86
July	87.29	18.65	16.581
August	75.24	18.34	13.586
September	96.47	16.72	16.077
October	83.31	16.72	13.801
November	128.28	15.35	19.676
December	156.85	15.13	23.665
Notes:			
Biosolids/Sewage Sludge disposed at Mountain View Reclamation in Antrim Township. Franklin County			

**3.5 Open Violations**

No open violations existed as of April 2024.

**4.0 Receiving Waters and Water Supply Information Detail Summary**

**4.1 Receiving Waters**

The receiving waters has been determined to be the Conococheague Creek. The sequence of receiving streams that the Conococheague Creek discharges into are Potomac River which eventually drains into the Chesapeake Bay.

**4.2 Public Water Supply (PWS) Intake**

The closest PWS to the subject facility is City of Hagerstown, MD located approximately 24 miles downstream of the subject facility on the Potomac 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 2024 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 2024 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. This stream is an attaining stream that supports fish consumption, aquatic life, and recreational uses. The designated use has been classified as protected waters for warm water fishes (WWF) 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 gauge station to the subject facility is the Conococheague Creek at Fairview, MD (USGS station number 01614500). This gauge station is located approximately 6 miles downstream of the subject facility.

For WQM modeling, default values for pH and stream water temperature data were used. The pH value used was 7 and the stream water temperature used was 20 C.

The hardness of the stream was estimated by collecting three samples upstream of the facility. The average sampling result was 245 mg/l CaCO<sub>3</sub>.

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

Gauge Station Data		
USGS Station Number	01614500	
Station Name	Conococheague Creek at Fairview, MD	
Q710	55 ft <sup>3</sup> /sec	
Drainage Area (DA)	494 mi <sup>2</sup>	
<b>Calculations</b>		
The low flow yield of the gauge station is:		
Low Flow Yield (LFY) = Q710 / DA		
LFY = ( 55 ft <sup>3</sup> /sec / 494 mi <sup>2</sup> )		
LFY =	0.1113	ft <sup>3</sup> /sec/mi <sup>2</sup>
The low flow at the subject site is based upon the DA of		
	489	mi <sup>2</sup>
Q710 = (LFY@gauge station)(DA@Subject Site)		
Q710 = (0.1113 ft <sup>3</sup> /sec/mi <sup>2</sup> )(489 mi <sup>2</sup> )		
Q710 =	54.443	ft <sup>3</sup> /sec

**4.6 Summary of Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>1.2</u>
Latitude	<u>39° 44' 43.09"</u>	Longitude	<u>-77° 47' 7.12"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Conococheague Creek (WWF)</u>	Stream Code	<u>415</u>
NHD Com ID	<u>49469342</u>	RMI	<u>25.8</u>
Drainage Area	<u>489</u>	Yield (cfs/mi <sup>2</sup> )	<u>0.1113</u>
Q <sub>7-10</sub> Flow (cfs)	<u>54.443</u>	Q <sub>7-10</sub> Basis	<u>StreamStats/Streamgauge</u>
Elevation (ft)	<u>415</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>13-C</u>	Chapter 93 Class.	<u>WWF, MF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Attaining Use(s) supports fish consumption, aquatic life, and recreational uses</u>		
Cause(s) of Impairment	<u>Not appl</u>		
Source(s) of Impairment	<u>Not appl</u>		
TMDL Status	<u>Not appl</u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u>7</u>	<u>Default value</u>	
Temperature (°C)	<u>20</u>	<u>Default value</u>	
Hardness (mg/L)	<u>245</u>	<u>NPDES application; average of 3 grab samples.</u>	
Other:	<u></u>	<u></u>	
Nearest Downstream Public Water Supply Intake	<u>City of Hagerstown, MD</u>		
PWS Waters	<u>Potomac River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u></u>	Distance from Outfall (mi)	<u>24</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 <sub>5</sub>	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.

<b>General Data 1</b>	<b>(Modeling Point #1)</b>	<b>(Modeling Point #2)</b>	<b>Units</b>
Stream Code	59346	59346	
River Mile Index	25.8	22.52	miles
Elevation	415	403	feet
Latitude	39.746667	39.725249	
Longitude	-77.784167	-77.798535	
Drainage Area	489	496	sq miles
Low Flow Yield	0.111	0.111	cfs/sq mile

### **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 (NH<sub>3</sub>-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 NH<sub>3</sub>-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 NH<sub>3</sub>-N in the discharge;
- (d) 24-hour average concentration for NH<sub>3</sub>-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 pollutants in Groups 1 through 5.

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)**

Whole effluent toxicity is the aggregate toxic effect from a facility's wastewater discharge on aquatic organisms. WET measures the effect of wastewater effluent on an organisms' ability to survive, grow, and reproduce. WET testing is either acute or chronic. Acute testing measures lethality, the ability for an organism to survive after no more than 96 hours of exposure to an effluent. Chronic tests measures both lethality, immobility, and sublethal endpoints to exposures ranging longer than 96 hours and up to 8 days.

WET is required if the applicant satisfies any one of the following conditions.

- (a) Major sewage facilities with an average annual design flow greater than or equal to 1.0 MGD (25 Pa. Code § 92a.27(a)(1)(i)).
- (b) Sewage facilities with EPA-approved pretreatment programs or will be required in the permit to develop a program (25 Pa. Code § 92a.27(a)(1)(i)).
- (c) Other facilities that are considered candidates for WET testing by one or more of the factors contained in 25 Pa. Code § 92a.27(a)(2).

**5.3.3.1 WET Tests Review**

The in-stream waste concentration and dilution series was estimated using partial mixing factor factors from Toxics Management Spreadsheet, the design flow rate for the facility, and the Q710.

The proposed NPDES permit shall utilize a chronic instream waste concentration of XX%. The complete dilution series will be 1%, 3%, 30%, 60%, and 100%.

The derivation is shown in the calculations.

Whole Effluent Toxicity (WET)				
For Outfall 001, <b>Chronic</b> WET Testing was completed:				
X	For the permit renewal application (4 tests).			
	Quarterly throughout the permit term.			
	Quarterly throughout the permit term and a TIE/TRE was conducted.			
	Other:			
The dilution series used for the tests was: 100%, 60%, 30%, 3%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 24%.				
<b><u>Summary of Four Most Recent Test Results</u></b>				
<i>(NOTE – Enter results into one table, depending on which data analysis method was used).</i>				
<b><u>TST Data Analysis</u></b>				
<i>(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).</i>				
Test Date	Ceriodaphnia Results (Pass/Fail)		Pimephales Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
11/3/2020	Pass	Pass	Pass	Pass
11/22/2021	Pass	Pass	Pass	Pass
6/28/2022	Pass	Pass	Pass	Pass
11/7/2023	Pass	Pass	Pass	Pass
* A “passing” result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value (“T-Test Result”) is greater than the critical t value. A “failing” result is exhibited when the calculated t value (“T-Test Result”) is less than the critical t value.				
Is there reasonable potential for an excursion above water quality standards based on the results of these tests? <i>(NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).</i> YES/NO				
<b>Comments:</b>				
<b>All WET test passed. No reasonable potential.</b>				

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<b>Data</b>			
PMFa =	0.143		
PMFc =	0.988		
Qd =	1.2	MGD	
Q710 =	54.443	cfs	

**Step 1: Determine IWC - Acute (IWCa)**

$IWCa = [(Qd \times 1.547) / ((Q7-10 \times PMFa) + (Qd \times 1.547))] \times 100$

IWCa =

Is IWCA < 1%  (Yes- acute tests required; No- chronic test required)

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

Type of Test for Permit Renewal:

Chronic tests

**Step 2a: Determine Target IWCa (If acute tests required)**

$TIWCa = IWCa / 0.3$

TIWCa =

**Step 2b: Determine Target IWCC (If chronic tests required)**

$ICCC = [(Qd \times 1.547) / ((Q7-10 \times PWFc) + (Design Flow MGD \times 1.547))] \times 100$

ICCC =

**Step 3: Determine Dilution Series**

Dilution Series =

WET Limits

Has reasonable potential been determined?

Will WET limits be established in the permit?

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

Not applicable

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

Not applicable

## **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.

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)	21,918
TN Delivery Ratio	0.987
TP Cap Load (lbs/yr)	2,922
TP Delivery Ratio	0.802

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/week.**

#### *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, (b) Nitrogen Species and Phosphorus, and (c) Chapter 92a.61 targeted parameters.

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Antrim WWTP, PA0080519			
Parameter	Permit Limitation Required by <sup>1</sup> :	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 2x/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 250 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 2x/week as a 24-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 300 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.
UV disinfection	SOP	Monitoring:	The monitoring frequency is 1/day. The facility will be required to recording the UV intensity.
		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 2x/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).

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 1.2 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			
Antrim WWTP, PA0080519			
Parameter	Permit Limitation Required by <sup>1</sup> :	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	Anti-backsliding	Monitoring:	The monitoring frequency shall be 2x/wk as a 24-hr composite sample
		Effluent Limit:	Effluent limits shall not exceed 20 lbs/day and 2.0 mg/l as an average monthly.
		Rationale:	The current permit included a limit for phosphorus since the discharge contributes more than 0.25% of the total point source phosphorus loading at the point of discharge (Implementation Guidance for Section 95.9 Phosphorus discharges to Free Flowing Streams; Document # 391-2000-018). Due to anti-backsliding, the current permit shall continue to the proposed permit.
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation.
		Effluent Limit:	Effluent limits should not exceed 21,918 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 should not exceed 2,922 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 1.2 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

**6.1.3.1 Implementation of Regulation- Chapter 92a.61**

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth.

