pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021709**
Facility Type	**Municipal**	APS ID	**514546**
Major / Minor	**Major**	Authorization ID	**1445413**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Birdsboro Municipal Authority – Berks County**	Facility Name	**Birdsboro WWTP**
Applicant Address	202 E Main Street	Facility Address	Armorcast Road
	Birdsboro, PA 19508-2025		Birdsboro, PA 19508
Applicant Contact	Anthony Tucci, Authority Chairman	Facility Contact	Shawn Hoster
Applicant Phone	(610) 582-6030 / atucci@ptd.net	Facility Phone	(610) 582-6034
Client ID	212284	Site ID	496555
Ch 94 Load Status	-	Municipality	Birdsboro Borough
Connection Status	-	County	Berks
Date Application Received	June 28, 2023	EPA Waived?	No
Date Application Accepted	July 6, 2023	If No, Reason	SIU-CIU-Pretreatment
Purpose of Application	Renewal of NPDES permit		

Summary of Review

The existing NPDES permit was issued December 20, 2018, with an expiration date of December 31, 2023. The permit renewal application was received June 28, 2023, via DEP's OnBase electronic upload system (Reference ID # 112918). The existing permit was administratively extended past its expiration date.

On August 1, 2024, the DEP permit writer contacted the Municipal Authority and verified that Mr. Tucci is still the Authority Chairman, with the same phone number and email address as in the application. The Municipal Authority staff directed the permit writer to contact H. David Miller of Entech Engineering with questions about the NPDES application. On August 1, 2024, the DEP permit writer verified with Mr. Miller that a) they agree to receive the draft and final permits by email, b) there is no change of design flow from the application, and c) they still do not accept hauled-in waste at this time. Since August 1, 2024, there have been several emails sent to Mr. Miller from the permit writer. A Pre-Draft Survey was sent to Mr. Miller and Mr. Tucci on December 19, 2024. Responses to the Pre-Draft Survey were received January 21, 2025.

This Publicly Owned Treatment Plant (POTW) serves primarily the Borough of Birdsboro with some contribution from Union Township and from Geigertown Area Joint Authority. The renewal permit application identified Birdsboro Power as the only industrial user contributing wastewater.

The DEP permit writer questioned the applicant about their intention to accept leachate from Pioneer Crossing Landfill. The renewal application did not include the landfill as an industrial user whereas DEP staff had participated in conference calls previously about a proposal to accept leachate and had approved a pilot study for leachate from Pioneer Crossing Landfill brought to the Birdsboro Treatment Plant. Attachment D of the 2023 Chapter 94 Municipal Wasteload Report submitted to DEP in March 2024 also mentioned this plan:

> *The Municipal Authority entered into an Agreement with Pioneer Crossing Landfill (PCL) to accept leachate via a force main, which has yet to be constructed. The Authority conducted a leachate impact study in 2023 and is*

Approve	Deny	Signatures	Date
x		*Bonnie Boylan* Bonnie Boylan / Environmental Engineering Specialist	March 17, 2025
x		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	March 17, 2025
x		Maria D. Bebenek Maria D. Bebenek, P.E. / Environmental Group Manager	March 17, 2025

currently negotiating a lower flow with PCL. PCL purchased 358 EDUs. These 358 EDUs will be adjusted downward in future Chapter 94 Reports.

On October 2, 2024, DEP received a response from the applicant stating that no landfill leachate was intended at this time. See the attached response, dated October 2, 2024. The draft renewal permit has been prepared for the current conditions. **If the facility again proposes accepting landfill leachate, a permit amendment application would be required BEFORE they could proceed**: there are additional pollutants in landfill leachate. There could be Pretreatment Standards added to federal effluent limitation guidelines (ELGs) for municipal landfills as well [40 CFR Part 445]:

As announced in the Effluent Guidelines Program Plan 15 (January 2023), the EPA has completed a detailed study of the Landfills category. Based on the information and data collected through this study, the development of effluent guidelines and pretreatment standards for landfills that discharge their leachate is warranted. The EPA intends to revise the existing Landfills Point Source Category ELGs to address PFAS discharge from these landfills.

https://www.epa.gov/eg/landfills-effluent-guidelines

Design flow:

The existing permit's limits were based on a design flow of 1.35 MGD. The application stated that there are no planned upgrades or expansions. Past Discharge Monitoring Reports (DMRs) were reviewed: the average flow continues to be below 1.35 MGD. There is no need to change the effluent flow on which the permit limits are developed.

Summarized DMR data (attached) from November 1, 2021 through February 28, 2025 indicate an average monthly flow at outfall 001 of 0.90 MGD. The 95th percentile of the average monthly flows reported for the same period was 1.22 MGD.

The most recent Chapter 94 Municipal Wasteload Report, submitted March and June 2024 for calendar year 2023 (see attached excerpt) also indicates that the facility is operating below their design flow. This report did not indicate existing or projected hydraulic overload or organic overload for the next five years.

Industrial Users:

The 2023 NPDES renewal application identified one industrial user, Birdsboro Power Project which contributes approximately 450,000 gpd and qualifies as a Significant Industrial User (SIU). Most of the wastewater was described in the application as cooling tower blowdown. The application provided that this SIU conveys 449,000 gpd of process water and approximately 1000 gpd of sanitary wastewater, thus comprising 33-50% of the POTW's discharge (0.45 MGD / 1.350 MGD design flow = 33% while 0.45 MGD / 0.90 average discharge flow = 50%). As a steam electrical power generating station, the process wastewater is subject to federal Effluent Limitation Guidelines, 40 CFR Part 423.

The facility's 2023 Pretreatment Annual Report submitted to EPA similarly only shows one SIU which also qualifies as a categorical industrial user (CIU), Birdsboro Power, and no other CIUs or permitted IUs. The SIU contributed approximately 32% of the WWTP's total flow. The 2023 Pretreatment Annual Report also indicated that there were no hauled-in wastes accepted, there were no instances of pass-through or interference at the POTW, and there were no significant or non-significant industrial users in significant non-compliance status.

Additionally, approximately 40,000 gpd of flow was contributed from non-SIU commercial dischargers.

EPA Pretreatment Program:

The facility has an EPA-approved Pretreatment Program. The draft renewal permit includes updated Part C conditions applicable to permittees with EPA Pretreatment Programs (Part C.II.).

Hauled-in Wastes:

None accepted now and none expected over the next five years, according to their application.

Combined Sewer Overflows:

Not applicable

Variances:

There were no variances requested in the application.

Sludge use and/or disposal:

Hauled off-site, to a landfill (per application)

Unresolved Violations:

As of the preparation of this Fact Sheet, there are no outstanding violations for this client for the Clean Water Program. However, there are four outstanding violations from February 2023 for DEP's Safe Drinking Water Program according to DEP's Power BI Report Compliance History By Client. The permit writer contacted Safe Drinking Water staff about these 2023 violations. Their response, by October 4, 2024 email, was that some of them could be closed and that none should prevent issuance of this renewal NPDES permit for discharges to waterways.

Delaware River Basin Commission (DRBC):

The facility discharges to a waterway within the Delaware River watershed and is thus subject to DRBC requirements. A copy of the draft permit and Fact Sheet will therefore be sent to the DRBC for their review in accordance with State regulations and an interagency agreement. Any comments from DRBC will be considered.

DRBC's Interactive Map shows the most recent docket for this facility was approved by DRBC September 10, 2020 and expires December 31, 2028: D-1974-126 CP-4.

Birdsboro Power LLC has its own docket with DRBC, D-2016-004-1, for consumptive use: 2.72 MGD of surface water provided by Reading Area Water Authority through an interconnection. Under emergency situations, water could be supplied by Birdsboro Municipal Authority through an interconnection. Birdsboro Power estimated that approximately 87% of their total water use would be for the cooling water. The docket was approved December 14, 2016 and expires December 14, 2026.

Public Participation:

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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	1.35
Latitude	40º 16' 9.7" (per last permit & appl)	Longitude	-75º 48' 17.6" (per last permit & appl)
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Hay Creek (CWF, MF)	Stream Code	1772
NHD Com ID	25963498	RMI	0.23
Drainage Area	22.1	Yield (cfs/mi^2)	0.124
Q_{7-10} Flow (cfs)	2.73 (equivalent of 1.6 MGD)	Q_{7-10} Basis	USGS/PA StrmStats online*
Elevation (ft)	165	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	None (use designated use, Ch. 93)	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired for Recreational Use (Assessment ID 18906)		
Cause(s) of Impairment	Pathogens		
Source(s) of Impairment	Unknown		
TMDL Status	None on Hay Creek	Name	downstream, Schuylkill River impaired for Fish Consumption due to PCBs
Secondary Receiving Water : Schuylkill River (stream code 0833, WWF) at RMI 63.4, elev. 160’			
Background/Ambient Data*	SEE BELOW	Data Source*	SEE BELOW
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake		Pottstown Borough Water Authority	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	Approx. 57	Distance from Outfall (mi)	Approx. 7 miles

*StreamStats (usgs.gov) ; or https://streamstats.usgs.gov/ss/

Other Comments:

-From the headwaters to mouth of Hay Creek considered ‘Trout Natural Reproduction, requiring a minimum Dissolved Oxygen in-stream level (water quality criteria as per Pa Code Chapter 93.7) of 8.0 mg/l during “early life stages” of October through May

-Hay Creek not considered Class A Trout

-Closest stream gage: None on Hay Creek; gage 01471510 is located upstream on Schuylkill River at Reading, approx. 75.1 RMI; gage 01472000 is located downstream on Schuylkill River at Pottstown, approx. 54.2 RMI (WQN 111). Q7-10 low-flow data is no longer collected/compiled at these gages.

-No other dischargers to Hay Creek in proximity, except for MS4 stormwater discharges

Treatment Facility Summary

Treatment Facility Name: Birdsboro WWTP

WQM Permit No.	Issuance Date
0606405 A-1	5/23/2016
0606405	3/21/2007

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Activated Sludge	Gas Chlorine	1.35

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.89	2815		Aerobic Digestion and Centrifuge de-watering	Landfill

Aerated grit chamber, mechanically cleaned bar screen, primary settling, activated sludge (2 Vertical Loop Reactors), final clarification, disinfection with chlorine gas, dechlorination with sodium bisulfite, post aeration, aerobic digestion and dewatering with centrifuge for sludge handling

The POTW is surrounded by a dike for flood protection; the top of the dike is one foot above the 100-year flood level (according to the DRBC docket).

EXISTING PERMIT LIMITS, 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.16	XXX	0.55	1/day	Grab
Temperature (deg F)	XXX	XXX	XXX	Report	Report	XXX	1/day	I-S
Carbonaceous Biochemical Oxygen Demand (CBOD5)	281	450	XXX	25.0	40.0 Wkly Avg	50	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Suspended Solids	337	506	XXX	30.0	45.0 Wkly Avg	60	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	XXX	30.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	159	XXX	XXX	14.1	XXX	28.2	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	53	XXX	XXX	4.7	XXX	9.4	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Arsenic, Total	0.3	XXX	XXX	0.023	0.036	0.058	1/week	24-Hr Composite
Cadmium, Total	0.01	XXX	XXX	0.001	0.0015	0.0025	1/week	24-Hr Composite
Chromium, Hexavalent	0.3	XXX	XXX	0.024	0.038	0.06	1/week	24-Hr Composite
Copper, Total	0.4	XXX	XXX	0.037	0.057	0.09	1/week	24-Hr Composite
Cyanide, Free	0.14	XXX	XXX	0.012	0.019	0.03	1/week	24-Hr Composite
Lead, Total	0.2	XXX	XXX	0.016	0.025	0.04	1/week	24-Hr Composite
Mercury, Total	0.0014	XXX	XXX	0.0001	0.0002	0.0003	1/week	24-Hr Composite
Nickel, Total	2.2	XXX	XXX	0.20	0.32	0.5	1/week	24-Hr Composite
Silver, Total	0.2	XXX	XXX	0.016	0.026	0.04	1/week	24-Hr Composite
Zinc, Total	3.4	XXX	XXX	0.30	0.47	0.75	1/week	24-Hr Composite

Compliance History

DMR Data for Outfall 001 (from February 1, 2024 to January 31, 2025)

Parameter	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24
Flow (MGD) Average Monthly	0.714	0.7940	0.684	0.867	0.820	0.786	0.900	0.732	0.856	1.168	1.212	0.932
Flow (MGD) Daily Maximum	0.940	1.213	0.957	1.073	0.896	2.646	1.768	0.871	1.002	3.689	1.364	1.138
pH (S.U.) Instantaneous Minimum	6.4	6.3	6.4	6.5	6.9	6.6	6.9	6.6	6.4	6.1	6.5	6.5
pH (S.U.) Instantaneous Maximum	7.1	7.0	7.1	7.2	7.3	7.3	7.5	7.3	7.2	7.2	7.2	7.1
DO (mg/L) Instantaneous Minimum	8.2	7.4	7.1	6.8	6.4	6.6	5.9	6.5	6.2	7.3	7.3	7.4
TRC (mg/L) Average Monthly	0.04	0.03	0.04	0.04	0.05	0.03	0.06	0.04	0.04	0.04	0.04	0.03
TRC (mg/L) Instantaneous Maximum	0.09	0.16	0.12	0.11	0.17	0.11	0.10	0.13	0.14	0.11	0.07	0.12
Temperature (ºF) Average Monthly	56.0	59.0	64.0	68	70	74.0	76	71	67.0	61	58	57
Temperature (ºF) Daily Maximum	59.0	63.0	70.0	72	75	78.0	78	75	71.0	66	60	59
CBOD5 (lbs/day) Average Monthly	< 13.0	< 15.0	< 14.0	< 17.0	< 15.0	< 18.0	< 17.0	< 15.0	< 19.0	< 31.0	< 21.0	< 24.0
CBOD5 (lbs/day) Weekly Average	< 14.0	< 17.0	< 19.0	< 29.0	16.0	< 26.0	21.0	16.0	21.0	< 86.0	< 25.0	23.0
CBOD5 (mg/L) Average Monthly	< 2.2	< 2.3	< 2.5	< 2.4	< 2.2	< 2.0	< 2.3	< 2.5	< 2.8	< 2.7	< 2.3	< 2.9
CBOD5 (mg/L) Weekly Average	< 2.7	< 2.8	< 3.1	< 3.5	2.4	< 2.0	3.1	< 2.7	3.4	< 4.1	< 2.5	2.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1434.0	1074.0	743.0	1056.0	1438.0	794.0	691.0	528.0	669.0	911.0	804.0	1144.0

BOD5 (mg/L) Raw Sewage Influent Average Monthly	252.0	162.6	142.7	149.0	214.1	90.8	94.8	86.5	101.7	111.6	87.6	150.9
TSS (lbs/day) Average Monthly	< 23.0	< 33.0	< 24.0	< 29.0	< 27.0	< 36.0	< 32.0	24.0	< 27.0	< 72.0	46.0	< 33.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	4428.0	1259.0	801.0	1065.0	2290.0	884.0	720.0	599.0	866.0	1215.0	971.0	1379.0
TSS (lbs/day) Weekly Average	< 28.0	< 41.0	330	< 35.0	< 31.0	< 53.0	40.0	< 25.0	< 32.0	199.0	60.0	< 36.0
TSS (mg/L) Average Monthly	< 4.0	< 5.0	< 4.1	< 4.1	< 4.1	< 4.0	< 4.3	< 4.0	< 4.1	< 6.2	4.9	< 4.2
TSS (mg/L) Raw Sewage Influent Average Monthly	774.0	192.0	146.0	150.1	343.0	106.1	98.2	97.8	132.0	151.0	104.9	179.0
TSS (mg/L) Weekly Average	< 4.0	< 6.8	4.5	< 4.4	< 4.4	< 4.0	5.8	< 4.0	< 4.4	9.7	5.8	< 4.5
Total Dissolved Solids (mg/L) Average Monthly	774.0	856.5	635.0	801.5	834.0	779.0	820.0	787.0	531.5	288.5	517.0	579.0
Total Dissolved Solids (mg/L) Daily Maximum	800.0	941.0	832.0	824.0	835.0	780.0	834.0	808.0	705.0	291.0	521.0	648.0
Oil and Grease (mg/L) Average Monthly	< 4.9	< 4.9	< 5.0	< 4.9	< 5.0	< 5.0	< 4.9	< 5.0	< 5.2	< 4.9	< 4.9	< 5.5
Oil and Grease (mg/L) Instantaneous Maximum	< 4.9	< 4.9	< 5.0	< 4.9	< 5.1	< 5.0	< 5.0	5.0	< 5.2	< 5.1	< 4.9	< 6.1
Fecal Coliform (No./100 ml) Geometric Mean	5.0	19.0	59.0	16.0	31.0	44.0	66.0	< 15.0	13.0	19.0	14.0	9.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	13.0	29.0	3400.0	24.0	72.0	116.0	3100.0	120.0	55.0	20000	51.0	20.0
Total Nitrogen (lbs/day) Average Monthly	45.0	94.0	98.0	129.0	100.0	181.0	100.0	101.0	129.0	< 199.0	171.0	129.0
Total Nitrogen (mg/L) Average Monthly	9.25	16.0	17.9	18.0	16.2	11.1	14.5	15.6	18.5	< 8.97	17.2	17.5

Ammonia (lbs/day) Average Monthly	< 0.6	< 0.7	< 0.6	< 0.7	< 0.7	< 0.9	< 0.900	< 0.6	< 1.0	< 4.0	< 0.90	< 2.0

Ammonia (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.2	< 0.2	< 0.10	< 0.3
Total Phosphorus (lbs/day) Average Monthly	9.0	21.0	22.0	28.0	22.0	48.0	19.0	24.0	25.0	31.0	23.0	19.0
Total Phosphorus (mg/L) Average Monthly	1.89	3.58	4.03	4.04	3.52	2.96	2.82	3.69	3.58	1.42	2.33	2.63
Total Arsenic (lbs/day) Average Monthly	< 0.006	< 0.007	< 0.005	< 0.007	< 0.007	0.008	0.007	< 0.006	< 0.007	< 0.009	< 0.01	< 0.008
Total Arsenic (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Arsenic (mg/L) Daily Maximum	< 0.001	0.001	< 0.001	0.001	0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Cadmium (lbs/day) Average Monthly	< 0.002	< 0.003	< 0.002	< 0.003	< 0.003	< 0.003	< 0.003	< 0.002	< 0.003	< 0.004	< 0.004	< 0.003
Total Cadmium (mg/L) Average Monthly	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Total Cadmium (mg/L) Daily Maximum	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Hexavalent Chromium (lbs/day) Average Monthly	< 0.0005	< 0.0007	< 0.0005	< 0.0007	< 0.0007	< 0.0009	< 0.0008	< 0.0006	< 0.003	< 0.0009	< 0.001	< 0.0008
Hexavalent Chromium (mg/L) Average Monthly	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0004	< 0.0001	< 0.0001	< 0.0001
Hexavalent Chromium (mg/L) Daily Maximum	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.00011	0.00011	0.00017	< 0.00011	0.0013	< 0.0001	< 0.0001	< 0.0001
Total Copper (lbs/day) Average Monthly	0.04	0.04	0.04	0.04	0.04	0.04	0.040	0.03	0.03	0.06	0.06	0.06
Total Copper (mg/L) Average Monthly	0.006	0.006	0.007	0.006	0.006	0.005	0.005	0.005	< 0.005	0.006	0.006	0.007
Total Copper (mg/L) Daily Maximum	0.007	0.007	0.008	0.007	0.007	0.006	0.006	0.007	< 0.005	0.008	0.008	0.008
Free Cyanide (lbs/day) Average Monthly	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.05	< 0.05	< 0.04
Free Cyanide (mg/L) Average Monthly	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Free Cyanide (mg/L) Daily Maximum	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005
Total Lead (lbs/day) Average Monthly	< 0.006	< 0.007	< 0.005	< 0.007	< 0.007	< 0.008	< 0.007	< 0.006	< 0.007	< 0.009	< 0.01	< 0.008

Total Lead (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Lead (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Mercury (lbs/day) Average Monthly	< 0.0005	< 0.0006	< 0.0005	< 0.0007	< 0.0006	< 0.0008	< 0.0007	< 0.0005	< 0.0006	< 0.0008	< 0.0009	< 0.0007
Total Mercury (mg/L) Average Monthly	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Total Mercury (mg/L) Daily Maximum	0.0001	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	0.00009	< 0.00009	< 0.00009	< 0.00009
Total Nickel (lbs/day) Average Monthly	0.01	0.009	0.01	0.01	0.008	0.01	0.010	< 0.01	0.01	0.01	< 0.02	< 0.008
Total Nickel (mg/L) Average Monthly	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.001	< 0.002	< 0.001
Total Nickel (mg/L) Daily Maximum	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.001
Total Silver (lbs/day) Average Monthly	< 0.006	< 0.007	< 0.005	< 0.007	< 0.007	< 0.008	< 0.007	< 0.006	< 0.007	< 0.009	< 0.01	< 0.008
Total Silver (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Silver (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Zinc (lbs/day) Average Monthly	0.600	0.60	0.400	0.500	0.400	0.300	0.300	0.300	0.500	0.800	0.600	0.700
Total Zinc (mg/L) Average Monthly	0.110	0.09	0.080	0.060	0.060	0.040	0.040	0.05	0.080	0.08	0.060	0.090
Total Zinc (mg/L) Daily Maximum	0.125	0.104	0.089	0.080	0.082	0.050	0.052	0.06	0.100	0.125	0.069	0.102

Compliance History

Effluent Violations for Outfall 001, from January 1, 2021 to February 28, 2025:

Event Start Date	Event End Date	Parameter	Limit Type	Reported Value		Permit Limit	Unit	Sampling Point	Sampling Frequency	Sampling Type	Cause of NC	Corrective Action	External Comments	Internal Comments
07/01/2024	07/31/2024	Fecal Coliform	Instantaneous Maximum	3100	>	1000	No./100 ml	Final Effluent (001)	2/week	Grab				View/Edit
04/01/2024	04/30/2024	Fecal Coliform	Instantaneous Maximum	20000	>	10000	No./100 ml	Final Effluent (001)	2/week	Grab				View/Edit
09/01/2022	09/30/2022	Fecal Coliform	Instantaneous Maximum	2800	>	1000	No./100 ml	Final Effluent (001)	2/week	Grab				View/Edit
09/01/2021	09/30/2021	Fecal Coliform	Instantaneous Maximum	2000	>	1000	No./100 ml	Final Effluent (001)	2/week	Grab				View/Edit

7/9/2023 Unauthorized discharge, estimated 3 hours- occurred after 4.5" of rain in 2 hours – per Non-Compliance Report submitted in OnBase

12/18/2023 Unauthorized discharge, estimated 6.5 hours- occurred after 2.5" of rain in 6 hours following 3.5" on prior days, primary clarifier overflowed onto ground and into storm sewer to Hay Creek – per Non-Compliance Report submitted in OnBase

12/27/2023 Unauthorized discharge, estimated 7 hours- occurred after 3" of rain in 4 hours – per Non-Compliance Report submitted in OnBase

Summary of DEP Inspections:

February 20, 2025 – No violations. The vertical loop reactor (VLR) consists of two trains in series with the first train functioning as an anoxic tank and both containing coarse air diffusers for aeration. Polymer is added to the VLR for phosphorus removal and improved settling.. At the time of the inspection, the clarifiers were operating efficiently and had a very clear appearance. The weirs were clean. The facility uses chlorine gas disinfection. Chlorine gas is injected into utility water and dosed at the head of the chlorine contact tanks. The facility rents a 250-gallon sodium bisulfite tank which is located in secondary containment. Sodium bisulfite is dosed directly after flowing through the flume. The facility uses an ultrasonic sensor to measure flow, along with an ultrasonic antialgae probe that pulses at the bottom of the CCT to prevent algae buildup.

