pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0244074**
Facility Type	**Non-Municipal**	APS ID	**1032004**
Major / Minor	**Minor**	Authorization ID	**1342633**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Aqua Pennsylvania Wastewater Inc.**	Facility Name	**Stony Creek Farms WWTF**
Applicant Address	762 W Lancaster Avenue	Facility Address	233 Caspian Lane
	Bryn Mawr, PA 19010		Eagleville, PA 19403
Applicant Contact	Todd Duerr	Facility Contact	Kyle Roberts
Applicant Phone	(610) 645-1122	Facility Phone	(610) 645-6384
Client ID	62614	Site ID	638277
Ch 94 Load Status	Not Overloaded	Municipality	Worcester Township
Connection Status	No Limitations	County	Montgomery
Date Application Received	January 28, 2021	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit renewal

Summary of Review

The Permittee, Aqua Pennsylvania Wastewater Inc. has submitted application for renewal of a NPDES permit to discharge 45,000-gpd of treated sewage to Stony Creek from the Stony Creek Farms subdivision in Worcester Township, Montgomery County. The facility receives sewage from 209 age-restricted homes, a bed and breakfast, and clubhouse.

The original NPDES permit was issued in 2006 for a permitted flow of 42,863-gpm. The effluent limits for the permit were derived from a Preliminary Treatment Requirements letter issued to DelVal Soil & Environmental Consultants, Inc., on March 31, 2003. The Total Phosphorus limit was reduced from 1.0 mg/l to 0.5 mg/l as per meeting between FX Browne and DEP. The limits for $CBOD_5$, Ammonia Nitrogen, and Dissolved Oxygen were confirmed as protective of in-stream criteria, by computer modeling using WQM 7.0 for Windows. Based on a comment letter dated February 26, 2006, the numerical nitrite-nitrate numerical limit was removed from the permit, and monitoring and reporting requirement was included in the final permit.

Based on an April 25, 2007 planning approval letter, an additional connection of 2,030-gpd was approved for a total flow of 45,000-gpd. Since the original effluent limits were technology-based limits, the revised permit included the same concentration-based limits.

The sewage treatment plant is extended aeration plant consisting of equalization tank, six aeration tanks, two clarifiers, tertiary filters, UV disinfection, and sludge holding tank.

This is a minor NPDES permit renewal and there are no proposed changes to the treatment plant or influent sewage characteristics. Therefore, it is recommended to carry over the effluent limits from the existing permit. Minor changes are made to this permit renewal that includes the addition of influent monitoring for TSS & BOD5, and effluent monitoring for E.

Approve	Deny	Signatures	Date
X		*Ketan Thaker* Ketan Thaker / Project Manager	11/15/2021
		Pravin C. Patel, P.E. / Environmental Engineer Manager	

Summary of Review

Coli which is consistent with SOP. The discharge is generally in compliance with effluent limits of the NPDES permit. The effluent limits for all other parameters are rolled over in this permit renewal.

The following is a summary of the original Water Quality Protection Report dated December 29, 2005.

Technology Based Effluent Limits

Overview - The wastewater treatment facility discharges to a small stream with a Q7-10 low-flow discharge of approximately 0.13-cfs. A preliminary treatment requirement letter was issued by the DEP on March 31, 2003 that lists technology based effluent limits for small stream discharges. $CBOD_5$ and TSS limits are consistent with the most stringent ABACT technology-based standard outlined in the Water Quality Antidegradation Implementation Guidance manual, and the "minimum treatment" requirement outlined in Implementation Guidance for Evaluating Wastewater Discharges to Drainage Ditches and Swales. Per discussion with Katie Ferry of FX Browne on 9/21/05, the PTR limit for phosphorus was reduced to 0.5 mg/l.

$CBOD_5$ - The PTR listed a $CBOD_5$ limit of 10 mg/l as a monthly average.

Total Suspended Solids (TSS) - The PTR listed a TSS limit of 10 mg/l as a monthly average.

NH_3-N - The PTR listed a seasonal NH_3-N limit of 1.5 mg/l (May 1 – Oct 31), and 3.0 mg/l (Nov 1 – Apr 30).

Nitrite + Nitrate as N - The PTR listed a 10 mg/l limit for Nitrate + Nitrite as N. This limit is consistent with the drinking water standard and 25 PA Code 93.7 for public water supplies. This was later removed in response to the February 26, 2006 comment letter.

Phosphorous - The PTR listed the phosphorus limit as 1.0 mg/l. Based on a meeting with FX Browne on 9/21/05, this limit was revised to 0.5 mg/l.

Dissolved Oxygen - The PTR listed a 6.0 mg/l minimum limit for dissolved oxygen.

Disinfection/ Total Residual Chlorine (TRC) - The PTR listed a fecal coliform limit of 50#/100ml as a geometric mean. Since a UV disinfection system was proposed, no residual chorine is permitted in the discharge.

Water Based Effluent Limits

The technology-based effluent limits listed in the preliminary treatment requirement (PTR) letter were evaluated using the Department's WQM 7.0 for Windows computer model. The design stream (Q7-10) flow at the proposed point of discharge was based on the USGS website Low Flow Statistics for Pennsylvania Streams. The reference gage used was Skippack Creek near Collegeville (Gage # 01473120). The Q7-10 flow of 1.89-cfs for a drainage area of 53.7 mi^2 calculates to a low-flow yield of 0.035-cfsm.

The model showed that ammonia limits are sensitive to both temperature and pH, because of the limited dilution afforded by the stream. Since the stream has limited dilution and because of the trout stocking designation, conservative values for temperature and pH were used in the model. For summer, stream temperature was 20° C (25 C° discharge) and pH was 8.0 S.U. For winter, temperature was 5° C and pH was 8.0 S.U. The model showed that the limits are protective of water quality criteria for both dissolved oxygen and ammonia.