Based upon DEP policy directives the following pollutants shall be monitored:

- Consistent with DEP Management directives issued on March 22, 2021 and in conjunction with EPA’s 2017 Triennial Review, monitoring for E. Coli shall be required. The monitoring frequency is based upon flow rate.
- Consistent with DEP Management directives issued on February 5, 2024, monitoring for PFAS parameters shall be required. The recommended monitoring frequency is quarterly. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

**6.1.3.2 Summary of Parameters Monitored Under Chapter 92a.61**

Summary of Proposed NPDES Parameter Details for pollutants monitored under Chapter 92a.61 Antrim WWTP, PA0080519			
Parameter	Permit Limitation Required by <sup>1</sup> :	Recommendation	
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.
PFOA	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFOS parameters.
PFOS	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFOS parameters.
HFPO-DA	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFOS parameters.
PFBS	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/quarter as a grab sample (SOP).
		Effluent Limit:	No effluent limit requirement
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised February 5, 2024) and under the authority of Chapter 92a.61, the facility will be required to monitor for PFOS parameters.
Notes:			
The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees must enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.			

### **6.1.3.3 Summary of Toxics Monitoring/Limits**

No monitoring or effluent limits for toxics.

### **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.

- **DEP/EPA have discontinued monitoring for total dissolved solids, chloride, sulfate, and bromide. These parameters have been eliminated from monitoring.**
- **Due to the EPA triennial review, monitoring shall be required for E. Coli.**
- **Monitoring for PFAS parameters**
- **The previous Fact Sheet used a river mile index (RMI) of 3.83. This represents the distance of the facility to the Maryland border. This Fact Sheet utilized a RMI of 25.8. This is the distance between the facility and the mouth of the river. The gauge station in Maryland was used to estimate the drainage area. It was adjusted slightly from 494 square miles to 497 square miles to use the Water Quality Modeling tool.**

**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 39° 44' 45.00", Longitude 77° 47' 9.00", River Mile Index 25.8, Stream Code 59346

Receiving Waters: Conococheague Creek (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from Permit Effective Date through Permit Expiration Date.
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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	250	400	XXX	25.0	40.0 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	300	450	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ultraviolet light intensity (mW/cm <sup>2</sup> )	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	20	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

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 39° 44' 45.00", Longitude 77° 47' 9.00", River Mile Index 25.8, Stream Code 59346

Receiving Waters: Conococheague Creek (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> 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	21918	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2922	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.

**6.3.2 Summary of Proposed Permit Part C Conditions**

The subject facility has the following Part C conditions.

- SBR Batch Discharge Condition
- UV Monitoring Conditions
- Peak Flow Management Plan
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoons
- Whole Effluent Toxicity – No Permit Limits
- Stormwater Requirements
- POTW Pretreatment Program Implementation

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, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 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, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 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, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 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, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]

# Attachment A

## Stream Stats/Gauge Data

16 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

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; mi<sup>2</sup>, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi <sup>2</sup> )	Regulated <sup>1</sup>
01614000	Back Creek near Jones Springs, W.Va.	39.512	-78.037	235	N
01614090	Conococheague Creek near Fayetteville, Pa.	39.930	-77.439	5.05	N
01614500	Conococheague Creek at Fairview, Md.	39.716	-77.825	494	N
01616500	Opequon Creek near Martinsburg, W.Va.	39.424	-77.939	273	N
01617000	Tuscarora Creek above Martinsburg, W.Va.	39.470	-77.971	11.3	N
01617800	Marsh Run at Grimes, Md.	39.515	-77.777	18.9	N
01618000	Potomac River at Shepherdstown, W.Va.	39.435	-77.801	5,939	N
01619000	Antietam Creek near Waynesboro, Pa.	39.716	-77.607	93.5	N
01619500	Antietam Creek near Sharpsburg, Md.	39.450	-77.730	281	LF
01637500	Catoctin Creek near Middletown, Md.	39.427	-77.556	66.9	N
01639000	Monocacy River at Bridgeport, Md.	39.679	-77.235	173	N
01639140	Piney Creek near Taneytown, Md.	39.661	-77.221	31.3	N
01639500	Big Pipe Creek at Bruceville, Md.	39.612	-77.237	102	N
01640500	Owens Creek at Lantz, Md.	39.677	-77.464	5.93	N
01640965	Hunting Creek near Foxville, Md.	39.620	-77.466	2.14	N
01640970	Hunting Creek Tributary near Foxville, Md.	39.628	-77.462	4.01	N
01641000	Hunting Creek at Jimtown, Md.	39.594	-77.397	18.4	LF
01641500	Fishing Creek near Lewistown, Md.	39.527	-77.467	7.29	N
01642500	Linganore Creek near Frederick, Md.	39.415	-77.333	82.3	LF
01643000	Monocacy River at Jug Bridge near Frederick, Md.	39.403	-77.366	817	N
01643500	Bennett Creek at Park Mills, Md.	39.294	-77.407	62.8	N
03007800	Allegheny River at Port Allegany, Pa.	41.819	-78.293	248	N
03008000	Newell Creek near Port Allegany, Pa.	41.895	-78.349	7.79	N
03009680	Potato Creek at Smethport, Pa.	41.810	-78.430	160	N
03010500	Allegheny River at Eldred, Pa.	41.963	-78.386	550	N
03010655	Oswayo Creek at Shinglehouse, Pa.	41.962	-78.198	98.7	N
03011020	Allegheny River at Salamanca, N.Y.	42.156	-78.715	1,608	N
03011800	Kinzua Creek near Guffey, Pa.	41.766	-78.719	38.8	N
03012550	Allegheny River at Kinzua Dam, Pa.	41.841	-79.012	2,180	Y
03013000	Conewango Creek at Waterboro, N.Y.	42.171	-79.069	290	N
03014500	Chadakoin River at Falconer, N.Y.	42.113	-79.204	194	Y
03015000	Conewango Creek at Russell, Pa.	41.938	-79.133	816	Y
03015280	Jackson Run near North Warren, Pa.	41.903	-79.238	12.8	N
03015500	Brokenstraw Creek at Youngsville, Pa.	41.853	-79.317	321	N
03016000	Allegheny River at West Hickory, Pa.	41.571	-79.408	3,660	Y
03017500	Tionesta Creek at Lynch, Pa.	41.602	-79.050	233	N
03020000	Tionesta Creek at Tionesta Creek Dam, Pa.	41.478	-79.444	479	Y
03020500	Oil Creek at Rouseville, Pa.	41.482	-79.695	283	N
03021350	French Creek near Wattsburg, Pa.	42.015	-79.783	92.0	N
03021410	West Branch French Creek near Lowville, Pa.	42.082	-79.850	52.3	N
03021500	French Creek at Carters Corners, Pa.	41.956	-79.877	208	N
03021520	French Creek near Union City, Pa.	41.908	-79.897	221	Y
03022540	Woodcock Creek at Blooming Valley, Pa.	41.691	-80.048	31.1	N
03022554	Woodcock Creek at Woodcock Creek Dam, Pa.	41.696	-80.108	45.6	Y
03023100	French Creek at Meadville, Pa.	41.633	-80.160	788	Y

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

[ft<sup>3</sup>/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis <sup>1</sup>	Number of years used in analysis	1-day, 10-year (ft <sup>3</sup> /s)	7-day, 10-year (ft <sup>3</sup> /s)	7-day, 2-year (ft <sup>3</sup> /s)	30-day, 10-year (ft <sup>3</sup> /s)	30-day, 2-year (ft <sup>3</sup> /s)	90-day, 10-year (ft <sup>3</sup> /s)
<sup>5</sup> 01611500	1924–2008	83	37.2	39.3	56.4	45.6	65.6	56.0
<sup>4</sup> 01613000	1934–2008	75	270	286	446	335	534	453
01613050	1967–2008	40	0	0	.1	<.1	.4	.2
<sup>4</sup> 01614000	1930–2008	41	3.2	3.8	8.2	5.4	11.4	8.1
01614090	1962–1981	19	.2	.3	.8	.4	1.0	.7
<sup>4</sup> 01614500	1930–2008	79	48.1	55.0	91.9	65.3	105	81.4
<sup>4</sup> 01616500	1949–2008	60	34.4	36.7	54.4	41.0	61.9	48.7
01617000	1950–2008	24	.8	1.1	2.3	1.3	2.7	1.5
<sup>4</sup> 01617800	1966–2008	43	.2	.5	3.0	.9	3.4	1.4
01618000	1930–2004	68	333	424	708	516	869	680
01619000	1950–2008	19	22.5	23.4	37.5	25.9	41.8	32.9
<sup>4</sup> 01619500	1901–2008	82	57.9	65.2	93.1	72.4	103	82.5
<sup>4</sup> 01637500	1949–2008	60	.6	.9	3.2	1.7	5.4	4.2
<sup>4</sup> 01639000	1944–2008	65	.6	.8	4.7	2.9	8.2	6.6
<sup>4</sup> 01639140	1992–2001	10	0	.1	.9	.3	1.5	.8
<sup>4</sup> 01639500	1949–2008	60	—	7.1	23.9	10.4	26.6	17.2
<sup>4</sup> 01640500	1933–1984	52	.1	.2	.6	.3	.8	.6
<sup>4</sup> 01640965	1983–1994	12	<.1	<.1	.1	.1	.1	.1
<sup>4</sup> 01640970	1983–1991	9	0.1	0.1	0.3	0.2	0.5	0.4
<sup>4</sup> 01641000	<sup>3</sup> 1951–1968	18	.9	1.1	1.9	1.5	2.5	1.9
<sup>4</sup> 01641000	<sup>2</sup> 1970–1991	22	2.1	2.4	3.6	3.2	4.6	4.2
<sup>4</sup> 01641500	1949–1984	36	.8	.9	1.5	1.1	1.8	1.4
<sup>4</sup> 01642500	<sup>3</sup> 1933–1970	35	6.0	6.8	15.3	9.0	18.5	13.4
<sup>4</sup> 01642500	<sup>2</sup> 1972–1982	11	7.2	8.6	18.1	12.2	23.9	19.9
<sup>4</sup> 01643000	1931–2008	78	45.1	49.2	105	63.9	128	93.1
<sup>4</sup> 01643500	1950–2008	50	3.2	3.8	11.0	5.9	13.0	10.2
03007800	1976–2008	33	13.2	15.4	35.2	20.9	47.8	35.5
03008000	1968–1979	12	0	0	.2	<.1	.6	<.1
03009680	1976–1995	20	11.2	13.5	26.9	17.2	38.8	29.5
03010500	1941–2008	68	27.6	31.0	65.0	42.8	91.5	63.0
03010655	1976–2008	33	4.9	5.7	11.8	7.4	15.6	10.6
03011020	1905–2008	104	117	127	218	159	291	217
03011800	1967–2008	42	4.2	4.9	8.8	6.2	12.1	9.0
03012550	<sup>3</sup> 1967–1991	25	—	414	681	542	944	828
03012550	<sup>3</sup> 1937–1965	29	168	176	260	212	319	267
03013000	1940–1993	54	28.2	31.0	48.3	35.1	58.7	41.5
03014500	1936–2008	73	7.4	10.8	28.6	15.3	41.0	24.1
03015000	<sup>2</sup> 1951–2008	58	76.4	81.7	143	95.1	180	115
03015000	<sup>3</sup> 1941–1949	9	69.6	71.6	122	86.5	141	131
03015280	1964–1978	15	.7	.9	1.9	1.3	2.7	2.0
03015500	1911–2008	98	32.2	34.4	54.8	40.7	70.1	51.4
03016000	<sup>2</sup> 1967–2008	44	527	579	1,230	708	1,630	906
03016000	<sup>3</sup> 1943–1965	23	292	312	466	368	560	486
03017500	1939–1979	41	14.6	16.3	30.0	22.1	42.2	35.4
03020000	1942–1991	50	7.5	14.8	72.6	40.7	86.2	67.9