The facility wastes sludge to the primary digester. After one week, the primary digester is decanted to the head of the plant, and the dewatered sludge is transferred to the secondary digester. Once the secondary digester is decanted, the sludge is sent to the centrifuge for further dewatering. The centrifuge cake is transported to two roll-off dumpsters which are stored under cover outside.

Birdsboro Municipal Authority operates two pump stations: one located on River Road and the other on Cocalico Road. Both pump stations are inspected daily, both are equipped with an auto-dialer alarm system that alerts Mr. Hoster in case of an issue.

July 12, 2021 – No violations but July 2019 and August 2020 DMRs need to show unauthorized discharges from overflow events. Treatment units are online and appear to be operating properly during inspection. Facility collects effluent samples from one of two post aeration tanks; no combined sampling point available. No hauled-in wastes accepted.

September 18, 2019 – No violations but need to re-submit eDMRs for March 2018, August 2018, June 2019, and July 2019 to include unauthorized discharge reports for overflows. Digester was offline. “Effluent composite samples and daily readings are collected from one side of the post aeration tank, units run in parallel…No combined sampling point downstream of post aeration available.” Samples were collected by inspector for lab analysis and results were within permitted limits.

September 6, 2018 - No violations. One raw sewage pump down since yesterday; issue started following a storm in August. Outfall is submerged in Hay Creek. Inspector recommended facility develop Emergency Response/PPC Plan. Ultrasonic effluent flow meter, 7-day chart, SCADA. Effluent observed to be mostly clear, no issues at creek.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.35
Latitude 40º 16' 9.7" **Longitude** -75º 48' 17.6"
Wastewater Description: Sewage Effluent

Permit limits can be Technology Based Effluent Limitations or Water Quality Based Effluent Limitations. Both are discussed in this Fact Sheet, in separate sections. Existing permit limits can also be carried forward such as to prevent backsliding.

Technology-Based Effluent Limitations (TBELs)

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

	Limit (mg/l)	Statistical Base Code	Federal Regulation	State Regulation	DRBC*
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)	
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)	
Total Suspended Solids (TSS)	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 (TRC)	0.5	Average Monthly	-	92a.48(b)(2)	
Ammonia as N	20	Average Monthly	-	-	18 CFR Part 410
Total Dissolved Solids (TDS)	1000 **	Average Monthly	-	-	DRBC docket [based on 18 CFR Part 410]

*DEP has an interagency agreement with the Delaware River Basin Commission and incorporates their requirements (per 18 CFR Part 410 Water Quality Regulations and approved dockets) into our permits where appropriate.

**Or a concentration established by the Commission which is compatible with designated water uses and stream quality objectives and recognizes the need for reserve capacity to serve future dischargers (i.e. a limit based on a TDS Determination submitted to DRBC proving that the discharge will not cause the TDS in the receiving water to exceed the lesser of 500 mg/l or 133% of background. The DRBC docket for this facility does not include such a TDS variance).

The existing permit and the draft renewal permit include more stringent limits for **TRC and Ammonia** than the TBELs shown in the above table. These are discussed further in the Water Quality Based Effluent Limitations section of the Fact Sheet.

The existing permit included limits for **Oil and Grease** based on Title 25 Pa Code § 92a.48 and § 95.2(2), because of the SIU. The DMR data from the past three years was reviewed: there have been no months in which the discharge approached the limits of 15 mg/l as an average monthly concentration and 30 mg/l as a daily maximum concentration. Of

the past 38 months of DMRs reviewed, there were only 5 months in which a detected concentration was reported for the Daily Maximum; the rest were non-detect. The maximum reported was 6.9 mg/l, which is less than 25% of the Daily Maximum limit of 30 mg/l. The limit and monitoring requirement for Oil and Grease have been removed based on "no reasonable potential" to exceed the TBEL (and no applicable effluent limitation guideline for Oil and Grease).

NOTE:
The DEP's Standard Operating Procedure (SOP) for Establishing Effluent Limits for Individual Sewage Permits recommends that staff consider imposing the more stringent limitations as permit limits provided in DEP's Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers (386-2000-013) whenever the Q7-10 of the stream is less than three times the discharge flow, but that the more stringent requirements in that guidance ae not necessary for existing discharges "unless the receiving stream is impaired and the point source discharge is at least a partial cause of impairment." In this case, the Q7-10 of the stream (1.6 MGD) is less than three times the design flow (1.35 MGD) and the stream is impaired for recreational use due to pathogens. The facility has consistently been meeting their Fecal Coliform permit limits so that they are not considered to be contributing to the impairment.

Federal Effluent Limitation Guidelines (ELGs):

The facility's 2023 Pretreatment Annual Report was reviewed. The influent quarterly samples indicated concentrations below the influent goals (except that the reporting level for Total Selenium was not sensitive enough to make that conclusion). The effluent quarterly samples indicated concentrations below the effluent goals (including for Total Selenium).

The CIU, Birdsboro Power, began discharging to the POTW in 2019. Birdsboro Power has been described as a power generating facility that uses natural gas and combined-cycle combustion turbines, one heat recovery steam generator (HRSG), a mechanical draft cooling tower and circulating water system, and produces 485 megawatts of electricity. According to the 2023 permit application: the CIU conveys 449,000 gpd of process water, most of which is cooling tower blowdown. The Fact Sheet for the existing NPDES permit and the 2016 DRBC docket stated that Birdsboro Power's wastewater to the POTW would consist of cooling tower blowdown, evaporative cooler blowdown, boiler blowdown, make-up water and Reverse Osmosis reject water, miscellaneous service water and plant drains after being routed through an oil/water separator. Their wastewater would not include metal cleaning wastewater, once-through cooling water, or gasification wastewater.

This industrial user is therefore subject to the pretreatment standards for new sources included in the federal ELGs for Steam Electric Power Generating Point Sources, 40 CFR 423.17(b) (attached). The requirements applicable to this industrial user's wastewater contribution are as follows:

(1) to not discharge polychlorinated biphenyl compounds (PCBs) such as those used for transformer fluid;
(2) to not discharge detectable concentrations of 126 Priority Pollutants contained in chemicals added for cooling tower maintenance except Total Chromium and Total Zinc;
(3) to not discharge concentrations of Total Chromium greater than 0.2 mg/l or concentrations of Total Zinc greater than 1.0 mg/l in the cooling tower blowdown from chemicals added for cooling tower maintenance.

.
The ELGS also include the following provision for cooling tower blowdown:

> (ii) At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the standards for the 126 priority pollutants in paragraph (b)(4)(i) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

PCB usage has been banned in the U.S. hence PCBs are not expected to be present in transformer fluid for an electric generating station built in 2019. No permit limits for PCBs have been included in the draft renewal permit.

The ELGs for 126 priority pollutants, including Total Chromium and Total Zinc, pertain to the cooling tower blowdown contribution from the Power Station which is only a portion of the POTW's discharge. It would not be appropriate to require no detectable concentrations of the 126 priority pollutants at outfall 001. The permit renewal application, based on 10 samples, reported a maximum concentration of 0.050 mg/l for Total Chromium in the influent, less than the ELG of 0.2

mg/l. The permit renewal application, based on 10 samples, reported a maximum concentration of 0.50 mg/l for Total Zinc in the influent, less than the ELG of 1.0 mg/l. The facility's EPA Pretreatment Program requires an annual Priority Pollutant scan of the POTW's influent, quarterly influent and effluent samples for pollutants with local limits, and a headworks analysis and evaluation of pollutants including Chromium and Zinc (Part C.II.E. of permit). This POTW's 2023 EPA Pretreatment Annual Report included quarterly influent and effluent sampling for Total Chromium and Total Zinc as well as 16 other pollutants.

The POTW's DMR data included effluent monitoring for Hexavalent Chromium and for Total Zinc. The maximum Hexavalent Chromium discharge concentration for over 3 years of DMR date was 0.0013 mg/l. The DMRs did not include monitoring for Total Chromium. The permit renewal application reported a maximum concentration of Total Chromium at outfall 001 of 0.005 mg/l, based on 10 samples, well under the ELG of 0.2 mg/l. For Zinc, the maximum discharge concentration for over 3 years of DMR data was 0.125 mg/l, well under the ELG of 1.0 mg/l.

When Birdsboro Power was being built but not yet operational, the permittee represented to DEP that Birdsboro Power would not use cooling tower maintenance chemicals that contain Chromium and Zinc and therefore the ELGs for Chromium and Zinc should not apply to them.* Instead of including the ELGs or monitoring requirements in the existing permit, a Part C condition was included. The same Part C condition has also been included in the draft renewal permit:

E. Cooling tower blowdown discharges from steam electric power generating facilities discharging to the POTW and subject to 40 CFR Part 423.17 shall contain no detectable amounts of the 126 Priority Pollutants listed in 40 CFR Part 423, Appendix A, that are contained in chemicals added for cooling tower maintenance except for Total Chromium and Total Zinc. When requested by DEP, the permittee shall conduct monitoring or submit engineering calculations to demonstrate compliance with 40 CFR 423.17(b)(4).

*The October 4, 2018 Fact Sheet for the renewal permit issued December 20, 2018 stated:

Per an August 28, 2018 email from Birdsboro POTW's consultant, the characterization data that was supplied in the 2016 application amendment represented:

> *"estimated effluent quality and estimated concentrations based upon the raw water being supplied by Reading Area Water Authority (RAWA). It was confirmed that RAWA utilizes Zinc Orthophosphate for corrosion control and treatment. Therefore, according to Birdsboro Power, the projected Chromium and Zinc levels are mainly a result of the source water and not Birdsboro Power. The ELG states that the limits for Chromium and Zinc only apply to contributions from cooling tower maintenance chemicals…."*

DEP agrees that the ELGs for the 126 Priority Pollutants including Chromium and Zinc apply only to cooling tower blowdown and only when the chemicals are added for cooling tower maintenance.

Best Professional Judgment (BPJ) Limitations

None

Water Quality-Based Effluent Limitations (WQBELs)

Total Maximum Daily Loads (TMDLs):

No TMDLs apply to Hay Creek at this time.

A TMDL was developed for the Schuylkill River, downstream, which requires monitoring and Pollutant Minimization Plans for PCBs when PCBs have been detected in the discharge. These requirements have been imposed by DEP in NPDES permits for direct dischargers to the Schuylkill River.

WQBELs other than TMDLs:

DEP uses a model known as **WQM 7.0** to determine appropriate limits for CBOD5, Ammonia (NH3-N), and Dissolved Oxygen (DO). DEP's 'Implementation Guidance for Section 93.7 Ammonia Criteria', document #386-2000-022, provides the

methods and calculations contained in the WQM 7.0 model for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. For more explanation of the WQM 7.0 model, see 'Technical Reference Guide WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen', document #386-2000-016. Because there are no other nearby sewage treatment plants on Hay Creek, no other discharges were included in the model simulation.

The source of the River Mile Indices (RMI's) and elevations that were used in the WM 7.0 model (and TMS model discussed below) was DEP's eMapPA while the source of the Drainage Areas and stream design low-flows (Q7-10, the lowest consecutive 7 days of stream flow over a 10-year period) was the USGS PA Stream Stats online tool (see attached). Low Flow Yield (LFY) is calculated as stream low-flow Q7-10 divided by Drainage Area.

Because this is an existing discharger who is not expanding, the model was not re-run using a DO goal of 8 mg/l despite its discharge to a 'CWF with naturally reproducing salmonid in early life stages' designated stream, consistent with DEP's Standard Operating Procedure (SOP) Establishing Effluent Limitations in Individual Sewage NPDES Permits.

DEP's uses a **TRC model** (Excel spreadsheet) to determine WQBELs for TRC: the model utilizes the equations and calculations provided in DEP's 'Implementation Guidance Total Residual Chlorine (TRC) Regulation' for TRC, document #386-2000-011.

DEP uses a model called the **Toxics Management Spreadsheet** (TMS) for toxic pollutants. It is a macro-enabled Excel version of DEP's former PENTOX model. It evaluates the reasonable potential for discharges to cause in-stream exceedances of water quality criteria and recommends WQBELs as permit limits, as needed, or monitoring requirements to better evaluate 'reasonable potential' (to cause an in-stream exceedance of a water quality criteria) for some parameters. For more explanation of the TMS / PENTOX model, see Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, document #386-2000-015.

The TMS is coded to recommend limits in the draft permit when the discharge concentration equals or exceeds 50% of the calculated WQBEL. The TMS is coded to recommend a monitoring requirement in the draft permit when the discharge concentration is between 25% and 50% of the WQBEL in the case of non-conservative pollutants or between 10% and 50% of the WQBEL in the case of conservative pollutants.

Some default values were used in the models in the absence of reliable site-specific data including:

Stream Temperature = 20°C
Stream pH = 7 s.u.
Stream Hardness = 100 mg/l
Background CBOD5 in stream = 2 mg/l
Background Ammonia in stream = 0 mg/l
Background DO in stream = 8.24 mg/l
Background stream concentrations for toxic parameters = 0 ug/l
Stream chlorine demand = 0.3
Discharge chlorine demand = 0
Discharge Temperature = 25°C
Discharge pH = 7 s.u.
Coefficient of Variability in data = 0.5 except for input values derived from TOXCONC

In addition the WQM 7.0 and TMS models estimated the stream width, depth, and velocity.

When there are less than 10 data points, the maximum effluent concentration of the available data (such as from the permit application and from DMRs) is used by DEP as the discharge concentration input value in the TMS, with the exception of discharge Hardness for which the average effluent concentration is typically used. When there are more than 10 discrete data points (i.e. not statistically manipulated data which includes monthly average concentrations), DEP generally uses a statistical spreadsheet known as **TOXCONC** to derive the discharge concentration to use in the TMS model. The TOXCONC Spreadsheet incorporates EPA-approved statistical methodology to calculate the Long Term Average Monthly Effluent Concentration (LTAMEC) with 99% confidence and the daily Coefficient of Variability (CV) from data entered.

For this facility, there were more than 10 data points available for 10 metals because past DMRs included discharge concentrations. Because using TOXCONC is time-consuming, an initial TMS simulation for these 10 metals was run to reduce the parameters needed to be included in the TOXCONC statistical evaluation. The maximum discharge concentrations from the application or from the DMRs were used as model inputs. Together with a review of DMR data from November 1, 2021 through November 30, 2024, the 10 metals were reduced to 5. (The initial TMS results and summarized DMR data are attached.) DEP's TOXCONC was then used for these 5 metals: Total Cadmium, Total Copper, Free Cyanide, Total Silver, and Total Zinc. The discrete data points used in the TOXCONC evaluation were taken from the facility's recent Daily Effluent Supplemental DMRs. See the attached TOXCONC input values and results (dated December 2024). When there are mostly non-detect values, TOXCONC does not always yield LTAMEC's or CV's. This was the case for Total Cadmium and Total Silver. The TMS was run as follows: (1) The LTAMECs (and CVs) from TOXCONC were used as TMS model inputs for Total Copper, Free Cyanide and Total Zinc; (2) The maximum concentrations from the application were used for the other parameters; (3) Where the application reported all samples were non-detect, a < qualifier was added to the TMS input values.

Note:
TMS was then re-run using the downstream Public Water Supply (PWS) as the reach endpoint to ensure no additional limits were needed for the parameters whose water quality criteria are applied at potable water supply intakes instead of at the discharge location: Total Phenols, Nitrate-Nitrite, Chloride, Sulfate, and Total Dissolved Solids. Because the DEP model is only capable of evaluating a single stream segment, the end of Hay Creek (from 001 to the mouth) was "added" to the Schuylkill River segment from the confluence with Hay Creek to the PWS in order to do this evaluation. No additional WQBELs were recommended.

The following limitations and monitoring requirements were determined through water quality modeling (input values used and output files attached), with additional modeling conducted in March 2025 using TMS and additional data. **Also see the discussion after the tables:**

Parameter	Limit (mg/l)	Statistical Base Code	Model
Total Residual Chlorine (TRC)	0.20 / 0.65	Avg.Monthly / IMAX	TRC Excel Spreadsheet
CBOD5	25 *	Average Monthly	WQM 7.0
Dissolved Oxygen (DO)	5.0	Minimum	WQM 7.0
Ammonia	4.7 / 9.4	Avg.Monthly / Max.	WQM 7.0

*model defaulted to the TBEL meaning no more stringent limit is necessary to protect the receiving water

Parameter*	units	Average Monthly**	Daily Maximum**	Instant. Maximum**	Model
Total Cadmium	ug/l	0.62	0.97	1.56	TMS dated 12/19/2024
Total Copper	mg/l	Report	Report	-	TMS dated 12/19/2024
Total Silver	ug/l	Report	Report	-	TMS dated 12/19/2024
Total Zinc	mg/l	0.15	0.22	0.38	TMS dated 12/19/2024
Chloroform	ug/l	13.2	20.6	32.9	TMS dated 12/19/2024
Dichlorobromomethane	ug/l	Report	Report	-	TMS dated 12/19/2024

**All of the limits shown are larger than the Target Quantitation Limits (TQLs) recognized by DEP.

TRC:

Because the existing permit's limits for **TRC** are more stringent than the above, the existing permit's TRC limits of 0.16 mg/l as a monthly average and 0.55 mg/l as an instantaneous maximum are being carried forward in the draft renewal permit in accordance with anti-backsliding provisions. The facility has consistently met the existing permit limits for TRC according to a review of their DMR data.

CBOD, DO, Ammonia:

The WQM 7.0 model indicated that the existing permit limits for CBOD5, DO, and Ammonia (TBELs) are protective of water quality.

Because Ammonia is less toxic in cold water, the existing permit included Ammonia limits during cold months that were three times the limits for warm months. The existing Ammonia permit limits for the months of November through April are also carried forward in the draft renewal permit: 14.1 mg/l as an average monthly and 28.2 mg/l as an instantaneous maximum.

Note: to ensure no more stringent limits were needed to prevent adverse impacts in the Schuylkill River and to ensure the Dissolved Oxygen levels recovered in the Schuylkill River, the WQM 7.0 was also run using the Q7-10 flow for the Schuylkill River, adjusting the Low Flow Yield model input value to account for partial mixing in the wide Schuylkill River, and including the upstream Exeter treatment plant (PA0026972), the upstream Robeson treatment plant (PA0051900), this Birdsboro treatment plant, and the downstream Amity treatment plant (PA0070351), ending at the Public Water Supply at Pottstown with its water withdrawal. The DO recovered and no adjustments to limits for CBOD5, DO, and Ammonia for this facility were indicated.

Toxic Parameters:

The WQBEL for **Chloroform** that was calculated by the TMS (based on the 5.7 ug/l Human Health criteria from Pa Code § 93.8c) is not included in the draft renewal permit as a limit. Instead a monitoring requirement has been included because the proposed regulatory changes published in the PA Bulletin October 7, 2023, included a less stringent Human Health water quality criteria for Chloroform: 60 ug/l. Monitoring data in the renewal permit will allow a Reasonable Potential determination to be conducted with the water quality criteria in effect.

A Pre-Draft Survey was sent to the permittee on December 19, 2024, as recommended in DEPs SOP 'Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers' when there is a new WQBEL or a more stringent WQBEL replacing an existing WQBEL as a permit limit. The letter sent with the Survey also noted that the sample results reported for **Total Cadmium and for Total Silver** used QLs greater than DEP's TQLs. The permittee's response included a Pivot table of lab results. After reviewing this table for the three years 2022 through 2024, DEP is eliminating the proposed WQBELs for Total Cadmium and the monitoring requirement for Total Silver:

> The table included 162 sample results for Total Cadmium that were non-detect with a Minimum Detection Limit (MDL) of 0.0001 mg/l and one sample result of <0.0004 mg/l, the lab's Minimum Reporting Level (MRL) for the years 2022 through 2024. (DEP's TQL for Total Cadmium is 0.0002 mg/l. The TMS model input value that caused WQBELs to be recommended for Total Cadmium was 0.0004 mg/l, above the TQL.)
>
> The table included 161 sample results for Total Silver that were non-detect with a MDL of 0.0002 mg/l and two sample results that were <0.001 mg/l, the lab's MRL. (DEP's TQL for Total Silver is 0.0004 mg/l. The TMS model input value that caused a monitoring requirement to be recommended for Total Silver was 0.002 mg/l. DEP notes that whereas the June 2023 DMR reported a Daily Maximum for Total Silver of 0.002 mg/l, the June 2023 Daily Effluent Supplemental DMR reported 6 sample results for Total Silver: four were reported as <0.001 mg/l and two were reported as <0.0002 mg/l. The Pivot table showed all the sample results for June 2023 as undetected with a MDL of 0.0002 mg/l.)

Three more months of DMRs have been received since the model was run on December 19, 2024 and the Pre-Draft Survey was sent. Therefore, the TOXCONC evaluation and the TMS were updated to include the new DMR data. See the attached, dated March 12, 2025:

Parameter*	units	Average Monthly**	Daily Maximum**	Instant. Maximum**	Model
Total Copper	mg/l	Report	Report	-	TMS dated 3/12/2025
Total Zinc	mg/l	0.16	0.24	0.4	TMS dated 3/12/2025

The draft renewal permit includes the new WQBELs shown above for **Total Zinc,** which are more stringent than the existing permit limits for Total Zinc. In the responses to the Pre-Draft Survey, the permittee indicated they were not aware of the source(s), had not done studies in the past to control or treat this pollutant, and were uncertain if they could achieve the proposed WQBELs immediately. A review of the past 40 months of DMRs (see attached) did not show any month in which the discharge concentrations for Total Zinc would have exceeded the proposed monthly average or daily maximum limits but the monthly average reported in the January 2025 DMR (0.11 mg/l) did come close:

The past 40 months of DMRs show the average concentration for **Total Zinc** as approximately 0.059 mg/l and the maximum monthly average concentration for Total Zinc as 0.11 mg/l, less than the proposed new WQBEL of 0.16 mg/l as a monthly average. The maximum concentration reported in the past 40 months of DMRs was 0.127 mg/l, less than the proposed new WQBEL of 0.24 mg/l as a Daily Maximum.

