pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0057011**
Facility Type	**Non-Municipal**	APS ID	**1090660**
Major / Minor	**Minor**	Authorization ID	**1443590**

Applicant and Facility Information

Applicant Name	**Aqua PA Wastewater Inc.**	Facility Name	**Bridlewood Farm STP**
Applicant Address	762 West Lancaster Avenue	Facility Address	100 Bridlewood Boulevard
	Bryn Mawr, PA 19010-3402		West Chester, PA 19382
Applicant Contact	Todd Duerr	Facility Contact	Kyle Roberts
Applicant Phone	(610) 645-1122	Facility Phone	(610) 520-6384
Client ID	62614	Site ID	242969
Ch 94 Load Status	Not Overloaded	Municipality	Thornbury Township
Connection Status	No Limitations	County	Chester
Date Application Received	May 1, 2023	EPA Waived?	No
Date Application Accepted		If No, Reason	Christina TMDL

Purpose of Application: Permit renewal

Summary of Review

Applicant requests approval for the renewal of an NPDES permit to discharge treated sewage from Bridlewood Farm STP.

The plant consists of an influent pump station, flow meter, fine screen, 2 SBR treatment trains, a third center tank for raw wastewater equalization/sludge holding, an SBR decant equalization tank, a disc filter, and UV disinfection. In addition to the stream discharge, a drip irrigation system with a capacity of 77, 250 gpd is associated with this facility. Permit has an existing condition which requires the permittee to maximize the use of drip irrigation system for wastewater disposal.

The wastewater chemicals listed in the application are the following: Polyaluminum Chloride (coagulant-phosphorus reduction), Sodium Acetate (carbon source for denitrification), MB-01 BF (defoamer), Master Foam 7250 (defoamer – alternative to MB-01BF) and Chlorine/De-Chlor Pucks for backup disinfection.

No upgrades to the plant are proposed at this renewal.

The plant serves a portion of Thornbury Township (Chester County) and 100 % flow is municipal sewage.

No comments received from Operations Section. The review of eDMRs, show the discharge has been in compliance with the permit limitations most of the time (only one effluent limitation reported in the past year) and the discharge flow is much less than the permitted flow.

Sludge use and disposal description and location(s): sludge is hauled away to other WWTPs

Approve	Deny	Signatures	Date
X		*Sara Abraham* Sara Reji Abraham, E.I.T. / Project Manager	June 28, 2023
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	06/28/2023

Summary of Review

The Christina River Basin Total Maximum Daily Load (TMDL) for Nutrients and Dissolved Oxygen for Low-Flow Conditions, was issued by the Environmental Protections Agency (EPA) on January 19, 2001 and subsequently revised in October 2002 and April 2006. Furthermore, DEP prepared, and EPA acknowledged an Alternative Reduction Scenario for the Christina River Basin for Low Flow TMDL dated June 27, 2012 to reassign some of the allocations within the dischargers by keeping the total load to the basin the same. This discharge is listed in Table 15 -TMDL Summary for Brandywine Creek Main Stem. The existing permit limits are based on the TMDL which will be continued for this renewal.

This discharge is also listed under Christina High Flow TMDLs for Nutrient and Low DO, and Bacteria and Sediment. The existing permit limits are consistent (or more stringent) with the WLAs assigned in the TMDLs.

Influent monitoring for BOD5, CBOD5 and TSS is included in the draft permit based on chapter 94 requirement and to check compliance with the secondary treatment. These are consistent with the requirements of similar discharges in the area.

Since the TDS concentration in the discharge is below 500 mg/l, it is not necessary to include TDS monitoring in the permit.

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.

Act 14 Notifications:

Thornbury Township - April 13, 2023
Chester County - April 13, 2023

Permit Conditions:

A. No Stormwater
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Abandon STP when Municipal Sewers Available
E. Chlorine Optimization
F. Small Stream Discharge
G. Operator Notification
H. Fecal Coliform Reporting
I. Maximize Drip Irrigation
J. Solids Management

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.103
Latitude	39º 54’ 54.27”	Longitude	-75º 35’ 7.90”
Quad Name	West Chester	Quad Code	1941
Wastewater Description:	Treated Sewage Effluent		
Receiving Waters	Radley Run (WWF, MF)	Stream Code	00071
NHD Com ID	26108212	RMI	3.8
Drainage Area	1 mi^2		
Q_{7-10} Flow (cfs)	0.17	Q_{7-10} Basis	Previous fact sheet
Watershed No.	3-H	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, flow regime modification		
Source(s) of Impairment	Agriculture, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Christina River Basin

Treatment Facility Summary

Treatment Facility Name: Bridlewood Farm STP

WQM Permit No.	Issuance Date
1596410	09/24/2021

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.103

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.103	214	Not Overloaded		Other WWTP

Compliance History

DMR Data for Outfall 001 (from May 1, 2022 to April 30, 2023)