## StreamStats Report

Region ID: PA  
 Workspace ID: PA20240304111836378000  
 Clicked Point (Latitude, Longitude): 39.74564, -77.78586  
 Time: 2024-03-04 06:18:58 -0500



Antrim MA WWTP PA0080519 Modeling Point #1 March 2024

Collapse All

### > Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	40.2	percent
DRNAREA	Area that drains to a point on a stream	489	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	2.13	miles per square mile

### > Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	489	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
STRDEN	Stream Density	2.13	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
CARBON	Percent Carbonate	40.2	percent	0	99

**Low-Flow Statistics Flow Report [Low Flow Region 2]**

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	101	ft <sup>3</sup> /s	38	38
30 Day 2 Year Low Flow	119	ft <sup>3</sup> /s	33	33
7 Day 10 Year Low Flow	67	ft <sup>3</sup> /s	51	51
30 Day 10 Year Low Flow	78.6	ft <sup>3</sup> /s	46	46
90 Day 10 Year Low Flow	93.9	ft <sup>3</sup> /s	36	36

*Low-Flow Statistics Citations*

**Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)**

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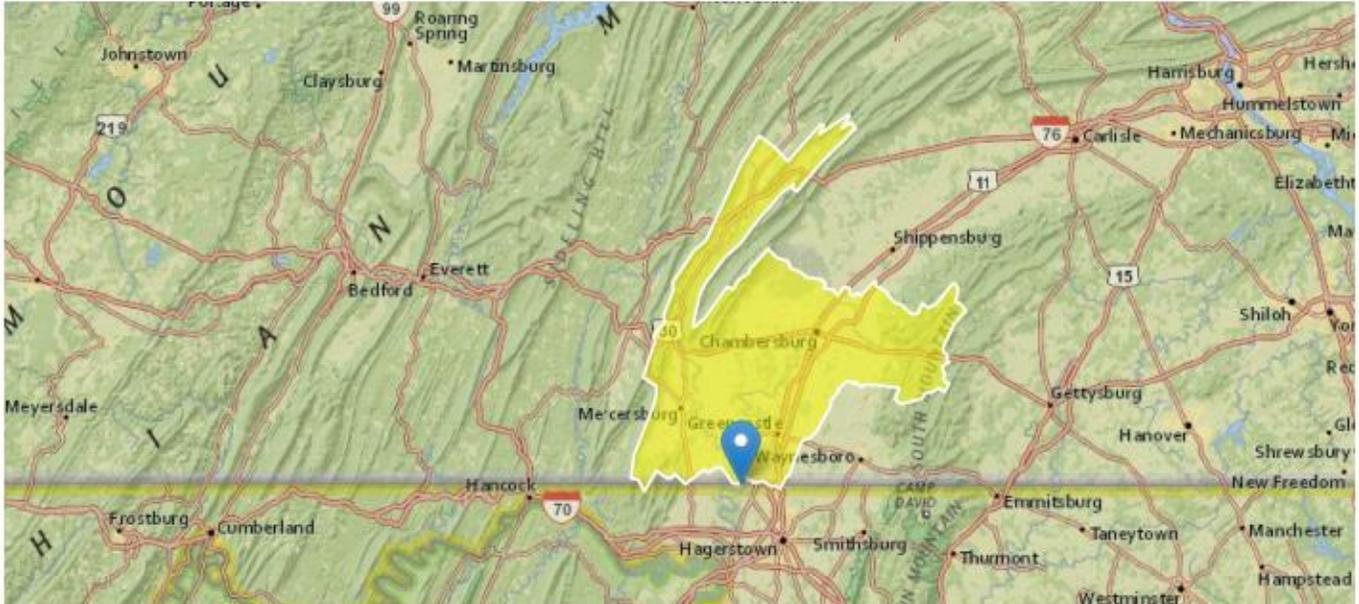
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Application Version: 4.19.4  
StreamStats Services Version: 1.2.22  
NSS Services Version: 2.2.1

## StreamStats Report

Region ID: PA  
 Workspace ID: PA20240304112256442000  
 Clicked Point (Latitude, Longitude): 39.72505, -77.79878  
 Time: 2024-03-04 06:23:19 -0500



Antrim WWTP PA0080519 Modeling Point #2 March 2024

Collapse All

### Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	40.26	percent
DRNAREA	Area that drains to a point on a stream	496	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	2.13	miles per square mile

### Low-Flow Statistics

#### Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	496	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
STRDEN	Stream Density	2.13	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
CARBON	Percent Carbonate	40.26	percent	0	99

Low-Flow Statistics Flow Report [Low Flow Region 2]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	102	ft <sup>3</sup> /s	38	38
30 Day 2 Year Low Flow	120	ft <sup>3</sup> /s	33	33
7 Day 10 Year Low Flow	68.2	ft <sup>3</sup> /s	51	51
30 Day 10 Year Low Flow	80	ft <sup>3</sup> /s	46	46
90 Day 10 Year Low Flow	95.4	ft <sup>3</sup> /s	36	36

*Low-Flow Statistics Citations*

**Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)**

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Application Version: 4.19.4  
StreamStats Services Version: 1.2.22  
NSS Services Version: 2.2.1

# 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>			
13C		59346		CONOCOCHEAGUE CREEK			
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)
25.800	Antrim WWTP	PA0080519	1.200	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>
13C	59346	CONOCOHEAGUE CREEK

**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
25.800	Antrim WWTP	16.5	50	16.5	50	0	0
22.520		NA	NA	16.5	NA	NA	NA

**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
25.800	Antrim WWTP	1.87	25	1.87	25	0	0
22.520		NA	NA	1.87	NA	NA	NA

**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)		
25.80	Antrim WWTP	25	25	25	25	5	5	0	0
22.52		NA	NA	NA	NA	NA	NA	NA	NA

**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
13C	59346	CONOCOCHEAGUE CREEK	<b>25.800</b>	415.00	489.00	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)	
<b>Q7-10</b>	0.111	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
<b>Q1-10</b>		0.00	0.00	0.000	0.000							
<b>Q30-10</b>		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
Antrim WWTP	PA0080519	1.2000	1.2000	1.2000	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

**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
13C	59346	CONOCOCHIEAGUE CREEK	<b>22.520</b>	403.00	496.00	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
<b>Q7-10</b>	0.111	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
<b>Q1-10</b>		0.00	0.00	0.000	0.000							
<b>Q30-10</b>		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

**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
13C	59346	CONOCOCHEAGUE CREEK	<b>19.470</b>	392.00	497.00	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
<b>Q7-10</b>	0.111	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
<b>Q1-10</b>		0.00	0.00	0.000	0.000							
<b>Q30-10</b>		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>			
13C	59346	CONOCOCHIEGUE CREEK			
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
25.800	1.200	20.165		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
125.524	1.027	122.269		0.436	
<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>	
2.76	0.351	0.83		0.709	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
8.136	1.413	Tsivoglou		5	
<u>Reach Travel Time (days)</u>					
0.460					
	<b>Subreach Results</b>				
	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>	
	(days)	(mg/L)	(mg/L)	(mg/L)	
	0.046	2.72	0.80	8.02	
	0.092	2.67	0.77	7.91	
	0.138	2.63	0.75	7.81	
	0.184	2.59	0.73	7.73	
	0.230	2.55	0.70	7.65	
	0.276	2.50	0.68	7.59	
	0.322	2.46	0.66	7.53	
	0.368	2.42	0.64	7.48	
	0.414	2.38	0.62	7.44	
	0.460	2.35	0.60	7.40	
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
22.520	1.200	20.163		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
126.540	1.029	122.977		0.437	
<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>	
2.34	0.200	0.59		0.709	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.410	1.398	Tsivoglou		5	
<u>Reach Travel Time (days)</u>					
0.426					
	<b>Subreach Results</b>				
	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>	
	(days)	(mg/L)	(mg/L)	(mg/L)	
	0.043	2.32	0.57	7.40	
	0.085	2.30	0.55	7.40	
	0.128	2.28	0.54	7.40	
	0.171	2.26	0.52	7.40	
	0.213	2.24	0.51	7.40	
	0.256	2.22	0.49	7.41	
	0.299	2.20	0.48	7.41	
	0.341	2.19	0.46	7.42	
	0.384	2.17	0.45	7.43	
	0.426	2.15	0.43	7.45	
<hr/>					