DEP's SOP 'Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers' recommends that permittees be given the opportunity to forward site-specific data to replace any default values used in DEP's model simulations if they choose to do so, to refine the WQBELs. This option is included in Part C of the draft renewal permit along with a requirement to conduct a Toxics Reduction Evaluation (TRE) to ensure the new WQBELs are achieved.

In order to allow sufficient time to collect site-specific data if they choose to do so, to conduct a TRE, and for DEP to review the new data and amend the permit, if warranted, before the final Total Zinc limits take effect, a compliance schedule of three years has been proposed. Federal regulations [40 CFR 122.47] require interim due dates for compliance schedules which exceed one year from the date of permit issuance; the draft renewal permit includes interim due dates. The existing permit limits for Total Zinc will be carried forward until the final limits for Total Zinc's effective date.

A permit amendment to change a limit requires the procedures provided in regulations: a draft permit sent to the permittee, a public notice, a mandatory comment period of 30 days, responses to comments received, potentially a second draft permit with public notice and comment period, then a final permit issuance. (Note: if site-specific data submitted to DEP causes the TMS model to recommend more stringent limits than shown in this Fact Sheet, the permit amendment would include the more stringent limits.)

The draft renewal permit also includes a monitoring requirement for **Total Copper** and for **Dichlorobromomethane**, as recommended by the TMS model.

The existing permit included limits for these parameters for which the current TMS model simulation did not find that there was reasonable potential for the discharge to cause in-stream exceedances of State surface water quality criteria:

Total Arsenic
Total Cadmium
Hexavalent Chromium
Total Copper
Free Cyanide
Total Lead
Total Mercury
Total Nickel
Total Silver

The limits in the *existing* permit were based on sampling at the POTW and on projected concentrations for Birdsboro Power's wastewater (pro-rated) which had not yet been placed into operation and on discharge concentrations from another power plant (pro-rated). The other model input value that differed significantly between the 2018 modeling and the modeling done for this draft renewal permit was discharge Hardness: 300 mg/l was used in 2018 as an estimate considering the contribution from the new SIU whereas the current model used a discharge Hardness of 99 mg/l as provided in the 2023 permit application. (The water quality criteria for Zinc varies depending on Hardness.)

Consistent with DEP's 'SOP Establishing WQBELs and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers', the relaxation or removal of WQBELs is allowed when a) no reasonable potential for the pollutant to cause an in-stream exceedance exists, b) there is information available which was not available at the time of previous permit's issuance (other than revised regulations, guidance, or test methods), c) when removing the limits would not cause the permittee to cease using existing treatment that allowed for the lower effluent concentrations, and d) the receiving waters' designated and existing use can still be met. Ample datasets which show that these pollutants are not of concern are considered new information. Also see the discussion in this Fact Sheet under 'Anti-Backsliding'.

Temperature:

Because Birdsboro Power contributes a significant amount of cooling water to the Birdsboro POTW, the existing permit required the discharge Temperature to be monitored. The DMR data from November 1, 2021 through November 30, 2024 indicated that the average (year-round) discharge Temperature was 64°F. The highest monthly average discharge Temperatures were reported to occur in July and August of each year: 75°F and 76°F. (See attached DMR data for Temperature.)

Title 25 PA Code § 96.6 provides that heated wastewater discharges may not cause a change of surface water temperature of more than 2°F during any 1-hour period; and may not cause an in-stream exceedance of the temperature water quality criteria found in 25 PA Code § 93.7 or an amount based on an evaluation conducted in accordance with section 316(a) of the Federal Clean Water Act. It is not practical to require Temperature in streams, upstream and downstream of an outfall, to be measured hourly by permittees. DEP's eMapPA and data layers of eMapPA do not show field measurements for Temperature in either Hay Creek or in Schuylkill River in close proximity to the confluence of Schuylkill River and Hay Creek—such as to assess any impact this discharge is having on the receiving water or to back-calculate Temperature limits for the discharge that would not cause an exceedance of the water quality criteria.

Given that the Schuylkill River, designated as Warm Water Fishes and having a Q7-10 flow of 184 MGD, is 1214 feet downstream, a Temperature study has not been required in the draft renewal permit (nor was it required in the existing permit).

In addition to State regulations, DRBC's Water Quality Regulations--18 CFR Part 410, Section 4.30.6.B and 4.30.6.F--also include Temperature requirements that were included in the existing permit as Part C Condition I.F., together with DRBC's recommendation that no discharge exceed 110°F as a matter of public safety. The existing permit's Part C.I.F. condition has been carried forward into the draft renewal permit with the addition of the following sentence in accordance with 18 CFR Part 410 Section 4.30.6.F.7: "The rate of temperature change in designated heat dissipation areas may not cause mortality of the fish." The entire Part C Condition I.F. in the draft permit now reads:

F.

The discharge at Outfall 001 shall not increase the natural temperature of the receiving waters by more than 5°F, nor shall such discharge result in stream temperature exceeding 87°F, except within an allowed heat dissipation area, nor shall such discharge exceed an instantaneous maximum of 110°F. The allowed heat dissipation area is defined as: a) the lesser of 1000 feet maximum length or twenty times the average width of the stream, measured from the point where the discharge enters the stream, and b) the lesser of one-half the surface width of the stream or the width encompassing one-half of the entire cross-sectional area of the stream. The rate of temperature change in designated heat dissipation areas may not cause mortality of the fish.

Anti-Backsliding

No limits in the renewal permit are less stringent than the previous permit but the following limits in the existing permit were removed based on new information: Total Arsenic, Total Cadmium, Hexavalent Chromium, Total Copper, Free Cyanide, Total Lead, Total Mercury, Total Nickel, Total Silver, and Oil and Grease.

The existing permit limits for Oil and Grease were TBELs. Discharge monitoring twice a month for the past three years (see attached) has not demonstrated a reasonable potential to exceed the TBELs, causing them to be dropped from the draft renewal permit. The existing permit limits for the other parameters, the nine metals, were WQBELs that were developed using projected effluent concentrations for the new power plant which had not begun operations in order to provide effluent sample results. Effluent data from another existing power plant was used along with the POTW's effluent data. An anti-backsliding exception has been allowed given the new information which was not available at the time of the previous permit's issuance and which demonstrates that there is no reasonable potential to exceed water quality criteria. New discharge monitoring data and new model results constitute new information to be considered for anti-backsliding exceptions under the Clean Water Act 's Section 402(o)(2)(B)(i).

To note, the WQBELs in the existing permit were not based on Waste Load Allocations from a TMDL; no TMDL exists for Hay Creek. The designated use of the receiving water, Cold Water Fishes, will be maintained. The elimination of these permit limits will not result in a violation of a water quality standard applicable to the receiving water or the downstream water.

Mass Load vs. Concentration Limits

Consistent with the Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and the SOP for Establishing Effluent Limitations for Individual Sewage Permits, average monthly mass loading limits have been established for CBOD5, TSS, and NH3, and average weekly mass loading limits have additionally been established for CBOD5 and TSS.

Sample Types and Monitoring Frequencies

Sample types and monitoring frequencies are consistent with the Technical Guidance for the Development and Specification of Effluent Limitations, document #386-0400-001, and/or carried forward from the previous permit when deemed appropriate. When monitoring is for the purpose of collecting data for future reasonable potential determinations rather than for verifying compliance with permit limits, less frequent monitoring has been proposed. For example, once a month monitoring will yield a minimum of 60 data points for the next renewal permit development.

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Influent BOD & TSS Monitoring

The existing influent monitoring reporting requirement for BOD5 and TSS will be maintained in the renewal permit, consistent with the permits of other municipal wastewater treatment facilities.

E. Coli Monitoring

Consistent with the SOP Establishing Effluent Limitations for Individual Sewage Permits and due to the regulatory change in the State Water Quality Standards, PA Code Chapter 93, E. Coli monitoring has been included. The statutory basis for this requirement is provided at PA Code § 92a.61.

Total Nitrogen (TN) and Total Phosphorus (TP) Monitoring

In an effort to understand nutrient loading on PA streams, sewage dischargers with design flows greater than 2000 gpd are being required to at least monitor for TN and TP in new and reissued permits. The statutory basis for this requirement is provided at PA Code § 92a.61. Because neither Hay Creek nor the downstream Schuylkill River have been identified as being nutrient-impaired waters, monitoring has been required on a monthly basis rather than more frequently.

TN and TP monthly monitoring was included in the existing permit. The DMR data from November 1, 2021 through February 28, 2025 indicate an average TN concentration in the effluent of 15.9 mg/l and an average TN load of 116 lbs/day. The DMR data from November 1, 2021 through February 28, 2025 indicate an average TP concentration in the effluent of 2.9 mg/l and an average TP load of 22 lbs/day.

Per- and Polyfluoroalkyl Substances (PFAS) Monitoring

The application did not include any sampling results for PFAS parameters because the application was received before the application forms were changed to include 4 PFAS parameters in the Pollutant Group tables. DEP has initiated a policy to identify PFAS in discharges using 4 indicator parameters: Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonic acid (PFOS), Perfluorobutane sulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA). A discharge monitoring requirement for these 4 indicator parameters are now routinely included in NPDES permits for Major Sewage facilities, with a footnote allowing the monitoring to be discontinued if consecutive monitoring periods indicate non-detect results at or below sufficiently sensitive Quantitation Limits (QLs). Because the facility is subject to an EPA Pretreatment Program, the monitoring requirements for PFAS required by the EPA Pretreatment Program **additionally** must be followed. These are described in the next section of this Fact Sheet: Other Permit Conditions.

Other Permit Conditions

Conditions standard for Major Sewage facilities are included in Part C of the draft renewal permit. In particular, the existing permit's Part C conditions for restrictions of hauled in wastes, Solids Management, Whole Effluent Toxicity

Testing, and Stormwater Management have been carried forward into the draft renewal permit. The following Part C.I. conditions have also been carried forward into the draft renewal permit (with the addition of the last sentence in paragraph F below as previously discussed in this Fact Sheet):

E. Cooling tower blowdown discharges from steam electric power generating facilities discharging to the POTW and subject to 40 CFR Part 423.17 shall contain no detectable amounts of the 126 Priority Pollutants listed in 40 CFR Part 423, Appendix A, that are contained in chemicals added for cooling tower maintenance except for Total Chromium and Total Zinc. When requested by DEP, the permittee shall conduct monitoring or submit engineering calculations to demonstrate compliance with 40 CFR 423.17(b)(4).

F. The discharge at Outfall 001 shall not increase the natural temperature of the receiving waters by more than 5°F, nor shall such discharge result in stream temperature exceeding 87°F, except within an allowed heat dissipation area, nor shall such discharge exceed an instantaneous maximum of 110°F. The allowed heat dissipation area is defined as: a) the lesser of 1000 feet maximum length or twenty times the average width of the stream, measured from the point where the discharge enters the stream, and b) the lesser of one-half the surface width of the stream or the width encompassing one-half of the entire cross-sectional area of the stream. The rate of temperature change in designated heat dissipation areas may not cause mortality of the fish.

In addition, the existing permit's Part C.II. condition for an EPA Pretreatment Program has been modified to include electronic reporting to EPA and to include the language below, applicable to permittees subject to an EPA Pretreatment Program:

B.

The Annual Report shall contain an updated listing of IUs in industry categories expected or suspected of **PFAS** discharges. These industry categories shall include airports; centralized waste treatment; electroplating; electric and electronic components; fire training; landfills; leather tanning & finishing; metal finishing; organic chemicals, plastics & synthetic fibers (OCPSF); paint formulating; plastics molding & forming; pulp, paper & paperboard; textile mills; sites known or suspected of PFAS contamination; and any other sources expected or suspected of PFAS discharges. The listing must contain the names, addresses, NAICS codes, and industry categories (as listed above) of any IUs identified. The Annual Report shall also provide a summary of actions taken by IUs to reduce, substitute, or eliminate PFAS, such as best management practices (BMPs) implemented by IUs….

The permittee shall commence or require annual sampling of the following types of IUs that discharge process wastewater or sludge into the POTW: airports; centralized waste treatment; electroplating; electric and electronic components; fire training; landfills; leather tanning & finishing; metal finishing; organic chemicals, plastics & synthetic fibers (OCPSF); paint formulating; plastics molding & forming; pulp, paper & paperboard; textile mills; sites known or suspected of PFAS contamination; and any other sources expected or suspected of PFAS discharges. Sampling shall occur at the point of discharge to the POTW, and where local limits are applied. Monitoring data for any analytes listed in EPA Method 1633 shall be summarized and submitted as part of the Annual Report.

Sampling and analysis shall be for the following PFAS parameters:

Industrial User Effluent Parameter	Maximum Daily	Monitoring Requirements	
		Frequency	Sample Type
40 PFAS Analytes[(1)(2)] (ng/l)	Report	1/Year for 5 Years	Grab

[(1)]Report in nanograms per liter (ng/L). Monitoring shall be conducted using EPA Method 1633. This reporting requirement for the listed PFAS parameters takes effect 6 months after the effective date of this permit.

[(2)] The permittee and/or IU may discontinue the IU discharge monitoring requirements for the 40 PFAS parameters detectable by EPA Method 1633 after 5 annual sampling events have been conducted.

C.

Routine Monitoring – The permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for all pollutants for which local limits have been established, and an annual priority pollutant scan for influent and sludge.

Additionally, the permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for the 40 PFAS parameters detectable by EPA Method 1633. Monitoring data for any analytes listed in EPA Method 1633 shall be summarized and submitted as part of the Annual Report.

Parameter	Maximum Daily	Monitoring Requirements	
		Frequency	Sample Type
40 PFAS Analytes(1) – Influent (ng/L)	Report	1/Quarter for 12 Quarters	Grab
40 PFAS Analytes(1) – Effluent (ng/L)	Report	1/Quarter for 12 Quarters	Grab
40 PFAS Analytes(1) – Sludge (ng/g)	Report	1/Quarter for 12 Quarters	Grab

(1) Report in nanograms per liter for aqueous samples and nanograms per gram for solid samples. Monitoring shall be conducted using EPA Method 1633. This reporting requirement for the listed PFAS parameters takes effect 6 months after the effective date of this permit. The permittee may discontinue influent, effluent and sludge sampling at the treatment works after 12 consecutive quarterly sampling events have been conducted.

TDS Baseline

For documentation purposes (given that future TDS variance requests on stream segments pursuant to Title 25 Pa Code § 95.10 would require DEP to analyze multiple dischargers' TDS loads):

.

The facility's DMRs from November 1, 2021 through February 28, 2025 reported an average TDS concentration of 607 mg/l and an average flow of 0.90 MGD, for an annual average daily load of 4556 lbs/day.

Antidegradation

The permit limits and conditions are intended to protect the designated and existing uses of the receiving stream. No High Quality or Exceptional Value waters are impacted by this discharge.

303(d) Listed Streams – Impaired Waters

DEP's Integrated Water Quality Report is forwarded to the US EPA in compliance with Section 303(d) of the federal Clean Water Act for impaired waters. Hay Creek has been assessed as an impaired water for recreational use due to pathogens but no TMDL has been developed. Fecal Coliform limits are included in this permit and are intended to protect the receiving water's designated use.

Whole Effluent Toxicity (WET)

Because the facility's design flow is >1 MGD, Whole Effluent Toxicity testing is required, as it was in the existing permit.

For Outfall001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

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

The dilution series used for the tests was: 100%, 72%, 43%, 22%, and 11%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 43%.

Summary of Four Most Recent Test Results

TST Data Analysis

Test Termination Date	*Ceriodaphnia* Results (Pass/Fail)*		*Pimephales* Results (Pass/Fail)*	
	Survival	Reproduction	Survival	Growth
11/21/2023	Pass	Pass	Pass	Pass
11/1/2022	Pass	Pass	Pass	Pass
10/12/2021	Pass	Pass	Pass	Pass
11/02 & 03 /2020	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? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

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

Acute Partial Mix Factor (PMFa): 1 Chronic Partial Mix Factor (PMFc): 1

(Partial Mix Factors are taken from the TMS model results. See attached.)

1. Determine IWC – Acute (IWCa):

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

[(1.35 MGD x 1.547) / ((2.73 cfs x 1) + (1.35 MGD x 1.547))] x 100 = **IWCa% = 43%**

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

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

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

[(1.35 MGD x 1.547) / ((2.73 cfs x 1) + (1.35 MGD x 1.547))] x 100 = **TIWCc% = 43%**

3. Determine Dilution Series

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

Dilution Series = 100%, 72%, 43%, 22%, and 11%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

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

As with the existing permit, a) no WET limits have been imposed; b) chronic WET testing will be required annually for Ceriodaphnia dubia and Pimephales promelas species; c) if a WET test fails, a re-test for the same species will be required; and d) if the re-test also fails, a Toxicity Reduction Evaluation will be required as well as quarterly WET testing for both species until passing results are achieved for four consecutive WET tests.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally determined from models or using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Effective Date + 3 Years.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. 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	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.16	XXX	0.55	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	Report	Report	XXX	1/day	I-S
CBOD5	281	450 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	337	506 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	Report	XXX	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia Nov 1 - Apr 30	159	XXX	XXX	14.1	XXX	28.2	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia May 1 - Oct 31	53	XXX	XXX	4.7	XXX	9.4	2/week	24-Hr Composite
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen*	Report	XXX	XXX	Report*	XXX	XXX	1/month*	Calculate
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Zinc	3.4	5.3	XXX	0.30	0.47	0.75	1/week	24-Hr Composite
Chloroform (ug/l)	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Dichlorobromomethane (ug/l)	Report	Report	XXX	Report	Report	XXX	1/month	Grab
PFOA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
PFOS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
PFBS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
HFPO-DA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab

*Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

** The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 12 consecutive quarters 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. **Also see Part C.II. for PFAS monitoring requirements.**

Compliance Sampling Location: at outfall 001.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality as needed and BPJ. Instantaneous Maximum (IMAX) limits are generally determined from models or using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date + 3 Years through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. 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	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.16	XXX	0.55	1/day	Grab
Temperature (ºF)	XXX	XXX	XXX	Report	Report	XXX	1/day	I-S
CBOD5	281	450 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	337	506 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	Report	XXX	XXX	1000.0	2000.0	2500	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000	2/week	Grab
E. Coli (No./100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ammonia Nov 1 - Apr 30	159	XXX	XXX	14.1	XXX	28.2	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia May 1 - Oct 31	53	XXX	XXX	4.7	XXX	9.4	2/week	24-Hr Composite
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Nitrogen*	Report	XXX	XXX	Report*	XXX	XXX	1/month*	Calculate
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/month	24-Hr Composite
Total Copper	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Total Zinc	1.8	2.7	XXX	0.16	0.24	0.4	1/week	24-Hr Composite
Chloroform (ug/l)	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Dichlorobromomethane (ug/l)	Report	Report	XXX	Report	Report	XXX	1/month	Grab
PFOA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
PFOS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
PFBS (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab
HFPO-DA (ng/l) **	XXX	XXX	XXX	XXX	XXX	Report **	1/quarter	Grab

* Total Nitrogen is the sum of Total Kjeldahl Nitrogen (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

** The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 12 consecutive quarters 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. **Also see Part C.II. for PFAS monitoring requirements.**

Compliance Sampling Location: at outfall 001.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☒	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	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.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☒	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	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.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	EPA Technical Support Document for Water Quality-based Toxics Control (TSD), EPA/505/2-90-001, PB91-127415, March 1991.
☒	SOP: New and Reissuance Sewage Individual NPDES Permit Applications, Version 2.0, February 3, 2022
☒	SOP: Establishing Effluent Limitations in Individual Sewage NPDES Permits, Version 2.0, February 5, 2024
☒	SOP: Establishing Water-Quality Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers. Version 1.5, May 20, 2021.
☒	SOP: Whole Effluent Toxicity (WET), No. BPNPSM-PMT-03, Revised, May 13, 2014.
☒	Other: DRBC docket D-1974-126 CP-4.