Parameter	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22
Flow (MGD) Average Monthly	0.0118	0.0122	0.0125	0.0208	0.0164	0.0128	0.0103	0.0104	0.0106	0.0103	0.0089	0.0094
Flow (MGD) Daily Maximum	0.0226	0.0176	0.0235	0.0433	0.0255	0.0275	0.0131	0.0152	0.0180	0.0179	0.0145	0.0239
pH (S.U.) Instantaneous Minimum	6.84	6.94	6.88	6.78	6.94	7.18	7.38	7.42	6.90	7.03	7.01	7.03
pH (S.U.) Instantaneous Maximum	7.66	8.00	7.64	7.82	8.13	8.05	8.01	8.25	8.37	7.90	7.69	7.6
DO (mg/L) Instantaneous Minimum	5.87	6.45	6.32	5.73	6.66	6.37	6.44	5.98	5.79	5.04	6.82	6.36
TRC (mg/L) Average Monthly	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.04	0.02
TRC (mg/L) Instantaneous Maximum	0.15	0.14	0.09	0.09	0.11	0.11	0.17	0.03	0.05	0.12	0.10	0.08
CBOD5 (lbs/day) Average Monthly	0.29	< 0.30	0.56	0.28	1.05	< 0.15	< 0.2	0.34	0.2	0.7	0.3	0.5
CBOD5 (mg/L) Average Monthly	3.5	< 2.70	3.95	3.55	6.10	< 2.00	< 2.0	3.25	5.76	6.70	4.90	5.25
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	210	310	216	218	225	321	284	194	137	158	233	289
BOD5 (mg/L) Raw Sewage Influent Average Monthly	286	505	342	265	286	485.50	405	268	337	292	387	374.93
TSS (lbs/day) Average Monthly	0.36	0.45	0.82	0.68	0.71	0.41	0.2	0.29	< 0.02	0.4	0.37	0.8

TSS (lbs/day) Raw Sewage Influent Average Monthly	343	156	417	269	244	262	215	202	32	286	173	312
TSS (mg/L) Average Monthly	4.20	4.20	5.80	8.40	4.20	5.40	2.20	2.80	< 1.90	3.80	6.2	9.00
TSS (mg/L) Raw Sewage Influent Average Monthly	464	250	685	347	312	387.00	307	270	78	481	290	403.5
Fecal Coliform (No./100 ml) Geometric Mean	< 1.00	< 1.00	< 1.00	< 1.00	< 2.24	< 1.00	< 1.0	< 1.00	< 1.00	85.49	< 1.0	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.00	< 1.00	< 1.00	< 1.00	5.00	< 1.00	< 1.0	< 1.00	< 1.00	3654	< 1.0	< 1
UV Transmittance (%) Daily Minimum	69.6	72.30	66.20	65.40	60.40	26.2	72.7	74.1	70.5	66.00	88.1	65.8
Total Nitrogen (lbs/day) Average Monthly	0.54	< 0.79	1.06	< 0.61	< 1.83	< 0.27	< 0.6	< 0.80	0.53	< 0.6	< 0.4	0.3
Total Nitrogen (mg/L) Average Monthly	6.62	< 7.26	7.64	< 7.06	< 10.78	< 3.55	< 6.24	< 7.83	9.29	< 5.96	< 5.57	3.68
Ammonia (lbs/day) Average Monthly	0.08	0.16	0.27	< 0.15	< 0.75	< 0.04	< 0.1	< 0.05	< 0.07	< 0.05	< 0.04	< 0.05
Ammonia (mg/L) Average Monthly	1.01	1.45	1.84	< 2.54	< 4.30	< 0.50	< 1.6	< 0.50	< 1.00	< 0.56	< 0.60	< 0.5
Total Phosphorus (lbs/day) Average Monthly	0.03	0.04	0.05	0.03	0.24	0.01	0.01	0.02	0.02	0.1	0.03	0.04
Total Phosphorus (mg/L) Average Monthly	0.35	0.34	0.34	0.46	1.41	0.18	0.14	0.16	0.29	0.92	0.55	0.46

Compliance History

Effluent Violations for Outfall 001, from: June 1, 2022 To: April 30, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/22	IMAX	3654	No./100 ml	1000	No./100 ml

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .103
Latitude 39º 54' 54.00" **Longitude** -75º 35' 8.00"
Wastewater Description: Treated Sewage Effluent

Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

The following are the effluent limitations determined to be included in the draft permit.

Parameter	Limit (mg/l)	SBC	Model/Basis
CBOD5	18.8	Average Monthly	Alternative Reduction Scenario for the Christina River Basin for Low Flow TMDL
NH3-N (5/1 to 10/31)	2.6	Average Monthly	
NH3-N (5/1 to 10/31)	7.8	Average Monthly	
Total Nitrogen	25	Average Monthly	
Total Phosphorus	1.5	Average Monthly	
Dissolved Oxygen	5.0	Inst. Min.	Chap.93/Existing
Total Residual Chlorine*	0.2	Average Monthly	Previous spreadsheet/Existing
Total Suspended Solids	30	Average Monthly	DRBC
Fecal Coliform	# 200 /1000	Geo. Mean/1000	Chap. 93
UV light transmittance (%)	Report	Daily Minimum	SOP/Existing
E. Coli**	Report	Imax	SOP
pH	6.0 to 9.0 SU at all the time		Chap.93

*Monitoring only needed during the use of chlorine.
** E. Coli is the only new parameter in the draft permit. All other limits are existing.

Anti-Backsliding

N/A

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.2	XXX	0.5	1/day	Grab
CBOD5	16.1	XXX	XXX	18.8	XXX	37.6	2/month	24-Hr Composite
CBOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	19.3	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Total Nitrogen	21.5	XXX	XXX	25.0	XXX	50	2/month	Calculation

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Ammonia Nov 1 - Apr 30	6.7	XXX	XXX	7.8	XXX	15.6	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	2.3	XXX	XXX	2.6	XXX	5.2	2/month	24-Hr Composite
Total Phosphorus	1.3	XXX	XXX	1.5	XXX	3	2/month	24-Hr Composite