**WQM 7.0 Hydrodynamic Outputs**

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
13C		59346				CONOCOCHEAGUE CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
25.800	54.28	0.00	54.28	1.8564	0.00069	1.027	125.52	122.27	0.44	0.460	20.17	7.00
22.520	55.06	0.00	55.06	1.8564	0.00068	1.029	126.54	122.98	0.44	0.426	20.16	7.00
<b>Q1-10 Flow</b>												
25.800	47.22	0.00	47.22	1.8564	0.00069	NA	NA	NA	0.40	0.496	20.19	7.00
22.520	47.90	0.00	47.90	1.8564	0.00068	NA	NA	NA	0.41	0.460	20.19	7.00
<b>Q30-10 Flow</b>												
25.800	64.59	0.00	64.59	1.8564	0.00069	NA	NA	NA	0.48	0.419	20.14	7.00
22.520	65.52	0.00	65.52	1.8564	0.00068	NA	NA	NA	0.48	0.388	20.14	7.00

### **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	0.87	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.19	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: **Antrim Township MA WWTP** NPDES Permit No.: **PA0080519** 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 <sub>7-10</sub>	Q <sub>h</sub>
1.2	331	7.32						

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	1531								
	Chloride (PWS)	mg/L	640								
	Bromide	mg/L	5.9								
	Sulfate (PWS)	mg/L	58.9								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	µg/L	0.038								
	Total Antimony	µg/L	0.0013								
	Total Arsenic	µg/L	0.0025								
	Total Barium	µg/L	0.041								
	Total Beryllium	µg/L	< 0.0005								
	Total Boron	µg/L	1								
	Total Cadmium	µg/L	< 0.0002								
	Total Chromium (III)	µg/L	0.0065								
	Hexavalent Chromium	µg/L	0.0031								
	Total Cobalt	µg/L	0.0015								
	Total Copper	µg/L	0.0082								
	Free Cyanide	µg/L	0.00073								
	Total Cyanide	µg/L	< 0.0045								
	Dissolved Iron	µg/L	< 0.02								
	Total Iron	µg/L	< 0.038								
	Total Lead	µg/L	< 0.001								
	Total Manganese	µg/L	0.043								
	Total Mercury	µg/L	0.0000068								
	Total Nickel	µg/L	0.011								
	Total Phenols (Phenolics) (PWS)	µg/L	< 0.011								
Total Selenium	µg/L	< 0.002									
Total Silver	µg/L	< 0.00033									
Total Thallium	µg/L	< 0.0005									
Total Zinc	µg/L	0.038									
Total Molybdenum	µg/L	0.003									
Acrolein	µg/L	< 1.32									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	< 5									
Benzene	µg/L	< 0.5									
Bromoform	µg/L	< 0.5									
Carbon Tetrachloride	µg/L	< 0.24									
Chlorobenzene	µg/L	< 0.5									
Chlorodibromomethane	µg/L	< 0.5									
Chloroethane	µg/L	< 0.5									
2-Chloroethyl Vinyl Ether	µg/L	< 0.48									







Stream / Surface Water Information

Antrim Township MA WWTP, NPDES Permit No. PA0080519, Outfall 001

Instructions Discharge Stream

Receiving Surface Water Name: \_\_\_\_\_

No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	059346	25.8	415	489			Yes
End of Reach 1	059346	22.52	403	496			Yes

**Q<sub>7-10</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	25.8	0.111										245	7		
End of Reach 1	22.52	0.111										245	7		

**Q<sub>h</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	25.8														
End of Reach 1	22.52														



Model Results

Antrim Township MA WWTP, NPDES Permit No. PA0080519, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All

Inputs

Results

Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	3,878	
Total Antimony	0	0		0	1,100	1,100	5,687	
Total Arsenic	0	0		0	340	340	1,758	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	108,572	
Total Boron	0	0		0	8,100	8,100	41,878	
Total Cadmium	0	0		0	5.125	5.67	29.3	Chem Translator of 0.904 applied
Total Chromium (III)	0	0		0	1252.525	3,964	20,493	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	84.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	491	
Total Copper	0	0		0	33.260	34.6	179	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	114	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	180.776	278	1,436	Chem Translator of 0.651 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	8.52	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1056.414	1,059	5,473	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	16.821	19.8	102	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	336	
Total Zinc	0	0		0	264.708	271	1,399	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	15.5	
Acrylonitrile	0	0		0	650	650	3,361	
Benzene	0	0		0	640	640	3,309	

Bromoform	0	0	0	1,800	1,800	9,306
Carbon Tetrachloride	0	0	0	2,800	2,800	14,476
Chlorobenzene	0	0	0	1,200	1,200	6,204
Chlorodibromomethane	0	0	0	N/A	N/A	N/A
2-Chloroethyl Vinyl Ether	0	0	0	18,000	18,000	93,062
Chloroform	0	0	0	1,900	1,900	9,823
Dichlorobromomethane	0	0	0	N/A	N/A	N/A
1,2-Dichloroethane	0	0	0	15,000	15,000	77,552
1,1-Dichloroethylene	0	0	0	7,500	7,500	38,776
1,2-Dichloropropane	0	0	0	11,000	11,000	56,871
1,3-Dichloropropylene	0	0	0	310	310	1,603
Ethylbenzene	0	0	0	2,900	2,900	14,993
Methyl Bromide	0	0	0	550	550	2,844
Methyl Chloride	0	0	0	28,000	28,000	144,763
Methylene Chloride	0	0	0	12,000	12,000	62,041
1,1,2,2-Tetrachloroethane	0	0	0	1,000	1,000	5,170
Tetrachloroethylene	0	0	0	700	700	3,619
Toluene	0	0	0	1,700	1,700	8,789
1,2-trans-Dichloroethylene	0	0	0	6,800	6,800	35,157
1,1,1-Trichloroethane	0	0	0	3,000	3,000	15,510
1,1,2-Trichloroethane	0	0	0	3,400	3,400	17,578
Trichloroethylene	0	0	0	2,300	2,300	11,891
Vinyl Chloride	0	0	0	N/A	N/A	N/A
2-Chlorophenol	0	0	0	560	560	2,895
2,4-Dichlorophenol	0	0	0	1,700	1,700	8,789
2,4-Dimethylphenol	0	0	0	660	660	3,412
4,6-Dinitro-o-Cresol	0	0	0	80	80.0	414
2,4-Dinitrophenol	0	0	0	660	660	3,412
2-Nitrophenol	0	0	0	8,000	8,000	41,361
4-Nitrophenol	0	0	0	2,300	2,300	11,891
p-Chloro-m-Cresol	0	0	0	160	160	827
Pentachlorophenol	0	0	0	9.138	9.14	47.2
Phenol	0	0	0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0	0	460	460	2,378
Acenaphthene	0	0	0	83	83.0	429
Anthracene	0	0	0	N/A	N/A	N/A
Benzdine	0	0	0	300	300	1,551
Benzo(a)Anthracene	0	0	0	0.5	0.5	2.59
Benzo(a)Pyrene	0	0	0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0	0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0	0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0	0	30,000	30,000	155,103
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0	0	4,500	4,500	23,265
4-Bromophenyl Phenyl Ether	0	0	0	270	270	1,396
Butyl Benzyl Phthalate	0	0	0	140	140	724
2-Chloronaphthalene	0	0	0	N/A	N/A	N/A

Chrysene	0	0	0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0	0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0	0	820	820	4,239
1,3-Dichlorobenzene	0	0	0	350	350	1,810
1,4-Dichlorobenzene	0	0	0	730	730	3,774
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A
Diethyl Phthalate	0	0	0	4,000	4,000	20,680
Dimethyl Phthalate	0	0	0	2,500	2,500	12,925
Di-n-Butyl Phthalate	0	0	0	110	110	569
2,4-Dinitrotoluene	0	0	0	1,600	1,600	8,272
2,6-Dinitrotoluene	0	0	0	990	990	5,118
1,2-Diphenylhydrazine	0	0	0	15	15.0	77.6
Fluoranthene	0	0	0	200	200	1,034
Fluorene	0	0	0	N/A	N/A	N/A
Hexachlorobenzene	0	0	0	N/A	N/A	N/A
Hexachlorobutadiene	0	0	0	10	10.0	51.7
Hexachlorocyclopentadiene	0	0	0	5	5.0	25.9
Hexachloroethane	0	0	0	60	60.0	310
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A
Isophorone	0	0	0	10,000	10,000	51,701
Naphthalene	0	0	0	140	140	724
Nitrobenzene	0	0	0	4,000	4,000	20,680
n-Nitrosodimethylamine	0	0	0	17,000	17,000	87,892
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0	0	300	300	1,551
Phenanthrene	0	0	0	5	5.0	25.9
Pyrene	0	0	0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0	0	130	130	672