PERMIT	MONITORIN	MONITORINC	REPORT_FREQ	OUTFALL	MONITORING	PARAMETE	LOAD_UNI	LOAD_1_V	LOAD_1_	LOAD_1_SBC	LOAD_2_V	LOAD_2_	LOAD_2_S	SAMPLE_FR	SAMPLE_TYPE
PA0021709	11/1/2021	11/30/2021	Monthly	001	Final Effluent	Flow	MGD	0.655	Monitor	Average Monthly	0.898	Monitor	Daily Maxi	Continuous	Measured
PA0021709	12/1/2021	12/31/2021	Monthly	001	Final Effluent	Flow	MGD	0.75	Monitor	Average Monthly	0.791	Monitor	Daily Maxi	Continuous	Measured
PA0021709	1/1/2022	1/31/2022	Monthly	001	Final Effluent	Flow	MGD	0.646	Monitor	Average Monthly	0.984	Monitor	Daily Maxi	Continuous	Measured
PA0021709	2/1/2022	2/28/2022	Monthly	001	Final Effluent	Flow	MGD	0.928	Monitor	Average Monthly	1.696	Monitor	Daily Maxi	Continuous	Measured
PA0021709	3/1/2022	3/31/2022	Monthly	001	Final Effluent	Flow	MGD	0.821	Monitor	Average Monthly	1	Monitor	Daily Maxi	Continuous	Measured
PA0021709	4/1/2022	4/30/2022	Monthly	001	Final Effluent	Flow	MGD	1.449	Monitor	Average Monthly	2.489	Monitor	Daily Maxi	Continuous	Measured
PA0021709	5/1/2022	5/31/2022	Monthly	001	Final Effluent	Flow	MGD	1.06	Monitor	Average Monthly	2.05	Monitor	Daily Maxi	Continuous	Measured
PA0021709	6/1/2022	6/30/2022	Monthly	001	Final Effluent	Flow	MGD	0.909	Monitor	Average Monthly	1.22	Monitor	Daily Maxi	Continuous	Measured
PA0021709	7/1/2022	7/31/2022	Monthly	001	Final Effluent	Flow	MGD	0.924	Monitor	Average Monthly	1.156	Monitor	Daily Maxi	Continuous	Measured
PA0021709	8/1/2022	8/31/2022	Monthly	001	Final Effluent	Flow	MGD	0.852	Monitor	Average Monthly	1.065	Monitor	Daily Maxi	Continuous	Measured
PA0021709	9/1/2022	9/30/2022	Monthly	001	Final Effluent	Flow	MGD	0.954	Monitor	Average Monthly	1.28	Monitor	Daily Maxi	Continuous	Measured
PA0021709	10/1/2022	10/31/2022	Monthly	001	Final Effluent	Flow	MGD	1.081	Monitor	Average Monthly	2.02	Monitor	Daily Maxi	Continuous	Measured
PA0021709	11/1/2022	11/30/2022	Monthly	001	Final Effluent	Flow	MGD	0.785	Monitor	Average Monthly	1.165	Monitor	Daily Maxi	Continuous	Measured
PA0021709	12/1/2022	12/31/2022	Monthly	001	Final Effluent	Flow	MGD	1.057	Monitor	Average Monthly	1.79	Monitor	Daily Maxi	Continuous	Measured
PA0021709	1/1/2023	1/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.966	Monitor	Average Monthly	1.564	Monitor	Daily Maxi	Continuous	Measured
PA0021709	2/1/2023	2/28/2023	Monthly	001	Final Effluent	Flow	MGD	0.81	Monitor	Average Monthly	1.025	Monitor	Daily Maxi	Continuous	Measured
PA0021709	3/1/2023	3/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.872	Monitor	Average Monthly	1.283	Monitor	Daily Maxi	Continuous	Measured
PA0021709	4/1/2023	4/30/2023	Monthly	001	Final Effluent	Flow	MGD	0.8579	Monitor	Average Monthly	1.428	Monitor	Daily Maxi	Continuous	Measured
PA0021709	5/1/2023	5/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.543	Monitor	Average Monthly	0.944	Monitor	Daily Maxi	Continuous	Measured
PA0021709	6/1/2023	6/30/2023	Monthly	001	Final Effluent	Flow	MGD	0.788	Monitor	Average Monthly	1.093	Monitor	Daily Maxi	Continuous	Measured
PA0021709	7/1/2023	7/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.948	Monitor	Average Monthly	1.577	Monitor	Daily Maxi	Continuous	Measured
PA0021709	8/1/2023	8/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.887	Monitor	Average Monthly	1.06	Monitor	Daily Maxi	Continuous	Measured
PA0021709	9/1/2023	9/30/2023	Monthly	001	Final Effluent	Flow	MGD	0.965	Monitor	Average Monthly	1.865	Monitor	Daily Maxi	Continuous	Measured
PA0021709	10/1/2023	10/31/2023	Monthly	001	Final Effluent	Flow	MGD	0.84	Monitor	Average Monthly	1.11	Monitor	Daily Maxi	Continuous	Measured
PA0021709	11/1/2023	11/30/2023	Monthly	001	Final Effluent	Flow	MGD	0.726	Monitor	Average Monthly	1.235	Monitor	Daily Maxi	Continuous	Measured
PA0021709	12/1/2023	12/31/2023	Monthly	001	Final Effluent	Flow	MGD	1.174	Monitor	Average Monthly	3.141	Monitor	Daily Maxi	Continuous	Measured
PA0021709	1/1/2024	1/31/2024	Monthly	001	Final Effluent	Flow	MGD	1.357	Monitor	Average Monthly	3.027	Monitor	Daily Maxi	Continuous	Measured
PA0021709	2/1/2024	2/29/2024	Monthly	001	Final Effluent	Flow	MGD	0.932	Monitor	Average Monthly	1.138	Monitor	Daily Maxi	Continuous	Measured
PA0021709	3/1/2024	3/31/2024	Monthly	001	Final Effluent	Flow	MGD	1.212	Monitor	Average Monthly	1.364	Monitor	Daily Maxi	Continuous	Measured
PA0021709	4/1/2024	4/30/2024	Monthly	001	Final Effluent	Flow	MGD	1.168	Monitor	Average Monthly	3.689	Monitor	Daily Maxi	Continuous	Measured
PA0021709	5/1/2024	5/31/2024	Monthly	001	Final Effluent	Flow	MGD	0.856	Monitor	Average Monthly	1.002	Monitor	Daily Maxi	Continuous	Measured
PA0021709	6/1/2024	6/30/2024	Monthly	001	Final Effluent	Flow	MGD	0.732	Monitor	Average Monthly	0.871	Monitor	Daily Maxi	Continuous	Measured
PA0021709	7/1/2024	7/31/2024	Monthly	001	Final Effluent	Flow	MGD	0.9	Monitor	Average Monthly	1.768	Monitor	Daily Maxi	Continuous	Measured
PA0021709	8/1/2024	8/31/2024	Monthly	001	Final Effluent	Flow	MGD	0.786	Monitor	Average Monthly	2.646	Monitor	Daily Maxi	Continuous	Measured
PA0021709	9/1/2024	9/30/2024	Monthly	001	Final Effluent	Flow	MGD	0.82	Monitor	Average Monthly	0.896	Monitor	Daily Maxi	Continuous	Measured
PA0021709	10/1/2024	10/31/2024	Monthly	001	Final Effluent	Flow	MGD	0.867	Monitor	Average Monthly	1.073	Monitor	Daily Maxi	Continuous	Measured
PA0021709	11/1/2024	11/30/2024	Monthly	001	Final Effluent	Flow	MGD	0.684	Monitor	Average Monthly	0.957	Monitor	Daily Maxi	Continuous	Measured
PA0021709	12/1/2024	12/31/2024	Monthly	001	Final Effluent	Flow	MGD	0.794	Monitor	Average Monthly	1.213	Monitor	Daily Maxi	Continuous	Measured
PA0021709	1/1/2025	1/31/2025	Monthly	001	Final Effluent	Flow	MGD	0.714	Monitor	Average Monthly	0.94	Monitor	Daily Maxi	Continuous	Measured
PA0021709	2/1/2025	2/28/2025	Monthly	001	Final Effluent	Flow	MGD	0.89	Monitor	Average Monthly	1.683	Monitor	Daily Maxi	Continuous	Measured
								0.90	Avg						
								1.45	Max						
								1.22	95th Percentile						

Posted June 12, 2024 to OnBase/Public Upload (blurry in OnBase as well):

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PADEP Chapter 94 Spreadsheet
Sewage Treatment Plants

Reporting Year: 2023

Facility Name: Birdsboro Municipal Authority WWTP | Permit No.: PA0021709 | Persons/EDU: 2.58

Existing Hydraulic Design Capacity:	1.89	MGD		Existing Organic Design Capacity:	2,815	lbs BOD5/day
Upgrade Planned in Next 5 Years?	NO	Year:		Upgrade Planned in Next 5 Years?	NO	Year:
Future Hydraulic Design Capacity:		MGD		Future Organic Design Capacity:		lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2019	2020	2021	2022	2023
January	0.958	0.913	0.928	0.646	0.966
February	1.059	0.9	1.014	0.928	0.81
March	1.174	0.943	1.168	0.821	0.872
April	0.929	0.993	0.847	1.449	0.836
May	1.014	0.871	0.759	1.06	0.543
June	0.839	0.871	0.937	0.909	0.788
July	1.142	0.938	0.957	0.924	0.948
August	0.899	1.018	0.981	0.852	0.897
September	0.864	0.891	1.137	0.954	0.965
October	0.863	0.901	0.898	1.081	0.84
November	0.991	0.763	0.655	0.785	0.726
December	0.942	1.129	0.75	1.057	1.174
Annual Avg	0.973	0.928	0.919	0.956	0.864
Max 3-Mo Avg	1.064	0.949	1.037	1.139	0.944
Max : Avg Ratio	1.09	1.02	1.13	1.19	1.09
Existing EDUs	2,516.0	4,273.0	4,375.0	4,378.0	4,380.0
Flow/EDU (GPD)	386.7	217.2	210.1	218.4	197.3
Flow/Capita (GPD)	149.9	84.2	81.4	84.6	76.5
Exist. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2019	2020	2021	2022	2023
January	1,911	692	1,993	1,062	1,248
February	1,886	697	1,278	1,454	985
March	1,112	1,388	1,188	1,139	1,030
April	1,204	1,199	1,098	1,433	744
May	1,826	1,136	1,163	1,223	884
June	1,911	1,402	1,046	864	1,655
July	1,438	2,202	1,226	1,550	1,462
August	981	2,726	1,350	1,185	1,435
September	1,223	1,494	1,378	1,126	1,682
October	876	1,197	920	1,525	985
November	830	1,564	1,094	1,006	766
December	1,058	1,554	976	1,971	980
Annual Avg	1,355	1,438	1,226	1,296	1,155
Max Mo Avg	1,911	2,726	1,993	1,971	1,682
Max : Avg Ratio	1.41	1.90	1.63	1.52	1.46
Existing EDUs	2,516	4,273	4,375	4,378	4,380
Load/EDU	0.538	0.336	0.280	0.296	0.264
Load/Capita	0.209	0.130	0.109	0.115	0.102
Exist. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Projected Flows for Next Five Years (MGD)

	2024	2025	2026	2027	2028
New EDUs	418.0	7.0	7.0	7.0	8.0
New EDU Flow	0.1028	0.0017	0.0017	0.0017	0.002
Proj. Annual Avg	1.031	1.0327	1.0344	1.0361	1.0381
Proj. Max 3-Mo Avg	1.14	1.142	1.144	1.146	1.148
Proj. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Projected BOD5 Loads for Next Five Years (lbs/day)

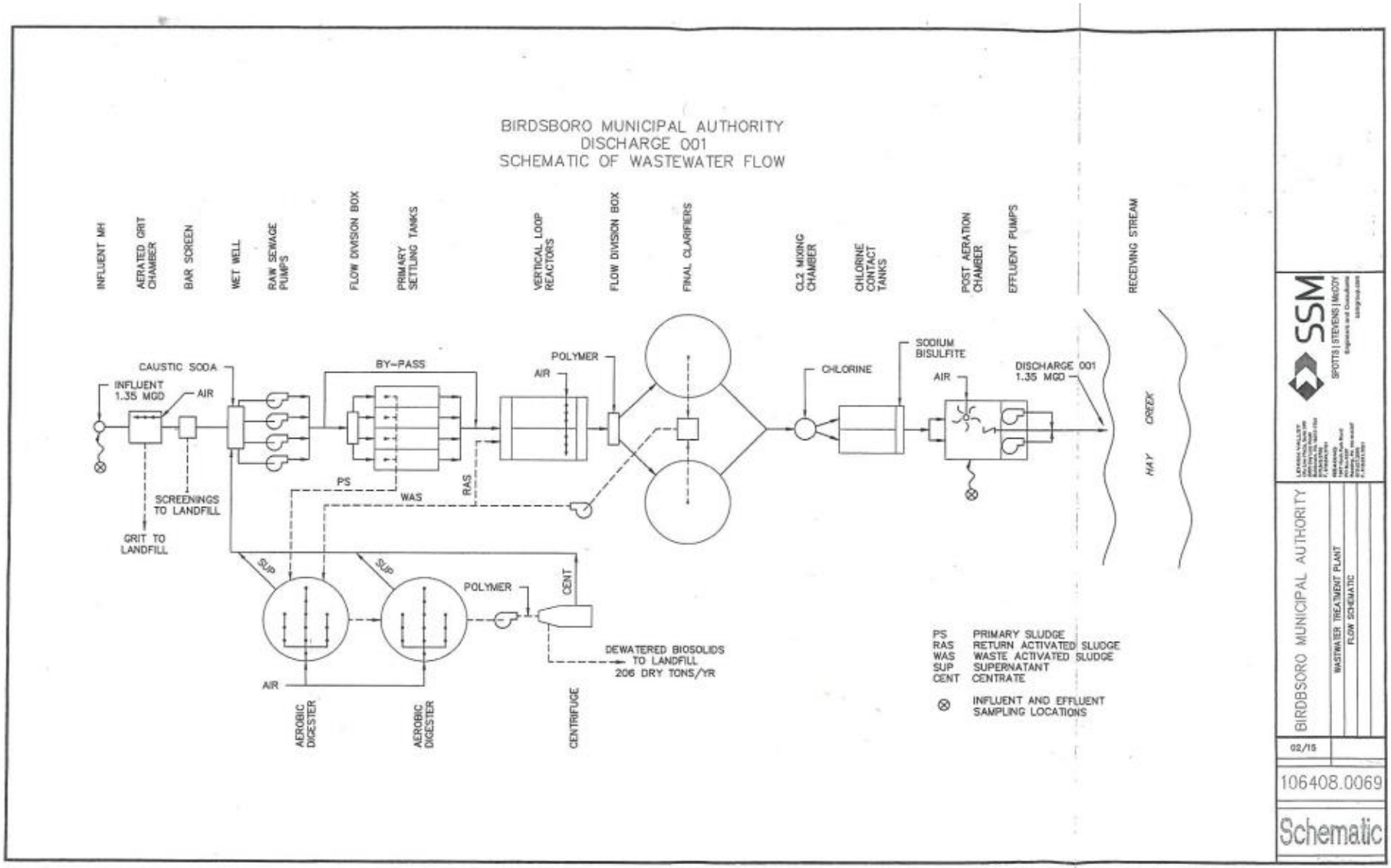
	2024	2025	2026	2027	2028
New EDUs	418	7	7	7	8
New EDU Load	143.325	2.400	2.400	2.400	2.743
Proj. Annual Avg	1,437	1,439	1,442	1,444	1,447
Proj. Max Avg	2,274	2,277	2,281	2,285	2,289
Proj. Overload?	**NO**	**NO**	**NO**	**NO**	**NO**

Show Precipitation Data on Hydraulic Graph?

Total Monthly Precipitation for Past Five Years (Inches)

Month	2019	2020	2021	2022	2023
January	3.9	3.13	0.5	2.43	2.48
February	2.77	2.98	1.2	1.59	0.26
March	4.77	3.86	1.0	0.74	0.15
April	3.76	5.15	1.12	4.45	1.44
May	5.46	2.84	1.51	7.77	1.76
June	4.47	2.73	1.04	2.89	0.06
July	8.04	5.75	1.08	3.25	6.31
August	3.61	7.08	1.23	0.69	0.75
September	1.51	3.55	7.59	1.31	1.55
October	6.22	3.1	2.08	4.16	0.95
November	1.87	4.94	0.7	1.3	2.49
December	4.11	3.41	0.75	2.54	6.87

Flow diagram included in 2023 application (although date on schematic is 2/2015, before mechanical screen WQN permit amendment):



3800-PM-WSFR0015 1/2011
Permit

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

WATER QUALITY MANAGEMENT PERMIT

PERMIT NO. 0606405
AMENDMENT NO. 1
APS ID. 882265
AUTH. ID. 1092888

A. PERMITTEE (Name and Address): CLIENT ID#: **212284** **Birdsboro Municipal Authority Berks County** **202 E Main Street** **Birdsboro, PA 19508-2025**	B. PROJECT/FACILITY (Name): **Birdsboro STP**
C. LOCATION (Municipality, County): **Birdsboro Borough, Berks County**	SITE ID#: **496555**

D. This amendment approves the construction of sewage facilities consisting of:

The replacement of the existing headworks screen and related appurtenances.

Pump Stations: **N/A**	Manure Storage:	Sewage Treatment Facility:		
Design Capacity: **N/A** GPM	Volume: **N/A** MG	Annual Average Flow:	**1.35**	MGD
	Freeboard: **N/A** inches	Design Hydraulic Capacity:	**1.89**	MGD
		Design Organic Capacity:	**2,815**	lb/day

E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:

1. **Amendments:** All construction, operations and procedures shall be in accordance with the Water Quality Management Permit Amendment application dated **October 14, 2015** and its supporting documentation and addendums dated **October 26, 2015 and March 10, 2016**, which are hereby made a part of this amendment.

   Except for any herein approved modifications, all terms, conditions, supporting documentation and addendums approved under Water Quality Management Permit No. **0606405** dated **March 21, 2007** shall remain in effect.

2. Permit Conditions Relating to Sewerage are attached and made part of this permit.

F. THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:

1. If there is a conflict between the application or its supporting documents and amendments and the attached conditions, the attached conditions shall apply.
2. Failure to comply with the rules and regulations of DEP or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of this permit.
3. This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 *et seq.* Issuance of this permit shall not relieve the permittee of any responsibility under any other law.

PERMIT ISSUED: 5/23/2016

BY: /s/
Maria D. Bebenek, P.E.
TITLE: **Clean Water Program Manager**
South Central Regional Office

PERMIT	MONITORIN(	MONITORING_	REPORT_F	OUTFALL	PARAMETER	ONC_UNIT	CONC_2_	ONC_2_LIM	CONC_2_SBC	CONC_3_	ONC_3_LIM	CONC_3_S	SAMPLE_F	SAMPLE_TYPE
PA0021709	1/1/2022	1/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.1	15	Average Monthl	< 5.1	30	Instantan	2/month	Grab
PA0021709	2/1/2022	2/28/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	3/1/2022	3/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	4/1/2022	4/30/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	5/1/2022	5/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.3	15	Average Monthl	5.5	30	Instantan	2/month	Grab
PA0021709	6/1/2022	6/30/2022	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	7/1/2022	7/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	8/1/2022	8/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.2	30	Instantan	2/month	Grab
PA0021709	9/1/2022	9/30/2022	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	10/1/2022	10/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.2	30	Instantan	2/month	Grab
PA0021709	11/1/2022	11/30/2022	Monthly	001	Oil and Grease	mg/L	< 5.9	15	Average Monthl	6.9	30	Instantan	2/month	Grab
PA0021709	12/1/2022	12/31/2022	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	1/1/2023	1/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.1	15	Average Monthl	5.1	30	Instantan	2/month	Grab
PA0021709	2/1/2023	2/28/2023	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	3/1/2023	3/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.7	15	Average Monthl	6.5	30	Instantan	2/month	Grab
PA0021709	4/1/2023	4/30/2023	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	5/1/2023	5/31/2023	Monthly	001	Oil and Grease	mg/L	3.8	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	6/1/2023	6/30/2023	Monthly	001	Oil and Grease	mg/L	< 3.4	15	Average Monthl	< 5.6	30	Instantan	2/month	Grab
PA0021709	7/1/2023	7/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.4	15	Average Monthl	< 5.8	30	Instantan	2/month	Grab
PA0021709	8/1/2023	8/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.1	15	Average Monthl	< 5.2	30	Instantan	2/month	Grab
PA0021709	9/1/2023	9/30/2023	Monthly	001	Oil and Grease	mg/L	< 5.4	15	Average Monthl	< 5.5	30	Instantan	2/month	Grab
PA0021709	10/1/2023	10/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.3	15	Average Monthl	< 5.6	30	Instantan	2/month	Grab
PA0021709	11/1/2023	11/30/2023	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	12/1/2023	12/31/2023	Monthly	001	Oil and Grease	mg/L	< 5.1	15	Average Monthl	< 5.2	30	Instantan	2/month	Grab
PA0021709	1/1/2024	1/31/2024	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	2/1/2024	2/29/2024	Monthly	001	Oil and Grease	mg/L	< 5.5	15	Average Monthl	< 6.1	30	Instantan	2/month	Grab
PA0021709	3/1/2024	3/31/2024	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	4/1/2024	4/30/2024	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 5.1	30	Instantan	2/month	Grab
PA0021709	5/1/2024	5/31/2024	Monthly	001	Oil and Grease	mg/L	< 5.2	15	Average Monthl	< 5.2	30	Instantan	2/month	Grab
PA0021709	6/1/2024	6/30/2024	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	5	30	Instantan	2/month	Grab
PA0021709	7/1/2024	7/31/2024	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	8/1/2024	8/31/2024	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	9/1/2024	9/30/2024	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.1	30	Instantan	2/month	Grab
PA0021709	10/1/2024	10/31/2024	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	11/1/2024	11/30/2024	Monthly	001	Oil and Grease	mg/L	< 5.0	15	Average Monthl	< 5.0	30	Instantan	2/month	Grab
PA0021709	12/1/2024	12/31/2024	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	1/1/2025	1/31/2025	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
PA0021709	2/1/2025	2/28/2025	Monthly	001	Oil and Grease	mg/L	< 4.9	15	Average Monthl	< 4.9	30	Instantan	2/month	Grab
							3.8	Max		6.9	Max			

PART 423—STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY
Authority:33 U.S.C. 1251 *et seq.;* 1311; 1314(b), (c), (e), (g), and (i)(A) and (B); 1316; 1317; 1318 and 1361.
Source:47 FR 52304, Nov. 19, 1982, unless otherwise noted.

§ 423.17 Pretreatment standards for new sources (PSNS).

(b) ***2015 PSNS.*** Except as provided in 40 CFR 403.7, any new source as of June 7, 2013, subject to this paragraph (b), which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and the following pretreatment standards for new sources:

(1) ***PCBs.*** There shall be no discharge of polychlorinated biphenyl compounds such as those used for transformer fluid.

(2) ***Chemical metal cleaning wastes.*** The pollutants discharged in chemical metal cleaning wastes shall not exceed the concentration listed in the following table:

Expand Table

Pollutant or pollutant property	PSNS
	Maximum for 1 day (mg/L)
Copper, total	1.0

(3) [Reserved]

(4)

(i) ***Cooling tower blowdown.*** The pollutants discharged in cooling tower blowdown shall not exceed the concentration listed in the following table:

Expand Table

Pollutant or pollutant property	PSNS
	Maximum for any time (mg/L)
The 126 priority pollutants (appendix A) contained in chemicals added for cooling tower maintenance, except:	([1])
Chromium, total	0.2
zinc, total	1.0

[1] *No detectable amount.*

(ii) At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the standards for the 126 priority pollutants in paragraph (b)(4)(i) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

(5) ***Fly ash transport*** water. There shall be no discharge of pollutants in fly ash transport water. Whenever fly ash transport water is used in any other plant process or is sent to a treatment system at the plant, the resulting effluent must comply with the discharge standard in this paragraph.

(6) ***FGD wastewater.*** The quantity of pollutants discharged in FGD wastewater shall not exceed the quantity determined by multiplying the flow of FGD wastewater times the concentration listed in the following table:

Pollutant or pollutant property	PSNS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (µg/L)	4	
Mercury, total (ng/L)	39	24
Selenium, total (µg/L)	5	
TDS (mg/L)	50	24

(7) ***Flue gas mercury control wastewater.*** There shall be no discharge of pollutants in flue gas mercury control wastewater. Whenever flue gas mercury control wastewater is used in any other plant process or is sent to a treatment system at the plant, the resulting effluent must comply with the discharge standard in this paragraph.

