pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0030848**
Facility Type	**Non-Municipal**	APS ID	**1076969**
Major / Minor	**Minor**	Authorization ID	**1419802**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Unionville Chadds Ford School District**	Facility Name	**Chadds Ford Elementary School**
Applicant Address	740 Unionville Road	Facility Address	3 Baltimore Pike
	Kennett Square, PA 19348-1531		Chadds Ford, PA 19317-9441
Applicant Contact	James Whitesel	Facility Contact	James Whitesel
Applicant Phone	(610) 347-0970	Facility Phone	(610) 347-0970
Client ID	1199	Site ID	443632
Ch 94 Load Status		Municipality	Pennsbury Township
Connection Status		County	Chester
Date Application Received	December 7, 2022	EPA Waived?	No
Date Application Accepted		If No, Reason	, DEP Discretion

Purpose of Application .Renewal

Summary of Review

The permittee request approval for the renewal of a National Pollutant Discharge Elimination System (NPDES) Individual Permit application to discharge 6,300 gpd of treated sewage from Chadds Ford Elementary School Sewage Treatment Plant (STP) to Ring Run, a tributary to Brandywine Creek a designated Warm Water Fishes (WWF) under Chapter 93 in watershed 3-H (Christina River Basin).

Annual Average Flow for previous 3 years have been well under the design capacity.

The treatment process consists of influent entering the plant through a comminutor and bar screen and into an aeration tank. From there it flows to a clarifier and then to a chlorine contact tank before discharged at the outfall pipe. The STP consist of a comminutor, aeration tank, alum feed pump, setting tank, skimmer, chlorinator contact tank, and sludge holding tank.

The concentration average monthly and instantaneous maximum effluent limits in the existing permit are continued for $CBOD_5$ (25 and 50 mg/l), Total Suspended Solids (30 and 60 mg/l), Total Residual Chlorine (0.5 and 1.2 mg/l), Fecal Coliform (200 No./100 ml and 1,000 No./100 ml), Dissolved Oxygen (Instantaneous Minimum 3.0 mg/l), and pH (6.0 Instantaneous Minimum and 9.0 Instantaneous Maximum (S.U.)).

The Christina River Basin Total Maximum Daily Load (TMDL) for Nutrients and Dissolved Oxygen for Low-Flow Conditions, issued by the Environmental Protections Agency (EPA) on January 19, 2001 and subsequently revised on 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 reassigned some of the allocations within the dischargers by keeping the total load to the basin the same. Chadds Ford Elementary STP is part of an Alternative Reduction Scenario TMDL (Summary Table 15), for parameters: $CBOD_5$, NH_3N, Dissolved Oxygen, Total Nitrogen, and Total Phosphorus. The Christina River Basin, also has an approved High-Flow TMDL for Bacteria and Sediment (dated September 2006) for Fecal Coliform, *enterococci*, and TSS, flows and loads for nutrients and CBOD5. The limits for Total Suspended Solids (30 mg/l)

Approve	Deny	Signatures	Date
X		*Charley Yang* Charley Yang / Environmental Engineering Specialist	July 27, 2023
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	07/27/2023

Summary of Review

and Fecal Coliform (200 No./100ml) will continue in this permit renewal and it is consistent with the High Flow TMDL for Bacteria and Sediment. The high flow TMDL allocations were not adjusted at the time when low flow TMDL under an "Alternative Reduction Scenario" was developed. Since, the Christina River Low-Flow TMDL is the driver for the Christina River High-Flow TDML especially for nutrients, therefore, it is assumed that compliance with the low flow TMDL, satisfies the compliance of the high flow TMDL. Therefore, existing TMDL allocations for all parameters are carried over in the renewal. No seasonal limits were applied to the nutrient WLAs, therefor this permit is more stringent than the assumptions of the TMDL WLAs.


Table 15. the final version of the Alterr


Table 2-2. NPDES permit flows and lo


Table 2-2. Fecal coliform, enterococc

Previous permit renewal required Ammonia-Nitrogen, Total Nitrogen, and Total Phosphorus quarterly reporting requirements. Concentration limits are included in this permit renewal

Total Nitrogen Mass Loading of 2.62 lbs/day was added in the previous permit renewal. Total Nitrogen concentration has gone over the TMDL limit of 50 mg/l multiple times between 2020 and 2021, but there hasn't been any case since May 2021. The calculated Mass Loading is above the WLA for this facility. Based on this review, Total Nitrogen Mass Loading of 2.62 lbs/day is carried over from the previous renewal.

Mass Loading Limits of the following parameters are added for the renewal as part of the Christina River Basin TMDL for nutrients and dissolved oxygen for low flow conditions and the Christina River Basin High Flow TMDL for Bacteria and Sediment.