**CFC**      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	6,576	
Total Arsenic	0	0		0	150	150	4,484	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	122,555	
Total Boron	0	0		0	1,600	1,600	47,826	
Total Cadmium	0	0		0	0.462	0.53	15.8	Chem Translator of 0.871 applied
Total Chromium (III)	0	0		0	155.877	181	5,418	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	311	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	568	
Total Copper	0	0		0	19,453	20.3	606	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	155	
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0	0	1,500	1,500	45,358	WQC = 30 day average; PMF = 1
Total Lead	0	0	0	6.656	10.1	302	Chem Translator of 0.659 applied
Total Manganese	0	0	0	N/A	N/A	N/A	
Total Mercury	0	0	0	0.770	0.91	27.1	Chem Translator of 0.85 applied
Total Nickel	0	0	0	112.094	112	3,361	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0	0	N/A	N/A	N/A	
Total Selenium	0	0	0	4.600	4.99	149	Chem Translator of 0.922 applied
Total Silver	0	0	0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0	0	13	13.0	389	
Total Zinc	0	0	0	254.935	259	7,729	Chem Translator of 0.986 applied
Acrolein	0	0	0	3	3.0	89.7	
Acrylonitrile	0	0	0	130	130	3,886	
Benzene	0	0	0	130	130	3,886	
Bromoform	0	0	0	370	370	11,060	
Carbon Tetrachloride	0	0	0	560	560	16,739	
Chlorobenzene	0	0	0	240	240	7,174	
Chlorodibromomethane	0	0	0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0	0	3,500	3,500	104,620	
Chloroform	0	0	0	390	390	11,658	
Dichlorobromomethane	0	0	0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0	0	3,100	3,100	92,663	
1,1-Dichloroethylene	0	0	0	1,500	1,500	44,837	
1,2-Dichloropropane	0	0	0	2,200	2,200	65,761	
1,3-Dichloropropylene	0	0	0	61	61.0	1,823	
Ethylbenzene	0	0	0	580	580	17,337	
Methyl Bromide	0	0	0	110	110	3,288	
Methyl Chloride	0	0	0	5,500	5,500	164,403	
Methylene Chloride	0	0	0	2,400	2,400	71,739	
1,1,2,2-Tetrachloroethane	0	0	0	210	210	6,277	
Tetrachloroethylene	0	0	0	140	140	4,185	
Toluene	0	0	0	330	330	9,864	
1,2-trans-Dichloroethylene	0	0	0	1,400	1,400	41,848	
1,1,1-Trichloroethane	0	0	0	610	610	18,234	
1,1,2-Trichloroethane	0	0	0	680	680	20,326	
Trichloroethylene	0	0	0	450	450	13,451	
Vinyl Chloride	0	0	0	N/A	N/A	N/A	
2-Chlorophenol	0	0	0	110	110	3,288	
2,4-Dichlorophenol	0	0	0	340	340	10,163	
2,4-Dimethylphenol	0	0	0	130	130	3,886	
4,6-Dinitro-o-Cresol	0	0	0	16	16.0	478	
2,4-Dinitrophenol	0	0	0	130	130	3,886	
2-Nitrophenol	0	0	0	1,600	1,600	47,826	
4-Nitrophenol	0	0	0	470	470	14,049	
p-Chloro-m-Cresol	0	0	0	500	500	14,946	
Pentachlorophenol	0	0	0	7.010	7.01	210	
Phenol	0	0	0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0	0	91	91.0	2,720	
Acenaphthene	0	0	0	17	17.0	508	
Anthracene	0	0	0	N/A	N/A	N/A	

Benzidine	0	0	0	59	59.0	1,764
Benzo(a)Anthracene	0	0	0	0.1	0.1	2.99
Benzo(a)Pyrene	0	0	0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0	0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0	0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0	0	6,000	6,000	179,348
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0	0	910	910	27,201
4-Bromophenyl Phenyl Ether	0	0	0	54	54.0	1,614
Butyl Benzyl Phthalate	0	0	0	35	35.0	1,046
2-Chloronaphthalene	0	0	0	N/A	N/A	N/A
Chrysene	0	0	0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0	0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0	0	160	160	4,783
1,3-Dichlorobenzene	0	0	0	69	69.0	2,063
1,4-Dichlorobenzene	0	0	0	150	150	4,484
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A
Diethyl Phthalate	0	0	0	800	800	23,913
Dimethyl Phthalate	0	0	0	500	500	14,946
Di-n-Butyl Phthalate	0	0	0	21	21.0	628
2,4-Dinitrotoluene	0	0	0	320	320	9,565
2,6-Dinitrotoluene	0	0	0	200	200	5,978
1,2-Diphenylhydrazine	0	0	0	3	3.0	89.7
Fluoranthene	0	0	0	40	40.0	1,196
Fluorene	0	0	0	N/A	N/A	N/A
Hexachlorobenzene	0	0	0	N/A	N/A	N/A
Hexachlorobutadiene	0	0	0	2	2.0	59.8
Hexachlorocyclopentadiene	0	0	0	1	1.0	29.9
Hexachloroethane	0	0	0	12	12.0	359
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A
Isophorone	0	0	0	2,100	2,100	62,772
Naphthalene	0	0	0	43	43.0	1,285
Nitrobenzene	0	0	0	810	810	24,212
n-Nitrosodimethylamine	0	0	0	3,400	3,400	101,631
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0	0	59	59.0	1,764
Phenanthrene	0	0	0	1	1.0	29.9
Pyrene	0	0	0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0	0	26	26.0	777

THH

CCT (min): 720

PMF: 0.988

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	167	

Total Arsenic	0	0	0	10	10.0	299
Total Barium	0	0	0	2,400	2,400	71,739
Total Boron	0	0	0	3,100	3,100	92,663
Total Cadmium	0	0	0	N/A	N/A	N/A
Total Chromium (III)	0	0	0	N/A	N/A	N/A
Hexavalent Chromium	0	0	0	N/A	N/A	N/A
Total Cobalt	0	0	0	N/A	N/A	N/A
Total Copper	0	0	0	N/A	N/A	N/A
Free Cyanide	0	0	0	4	4.0	120
Dissolved Iron	0	0	0	300	300	8,967
Total Iron	0	0	0	N/A	N/A	N/A
Total Lead	0	0	0	N/A	N/A	N/A
Total Manganese	0	0	0	1,000	1,000	29,891
Total Mercury	0	0	0	0.050	0.05	1.49
Total Nickel	0	0	0	610	610	18,234
Total Phenols (Phenolics) (PWS)	0	0	0	5	5.0	N/A
Total Selenium	0	0	0	N/A	N/A	N/A
Total Silver	0	0	0	N/A	N/A	N/A
Total Thallium	0	0	0	0.24	0.24	7.17
Total Zinc	0	0	0	N/A	N/A	N/A
Acrolein	0	0	0	3	3.0	89.7
Acrylonitrile	0	0	0	N/A	N/A	N/A
Benzene	0	0	0	N/A	N/A	N/A
Bromoform	0	0	0	N/A	N/A	N/A
Carbon Tetrachloride	0	0	0	N/A	N/A	N/A
Chlorobenzene	0	0	0	100	100.0	2,989
Chlorodibromomethane	0	0	0	N/A	N/A	N/A
2-Chloroethyl Vinyl Ether	0	0	0	N/A	N/A	N/A
Chloroform	0	0	0	5.7	5.7	170
Dichlorobromomethane	0	0	0	N/A	N/A	N/A
1,2-Dichloroethane	0	0	0	N/A	N/A	N/A
1,1-Dichloroethylene	0	0	0	33	33.0	986
1,2-Dichloropropane	0	0	0	N/A	N/A	N/A
1,3-Dichloropropylene	0	0	0	N/A	N/A	N/A
Ethylbenzene	0	0	0	68	68.0	2,033
Methyl Bromide	0	0	0	100	100.0	2,989
Methyl Chloride	0	0	0	N/A	N/A	N/A
Methylene Chloride	0	0	0	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	0	0	0	N/A	N/A	N/A
Tetrachloroethylene	0	0	0	N/A	N/A	N/A
Toluene	0	0	0	57	57.0	1,704
1,2-trans-Dichloroethylene	0	0	0	100	100.0	2,989
1,1,1-Trichloroethane	0	0	0	10,000	10,000	298,914
1,1,2-Trichloroethane	0	0	0	N/A	N/A	N/A
Trichloroethylene	0	0	0	N/A	N/A	N/A
Vinyl Chloride	0	0	0	N/A	N/A	N/A
2-Chlorophenol	0	0	0	30	30.0	897
2,4-Dichlorophenol	0	0	0	10	10.0	299
2,4-Dimethylphenol	0	0	0	100	100.0	2,989