(8) ***Bottom ash transport water.*** There shall be no discharge of pollutants in bottom ash transport water. Whenever bottom ash transport water is used in any other plant process or is sent to a treatment system at the plant, the resulting effluent must comply with the discharge standard in this paragraph.

(9) ***Gasification wastewater.*** The quantity of pollutants discharged in gasification wastewater shall not exceed the quantity determined by multiplying the flow of gasification wastewater times the concentration listed in the following table:

Pollutant or pollutant property	PSNS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (µg/L)	4	
Mercury, total (ng/L)	1.8	1.3
Selenium, total (µg/L)	453	227
Total dissolved solids (mg/L)	38	22

(10) ***Combustion residual leachate.*** The quantity of pollutants discharged in combustion residual leachate shall not exceed the quantity determined by multiplying the flow of combustion residual leachate times the concentration listed in the following table:

Pollutant or pollutant property	PSNS	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
Arsenic, total (µg/L)	11	8
Mercury, total (ng/L)	788	356

StreamStats Output Report-@outfall 001 Hay Creek						
State/Region ID	PA					
Workspace ID	PA20240808145407681000					
Latitude	40.26856					
Longitude	-75.8056					
Time	8/8/2024	10:54:42 AM				
Basin Characteristics						
Parameter Code	Paramete	Value	Unit			
BSLOPD	Mean basi	6.7423	degrees			
DRNAREA	Area that	22.1	square miles			
ROCKDEP	Depth to r	4.4	feet			
URBAN	Percentag	2.1446	percent			
Low-Flow Statistics Par	100.0 Percent Low Flow Region 1					
Parameter Code	Paramete	Value	Units	Min Limit	Max Limit	
DRNAREA	Drainage A	22.1	square mi	4.78	1150	
BSLOPD	Mean Basi	6.7423	degrees	1.7	6.4	
ROCKDEP	Depth to F	4.4	feet	4.13	5.21	
URBAN	Percent U	2.1446	percent	0	89	
Low-Flow Statistics Flo	100.0 Percent Low Flow Region 1					
Statistic	Value	Unit				
7 Day 2 Year Low Flow	5.3	ft^3/s				
30 Day 2 Year Low Flow	6.56	ft^3/s				
7 Day 10 Year Low Flow	2.73	ft^3/s				
30 Day 10 Year Low Flo	3.47	ft^3/s				
90 Day 10 Year Low Flo	4.66	ft^3/s				
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are						
USGS Software Disclaimer: This software has been approved for release by the U.S. Geologi						
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive						
Application Version: 4.23.0						

Downstream at confluence between Hay Creek and Schuylkill River……

StreamStats Output Report-downstrm Hay Creek						
State/Region ID	PA					
Workspace ID	PA20240808150136892000					
Latitude	40.27069					
Longitude	-75.8007					
Time	8/8/2024	11:02:06 AM				
Basin Characteristics						
Parameter Code	Paramete	Value	Unit			
BSLOPD	Mean basi	6.7429	degrees			
DRNAREA	Area that	22.1	square miles			
ROCKDEP	Depth to r	4.4	feet			
URBAN	Percentag	2.145	percent			
Low-Flow Statistics Para	100.0 Percent Low Flow Region 1					
Parameter Code	Paramete	Value	Units	Min Limit	Max Limit	
DRNAREA	Drainage A	22.1	square mi	4.78	1150	
BSLOPD	Mean Basi	6.7429	degrees	1.7	6.4	
ROCKDEP	Depth to F	4.4	feet	4.13	5.21	
URBAN	Percent U	2.145	percent	0	89	
Low-Flow Statistics Flow	100.0 Percent Low Flow Region 1					
Statistic	Value	Unit				
7 Day 2 Year Low Flow	5.3	ft^3/s				
30 Day 2 Year Low Flow	6.56	ft^3/s				
7 Day 10 Year Low Flow	2.73	ft^3/s				
30 Day 10 Year Low Flow	3.47	ft^3/s				
90 Day 10 Year Low Flow	4.67	ft^3/s				
USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materi						
USGS Software Disclaimer: This software has been approved for release by the U.S. G						
USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descr						
Application Version: 4.23.0						
StreamStats Services Version: 1.2.22						
NSS Services Version: 2.2.1						

Schuylkill River, immediately after Hay Creek empties into it….

StreamStats Output Report-Schuylkill R just after Hay Crk					
State/Region ID	PA				
Workspace ID	PA20241008121110903000				
Latitude	40.2709				
Longitude	-75.8003				
Time	########	8:11:34 AM			
Basin Characteristics					
Parameter Code	Paramete	Value	Unit		
BSLOPD	Mean basi	6.585	degrees		
CARBON	Percentag	18.58	percent		
DRNAREA	Area that	999	square miles		
PRECIP	Mean Ann	47	inches		
ROCKDEP	Depth to r	4.4	feet		
STRDEN	Stream De	1.32	miles per square mile		
URBAN	Percentag	6.6524	percent		
Low-Flow Statistics Flo	91.0 Percent Low Flow Region 2				
Statistic	Value	Unit	SE	ASEp	
7 Day 2 Year Low Flow	439	ft^3/s	38	38	
30 Day 2 Year Low Flov	515	ft^3/s	33	33	
7 Day 10 Year Low Flov	285	ft^3/s	51	51	
30 Day 10 Year Low Flo	336	ft^3/s	46	46	
90 Day 10 Year Low Flo	409	ft^3/s	36	36	
Low-Flow Statistics Flo	Area-Averaged				
Statistic	Value	Unit			
7 Day 2 Year Low Flow	423	ft^3/s			
30 Day 2 Year Low Flov	497	ft^3/s			
7 Day 10 Year Low Flov	274	ft^3/s			
30 Day 10 Year Low Flo	323	ft^3/s			
90 Day 10 Year Low Flo	394	ft^3/s			
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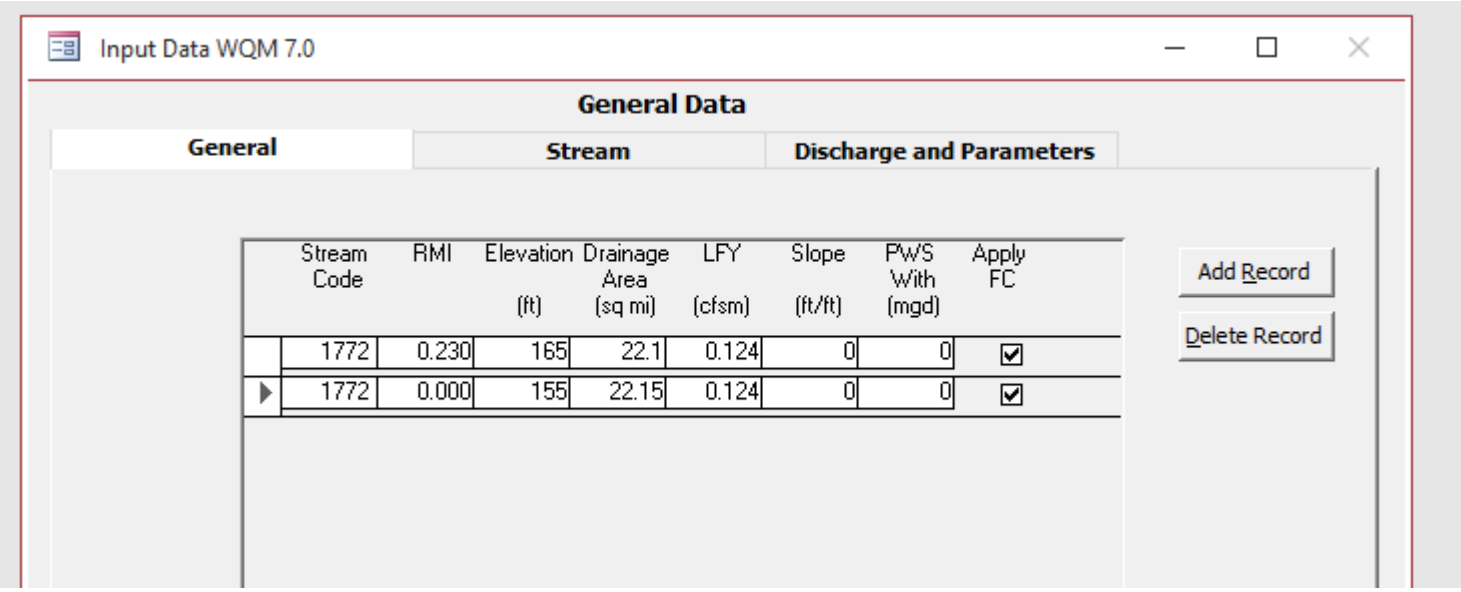
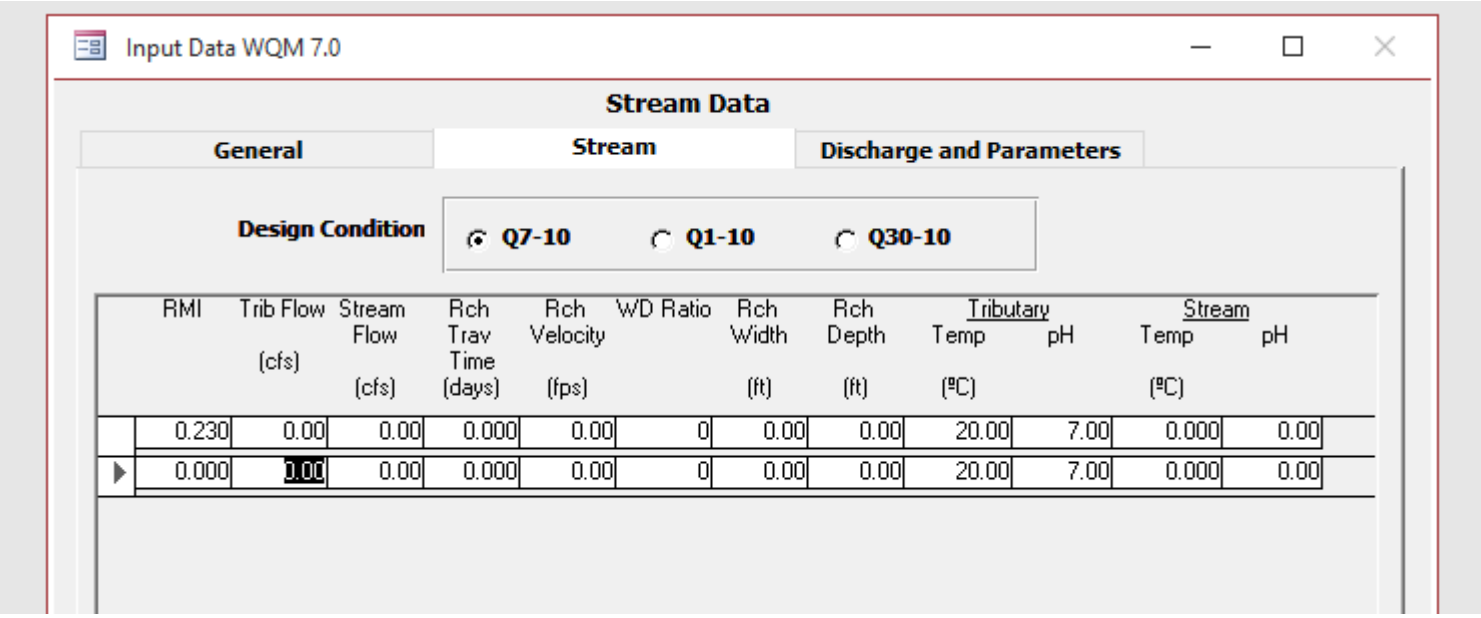
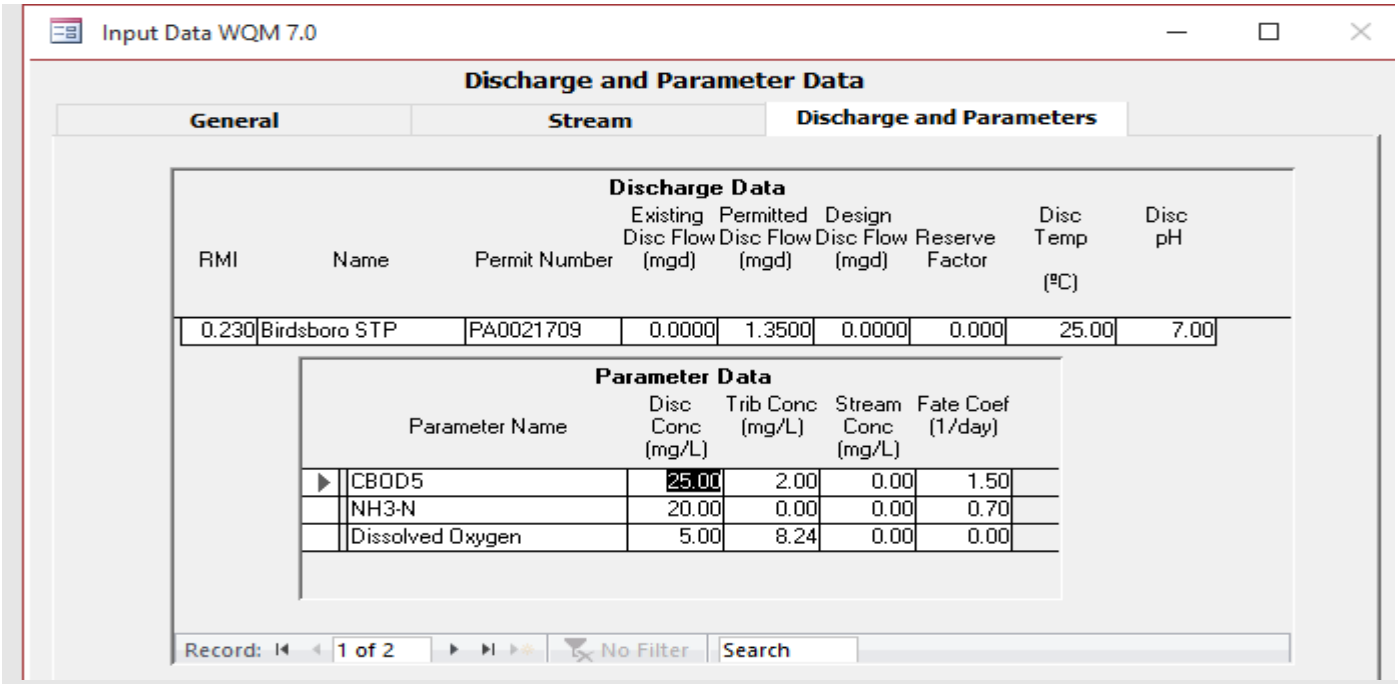
USGS Software Disclaimer: This software has been approved for release by					
USGS Product Names Disclaimer: Any use of trade, firm, or product names i					



Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	LFY (cfsm)	Slope (ft/ft)	PWS With (mgd)	Apply FC
1772	0.230	165	22.1	0.124	0	0	☑
1772	0.000	155	22.15	0.124	0	0	☑



RMI	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
0.230	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00
0.000	0.00	0.00	0.000	0.00	0	0.00	0.00	20.00	7.00	0.000	0.00



Input Data WQM 7.0

Discharge and Parameter Data

General | Stream | Discharge and Parameters

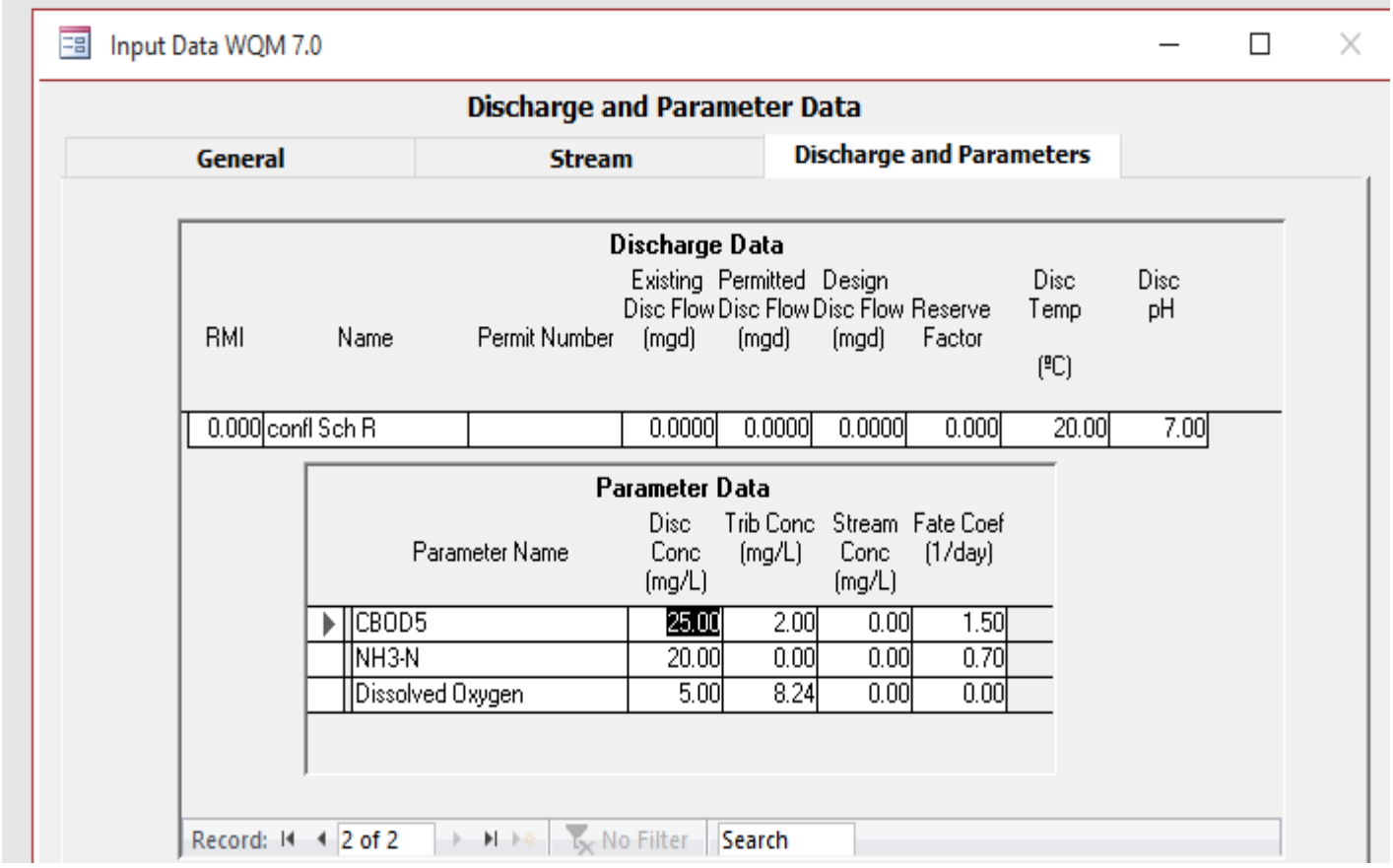
Discharge Data

RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
0.230	Birdsboro STP	PA0021709	0.0000	1.3500	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/day)
CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 1 of 2 | No Filter | Search