The Department has not established numerical nutrient criterion. However, EPA published eco-region based guidelines and other studies suggest that nuisance algae can occur at levels below 0.1 mg/l phosphorus. The Department required a technology-based limit of 0.5 mg/l for total phosphorus. Assuming background phosphorus concentrations of 0.04 – 0.1 mg/l, the in-stream concentration of phosphorus at design condition was estimated as 0.20 – 0.24 mg/l. The Department will continue to monitor the stream to see if the stream and reserves the right to amend the permit in the future for more stringent limits.

Act 14 Notice to Worcester Township on January 13, 2021.
Act 14 Notice to Montgomery County on January 13, 2021.

Summary of Review
Sludge use and disposal description and location(s): Sludge is sent to DELCORA for treatment and disposal 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)	0.045
Latitude	40Âº 9' 59.43"	Longitude	-75Âº 19' 19.81"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Stony Creek (TSF, MF)	Stream Code	00948
NHD Com ID	25979214	RMI	5.6000
Drainage Area	3.6	Yield (cfs/mi^2)	0.035
Q_{7-10} Flow (cfs)	0.13	Q_{7-10} Basis	2005 WQPR
Elevation (ft)	210	Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	CAUSE UNKNOWN, FLOW REGIME MODIFICATION, FLOW REGIME MODIFICATION, FLOW REGIME MODIFICATION, SILTATION		
Source(s) of Impairment	HABITAT MODIFICATION - OTHER THAN HYDROMODIFICATION, HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED), HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED), REMOVAL OF RIPARIAN VEGETATION, RURAL (RESIDENTIAL AREAS)		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Treatment Facility Summary				
Treatment Facility Name: Stony Creek Farms WWTF				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Tertiary	Extended Aeration with Solids Removal	Ultraviolet	0.045
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.045	112	Not Overloaded	Dewatering	Landfill

Compliance History

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Average Monthly	0.01575	0.01997	0.0168	0.0180	0.0197	0.01836	0.0174	0.0181	0.0195	0.0179	0.01588	0.0155
pH (S.U.) Minimum	6.98	7.04	7.10	7.04	7.0	6.67	6.9	6.84	6.78	7.1	7.23	7.40
pH (S.U.) Maximum	8.15	8.13	7.88	7.73	7.8	7.62	7.55	7.55	7.86	7.98	8.09	7.97
DO (mg/L) Minimum	6.91	6.12	6.33	7.82	7.93	7.49	9.84	9.03	7.63	7.35	7.81	8.6
CBOD5 (lbs/day) Average Monthly	< 0.32	< 0.36	< 0.32	< 0.57	0.39	0.72	< 0.35	0.35	0.44	< 0.29	0.36	< 0.26
CBOD5 (mg/L) Average Monthly	< 2.2	< 2	< 2	< 4.4	2.8	3.7	< 2.5	2.35	2.7	< 2	2.68	< 2
TSS (lbs/day) Average Monthly	0.16	0.22	0.05	0.46	< 0.37	< 0.40	0.16	0.24	0.40	0.29	0.18	0.15
TSS (mg/L) Average Monthly	1.2	1.3	0.3	3.6	< 2.5	< 2	1.2	1.6	2.4	2.0	1.2	1.2
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1
UV Transmittance (%) Minimum	59.9	62.8	85	69.1	82.6	79.4	81	81.0	80.7	86.2	81.3	80.5
Nitrate-Nitrite (lbs/day) Average Monthly	< 4.1	< 3.7	2.3	1.3	2.42	< 4.77	3.4	3.89	4.64	4.04	3.75	4.3
Nitrate-Nitrite (mg/L) Average Monthly	< 28.1	< 20.6	14.7	11.1	17.94	< 24.56	25.6	26.79	26.76	28.17	29.6	33.1
Total Nitrogen (lbs/day) Average Monthly	< 4.2	< 3.8	2.5	1.58	2.67	< 5.0	3.5	3.99	4.82	4.1	3.8	4.4
Total Nitrogen (mg/L) Average Monthly	< 28.8	< 21.2	15.5	12.99	19.71	25.73	26.2	27.42	27.83	28.8	30.2	33.7
Ammonia (lbs/day) Average Monthly	< 0.07	< 0.09	0.15	< 0.06	< 0.06	< 0.02	< 0.07	< 0.07	0.13	< 0.07	< 0.06	< 0.06

Ammonia (mg/L) Average Monthly	< 0.5	< 0.5	0.9	< 0.52	< 0.4	< 0.1	< 0.5	< 0.5	0.75	< 0.5	< 0.5	< 0.5
TKN (lbs/day) Average Monthly	0.10	< 0.11	< 0.13	0.25	0.25	0.23	< 0.08	< 0.09	0.18	< 0.09	< 0.08	< 0.08
TKN (mg/L) Average Monthly	0.71	< 0.63	< 0.81	< 1.91	1.78	1.17	< 0.63	< 0.63	1.06	< 0.63	< 0.63	< 0.63
Total Phosphorus (lbs/day) Average Monthly	0.06	0.03	0.03	0.03	0.04	0.06	0.03	0.03	0.04	0.03	0.02	0.04
Total Phosphorus (mg/L) Average Monthly	0.41	0.16	0.2	0.28	0.27	0.32	0.21	0.23	0.25	0.21	0.2	0.26

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	XXX	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	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	3.75	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	3.75	XXX	XXX	10	XXX	20	2/month	24-Hr Composite
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	50 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	50 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	Measured
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/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	1.13	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	0.56	XXX	XXX	1.5	XXX	3	2/month	24-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Phosphorus	0.19	XXX	XXX	0.5	XXX	1	2/month	24-Hr Composite