4,6-Dinitro-o-Cresol	0	0	0	2	2.0	59.8
2,4-Dinitrophenol	0	0	0	10	10.0	299
2-Nitrophenol	0	0	0	N/A	N/A	N/A
4-Nitrophenol	0	0	0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0	0	N/A	N/A	N/A
Pentachlorophenol	0	0	0	N/A	N/A	N/A
Phenol	0	0	0	4,000	4,000	119,565
2,4,6-Trichlorophenol	0	0	0	N/A	N/A	N/A
Acenaphthene	0	0	0	70	70.0	2,092
Anthracene	0	0	0	300	300	8,967
Benzidine	0	0	0	N/A	N/A	N/A
Benzo(a)Anthracene	0	0	0	N/A	N/A	N/A
Benzo(a)Pyrene	0	0	0	N/A	N/A	N/A
3,4-Benzofluoranthene	0	0	0	N/A	N/A	N/A
Benzo(k)Fluoranthene	0	0	0	N/A	N/A	N/A
Bis(2-Chloroethyl)Ether	0	0	0	N/A	N/A	N/A
Bis(2-Chloroisopropyl)Ether	0	0	0	200	200	5,978
Bis(2-Ethylhexyl)Phthalate	0	0	0	N/A	N/A	N/A
4-Bromophenyl Phenyl Ether	0	0	0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0	0	0.1	0.1	2.99
2-Chloronaphthalene	0	0	0	800	800	23,913
Chrysene	0	0	0	N/A	N/A	N/A
Dibenzo(a,h)Anthracene	0	0	0	N/A	N/A	N/A
1,2-Dichlorobenzene	0	0	0	1,000	1,000	29,891
1,3-Dichlorobenzene	0	0	0	7	7.0	209
1,4-Dichlorobenzene	0	0	0	300	300	8,967
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A
Diethyl Phthalate	0	0	0	600	600	17,935
Dimethyl Phthalate	0	0	0	2,000	2,000	59,783
Di-n-Butyl Phthalate	0	0	0	20	20.0	598
2,4-Dinitrotoluene	0	0	0	N/A	N/A	N/A
2,6-Dinitrotoluene	0	0	0	N/A	N/A	N/A
1,2-Diphenylhydrazine	0	0	0	N/A	N/A	N/A
Fluoranthene	0	0	0	20	20.0	598
Fluorene	0	0	0	50	50.0	1,495
Hexachlorobenzene	0	0	0	N/A	N/A	N/A
Hexachlorobutadiene	0	0	0	N/A	N/A	N/A
Hexachlorocyclopentadiene	0	0	0	4	4.0	120
Hexachloroethane	0	0	0	N/A	N/A	N/A
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A
Isophorone	0	0	0	34	34.0	1,016
Naphthalene	0	0	0	N/A	N/A	N/A
Nitrobenzene	0	0	0	10	10.0	299
n-Nitrosodimethylamine	0	0	0	N/A	N/A	N/A
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A
n-Nitrosodiphenylamine	0	0	0	N/A	N/A	N/A
Phenanthrene	0	0	0	N/A	N/A	N/A
Pyrene	0	0	0	20	20.0	598
1,2,4-Trichlorobenzene	0	0	0	0.07	0.07	2.09

**CRL**      CCT (min):       PMF:       Analysis Hardness (mg/l):       Analysis pH:

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	7.94	
Benzene	0	0		0	0.58	0.58	76.8	
Bromoform	0	0		0	7	7.0	926	
Carbon Tetrachloride	0	0		0	0.4	0.4	52.9	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	106	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	126	
1,2-Dichloroethane	0	0		0	9.9	9.9	1,310	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	119	
1,3-Dichloropropylene	0	0		0	0.27	0.27	35.7	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	2,647	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	26.5	

Tetrachloroethylene	0	0	0	10	10.0	1.323	
Toluene	0	0	0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0	0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0	0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0	0	0.55	0.55	72.8	
Trichloroethylene	0	0	0	0.6	0.6	79.4	
Vinyl Chloride	0	0	0	0.02	0.02	2.65	
2-Chlorophenol	0	0	0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0	0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0	0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0	0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0	0	N/A	N/A	N/A	
2-Nitrophenol	0	0	0	N/A	N/A	N/A	
4-Nitrophenol	0	0	0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0	0	N/A	N/A	N/A	
Pentachlorophenol	0	0	0	0.030	0.03	3.97	
Phenol	0	0	0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0	0	1.5	1.5	199	
Acenaphthene	0	0	0	N/A	N/A	N/A	
Anthracene	0	0	0	N/A	N/A	N/A	
Benzidine	0	0	0	0.0001	0.0001	0.013	
Benzo(a)Anthracene	0	0	0	0.001	0.001	0.13	
Benzo(a)Pyrene	0	0	0	0.0001	0.0001	0.013	
3,4-Benzofluoranthene	0	0	0	0.001	0.001	0.13	
Benzo(k)Fluoranthene	0	0	0	0.01	0.01	1.32	
Bis(2-Chloroethyl)Ether	0	0	0	0.03	0.03	3.97	
Bis(2-Chloroisopropyl)Ether	0	0	0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0	0	0.32	0.32	42.3	
4-Bromophenyl Phenyl Ether	0	0	0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0	0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0	0	N/A	N/A	N/A	
Chrysene	0	0	0	0.12	0.12	15.9	
Dibenzo(a,h)Anthracene	0	0	0	0.0001	0.0001	0.013	
1,2-Dichlorobenzene	0	0	0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0	0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0	0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0	0	0.05	0.05	6.62	
Diethyl Phthalate	0	0	0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0	0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0	0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0	0	0.05	0.05	6.62	
2,6-Dinitrotoluene	0	0	0	0.05	0.05	6.62	
1,2-Diphenylhydrazine	0	0	0	0.03	0.03	3.97	
Fluoranthene	0	0	0	N/A	N/A	N/A	
Fluorene	0	0	0	N/A	N/A	N/A	
Hexachlorobenzene	0	0	0	0.00008	0.00008	0.011	
Hexachlorobutadiene	0	0	0	0.01	0.01	1.32	
Hexachlorocyclopentadiene	0	0	0	N/A	N/A	N/A	
Hexachloroethane	0	0	0	0.1	0.1	13.2	

Indeno(1,2,3-cd)Pyrene	0	0	0	0.001	0.001	0.13	
Isophorone	0	0	0	N/A	N/A	N/A	
Naphthalene	0	0	0	N/A	N/A	N/A	
Nitrobenzene	0	0	0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0	0	0.0007	0.0007	0.093	
n-Nitrosodi-n-Propylamine	0	0	0	0.005	0.005	0.66	
n-Nitrosodiphenylamine	0	0	0	3.3	3.3	437	
Phenanthrene	0	0	0	N/A	N/A	N/A	
Pyrene	0	0	0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0	0	N/A	N/A	N/A	

**Recommended WQBELs & Monitoring Requirements**

No. Samples/Month: **4**

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

**Other Pollutants without Limits or Monitoring**

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	2,485	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	167	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	299	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	69,590	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	26,842	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	15.8	µg/L	Discharge Conc < TQL
Total Chromium (III)	5,418	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	54.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	315	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	115	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	72.9	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	8,967	µg/L	Discharge Conc < TQL
Total Iron	45,358	µg/L	Discharge Conc < TQL
Total Lead	302	µg/L	Discharge Conc < TQL
Total Manganese	29,891	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.49	µg/L	Discharge Conc ≤ 10% WQBEL

Total Nickel	3,361	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	149	µg/L	Discharge Conc < TQL
Total Silver	65.6	µg/L	Discharge Conc < TQL
Total Thallium	7.17	µg/L	Discharge Conc < TQL
Total Zinc	897	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	9.94	µg/L	Discharge Conc < TQL
Acrylonitrile	7.94	µg/L	Discharge Conc < TQL
Benzene	76.8	µg/L	Discharge Conc < TQL
Bromoform	926	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	52.9	µg/L	Discharge Conc < TQL
Chlorobenzene	2,989	µg/L	Discharge Conc < TQL
Chlorodibromomethane	106	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	59,649	µg/L	Discharge Conc < TQL
Chloroform	170	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	126	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,310	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	986	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	119	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	35.7	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	2,033	µg/L	Discharge Conc < TQL
Methyl Bromide	1,823	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	92,787	µg/L	Discharge Conc < TQL
Methylene Chloride	2,647	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	26.5	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,323	µg/L	Discharge Conc < TQL
Toluene	1,704	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	2,989	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	9,941	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	72.8	µg/L	Discharge Conc < TQL
Trichloroethylene	79.4	µg/L	Discharge Conc < TQL
Vinyl Chloride	2.65	µg/L	Discharge Conc < TQL
2-Chlorophenol	897	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	299	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,187	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	59.8	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	299	µg/L	Discharge Conc < TQL
2-Nitrophenol	26,511	µg/L	Discharge Conc < TQL
4-Nitrophenol	7,622	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	530	µg/L	Discharge Conc < TQL
Pentachlorophenol	3.97	µg/L	Discharge Conc < TQL
Phenol	119,565	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	199	µg/L	Discharge Conc < TQL
Acenaphthene	275	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS

Anthracene	8,967	µg/L	Discharge Conc < TQL
Benzdine	0.013	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.13	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.013	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.13	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.32	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	3.97	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	5,978	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	42.3	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	895	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	2.99	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	23,913	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	15.9	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.013	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	2,717	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	209	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	2,419	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	6.62	µg/L	Discharge Conc < TQL
Diethyl Phthalate	13,255	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	8,285	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	365	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	6.62	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	6.62	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	3.97	µg/L	Discharge Conc < TQL
Fluoranthene	598	µg/L	Discharge Conc < TQL
Fluorene	1,495	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.011	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	1.32	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	16.6	µg/L	Discharge Conc < TQL
Hexachloroethane	13.2	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.13	µg/L	Discharge Conc < TQL
Isophorone	1,016	µg/L	Discharge Conc < TQL
Naphthalene	464	µg/L	Discharge Conc < TQL
Nitrobenzene	299	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.093	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.66	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	437	µg/L	Discharge Conc < TQL
Phenanthrene	16.6	µg/L	Discharge Conc < TQL
Pyrene	598	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	2.09	µg/L	Discharge Conc < TQL

# Attachment C

## WET Testing Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
2/16/2016		
Replicate No.	Control	TIWC
1	23	30
2	28	26
3	29	33
4	26	30
5	29	31
6	36	36
7	30	35
8	34	39
9	31	32
10	32	34
11		
12		
13		
14		
15		

Mean	29.800	32.600
Std Dev.	3.765	3.658
# Replicates	10	10

T-Test Result	7.0145
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	<b>PASS</b>

Test Completion Date		
10/23/2018		
Replicate No.	Control	TIWC
1	16	20
2	25	31
3	26	22
4	28	25
5	33	35
6	15	23
7	31	15
8	29	29
9	17	22
10	20	20
11		
12		
13		
14		
15		

Mean	24.000	24.200
Std Dev.	6.549	5.940
# Replicates	10	10

T-Test Result	2.5436
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/5/2019		
Replicate No.	Control	TIWC
1	34	36
2	31	33
3	35	32
4	39	30
5	30	37
6	33	33
7	29	14
8	0	32
9	31	
10		
11		
12		
13		
14		
15		

Mean	29.111	30.875
Std Dev.	11.330	7.180
# Replicates	9	8

T-Test Result	2.3772
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/2/2020		
Replicate No.	Control	TIWC
1	33	29
2	32	34
3	36	33
4	31	29
5	30	28
6	29	33
7	23	33
8	21	25
9	29	31
10	26	34
11		
12		
13		
14		
15		

Mean	29.000	30.900
Std Dev.	4.570	3.035
# Replicates	10	10

T-Test Result	6.3200
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test   
 Species Tested   
 Endpoint   
 TIWC (decimal)   
 No. Per Replicate   
 TST b value   
 TST alpha value

Facility Name   
 Permit No.