Input Data WQM 7.0

Discharge and Parameter Data

General | Stream | Discharge and Parameters

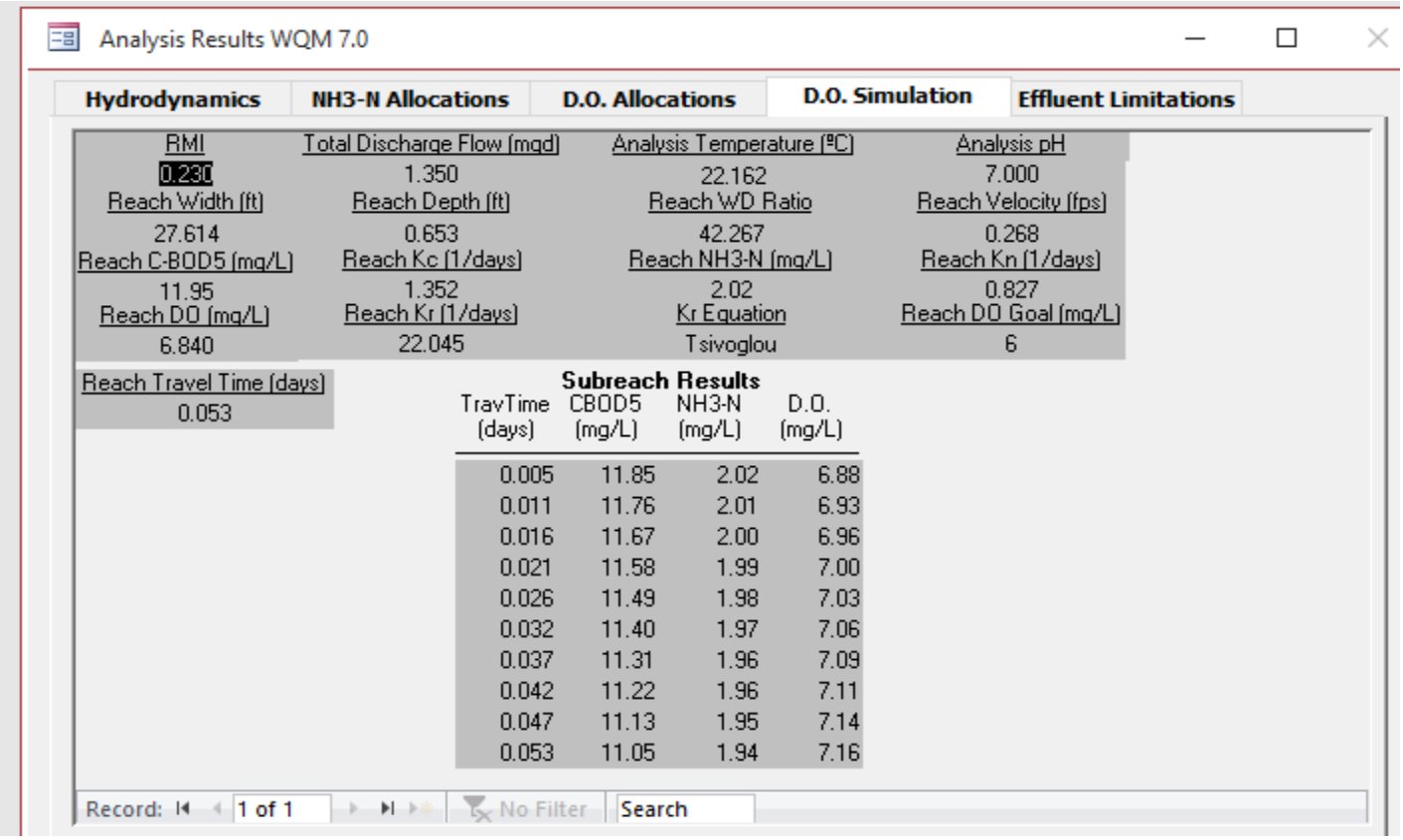
Discharge Data

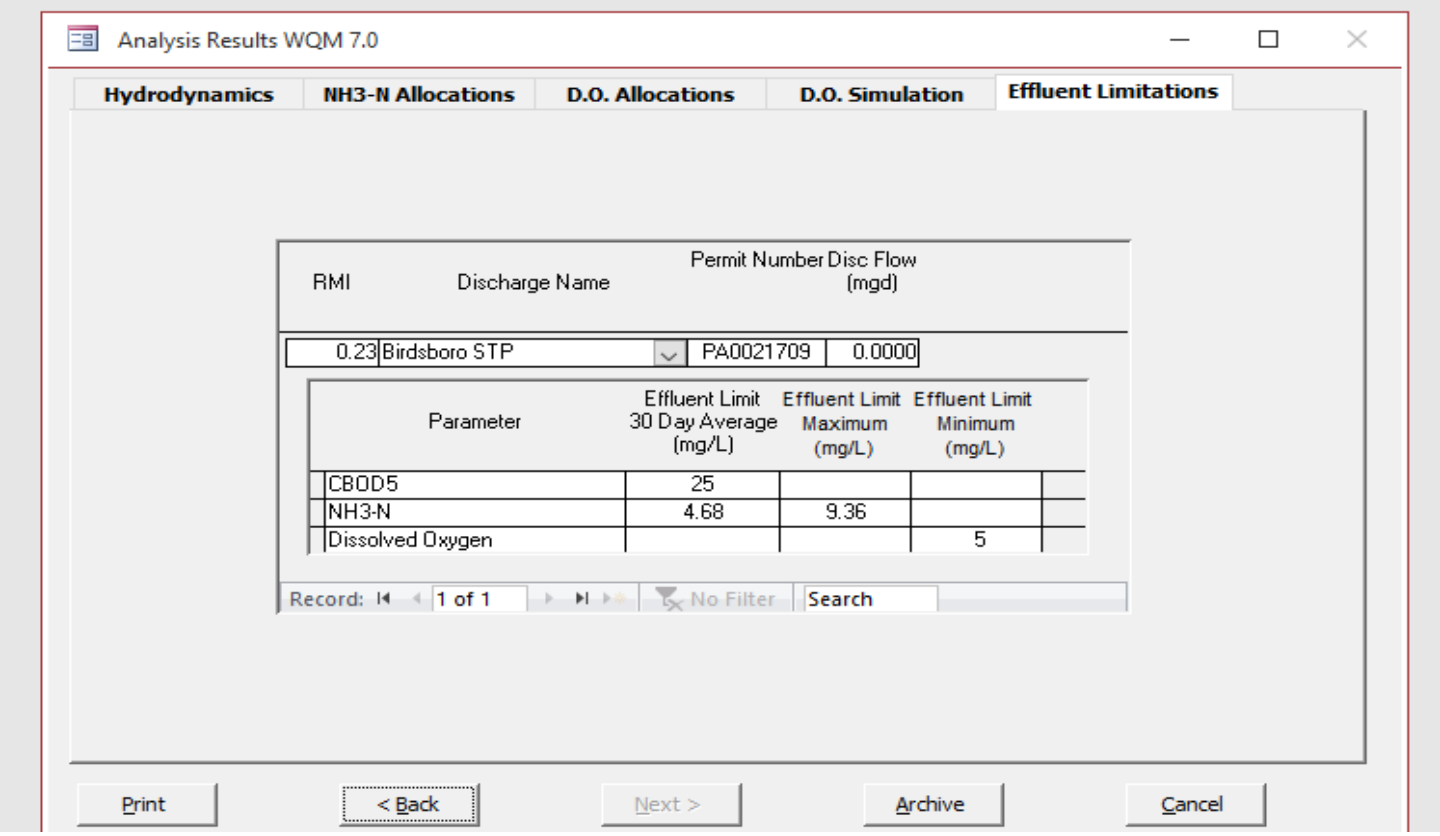
RMI	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
0.000	confl Sch R		0.0000	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/day)
CBOD5	25.00	2.00	0.00	1.50
NH3-N	20.00	0.00	0.00	0.70
Dissolved Oxygen	5.00	8.24	0.00	0.00

Record: 2 of 2 | No Filter | Search


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
0.230
Total Discharge Flow (mgd)
1.350
Analysis Temperature (ºC)
22.162
Analysis pH
7.000
Reach Width (ft)
27.614
Reach Depth (ft)
0.653
Reach WD Ratio
42.267
Reach Velocity (fps)
0.268
Reach C-BOD5 (mg/L)
11.95
Reach Kc (1/days)
1.352
Reach NH3-N (mg/L)
2.02
Reach Kn (1/days)
0.827
Reach DO (mg/L)
6.840
Reach Kr (1/days)
22.045
Kr Equation
Tsivoglou
Reach DO Goal (mg/L)
6
Reach Travel Time (days)
0.053
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.005 11.85 2.02 6.88
0.011 11.76 2.01 6.93
0.016 11.67 2.00 6.96
0.021 11.58 1.99 7.00
0.026 11.49 1.98 7.03
0.032 11.40 1.97 7.06
0.037 11.31 1.96 7.09
0.042 11.22 1.96 7.11
0.047 11.13 1.95 7.14
0.053 11.05 1.94 7.16
Record: 1 of 1
No Filter
Search


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
0.23
Birdsboro STP
PA0021709
0.0000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5 25
NH3-N 4.68 9.36
Dissolved Oxygen 5
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
Archive
Cancel

StreamStats Output Report-@ Pottstown PWS						
State/Region ID	PA					
Workspace ID	PA20240807194321145000					
Latitude	40.24091					
Longitude	-75.69559					
Time	8/7/2024	3:43:55 PM				
Low-Flow Statistics P-	14.0 Percent Low Flow Region 1					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit	
DRNAREA	Drainage Area	1050	square m	4.78	1150	
BSLOPD	Mean Basin Slop	6.5303	degrees	1.7	6.4	
URBAN	Percent Urban	6.5759	percent	0	89	
Low-Flow Statistics P-	86.0 Percent Low Flow Region 2					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit	
DRNAREA	Drainage Area	1050	square m	4.93	1280	
PRECIP	Mean Annual Pre	47	inches	35	50.4	
STRDEN	Stream Density	1.36	miles per	0.51	3.1	
ROCKDEP	Depth to Rock	4.4	feet	3.32	5.65	
CARBON	Percent Carbona	18.38	percent	0	99	
Low-Flow Statistics Fl	14.0 Percent Low Flow Region 1					
Statistic	Value	Unit				
7 Day 2 Year Low Flow	271	ft^3/s				
30 Day 2 Year Low Flo	328	ft^3/s				
7 Day 10 Year Low Flov	168	ft^3/s				
30 Day 10 Year Low Flc	200	ft^3/s				
90 Day 10 Year Low Flc	254	ft^3/s				
Low-Flow Statistics Fl	86.0 Percent Low Flow Region 2					
Statistic	Value	Unit	SE	ASEp		
7 Day 2 Year Low Flow	451	ft^3/s	38	38		
30 Day 2 Year Low Flo	529	ft^3/s	33	33		
7 Day 10 Year Low Flov	292	ft^3/s	51	51		
30 Day 10 Year Low Flc	345	ft^3/s	46	46		
90 Day 10 Year Low Flc	419	ft^3/s	36	36		

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

2.73	= Q stream (cfs)	0.5	= CV Daily
1.35	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.436	1.3.2.iii	WLA cfc = 0.418
PENTOXSD TRC	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRC	5.1b	LTA_afc= 0.162	5.1d	LTA_cfc = 0.243

Source		Effluent Limit Calculations	
PENTOXSD TRC	5.1f	AML MULT = 1.231	
PENTOXSD TRC	5.1g	AVG MON LIMIT (mg/l) = 0.200	AFC
		INST MAX LIMIT (mg/l) = 0.654	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....
....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)

(PMF input values were derived from TMS model, on following pages)

DEP's TOXCONC updated March 2025 using discrete data from Daily Effluent Supplemental DMRs (most recent DMR data added at end):

	Facility:		Birdsboro Re-do							
	NPDES #:		PA0021709							
	Outfall No:		001							
	n (Samples/Month):		4							
	Reviewer/Permit Engineer:		B.Boylan							
Parameter Name	Free Cyanide	Total Cadmium	Total Copper	Total Silver	Total Zinc					
Units	mg/L	mg/L	mg/L	mg/L	mg/L					
Detection Limit	0.005	0.004	0.004	0.001	0.02					
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*									
Nov-24	<0.005	<0.0001	0.007	<0.0002	0.068					
	<0.005	<0.0001	0.006	<0.0002	0.089					
	<0.005	<0.0001	0.007	<0.0002	0.087					
	<0.005	<0.0001	0.007	<0.0002	0.074					
Oct-24	<0.005	<0.0001	0.006	<0.0002	0.066					
	<0.005	<0.0001	0.005	<0.0002	0.049					
	<0.005	<0.0001	0.005	<0.0002	0.073					
	<0.005	<0.0001	0.007	<0.0002	0.078					
Sep-24	<0.005	<0.0001	0.006	<0.0002	0.043					
	<0.005	<0.0001	0.007	<0.0002	0.042					
	<0.005	<0.0001	0.005	<0.0002	0.069					
	<0.005	<0.0001	0.005	<0.0002	0.082					
Aug-24	<0.005	<0.0001	0.005	<0.0002	0.04					
	<0.005	<0.0001	0.003	<0.0002	0.026					
	<0.005	<0.0001	0.005	<0.0002	0.039					
	<0.005	<0.0001	0.006	<0.0002	0.045					
Jul-24	<0.005	<0.0001	0.004	<0.0002	0.041					
	<0.005	<0.0001	0.005	<0.0002	0.033					
	<0.005	<0.0001	0.005	<0.0002	0.052					
	<0.005	<0.0001	0.004	<0.0002	0.03					
	<0.005	<0.0001	0.006	<0.0002	0.048					
Jun-24	<0.005	<0.0001	0.007	<0.0002	0.059					
	<0.005	<0.0001	0.004	<0.0002	0.049					
	<0.005	<0.0001	0.005	<0.0002	0.049					
	<0.005	<0.0001	0.004	<0.0002	0.045					
May-24	<0.005	<0.0001	0.005	<0.0002	0.079					
	<0.005	<0.0001	0.005	<0.0002	0.077					
	<0.005	<0.0001	0.005	<0.0002	0.07					
	0.005	<0.0001	0.004	<0.0002	0.097					
Apr.	Daily effl form-Not avail.	although Daily effl Suppl DMR was Not avil., the DMR conc's for April 2024 were in line with other months and no exceedances reported								
Mar-24	<0.005	<0.0001	0.008	<0.0002	0.069					
	<0.005	<0.0001	0.005	<0.0002	0.051					
	<0.005	<0.0001	0.005	<0.0002	0.061					
	<0.005	<0.0001	0.006	<0.0002	0.067					

Feb-24	<0.005	<0.0001	0.007	<0.0002	0.081					
	<0.005	<0.0001	0.007	<0.0002	0.088					
	<0.005	<0.0001	0.007	<0.0002	0.094					
	<0.005	<0.0001	0.008	<0.0002	0.102					
Jan-24	<0.005	<0.0001	0.004	<0.0002	0.047					
	<0.005	<0.0001	0.002	<0.0002	0.026					
	<0.005	<0.0001	0.004	<0.0002	0.049					
	<0.005	<0.0001	0.006	<0.0002	0.064					
	<0.005	<0.0001	0.006	<0.0002	0.052					
Dec-23	<0.005	<0.0001	0.006	<0.0002	0.073					
	<0.005	<0.0001	0.004	<0.0002	0.041					
	0.005	<0.0001	0.003	<0.0002	0.038					
	0.006	<0.0001	0.004	<0.0002	0.052					
Nov-23	<0.005	<0.0001	0.006	<0.0002	0.053					
	<0.005	<0.0001	0.006	<0.0002	0.065					
	0.007	<0.0001	0.006	<0.0002	0.076					
	0.005	<0.0001	0.005	<0.0002	0.086					
Oct-23	<0.005	<0.0001	0.007	<0.0002	0.042					
	<0.005	<0.0001	0.007	<0.0002	0.044					
	<0.005	<0.0001	0.006	<0.0002	0.039					
	<0.005	<0.0001	0.007	<0.0002	0.058					
	<0.005	<0.0001	0.006	<0.0002	0.05					
Sep-23	<0.005	<0.0001	0.008	<0.0002	0.041					
	<0.005	<0.0001	0.006	0.001	0.033					
	<0.005	<0.0001	0.007	<0.0002	0.046					
	<0.005	<0.0001	0.004	<0.0002	0.025					
Dec-24	<0.005	<0.0004	0.007	<0.001	0.103					
	<0.005	<0.0004	0.005	<0.001	0.104					
	<0.005	<0.0004	0.006	<0.001	0.084					
	<0.005	<0.0004	0.006	<0.001	0.067					
	<0.005	<0.0004	0.004	<0.001	0.067					
Jan-25	<0.005	<0.0004	0.005	<0.001	0.102					
	<0.005	<0.0004	0.007	<0.001	0.116					
	<0.005	<0.0004	0.007	<0.001	0.123					
	<0.005	<0.0004	0.006	<0.001	0.087					
	<0.005	<0.0004	0.007		0.125					
Feb-25	<0.005	<0.0004	0.007	<0.001	0.108					
	<0.005	<0.0004	0.005	<0.001	0.08					
	<0.005	<0.0004	0.004	<0.001	0.065					
	<0.005	<0.0004	0.005	<0.001	0.08					
				<0.001						

		Reviewer/Permit Engineer:	B.Boylan
Facility:	Birdsboro Re-do		
NPDES #:	PA0021709		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Free Cyanide (mg/L)	Delta-Lognormal	0.0540852	0.0054128
Total Cadmium (mg/L)	Delta-Lognormal	#DIV/0!	#DIV/0!
Total Copper (mg/L)	Lognormal	0.2609380	0.0075393
Total Silver (mg/L)	Delta-Lognormal	#REF!	#REF!
Total Zinc (mg/L)	Delta-Lognormal	0.4107343	0.1009742

TMS updated March 2025 (no change for other parameters, see Dec 2024 TMS):

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Birdsboro STP** NPDES Permit No.: **PA0021709** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **domestic and iw**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.35	99	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L											
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L		0.00754			0.261						
	Free Cyanide	µg/L		0.00541			0.0541						
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.10097			0.4107						
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Birdsboro STP, NPDES Permit No. PA0021709, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Hay Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	001772	0.23	165	22.1			Yes
End of Reach 1	001772	0	155	22.15			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.23	0.124										100	7		
End of Reach 1	0	0.124													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.23														
End of Reach 1	0														

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	Report	Report	Report	Report	Report	mg/L	0.016	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	1.82	2.68	0.16	0.24	0.4	mg/L	0.16	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Free Cyanide	9.25	µg/L	Discharge Conc ≤ 25% WQBEL

DEP's TOXCONC from December 2024 (using discrete data from Daily Effluent Supplemental DMRs):

	Facility:		Birdsboro WWTP						
	NPDES #:		PA0021709						
	Outfall No:		001						
	n (Samples/Month):		4						
	Reviewer/Permit Engineer:		B Boylan						
Parameter Name	Total Cadmium	Total Copper	Free Cyanide	Total Silver	Total Zinc				T.Zinc
Units	mg/L	mg/L	mg/L	mg/L	mg/L				mg/L
Detection Limit									
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*								
Nov-24	<0.0004	0.007	<0.005	<0.001	0.068				0.068
	<0.0004	0.006	<0.005	<0.001	0.089				0.089
	<0.0004	0.007	<0.005	<0.001	0.087				0.087
	<0.0004	0.007	<0.005	<0.001	0.074				0.074
Oct-24	<0.0004	0.006	<0.005	<0.001	0.066				0.066
	<0.0004	0.005	<0.005	<0.001	0.049				0.049
	<0.0004	0.005	<0.005	<0.001	0.073				0.073
	<0.0004	0.007	<0.005	<0.001	0.078				0.078
Sep-24	<0.0004	0.006	<0.005	<0.001	0.043				0.043
	<0.0004	0.007	<0.005	<0.001	0.042				0.042
	<0.0004	0.005	<0.005	<0.001	0.069				0.069
	<0.0004	0.005	<0.005	<0.001	0.082				0.082
Aug-24	<0.0004	0.005	<0.005	<0.001	0.04				0.04
	<0.0004	0.003	<0.005	<0.001	0.026				0.026
	<0.0004	0.005	<0.005	<0.001	0.039				0.039
	<0.0004	0.006	<0.005	<0.001	0.045				0.045
Jul-24	<0.0004	0.004	<0.005	<0.001	0.041				0.041
	<0.0004	0.005	<0.005	<0.001	0.033				0.033
	<0.0004	0.005	<0.005	<0.001	0.052				0.052
	<0.0004	0.004	<0.005	<0.001	0.03				0.03
	<0.0004	0.006	<0.005	<0.001	0.048				0.048
Jun-24	<0.0004	0.007	<0.005	<0.001	0.059				0.059
	<0.0004	0.004	<0.005	<0.001	0.049				0.049
	<0.0004	0.005	<0.005	<0.001	0.049				0.049
	<0.0004	0.004	<0.005	<0.001	0.045				0.045
May-24	<0.0004	0.005	<0.005	<0.001	0.079				0.079
	<0.0004	0.005	<0.005	<0.001	0.077				0.077
	<0.0004	0.005	<0.005	<0.001	0.07				0.07
	<0.0004	0.004	0.005	<0.001	0.097				0.097

Apr.Daily effl form corrupted									
Mar-24	<0.0004	0.008	<0.005	<0.001	0.069				0.069
	<0.0004	0.005	<0.005	<0.001	0.051				0.051
	<0.0004	0.005	<0.005	<0.001	0.061				0.061
	<0.0004	0.006	<0.005	<0.001	0.067				0.067
Feb-24	<0.0004	0.007	<0.005	<0.001	0.081				0.081
	<0.0004	0.007	<0.005	<0.001	0.088				0.088
	<0.0004	0.007	<0.005	<0.001	0.094				0.094
	<0.0004	0.008	<0.005	<0.001	0.102				0.102
Jan-24	<0.0004	0.004	<0.005	<0.001	0.047				0.047
	<0.0004	0.002	<0.005	<0.001	0.026				0.026
	<0.0004	0.004	<0.005	<0.001	0.049				0.049
	<0.0004	0.006	<0.005	<0.001	0.064				0.064
	<0.0004	0.006	<0.005	<0.001	0.052				0.052
Dec-23	<0.0004	0.006	<0.005	<0.001	0.073				0.073
	<0.0004	0.004	<0.005	<0.001	0.041				0.041
	<0.0004	0.003	0.005	<0.001	0.038				0.038
	<0.0004	0.004	0.006	<0.001	0.052				0.052
Nov-23	<0.0004	0.006	<0.005	<0.001	0.053				0.053
	<0.0004	0.006	<0.005	<0.001	0.065				0.065
	<0.0004	0.006	0.007	<0.001	0.076				0.076
	<0.0004	0.005	0.005	<0.001	0.086				0.086
Oct-23	<0.0004	0.007	<0.005	<0.001	0.042				0.042
	<0.0004	0.007	<0.005	<0.001	0.044				0.044
	<0.0004	0.006	<0.005	<0.001	0.039				0.039
	<0.0004	0.007	<0.005	<0.001	0.058				0.058
	<0.0004	0.006	<0.005	<0.001	0.05				0.05
Sep-23	<0.0004	0.008	<0.005	<0.001	0.041				0.041
	<0.0004	0.006	<0.005	0.001	0.033				0.033
	<0.0004	0.007	<0.005	<0.001	0.046				0.046
	<0.0004	0.004	<0.005	<0.001	0.025				0.025

TOXCONC results from December 2024:

		Reviewer/Permit Engineer:	B Boylan
Facility:	Birdsboro WWTP		
NPDES #:	PA0021709		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Cadmium (mg/L)	Delta-Lognormal	#DIV/0!	#DIV/0!
Total Copper (mg/L)	Lognormal	0.2730905	0.0075839
Free Cyanide (mg/L)	Delta-Lognormal	3.3281275	0.0022516
Total Silver (mg/L)	Delta-Lognormal	#DIV/0!	#DIV/0!
Total Zinc (mg/L)	Lognormal	#REF!	#REF!
T.Zinc (mg/L)	Lognormal	0.3604176	0.0865242

Facility:	Birdsboro WWTP	
NPDES #:	PA0021709	
Outfall No:	001	
n (Samples/Month):	4	

Parameter Name	Total Cadmium	Total Copper	Free Cyanide	Total Silver	Total Zinc				T.Zinc
Number of Samples	59	59	59	59	59				59
Samples Nondetected	59	0	54	58	0				0
LOGNORMAL									
Log MEAN	NA	-5.2245954	NA	NA	#REF!				-2.9082379
Log VAR.		0.0719284			#REF!				0.1221299
(LTA) [E(x)]		0.0055796			#REF!				0.0580081
Variance [V(x)]		0.0000023			#REF!				0.0004371
CV (raw)		0.2730905			#REF!				0.3604176
CV (n)		0.1365452			#REF!				0.1802088
Monthly Avg. (99%, n-day)		0.0075839			#REF!				0.0865242
DELTA-LOGNORMAL									
Delta-Log MEAN	#DIV/0!	NA	-5.1945586	-6.9077553	NA				NA
Delta-Log VAR.	#DIV/0!		0.0231563	#DIV/0!					
(LTA) [E(x)]	#DIV/0!		0.0004755	#DIV/0!					
Variance [V(x)]	#DIV/0!		0.0000025	#DIV/0!					
CV (raw)	#DIV/0!		3.3281275	#DIV/0!					
Delta-Log VAR. (n)	#DIV/0!		0.1170988	#DIV/0!					
A, Table E-2, TSD	#DIV/0!		2.7691082	#DIV/0!					
B, Table E-2, TSD	#DIV/0!		0.0000000	#DIV/0!					
C, Table E-2, TSD	#DIV/0!		0.0000000	#DIV/0!					
Delta-Log MEAN (n)	#DIV/0!		-6.4998897	#DIV/0!					
phi (Φ)	#DIV/0!		0.8820000	0.4100000					
Z*	#DIV/0!		1.1800000	-0.2300000					
Monthly Avg. (99%, n-day)	#DIV/0!		0.0022516	#DIV/0!					
NORMAL									
MEAN	NA	NA	NA	NA	NA				NA
VAR.									
(LTA) [E(x)]									
Variance [V(x)]									