Test Completion Date		
2/16/2016		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000  
 Std Dev. 0.000 0.000  
 # Replicates 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail **PASS**

Test Completion Date		
10/23/2018		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000  
 Std Dev. 0.000 0.000  
 # Replicates 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail **PASS**

Test Completion Date		
11/5/2019		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	0	
10		
11		
12		
13		
14		
15		

Mean 0.889 1.000  
 Std Dev. 0.333 0.000  
 # Replicates 9 8

T-Test Result 4.0000  
 Deg. of Freedom 8  
 Critical T Value 0.8889  
 Pass or Fail **PASS**

Test Completion Date		
11/2/2020		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean 1.000 1.000  
 Std Dev. 0.000 0.000  
 # Replicates 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.03
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
Replicate	2/16/2016	
No.	Control	TIWC
1	0.5	0.9
2	1	0.9
3	1	0.6
4	0.9	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.850	0.825
Std Dev.	0.238	0.150
# Replicates	4	4

T-Test Result	3.1383
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	10/23/2018	
No.	Control	TIWC
1	1	0.8
2	1	0.7
3	0.9	0.7
4	0.9	0.6
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.950	0.700
Std Dev.	0.058	0.082
# Replicates	4	4

T-Test Result	3.6825
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/5/2019	
No.	Control	TIWC
1	1	0.9
2	1	1
3	0.8	1
4	1	0.7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.950	0.900
Std Dev.	0.100	0.141
# Replicates	4	4

T-Test Result	4.8354
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.8	1
2	1	0.7
3	0.9	0.8
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.925	0.875
Std Dev.	0.096	0.150
# Replicates	4	4

T-Test Result	4.5889
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.03
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
Replicate	2/16/2016	
No.	Control	TIWC
1	0.181	0.358
2	0.377	0.362
3	0.402	0.258
4	0.342	0.347
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.326	0.331
Std Dev.	0.099	0.049
# Replicates	4	4

T-Test Result	1.9499
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	10/23/2018	
No.	Control	TIWC
1	0.258	0.305
2	0.258	0.333
3	0.275	0.172
4	0.226	0.273
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.254	0.271
Std Dev.	0.020	0.070
# Replicates	4	4

T-Test Result	2.2268
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/5/2019	
No.	Control	TIWC
1	0.2656	0.199
2	0.262	0.296
3	0.247	0.249
4	0.271	0.221
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.261	0.241
Std Dev.	0.010	0.042
# Replicates	4	4

T-Test Result	2.1246
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.187	0.343
2	0.343	0.306
3	0.258	0.294
4	0.32	0.367
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.277	0.328
Std Dev.	0.070	0.034
# Replicates	4	4

T-Test Result	3.8458
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test: Chronic  
 Species Tested: Ceriodaphnia  
 Endpoint: Survival  
 TIWC (decimal): 0.03  
 No. Per Replicate: 1  
 TST b value: 0.75  
 TST alpha value: 0.2

Facility Name: Antrim Township WWP  
 Permit No.:

Test Completion Date: 10/23/2018

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean: 1.000 1.000  
 Std Dev.: 0.000 0.000  
 # Replicates: 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail: **PASS**

Test Completion Date: 11/5/2019

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	0	
10		
11		
12		
13		
14		
15		

Mean: 0.889 1.000  
 Std Dev.: 0.333 0.000  
 # Replicates: 9 8

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail: **PASS**

Test Completion Date: 11/2/2020

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean: 1.000 1.000  
 Std Dev.: 0.000 0.000  
 # Replicates: 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail: **PASS**

Test Completion Date: 11/22/2021

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean: 1.000 1.000  
 Std Dev.: 0.000 0.000  
 # Replicates: 10 10

T-Test Result  
 Deg. of Freedom  
 Critical T Value  
 Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
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Permit No.	
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Replicate No.	Test Completion Date 10/23/2018	
	Control	TIWC
1	16	20
2	25	31
3	26	22
4	28	25
5	33	35
6	15	23
7	31	15
8	29	29
9	17	22
10	20	20
11		
12		
13		
14		
15		

Replicate No.	Test Completion Date 11/5/2019	
	Control	TIWC
1	34	36
2	31	33
3	35	32
4	39	30
5	30	37
6	33	33
7	29	14
8	0	32
9	31	
10		
11		
12		
13		
14		
15		

Mean	24.000	24.200
Std Dev.	6.549	5.940
# Replicates	10	10

Mean	29.111	30.875
Std Dev.	11.330	7.180
# Replicates	9	8

T-Test Result	2.5436
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

T-Test Result	2.3772
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	<b>PASS</b>

Replicate No.	Test Completion Date 11/2/2020	
	Control	TIWC
1	33	29
2	32	34
3	36	33
4	31	29
5	30	28
6	29	33
7	23	33
8	21	25
9	29	31
10	26	34
11		
12		
13		
14		
15		

Replicate No.	Test Completion Date 11/22/2021	
	Control	TIWC
1	27	20
2	31	22
3	25	25
4	27	19
5	27	27
6	22	20
7	20	15
8	26	18
9	20	15
10	24	19
11		
12		
13		
14		
15		

Mean	29.000	30.900
Std Dev.	4.570	3.035
# Replicates	10	10

Mean	24.900	20.000
Std Dev.	3.479	3.859
# Replicates	10	10

T-Test Result	6.3200
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

T-Test Result	0.8996
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.03
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
10/23/2018		
Replicate No.	Control	TIWC
1	1	0.8
2	1	0.7
3	0.9	0.7
4	0.9	0.6
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.950	0.700
Std Dev.	0.058	0.082
# Replicates	4	4

T-Test Result	3.6825
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/5/2019		
Replicate No.	Control	TIWC
1	1	0.9
2	1	1
3	0.8	1
4	1	0.7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.950	0.900
Std Dev.	0.100	0.141
# Replicates	4	4

T-Test Result	4.8354
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/3/2020		
Replicate No.	Control	TIWC
1	0.8	1
2	1	0.7
3	0.9	0.8
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.925	0.875
Std Dev.	0.096	0.150
# Replicates	4	4

T-Test Result	4.5889
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/23/2021		
Replicate No.	Control	TIWC
1	1	0.8
2	1	1
3	1	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	1.000	0.925
Std Dev.	0.000	0.096
# Replicates	4	4

T-Test Result	8.0674
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test   
 Species Tested   
 Endpoint   
 TIWC (decimal)   
 No. Per Replicate   
 TST b value   
 TST alpha value

Facility Name   
 Permit No.

Test Completion Date		
Replicate	10/23/2018	
No.	Control	TIWC
1	0.258	0.305
2	0.258	0.333
3	0.275	0.172
4	0.226	0.273
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Test Completion Date		
Replicate	11/5/2019	
No.	Control	TIWC
1	0.2656	0.199
2	0.262	0.296
3	0.247	0.249
4	0.271	0.221
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.254 0.271  
 Std Dev. 0.020 0.070  
 # Replicates 4 4

Mean 0.261 0.241  
 Std Dev. 0.010 0.042  
 # Replicates 4 4

T-Test Result 2.2268  
 Deg. of Freedom 3  
 Critical T Value 0.7649  
 Pass or Fail **PASS**

T-Test Result 2.1246  
 Deg. of Freedom 3  
 Critical T Value 0.7649  
 Pass or Fail **PASS**

Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.187	0.343
2	0.343	0.306
3	0.258	0.294
4	0.32	0.367
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Test Completion Date		
Replicate	11/23/2021	
No.	Control	TIWC
1	0.28	0.244
2	0.269	0.27
3	0.317	0.304
4	0.305	0.263
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean 0.277 0.328  
 Std Dev. 0.070 0.034  
 # Replicates 4 4

Mean 0.293 0.270  
 Std Dev. 0.022 0.025  
 # Replicates 4 4

T-Test Result 3.8458  
 Deg. of Freedom 5  
 Critical T Value 0.7267  
 Pass or Fail **PASS**

T-Test Result 3.3762  
 Deg. of Freedom 5  
 Critical T Value 0.7267  
 Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
---------------	---------------------

Permit No.	
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Test Completion Date		
11/5/2019		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	0	
10		
11		
12		
13		
14		
15		

Mean	0.889	1.000
Std Dev.	0.333	0.000
# Replicates	9	8

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

Test Completion Date		
11/2/2020		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

Test Completion Date		
11/22/2021		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

Test Completion Date		
6/28/2022		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
Permit No.	