DATA INPUT SHEET | DOCUMENTATION | OUTPUT SHEET | **SUMMARY STATISTICS** | DETAILED CALCULATIONS | Z-VALUES

Accessibility: Unavailable

December 2024 TMS……

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Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Birdsboro STP after updated TOXCONC & DMR** NPDES Permit No.: **PA0021709** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **domestic + cooling water**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.35	99	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		805									
	Chloride (PWS)	mg/L		65.7									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		41.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		10									
	Total Antimony	µg/L		0.6									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		36									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L		225									
	Total Cadmium	µg/L	<	0.4									
	Total Chromium (III)	µg/L		5									
	Hexavalent Chromium	µg/L	<	0.1									
	Total Cobalt	µg/L	<	0.2									
	Total Copper	mg/L		0.0076			0.273						
	Free Cyanide	µg/L	<	2.25			3.328						
	Total Cyanide	µg/L		12									
	Dissolved Iron	µg/L		25									
	Total Iron	µg/L		43									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		77									
	Total Mercury	µg/L	<	0.09									
	Total Nickel	µg/L	<	2									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	4									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.05									
	Total Zinc	mg/L		0.0865			0.3604						
	Total Molybdenum	µg/L		2									
	Acrolein	µg/L	<	0.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.3									
	Benzene	µg/L	<	0.4									
	Bromoform	µg/L	<	0.4									

Group 3	Carbon Tetrachloride	µg/L	<	0.4										
	Chlorobenzene	µg/L	<	0.5										
	Chlorodibromomethane	µg/L	<	0.4										
	Chloroethane	µg/L	<	0.06										
	2-Chloroethyl Vinyl Ether	µg/L	<	0.3										
	Chloroform	µg/L		11.7										
	Dichlorobromomethane	µg/L		2.6										
	1,1-Dichloroethane	µg/L	<	0.4										
	1,2-Dichloroethane	µg/L	<	0.3										
	1,1-Dichloroethylene	µg/L	<	0.2										
	1,2-Dichloropropane	µg/L	<	0.3										
	1,3-Dichloropropylene	µg/L	<	0.3										
	1,4-Dioxane	µg/L	<	0.106										
	Ethylbenzene	µg/L	<	0.2										
	Methyl Bromide	µg/L	<	0.4										
	Methyl Chloride	µg/L	<	0.5										
	Methylene Chloride	µg/L	<	0.4										
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.3										
	Toluene	µg/L	<	0.3										
	1,2-trans-Dichloroethylene	µg/L	<	0.4										
	1,1,1-Trichloroethane	µg/L	<	0.3										
	1,1,2-Trichloroethane	µg/L	<	0.3										
	Trichloroethylene	µg/L	<	0.4										
	Vinyl Chloride	µg/L	<	0.3										
Group 4	2-Chlorophenol	µg/L	<	0.183										
	2,4-Dichlorophenol	µg/L	<	0.228										
	2,4-Dimethylphenol	µg/L	<	0.384										
	4,6-Dinitro-o-Cresol	µg/L	<	1.24										
	2,4-Dinitrophenol	µg/L	<	1.92										
	2-Nitrophenol	µg/L	<	0.234										
	4-Nitrophenol	µg/L	<	1.44										
	p-Chloro-m-Cresol	µg/L	<	0.264										
	Pentachlorophenol	µg/L	<	0.51										
	Phenol	µg/L	<	0.204										
	2,4,6-Trichlorophenol	µg/L		0.371										
	Acenaphthene	µg/L	<	0.359										
	Acenaphthylene	µg/L	<	0.356										
	Anthracene	µg/L	<	0.334										
	Benzidine	µg/L	<	0.623										
	Benzo(a)Anthracene	µg/L	<	0.277										
	Benzo(a)Pyrene	µg/L	<	0.245										
	3,4-Benzofluoranthene	µg/L	<	0.277										
	Benzo(ghi)Perylene	µg/L	<	0.42										
	Benzo(k)Fluoranthene	µg/L	<	0.341										
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.239										
Group 5	Bis(2-Chloroethyl)Ether	µg/L	<	0.276										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.276										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	1.62										
	4-Bromophenyl Phenyl Ether	µg/L	<	0.403										
	Butyl Benzyl Phthalate	µg/L	<	1.07										
	2-Chloronaphthalene	µg/L	<	0.36										
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.348										
	Chrysene	µg/L	<	0.521										
	Dibenzo(a,h)Anthrancene	µg/L	<	0.422										
	1,2-Dichlorobenzene	µg/L	<	0.09										
	1,3-Dichlorobenzene	µg/L	<	0.2										
	1,4-Dichlorobenzene	µg/L	<	0.08										
	3,3-Dichlorobenzidine	µg/L	<	0.761										
	Diethyl Phthalate	µg/L	<	0.868										
	Dimethyl Phthalate	µg/L	<	0.522										
	Di-n-Butyl Phthalate	µg/L	<	2.76										
	2,4-Dinitrotoluene	µg/L	<	0.474										

	2,6-Dinitrotoluene	µg/L	<	0.457									
	Di-n-Octyl Phthalate	µg/L	<	0.376									
	1,2-Diphenylhydrazine	µg/L	<	0.538									
	Fluoranthene	µg/L	<	0.64									
	Fluorene	µg/L	<	0.317									
	Hexachlorobenzene	µg/L	<	0.427									
	Hexachlorobutadiene	µg/L	<	0.271									
	Hexachlorocyclopentadiene	µg/L	<	0.412									
	Hexachloroethane	µg/L	<	0.484									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.4									
	Isophorone	µg/L	<	0.262									
	Naphthalene	µg/L	<	0.248									
	Nitrobenzene	µg/L	<	0.248									
	n-Nitrosodimethylamine	µg/L	<	0.245									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.431									
	n-Nitrosodiphenylamine	µg/L	<	0.378									
	Phenanthrene	µg/L	<	0.43									
	Pyrene	µg/L	<	0.602									
	1,2,4-Trichlorobenzene	µg/L	<	0.279									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Birdsboro STP after updated TOXCONC & DMRs, NPDES Permit No. PA0021709, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Hay Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	001772	0.23	165	22.1			Yes
End of Reach 1	001772	0	155	22.15			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.23	0.124										100	7		
End of Reach 1	0	0.124													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.23														
End of Reach 1	0														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Birdsboro STP after updated TOXCONC & DMRs, NPDES Permit No. PA0021709, Outfall 001

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

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.23	2.74		2.74	2.088	0.008	0.653	27.614	42.267	0.268	0.053	7.024
0	2.75		2.7466								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.23	17.93		17.93	2.088	0.008	1.221	27.614	22.607	0.594	0.024	6.845
0	17.968		17.97								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 7.024 PMF: 1 Analysis Hardness (mg/l): 99.568 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,734	
Total Antimony	0	0		0	1,100	1,100	2,543	
Total Arsenic	0	0		0	340	340	786	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	48,556	
Total Boron	0	0		0	8,100	8,100	18,729	
Total Cadmium	0	0		0	2.005	2.12	4.91	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	567.745	1,797	4,154	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	37.7	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	220	
Total Copper	0	0		0	13.384	13.9	32.2	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	50.9	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.277	81.2	188	Chem Translator of 0.792 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.81	Chem Translator of 0.85 applied
Total Nickel	0	0		0	466.522	467	1,081	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.193	3.76	8.69	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	150	
Total Zinc	0	0		0	116.751	119	276	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	6.94	
Acrylonitrile	0	0		0	650	650	1,503	
Benzene	0	0		0	640	640	1,480	
Bromoform	0	0		0	1,800	1,800	4,162	
Carbon Tetrachloride	0	0		0	2,800	2,800	6,474	
Chlorobenzene	0	0		0	1,200	1,200	2,775	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	41,619	
Chloroform	0	0		0	1,900	1,900	4,393	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	34,683	
1,1-Dichloroethylene	0	0		0	7,500	7,500	17,341	
1,2-Dichloropropane	0	0		0	11,000	11,000	25,434	
1,3-Dichloropropylene	0	0		0	310	310	717	
Ethylbenzene	0	0		0	2,900	2,900	6,705	
Methyl Bromide	0	0		0	550	550	1,272	
Methyl Chloride	0	0		0	28,000	28,000	64,741	
Methylene Chloride	0	0		0	12,000	12,000	27,746	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,312	
Tetrachloroethylene	0	0		0	700	700	1,619	
Toluene	0	0		0	1,700	1,700	3,931	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	15,723	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	6,937	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	7,861	
Trichloroethylene	0	0		0	2,300	2,300	5,318	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,295	
2,4-Dichlorophenol	0	0		0	1,700	1,700	3,931	
2,4-Dimethylphenol	0	0		0	660	660	1,526	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	185	
2,4-Dinitrophenol	0	0		0	660	660	1,526	
2-Nitrophenol	0	0		0	8,000	8,000	18,497	
4-Nitrophenol	0	0		0	2,300	2,300	5,318	
p-Chloro-m-Cresol	0	0		0	160	160	370	
Pentachlorophenol	0	0		0	8.723	8.72	20.2	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,064	

Acenaphthene	0	0		0	83	83.0	192	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	694	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.16	
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	69,365	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	10,405	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	624	
Butyl Benzyl Phthalate	0	0		0	140	140	324	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,896	
1,3-Dichlorobenzene	0	0		0	350	350	809	
1,4-Dichlorobenzene	0	0		0	730	730	1,688	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	9,249	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,780	
Di-n-Butyl Phthalate	0	0		0	110	110	254	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,699	
2,6-Dinitrotoluene	0	0		0	990	990	2,289	
1,2-Diphenylhydrazine	0	0		0	15	15.0	34.7	
Fluoranthene	0	0		0	200	200	462	
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	23.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	11.6	
Hexachloroethane	0	0		0	60	60.0	139	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	23,122	
Naphthalene	0	0		0	140	140	324	
Nitrobenzene	0	0		0	4,000	4,000	9,249	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	39,307	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	694	
Phenanthrene	0	0		0	5	5.0	11.6	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	301	

☑ ***CFC*** CCT (min): 7.024 PMF: 1 Analysis Hardness (mg/l): 99.568 Analysis pH: 7.00

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

Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	509	
Total Arsenic	0	0		0	150	150	347	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	9,480	
Total Boron	0	0		0	1,600	1,600	3,699	
Total Cadmium	0	0		0	0.245	0.27	0.62	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	73.852	85.9	199	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	24.0	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	43.9	
Total Copper	0	0		0	8.923	9.29	21.5	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	12.0	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	3,468	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.505	3.16	7.32	Chem Translator of 0.792 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.09	Chem Translator of 0.85 applied
Total Nickel	0	0		0	51.816	52.0	120	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	11.5	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	30.1	
Total Zinc	0	0		0	117.706	119	276	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	6.94	
Acrylonitrile	0	0		0	130	130	301	
Benzene	0	0		0	130	130	301	
Bromoform	0	0		0	370	370	856	
Carbon Tetrachloride	0	0		0	560	560	1,295	
Chlorobenzene	0	0		0	240	240	555	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	8,093	
Chloroform	0	0		0	390	390	902	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	7,168	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,468	
1,2-Dichloropropane	0	0		0	2,200	2,200	5,087	
1,3-Dichloropropylene	0	0		0	61	61.0	141	
Ethylbenzene	0	0		0	580	580	1,341	
Methyl Bromide	0	0		0	110	110	254	
Methyl Chloride	0	0		0	5,500	5,500	12,717	
Methylene Chloride	0	0		0	2,400	2,400	5,549	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	486	
Tetrachloroethylene	0	0		0	140	140	324	
Toluene	0	0		0	330	330	763	

1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	3,237	
1,1,1-Trichloroethane	0	0		0	610	610	1,410	
1,1,2-Trichloroethane	0	0		0	680	680	1,572	
Trichloroethylene	0	0		0	450	450	1,040	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	254	
2,4-Dichlorophenol	0	0		0	340	340	786	
2,4-Dimethylphenol	0	0		0	130	130	301	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	37.0	
2,4-Dinitrophenol	0	0		0	130	130	301	
2-Nitrophenol	0	0		0	1,600	1,600	3,699	
4-Nitrophenol	0	0		0	470	470	1,087	
p-Chloro-m-Cresol	0	0		0	500	500	1,156	
Pentachlorophenol	0	0		0	6.693	6.69	15.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	210	
Acenaphthene	0	0		0	17	17.0	39.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	136	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.23	
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	13,873	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,104	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	125	
Butyl Benzyl Phthalate	0	0		0	35	35.0	80.9	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	370	
1,3-Dichlorobenzene	0	0		0	69	69.0	160	
1,4-Dichlorobenzene	0	0		0	150	150	347	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,850	
Dimethyl Phthalate	0	0		0	500	500	1,156	
Di-n-Butyl Phthalate	0	0		0	21	21.0	48.6	
2,4-Dinitrotoluene	0	0		0	320	320	740	
2,6-Dinitrotoluene	0	0		0	200	200	462	
1,2-Diphenylhydrazine	0	0		0	3	3.0	6.94	
Fluoranthene	0	0		0	40	40.0	92.5	
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	4.62	

Hexachlorocyclopentadiene	0	0		0	1	1.0	2.31	
Hexachloroethane	0	0		0	12	12.0	27.7	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	4,856	
Naphthalene	0	0		0	43	43.0	99.4	
Nitrobenzene	0	0		0	810	810	1,873	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	7,861	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	136	
Phenanthrene	0	0		0	1	1.0	2.31	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	60.1	

☑ ***THH*** CCT (min): 7.024 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total 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	12.9	
Total Arsenic	0	0		0	10	10.0	23.1	
Total Barium	0	0		0	2,400	2,400	5,549	
Total Boron	0	0		0	3,100	3,100	7,168	
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	9.25	
Dissolved Iron	0	0		0	300	300	694	
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	2,312	
Total Mercury	0	0		0	0.050	0.05	0.12	
Total Nickel	0	0		0	610	610	1,410	
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	0.55	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	6.94	
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	231	
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	13.2	
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	76.3	
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	157	
Methyl Bromide	0	0		0	100	100.0	231	
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	132	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	231	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	23,122	
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	69.4	
2,4-Dichlorophenol	0	0		0	10	10.0	23.1	
2,4-Dimethylphenol	0	0		0	100	100.0	231	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	4.62	
2,4-Dinitrophenol	0	0		0	10	10.0	23.1	
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	9,249	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	162	
Anthracene	0	0		0	300	300	694	
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	462	
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	0.23	
2-Chloronaphthalene	0	0		0	800	800	1,850	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	2,312	
1,3-Dichlorobenzene	0	0		0	7	7.0	16.2	
1,4-Dichlorobenzene	0	0		0	300	300	694	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	1,387	
Dimethyl Phthalate	0	0		0	2,000	2,000	4,624	
Di-n-Butyl Phthalate	0	0		0	20	20.0	46.2	
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	46.2	
Fluorene	0	0		0	50	50.0	116	
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	9.25	
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	78.6	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	23.1	
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	46.2	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.16	

☑ ***CRL*** CCT (min): 6.845 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total 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	0.58	
Benzene	0	0		0	0.58	0.58	5.56	
Bromoform	0	0		0	7	7.0	67.1	
Carbon Tetrachloride	0	0		0	0.4	0.4	3.83	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	7.67	
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	9.11	
1,2-Dichloroethane	0	0		0	9.9	9.9	94.9	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	8.63	
1,3-Dichloropropylene	0	0		0	0.27	0.27	2.59	
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	192	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	1.92	
Tetrachloroethylene	0	0		0	10	10.0	95.9	
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	5.27	
Trichloroethylene	0	0		0	0.6	0.6	5.75	
Vinyl Chloride	0	0		0	0.02	0.02	0.19	
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	0.29	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	14.4	
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	0.001	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.01	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.001	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.01	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.096	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.29	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	3.07	
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	1.15	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.001	
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	0.48	
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	0.48	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.48	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.29	
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	0.0008	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.096	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.96	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.01	
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	0.007	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.048	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	31.6	

12/19/2024 TMS Results…..

Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Cadmium	0.007	0.011	0.62	0.97	1.56	µg/L	0.62	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	mg/L	0.016	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	5.57	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	1.73	2.46	0.15	0.22	0.38	mg/L	0.15	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Chloroform	0.15	0.23	13.2	20.6	32.9	µg/L	13.2	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dichlorobromomethane	Report	Report	Report	Report	Report	µg/L	9.11	CRL	Discharge Conc > 25% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	1,112	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	12.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	5,549	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,699	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	199	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	24.0	µg/L	Discharge Conc < TQL
Total Cobalt	43.9	µg/L	Discharge Conc < TQL
Free Cyanide	9.25	µg/L	Discharge Conc ≤ 25% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	694	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	3,468	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7.32	µg/L	Discharge Conc < TQL
Total Manganese	2,312	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.12	µg/L	Discharge Conc < TQL
Total Nickel	120	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	11.5	µg/L	Discharge Conc < TQL
Total Thallium	0.55	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	4.45	µg/L	Discharge Conc < TQL
Acrylonitrile	0.58	µg/L	Discharge Conc < TQL
Benzene	5.56	µg/L	Discharge Conc < TQL
Bromoform	67.1	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	3.83	µg/L	Discharge Conc < TQL
Chlorobenzene	231	µg/L	Discharge Conc < TQL
Chlorodibromomethane	7.67	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	8,093	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	94.9	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	76.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	8.63	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	2.59	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	157	µg/L	Discharge Conc < TQL
Methyl Bromide	231	µg/L	Discharge Conc < TQL

Note:
Using a maximum discharge concentration of 835 mg/l for TDS, taken from the 37 months of DMRs, would not have altered the results: no limit or monitoring requirement would have been recommended for TDS by the model.

Methyl Chloride	12,717	µg/L	Discharge Conc < TQL
Methylene Chloride	192	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	1.92	µg/L	Discharge Conc < TQL
Tetrachloroethylene	95.9	µg/L	Discharge Conc < TQL
Toluene	132	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	231	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,410	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	5.27	µg/L	Discharge Conc < TQL
Trichloroethylene	5.75	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.19	µg/L	Discharge Conc < TQL
2-Chlorophenol	69.4	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	23.1	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	231	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	4.62	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	23.1	µg/L	Discharge Conc < TQL
2-Nitrophenol	3,699	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,087	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	237	µg/L	Discharge Conc < TQL
Pentachlorophenol	0.29	µg/L	Discharge Conc < TQL
Phenol	9,249	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	14.4	µg/L	Discharge Conc ≤ 25% WQBEL
Acenaphthene	39.3	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	694	µg/L	Discharge Conc < TQL
Benzidine	0.001	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.01	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.001	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.01	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.096	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.29	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	462	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	3.07	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	125	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.23	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	1,850	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	1.15	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.001	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	370	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	16.2	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	347	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	0.48	µg/L	Discharge Conc < TQL
Diethyl Phthalate	1,387	µg/L	Discharge Conc < TQL

Dimethyl Phthalate	1,156	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	46.2	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	0.48	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.48	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.29	µg/L	Discharge Conc < TQL
Fluoranthene	46.2	µg/L	Discharge Conc < TQL
Fluorene	116	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0008	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.096	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.31	µg/L	Discharge Conc < TQL
Hexachloroethane	0.96	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.01	µg/L	Discharge Conc < TQL
Isophorone	78.6	µg/L	Discharge Conc < TQL
Naphthalene	99.4	µg/L	Discharge Conc < TQL
Nitrobenzene	23.1	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.007	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.048	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	31.6	µg/L	Discharge Conc < TQL
Phenanthrene	2.31	µg/L	Discharge Conc < TQL
Pyrene	46.2	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.16	µg/L	Discharge Conc < TQL

1st run of TMS for determining which of the 10 metals (more than 10 sample results) would need to be evaluated with TOXCONC (versus all 10 metals):

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Birdsboro TP - 1st cut -parameters w/ DMR data** NPDES Permit No.: **PA0021709** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **domestic + cooling water**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
1.35	99	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		835									
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L		2									
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L		0.4									
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L		1.3									
	Total Cobalt	µg/L											
	Total Copper	mg/L		0.013									
	Free Cyanide	µg/L		10									
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		1									
	Total Manganese	µg/L											
	Total Mercury	µg/L		0.1									
	Total Nickel	µg/L		5									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L		2									
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.127									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Cadmium	0.007	0.011	0.62	0.97	1.56	µg/L	0.62	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.23	0.36	0.021	0.032	0.052	mg/L	0.021	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.1	0.16	9.25	14.4	23.1	µg/L	9.25	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	Report	Report	Report	Report	Report	µg/L	7.32	CFC	Discharge Conc > 10% WQBEL (no RP)

Total Mercury	0.001	0.002	0.12	0.18	0.29	µg/L	0.12	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	5.57	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	1.99	3.11	0.18	0.28	0.44	mg/L	0.18	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Total Arsenic	23.1	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	24.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	120	µg/L	Discharge Conc ≤ 10% WQBEL

The model recommended limits or monitoring requirement for 7 of the 10 metals. However, a review of the DMR data, 37 months, for Total Lead and Total Mercury did not indicate a need for statistical evaluation using TOXCONC (a time-consuming procedure). See the DMR data on next pages for these two metals.

PERMIT	MONITORIN	MONITORING	OUTFAL	PARAMETER	LOAD_UNITS	1_VALUE	1_LIMIT	1_SBC	ONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	ONC_3_VALU	ONC_3_LIMIT	CONC_3_SBC		
PA0021709	11/1/2021	11/30/2021	001	Lead, Total	lbs/day	< 0.005	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	12/1/2021	12/31/2021	001	Lead, Total	lbs/day	< 0.006	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	1/1/2022	1/31/2022	001	Lead, Total	lbs/day	< 0.005	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	2/1/2022	2/28/2022	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	3/1/2022	3/31/2022	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	4/1/2022	4/30/2022	001	Lead, Total	lbs/day	< 0.01	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	5/1/2022	5/31/2022	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	6/1/2022	6/30/2022	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	7/1/2022	7/31/2022	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	8/1/2022	8/31/2022	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	9/1/2022	9/30/2022	001	Lead, Total	lbs/day	0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	10/1/2022	10/31/2022	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	11/1/2022	11/30/2022	001	Lead, Total	lbs/day	< 0.006	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	12/1/2022	12/31/2022	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	1/1/2023	1/31/2023	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	2/1/2023	2/28/2023	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	3/1/2023	3/31/2023	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	0.001	0.025	Daily Maximum	0.001	
PA0021709	4/1/2023	4/30/2023	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	5/1/2023	5/31/2023	001	Lead, Total	lbs/day	< 0.004	0.2	Average Mor	mg/L	< 0.0009	0.016	Average Mor	0.001	0.025	Daily Maximum	0.001	
PA0021709	6/1/2023	6/30/2023	001	Lead, Total	lbs/day	< 0.005	0.2	Average Mor	mg/L	< 0.0008	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	7/1/2023	7/31/2023	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	8/1/2023	8/31/2023	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	9/1/2023	9/30/2023	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	10/1/2023	10/31/2023	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	11/1/2023	11/30/2023	001	Lead, Total	lbs/day	< 0.006	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	12/1/2023	12/31/2023	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	1/1/2024	1/31/2024	001	Lead, Total	lbs/day	< 0.01	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	2/1/2024	2/29/2024	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	3/1/2024	3/31/2024	001	Lead, Total	lbs/day	< 0.01	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	4/1/2024	4/30/2024	001	Lead, Total	lbs/day	< 0.009	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	5/1/2024	5/31/2024	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	6/1/2024	6/30/2024	001	Lead, Total	lbs/day	< 0.006	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	7/1/2024	7/31/2024	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	8/1/2024	8/31/2024	001	Lead, Total	lbs/day	< 0.008	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	9/1/2024	9/30/2024	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	10/1/2024	10/31/2024	001	Lead, Total	lbs/day	< 0.007	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
PA0021709	11/1/2024	11/30/2024	001	Lead, Total	lbs/day	< 0.005	0.2	Average Mor	mg/L	< 0.001	0.016	Average Mor	< 0.001	0.025	Daily Maximum	0.001	
																0.001	Max of D.Maximums
																< 0.001	99th Percentile of D.Max's
																0.001	DEP's TQL

PERMIT	MONITORIN	MONITORING	OUTFAL	PARAMETER	LOAD_UNITS	1_VALUE	1_LIMIT	1_SBC	ONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALUI	CONC_3_LIMIT	CONC_3_SBC		
PA0021709	11/1/2021	11/30/2021	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	0.0001	0.0002	Daily Maximum	0.0001	
PA0021709	12/1/2021	12/31/2021	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	1/1/2022	1/31/2022	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	2/1/2022	2/28/2022	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	0.0001	0.0002	Daily Maximum	0.0001	
PA0021709	3/1/2022	3/31/2022	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	4/1/2022	4/30/2022	001	Mercury, Total	lbs/day	< 0.0010	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	5/1/2022	5/31/2022	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	6/1/2022	6/30/2022	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	7/1/2022	7/31/2022	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	8/1/2022	8/31/2022	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	9/1/2022	9/30/2022	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	10/1/2022	10/31/2022	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	11/1/2022	11/30/2022	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.0001	0.0001	Average Mor	0.0001	0.0002	Daily Maximum	0.0001	
PA0021709	12/1/2022	12/31/2022	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	1/1/2023	1/31/2023	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	2/1/2023	2/28/2023	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	3/1/2023	3/31/2023	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00008	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	4/1/2023	4/30/2023	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	5/1/2023	5/31/2023	001	Mercury, Total	lbs/day	< 0.0004	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	6/1/2023	6/30/2023	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	7/1/2023	7/31/2023	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	8/1/2023	8/31/2023	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	9/1/2023	9/30/2023	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	10/1/2023	10/31/2023	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	11/1/2023	11/30/2023	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	12/1/2023	12/31/2023	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	1/1/2024	1/31/2024	001	Mercury, Total	lbs/day	< 0.0009	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	2/1/2024	2/29/2024	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	3/1/2024	3/31/2024	001	Mercury, Total	lbs/day	< 0.0009	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	4/1/2024	4/30/2024	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	5/1/2024	5/31/2024	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	6/1/2024	6/30/2024	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	7/1/2024	7/31/2024	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	8/1/2024	8/31/2024	001	Mercury, Total	lbs/day	< 0.0008	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	9/1/2024	9/30/2024	001	Mercury, Total	lbs/day	< 0.0006	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	10/1/2024	10/31/2024	001	Mercury, Total	lbs/day	< 0.0007	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
PA0021709	11/1/2024	11/30/2024	001	Mercury, Total	lbs/day	< 0.0005	0.0014	Average Mor	mg/L	< 0.00009	0.0001	Average Mor	< 0.00009	0.0002	Daily Maximum	0.00009	
																0.0001	Max of D.Max's
																< 0.0001	99th Percentile
																0.0002	DEP's TQL

For determining if compliance schedule should be included in draft renewal permit for new WQBEL:

PERMIT	MONITORIN	MONITORING	OUTFAL	PARAMETER	LOAD_UNITS	1_VALUE	1_LIMIT	1_SBC	2_VALUE	2_LIMIT	2_SBC	CONC_UN	CONC_1_VALU	CONC_1_LIMI	CONC_1_SBC	CONC_2_VAL	CONC_2_	CONC_2_SBC	CONC_3_VALU	CONC_3_L	CONC_3_SBC
PA0021709	11/1/2021	11/30/2021	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.066	0.3	Average Mor	0.092	0.47	Daily Max
PA0021709	12/1/2021	12/31/2021	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.077	0.3	Average Mor	0.09	0.47	Daily Max
PA0021709	1/1/2022	1/31/2022	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.064	0.3	Average Mor	0.075	0.47	Daily Maximum
PA0021709	2/1/2022	2/28/2022	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.067	0.3	Average Mor	0.076	0.47	Daily Maximum
PA0021709	3/1/2022	3/31/2022	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.066	0.3	Average Mor	0.084	0.47	Daily Maximum
PA0021709	4/1/2022	4/30/2022	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.051	0.3	Average Mor	0.067	0.47	Daily Maximum
PA0021709	5/1/2022	5/31/2022	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.075	0.3	Average Mor	0.127	0.47	Daily Maximum
PA0021709	6/1/2022	6/30/2022	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.059	0.47	Daily Maximum
PA0021709	7/1/2022	7/31/2022	001	Zinc, Total	lbs/day	0.2	3.4	Average Monthly				mg/L				0.02	0.3	Average Mor	0.028	0.47	Daily Maximum
PA0021709	8/1/2022	8/31/2022	001	Zinc, Total	lbs/day	0.2	3.4	Average Monthly				mg/L				0.02	0.3	Average Mor	0.03	0.47	Daily Maximum
PA0021709	9/1/2022	9/30/2022	001	Zinc, Total	lbs/day	0.2	3.4	Average Monthly				mg/L				0.02	0.3	Average Mor	0.03	0.47	Daily Maximum
PA0021709	10/1/2022	10/31/2022	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.058	0.47	Daily Maximum
PA0021709	11/1/2022	11/30/2022	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.069	0.3	Average Mor	0.12	0.47	Daily Maximum
PA0021709	12/1/2022	12/31/2022	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.062	0.47	Daily Maximum
PA0021709	1/1/2023	1/31/2023	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.061	0.47	Daily Maximum
PA0021709	2/1/2023	2/28/2023	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.06	0.3	Average Mor	0.072	0.47	Daily Maximum
PA0021709	3/1/2023	3/31/2023	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.08	0.3	Average Mor	0.087	0.47	Daily Maximum
PA0021709	4/1/2023	4/30/2023	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.09	0.3	Average Mor	0.102	0.47	Daily Maximum
PA0021709	5/1/2023	5/31/2023	001	Zinc, Total	lbs/day	0.2	3.4	Average Monthly				mg/L				0.04	0.3	Average Mor	0.057	0.47	Daily Maximum
PA0021709	6/1/2023	6/30/2023	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.08	0.47	Daily Maximum
PA0021709	7/1/2023	7/31/2023	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.03	0.3	Average Mor	0.039	0.47	Daily Maximum
PA0021709	8/1/2023	8/31/2023	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.04	0.3	Average Mor	0.042	0.47	Daily Maximum
PA0021709	9/1/2023	9/30/2023	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.04	0.3	Average Mor	0.05	0.47	Daily Maximum
PA0021709	10/1/2023	10/31/2023	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.06	0.47	Daily Maximum
PA0021709	11/1/2023	11/30/2023	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.07	0.3	Average Mor	0.09	0.47	Daily Maximum
PA0021709	12/1/2023	12/31/2023	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.073	0.47	Daily Maximum
PA0021709	1/1/2024	1/31/2024	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.064	0.47	Daily Maximum
PA0021709	2/1/2024	2/29/2024	001	Zinc, Total	lbs/day	0.7	3.4	Average Monthly				mg/L				0.09	0.3	Average Mor	0.102	0.47	Daily Maximum
PA0021709	3/1/2024	3/31/2024	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.06	0.3	Average Mor	0.069	0.47	Daily Maximum
PA0021709	4/1/2024	4/30/2024	001	Zinc, Total	lbs/day	0.8	3.4	Average Monthly				mg/L				0.08	0.3	Average Mor	0.125	0.47	Daily Maximum
PA0021709	5/1/2024	5/31/2024	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.08	0.3	Average Mor	0.1	0.47	Daily Maximum
PA0021709	6/1/2024	6/30/2024	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.05	0.3	Average Mor	0.06	0.47	Daily Maximum
PA0021709	7/1/2024	7/31/2024	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.04	0.3	Average Mor	0.052	0.47	Daily Maximum
PA0021709	8/1/2024	8/31/2024	001	Zinc, Total	lbs/day	0.3	3.4	Average Monthly				mg/L				0.04	0.3	Average Mor	0.05	0.47	Daily Maximum
PA0021709	9/1/2024	9/30/2024	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.06	0.3	Average Mor	0.082	0.47	Daily Maximum
PA0021709	10/1/2024	10/31/2024	001	Zinc, Total	lbs/day	0.5	3.4	Average Monthly				mg/L				0.06	0.3	Average Mor	0.08	0.47	Daily Maximum
PA0021709	11/1/2024	11/30/2024	001	Zinc, Total	lbs/day	0.4	3.4	Average Monthly				mg/L				0.08	0.3	Average Mor	0.089	0.47	Daily Maximum
PA0021709	12/1/2024	12/31/2024	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.09	0.3	Average Mor	0.104	0.47	Daily Maximum
PA0021709	1/1/2025	1/31/2025	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.11	0.3	Average Mor	0.125	0.47	Daily Maximum
PA0021709	2/1/2025	2/28/2025	001	Zinc, Total	lbs/day	0.6	3.4	Average Monthly				mg/L				0.08	0.3	Average Mor	0.108	0.47	Daily Maximum
																0.059	Avg		0.127	Max	
																0.11	MMA				

PERMIT	MONITORIN	MONITORING	OUTFAL	PARAMETER	CONC_UNI	CONC_2_VALU	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALU	CONC_3_	CONC_3_SBC
PA0021709	11/1/2021	11/30/2021	001	Temperature (deg F)	ºF	61	Monitor and Report	Average Mon	68	Monitor	Daily Maximum
PA0021709	12/1/2021	12/31/2021	001	Temperature (deg F)	ºF	60	Monitor and Report	Average Mon	62	Monitor	Daily Maximum
PA0021709	1/1/2022	1/31/2022	001	Temperature (deg F)	ºF	55	Monitor and Report	Average Mon	63	Monitor	Daily Maximum
PA0021709	2/1/2022	2/28/2022	001	Temperature (deg F)	ºF	54	Monitor and Report	Average Mon	60	Monitor	Daily Maximum
PA0021709	3/1/2022	3/31/2022	001	Temperature (deg F)	ºF	57	Monitor and Report	Average Mon	60	Monitor	Daily Maximum
PA0021709	4/1/2022	4/30/2022	001	Temperature (deg F)	ºF	56	Monitor and Report	Average Mon	62	Monitor	Daily Maximum
PA0021709	5/1/2022	5/31/2022	001	Temperature (deg F)	ºF	62	Monitor and Report	Average Mon	68	Monitor	Daily Maximum
PA0021709	6/1/2022	6/30/2022	001	Temperature (deg F)	ºF	69	Monitor and Report	Average Mon	72	Monitor	Daily Maximum
PA0021709	7/1/2022	7/31/2022	001	Temperature (deg F)	ºF	75	Monitor and Report	Average Mon	78	Monitor	Daily Maximum
PA0021709	8/1/2022	8/31/2022	001	Temperature (deg F)	ºF	75	Monitor and Report	Average Mon	79	Monitor	Daily Maximum
PA0021709	9/1/2022	9/30/2022	001	Temperature (deg F)	ºF	73	Monitor and Report	Average Mon	75	Monitor	Daily Maximum
PA0021709	10/1/2022	10/31/2022	001	Temperature (deg F)	ºF	67	Monitor and Report	Average Mon	70	Monitor	Daily Maximum
PA0021709	11/1/2022	11/30/2022	001	Temperature (deg F)	ºF	62	Monitor and Report	Average Mon	67	Monitor	Daily Maximum
PA0021709	12/1/2022	12/31/2022	001	Temperature (deg F)	ºF	59	Monitor and Report	Average Mon	62	Monitor	Daily Maximum
PA0021709	1/1/2023	1/31/2023	001	Temperature (deg F)	ºF	55	Monitor and Report	Average Mon	59	Monitor	Daily Maximum
PA0021709	2/1/2023	2/28/2023	001	Temperature (deg F)	ºF	58	Monitor and Report	Average Mon	61	Monitor	Daily Maximum
PA0021709	3/1/2023	3/31/2023	001	Temperature (deg F)	ºF	59	Monitor and Report	Average Mon	61	Monitor	Daily Maximum
PA0021709	4/1/2023	4/30/2023	001	Temperature (deg F)	ºF	62	Monitor and Report	Average Mon	66	Monitor	Daily Maximum
PA0021709	5/1/2023	5/31/2023	001	Temperature (deg F)	ºF	62	Monitor and Report	Average Mon	64	Monitor	Daily Maximum
PA0021709	6/1/2023	6/30/2023	001	Temperature (deg F)	ºF	68	Monitor and Report	Average Mon	73	Monitor	Daily Maximum
PA0021709	7/1/2023	7/31/2023	001	Temperature (deg F)	ºF	73	Monitor and Report	Average Mon	76	Monitor	Daily Maximum
PA0021709	8/1/2023	8/31/2023	001	Temperature (deg F)	ºF	73	Monitor and Report	Average Mon	75	Monitor	Daily Maximum
PA0021709	9/1/2023	9/30/2023	001	Temperature (deg F)	ºF	72	Monitor and Report	Average Mon	77	Monitor	Daily Maximum
PA0021709	10/1/2023	10/31/2023	001	Temperature (deg F)	ºF	68	Monitor and Report	Average Mon	75	Monitor	Daily Maximum
PA0021709	11/1/2023	11/30/2023	001	Temperature (deg F)	ºF	62	Monitor and Report	Average Mon	65	Monitor	Daily Maximum
PA0021709	12/1/2023	12/31/2023	001	Temperature (deg F)	ºF	60	Monitor and Report	Average Mon	63	Monitor	Daily Maximum
PA0021709	1/1/2024	1/31/2024	001	Temperature (deg F)	ºF	57	Monitor and Report	Average Mon	59	Monitor	Daily Maximum
PA0021709	2/1/2024	2/29/2024	001	Temperature (deg F)	ºF	57	Monitor and Report	Average Mon	59	Monitor	Daily Maximum
PA0021709	3/1/2024	3/31/2024	001	Temperature (deg F)	ºF	58	Monitor and Report	Average Mon	60	Monitor	Daily Maximum
PA0021709	4/1/2024	4/30/2024	001	Temperature (deg F)	ºF	61	Monitor and Report	Average Mon	66	Monitor	Daily Maximum
PA0021709	5/1/2024	5/31/2024	001	Temperature (deg F)	ºF	67	Monitor and Report	Average Mon	71	Monitor	Daily Maximum
PA0021709	6/1/2024	6/30/2024	001	Temperature (deg F)	ºF	71	Monitor and Report	Average Mon	75	Monitor	Daily Maximum
PA0021709	7/1/2024	7/31/2024	001	Temperature (deg F)	ºF	76	Monitor and Report	Average Mon	78	Monitor	Daily Maximum
PA0021709	8/1/2024	8/31/2024	001	Temperature (deg F)	ºF	74	Monitor and Report	Average Mon	78	Monitor	Daily Maximum
PA0021709	9/1/2024	9/30/2024	001	Temperature (deg F)	ºF	70	Monitor and Report	Average Mon	75	Monitor	Daily Maximum
PA0021709	10/1/2024	10/31/2024	001	Temperature (deg F)	ºF	68	Monitor and Report	Average Mon	72	Monitor	Daily Maximum
PA0021709	11/1/2024	11/30/2024	001	Temperature (deg F)	ºF	64	Monitor and Report	Average Mon	70	Monitor	Daily Maximum
						64	Average		68	Average	
						76	Maximum		79	Maximum	
						73.4	90th Percentile				

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.43
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Birdsboro MA

Permit No.: PA0021709

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: 10/12/2021

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	0	0
6	1	1
7	0	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	0.800	0.900
Std Dev.	0.422	0.316
# Replicates	10	10

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

Test Completion Date: 11/1/2022

Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4		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	9	10

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

Test Completion Date: 11/21/2023

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	0
11		
12		
13		
14		
15		
Mean	1.000	0.900
Std Dev.	0.000	0.316
# Replicates	10	10

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)	0.43
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name: Birdsboro MA

Permit No.: PA0021709

Test Completion Date: 11/2/2020

Replicate No.	Control	TIWC
1	30	32
2	30	33
3	28	29
4	30	32
5	24	27
6	27	30
7	33	29
8	28	26
9	27	31
10	29	35
11		
12		
13		
14		
15		
Mean	28.600	30.400
Std Dev.	2.413	2.757
# Replicates	10	10

T-Test Result	8.5824
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	38	41
2	36	40
3	37	38
4	36	36
5	0	7
6	38	29
7	3	31
8	35	38
9	29	33
10	34	38
11		
12		
13		
14		
15		
Mean	28.600	33.100
Std Dev.	14.531	9.960
# Replicates	10	10

T-Test Result	2.4952
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 11/1/2022

Replicate No.	Control	TIWC
1	27	29
2	29	23
3	28	20
4		34
5	22	27
6	29	26
7	29	31
8	21	27
9	31	26
10	19	27
11		
12		
13		
14		
15		
Mean	26.111	27.000
Std Dev.	4.285	3.887
# Replicates	9	10

T-Test Result	4.5486
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

Test Completion Date: 11/21/2023

Replicate No.	Control	TIWC
1	31	39
2	27	36
3	28	33
4	25	27
5	20	28
6	31	20
7	28	37
8	22	33
9	32	35
10	24	6
11		
12		
13		
14		
15		
Mean	26.800	29.400
Std Dev.	4.022	9.969
# Replicates	10	10

T-Test Result	2.8237
Deg. of Freedom	12
Critical T Value	0.8726
Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TIWC (decimal)	0.43
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Birdsboro MA

Permit No.: PA0021709

Test Completion Date: 11/3/2020

Replicate No.	Control	TIWC
1	1	0.8
2	1	0.7
3	1	0.9
4	0.9	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.850
Std Dev.	0.050	0.129
# Replicates	4	4
T-Test Result	4.7416	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Test Completion Date: 10/12/2021

Replicate No.	Control	TIWC
1	1	1
2	0.9	0.9
3	1	0.9
4	0.9	0.9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.950	0.925
Std Dev.	0.058	0.050
# Replicates	4	4
T-Test Result	13.1246	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Test Completion Date: 11/1/2022

Replicate No.	Control	TIWC
1	1	0.9
2	1	1
3	0.9	1
4	1	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.975	0.975
Std Dev.	0.050	0.050
# Replicates	4	4
T-Test Result	14.8898	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Test Completion Date: 11/21/2023

Replicate No.	Control	TIWC
1	0.8	1
2	0.7	1
3	0.9	1
4	0.8	1
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.800	1.000
Std Dev.	0.082	0.000
# Replicates	4	4
T-Test Result	18.9011	
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)	0.43
No. Per Replicate	10
TST b value	0.75
TST alpha value	0.25

Facility Name: Birdsboro MA

Permit No.: PA0021709

Replicate No.	Test Completion Date: 11/3/2020 Control	TIWC
1	0.326	0.322
2	0.321	0.285
3	0.379	0.4
4	0.336	0.421
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.341	0.357
Std Dev.	0.026	0.064
# Replicates	4	4
T-Test Result	3.0264	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 10/12/2021 Control	TIWC
1	0.315	0.322
2	0.318	0.304
3	0.299	0.293
4	0.316	0.258
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.312	0.294
Std Dev.	0.009	0.027
# Replicates	4	4
T-Test Result	4.3424	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 11/1/2022 Control	TIWC
1	0.506	0.489
2	0.486	0.511
3	0.395	0.529
4	0.449	0.544
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.459	0.518
Std Dev.	0.049	0.024
# Replicates	4	4
T-Test Result	7.9839	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

Replicate No.	Test Completion Date: 11/21/2023 Control	TIWC
1	0.315	0.279
2	0.272	0.266
3	0.319	0.289
4	0.299	0.3
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.301	0.284
Std Dev.	0.021	0.014
# Replicates	4	4
T-Test Result	5.3356	
Deg. of Freedom	5	
Critical T Value	0.7267	
Pass or Fail	PASS	

201 Penn Street | Suite 300 P.O. Box 32 Reading, PA 19603

ENTECH ENGINEERING

Entech No. 4187.019

October 2, 2024

Daniel W. Martin | Permits Section
PA Department of Environmental Protection | Clean Water Program
Southcentral Region
909 Elmerton Avenue
Harrisburg, PA 17110

Re: Birdsboro Municipal Authority
NPDES PA0021709 Renewal

Dear Mr. Martin,

In response to your letter To Anthony Tucci, dated August 29, 2024, it has been decided to proceed with the NPDES Permit renewal as submitted without including a landfill leachate wastestream. There is currently no clear path to accepting landfill leachate. We acknowledge all points referenced in your letter. We will comply with the requirements of the NPDES Permit and Sewage Facilities Planning if and when the acceptance of leachate is imminent. Also, the 2023 Whole Effluent Toxicity test has been submitted to your office.

Please contact me if you need additional information. Thank you for your assistance.

Sincerely,

H. David Miller, LO
Sr. Client Manager

C: Kelly J. Yanos, Authority Manager
Daniel Becker, Esq.
Bonnie Boylan, PADEP