Test Completion Date		
11/5/2019		
Replicate No.	Control	TIWC
1	34	36
2	31	33
3	35	32
4	39	30
5	30	37
6	33	33
7	29	14
8	0	32
9	31	
10	20	20
11		
12		
13		
14		
15		

Mean	28.200	29.667
Std Dev.	11.063	7.632
# Replicates	10	9

T-Test Result	2.3303
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/2/2020		
Replicate No.	Control	TIWC
1	33	29
2	32	34
3	36	33
4	31	29
5	30	28
6	29	33
7	23	33
8	21	25
9	29	31
10	26	34
11		
12		
13		
14		
15		

Mean	29.000	30.900
Std Dev.	4.570	3.035
# Replicates	10	10

T-Test Result	6.3200
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

Test Completion Date		
11/22/2021		
Replicate No.	Control	TIWC
1	27	20
2	31	22
3	25	25
4	27	19
5	27	27
6	22	20
7	20	15
8	26	18
9	20	15
10	24	19
11		
12		
13		
14		
15		

Mean	24.900	20.000
Std Dev.	3.479	3.859
# Replicates	10	10

T-Test Result	0.8996
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	<b>PASS</b>

Test Completion Date		
6/28/2022		
Replicate No.	Control	TIWC
1	22	21
2	22	30
3	30	30
4	26	23
5	30	25
6	26	25
7	23	20
8	20	30
9	31	34
10	25	15
11		
12		
13		
14		
15		

Mean	25.500	25.300
Std Dev.	3.837	5.774
# Replicates	10	10

T-Test Result	3.0266
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test: Chronic  
Species Tested: Pimephales  
Endpoint: Survival  
TIWC (decimal): 0.03  
No. Per Replicate: 10  
TST b value: 0.75  
TST alpha value: 0.25

Facility Name: Antrim Township WWP

Permit No.:

Replicate No.	Test Completion Date: 11/5/2019	
	Control	TIWC
1	1	0.9
2	1	1
3	0.8	1
4	1	0.7
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 0.950, 0.900  
Std Dev.: 0.100, 0.141  
# Replicates: 4, 4

T-Test Result: 4.8354  
Deg. of Freedom: 5  
Critical T Value: 0.7267  
Pass or Fail: **PASS**

Replicate No.	Test Completion Date: 11/3/2020	
	Control	TIWC
1	0.8	1
2	1	0.7
3	0.9	0.8
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 0.925, 0.875  
Std Dev.: 0.096, 0.150  
# Replicates: 4, 4

T-Test Result: 4.5889  
Deg. of Freedom: 4  
Critical T Value: 0.7407  
Pass or Fail: **PASS**

Replicate No.	Test Completion Date: 11/23/2021	
	Control	TIWC
1	1	0.8
2	1	1
3	1	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 1.000, 0.925  
Std Dev.: 0.000, 0.096  
# Replicates: 4, 4

T-Test Result: 8.0674  
Deg. of Freedom: 3  
Critical T Value: 0.7649  
Pass or Fail: **PASS**

Replicate No.	Test Completion Date: 6/28/2022	
	Control	TIWC
1	1	1
2	1	0.9
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 1.000, 0.975  
Std Dev.: 0.000, 0.050  
# Replicates: 4, 4

T-Test Result: 17.8623  
Deg. of Freedom: 3  
Critical T Value: 0.7649  
Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.03
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name	Antrim Township WWP
Permit No.	

Test Completion Date		
Replicate	11/5/2019	
No.	Control	TIWC
1	0.2656	0.199
2	0.262	0.296
3	0.247	0.249
4	0.271	0.221
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.261	0.241
Std Dev.	0.010	0.042
# Replicates	4	4

T-Test Result	2.1246
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.187	0.343
2	0.343	0.306
3	0.258	0.294
4	0.32	0.367
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.277	0.328
Std Dev.	0.070	0.034
# Replicates	4	4

T-Test Result	3.8458
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	11/23/2021	
No.	Control	TIWC
1	0.28	0.244
2	0.269	0.27
3	0.317	0.304
4	0.305	0.263
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.293	0.270
Std Dev.	0.022	0.025
# Replicates	4	4

T-Test Result	3.3762
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	<b>PASS</b>

Test Completion Date		
Replicate	6/28/2022	
No.	Control	TIWC
1	0.261	0.269
2	0.267	0.245
3	0.256	0.257
4	0.273	0.319
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.264	0.273
Std Dev.	0.007	0.033
# Replicates	4	4

T-Test Result	4.5069
Deg. of Freedom	3
Critical T Value	0.7649
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
Replicate	11/2/2020	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Test Completion Date		
Replicate	11/22/2021	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

Test Completion Date		
Replicate	6/28/2022	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		

Test Completion Date		
Replicate	11/7/2023	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	0
9	1	1
10	1	1
11		
12		
13		
14		
15		

Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10

T-Test Result  
Deg. of Freedom  
Critical T Value  
Pass or Fail **PASS**

T-Test Result 1.5000  
Deg. of Freedom 9  
Critical T Value 0.8834  
Pass or Fail **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TIWC (decimal)	0.03
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name	Antrim Township WWP
Permit No.	

Replicate No.	Test Completion Date 11/2/2020	
	Control	TIWC
1	33	29
2	32	34
3	36	33
4	31	29
5	30	28
6	29	33
7	23	33
8	21	25
9	29	31
10	26	34
11		
12		
13		
14		
15		

Mean	29.000	30.800
Std Dev.	4.570	3.035
# Replicates	10	10

T-Test Result	6.3200
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	<b>PASS</b>

Replicate No.	Test Completion Date 11/22/2021	
	Control	TIWC
1	27	20
2	31	22
3	25	25
4	27	19
5	27	27
6	22	20
7	20	15
8	26	18
9	20	15
10	24	19
11		
12		
13		
14		
15		

Mean	24.900	20.000
Std Dev.	3.479	3.859
# Replicates	10	10

T-Test Result	0.8996
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	<b>PASS</b>

Replicate No.	Test Completion Date 6/28/2022	
	Control	TIWC
1	22	21
2	22	30
3	30	30
4	26	23
5	30	25
6	26	25
7	23	20
8	20	30
9	31	34
10	25	15
11		
12		
13		
14		
15		

Mean	25.500	25.300
Std Dev.	3.837	5.774
# Replicates	10	10

T-Test Result	3.0266
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	<b>PASS</b>

Replicate No.	Test Completion Date 11/7/2023	
	Control	TIWC
1	24	22
2	27	27
3	22	26
4	19	23
5	20	20
6	13	24
7	24	20
8	26	4
9	28	28
10	20	19
11		
12		
13		
14		
15		

Mean	22.300	21.300
Std Dev.	4.498	6.816
# Replicates	10	10

T-Test Result	1.9023
Deg. of Freedom	14
Critical T Value	0.8681
Pass or Fail	<b>PASS</b>

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test: Chronic  
 Species Tested: Pimephales  
 Endpoint: Survival  
 TIWC (decimal): 0.03  
 No. Per Replicate: 10  
 TST b value: 0.75  
 TST alpha value: 0.25

Facility Name: Antrim Township WWP  
 Permit No.:

Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.8	1
2	1	0.7
3	0.9	0.8
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 0.925    0.875  
 Std Dev.: 0.096    0.150  
 # Replicates: 4    4

T-Test Result: 4.5889  
 Deg. of Freedom: 4  
 Critical T Value: 0.7407  
 Pass or Fail: **PASS**

Test Completion Date		
Replicate	11/23/2021	
No.	Control	TIWC
1	1	0.8
2	1	1
3	1	1
4	1	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 1.000    0.925  
 Std Dev.: 0.000    0.096  
 # Replicates: 4    4

T-Test Result: 8.0674  
 Deg. of Freedom: 3  
 Critical T Value: 0.7649  
 Pass or Fail: **PASS**

Test Completion Date		
Replicate	6/28/2022	
No.	Control	TIWC
1	1	1
2	1	0.9
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 1.000    0.975  
 Std Dev.: 0.000    0.050  
 # Replicates: 4    4

T-Test Result: 17.8623  
 Deg. of Freedom: 3  
 Critical T Value: 0.7649  
 Pass or Fail: **PASS**

Test Completion Date		
Replicate	11/7/2023	
No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean: 1.000    1.000  
 Std Dev.: 0.000    0.000  
 # Replicates: 4    4

T-Test Result:  
 Deg. of Freedom:  
 Critical T Value:  
 Pass or Fail: **PASS**

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TIWC (decimal)	0.03
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name	Antrim Township WWP
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Permit No.	
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Test Completion Date		
Replicate	11/3/2020	
No.	Control	TIWC
1	0.187	0.343
2	0.343	0.306
3	0.258	0.294
4	0.32	0.367
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.277	0.328
Std Dev.	0.070	0.034
# Replicates	4	4

T-Test Result 3.8458  
 Deg. of Freedom 5  
 Critical T Value 0.7267  
 Pass or Fail **PASS**

Test Completion Date		
Replicate	11/23/2021	
No.	Control	TIWC
1	0.28	0.244
2	0.269	0.27
3	0.317	0.304
4	0.305	0.263
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.293	0.270
Std Dev.	0.022	0.025
# Replicates	4	4

T-Test Result 3.3762  
 Deg. of Freedom 5  
 Critical T Value 0.7267  
 Pass or Fail **PASS**

Test Completion Date		
Replicate	6/28/2022	
No.	Control	TIWC
1	0.261	0.269
2	0.267	0.245
3	0.256	0.257
4	0.273	0.319
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.264	0.273
Std Dev.	0.007	0.033
# Replicates	4	4

T-Test Result 4.5069  
 Deg. of Freedom 3  
 Critical T Value 0.7649  
 Pass or Fail **PASS**

Test Completion Date		
Replicate	11/7/2023	
No.	Control	TIWC
1	0.233	0.269
2	0.285	0.289
3	0.219	0.19
4	0.296	0.252
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Mean	0.258	0.250
Std Dev.	0.038	0.043
# Replicates	4	4

T-Test Result 2.1926  
 Deg. of Freedom 5  
 Critical T Value 0.7267  
 Pass or Fail **PASS**