The following analysis is based on the last 2 years data submitted by this facility for $CBOD_5$, NH_3N, Total Nitrogen, Total Phosphorus, and TSS. Please refer to the following calculations for each of the parameters:

Parameter	WLA (lb/day)	Calculations	Reasonable Potential – Yes or No
$CBOD_5$	1.314	At Permitted Flow & Highest Concentrations 12.9 mg/l x 0.0063 mgd x 8.34 = 0.678 lbs./day	No – The Calculated Mass Loading is well below the WLA for this facility, therefore there is no Reasonable Potential $CBOD_5$ in this permit renewal.
NH_3N	1.576	At Permitted Flow & Highest Concentrations 32.2 mg/l x 0.0063 mgd x 8.34 = 1.69 lbs./day	Yes – The Calculated Mass Loading is above the WLA for this facility; However, the calculation is based on highest daily max reported concentration. With proper operations and based on average monthly concentration the facility will meet the limits. .
Total Nitrogen	2.627	At Permitted Flow & Highest Concentrations 48.705 mg/l x 0.0063 mgd x 8.34 = 2.56 lbs./day	No – The Calculated Mass Loading is below the WLA for this facility. There is No Reasonable Potential Total Nitrogen in this permit renewal.
Total Phosphorus	0.525	At Permitted Flow & Highest Concentrations 11.6 mg/l x 0.0063 mgd x 8.34 = 0.609 lbs./day	Yes – The Calculated Mass Loading is above the WLA for this facility; However, the calculation is based on highest daily max reported concentration. With proper operations and based on average monthly concentration the facility will meet the limits.

Summary of Review

TSS	1.576	At Permitted Flow & Highest Concentrations 18.4 mg/l x 0.0063 mgd x 8.34 = 0.967 lbs/day	No – The Calculated Mass Loading is well below the WLA for this facility, therefore there is no Reasonable Potential TSS in this permit renewal.

The average monthly limitation of 0.5 mg/l for TRC is a regulatory standard under §§ 92s.47(a)(8) and 92a.48(b), an IMAX limit of 1.2 was established per TRC limit calculator.

TRC Calculation

Act 14 Notifications:

Chester County Commissioners - October 28, 2022
Pennsbury Township - October 20, 2022

Draft to be sent to Consultant, Operations, and EPA.

Proposed Part C Conditions:

A. No Stormwater
B. Acquire Necessary Property Rights
C. Proper Sludge Disposal
D. Abandon STP when Municipal Sewers Available
E. Total Residual Chlorine Requirement
F. Small Stream Discharge
G. Notification of Designation of Operator
H. Remedial Measures if Unsatisfactory Effluent
I. 2/Month Sampling
J. I-max Requirements

Sludge use and disposal description and location(s): 0.4 Dry Tons disposed at incinerators;
At McGovern Sanitation (920 Bolmar st, West Chester, PA, 19382)

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)	.0063
Latitude	39Âº 52' 20.50"	Longitude	-75Âº 35' 52.85"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Ring Run (WWF, MF)	Stream Code	00038
NHD Com ID	26109704	RMI	0.14
Drainage Area	2.16 mi^2	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.533	Q_{7-10} Basis	Pennsylvania StreamStats
Elevation (ft)	346.4	Slope (ft/ft)	4.6
Watershed No.	3-H	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final	Name	Christina River Basin

Changes Since Last Permit Issuance: No Change

Other Comments:

Treatment Facility Summary				
Treatment Facility Name: Chadds Ford Elementary School - STP				
WQM Permit No.	**Issuance Date**			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage				
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**

Changes Since Last Permit Issuance:

Other Comments:

Compliance History	
Summary of DMRs:	DMR seems to be meeting the limits for the past two years except one occasion which Ammonia-Nitrogen has gone over the limit slightly on May 2022. It was due to insufficient dissolved oxygen in aeration tank and high solids volume. The operator has addressed the issue by replacing the blower timer controller to better control oxygen. The operator is also working to reduce sludge volumes.
Summary of Inspections:	No violations noted. The site looks to be in good condition

Other Comments:

Compliance History

DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	0.0017	0.00096	0.00125	0.00114	0.00112	0.00098	0.00097	0.0007	0.0012	0.0010	0.00029	0.0008
Flow (MGD) Daily Maximum	0.0053	0.00424	0.00306	0.00253	0.00288	0.00251	0.00245	0.0021	0.0039	0.0054	0.00117	0.0028
pH (S.U.) Minimum	7.55	7.79	7.06	7.51	7.24	7.39	7.82	7.8	7.7	7.77	8.09	7.88
pH (S.U.) Maximum	8.29	8.39	8.35	8.96	8.65	8.68	8.53	8.8	8.5	8.68	8.7	8.62
DO (mg/L) Minimum	4.98	6.04	7.0	4.41	7.04	6.55	7.51	7.04	7.1	3.5	3.2	6.3
TRC (mg/L) Average Monthly	0.1	0.1	0.09	0.1	0.1	0.1	0.1	0.05	0.04	0.08	0.03	0.04
TRC (mg/L) Instantaneous Maximum	0.19	0.24	0.20	0.18	0.22	0.14	0.14	0.10	0.09	0.74	0.07	0.10
CBOD5 (mg/L) Average Monthly	5.05	3.5	< 3.0	2.8	< 3.0	< 2.6	4.2	< 3.25	4.9	< 3.0	< 3.4	4.2
CBOD5 (mg/L) Instantaneous Maximum	6.00	4.0	< 3.0	3.0	< 3.0	< 3.0	5.4	3.5	6.0	< 3.0	3.8	5.0
TSS (mg/L) Average Monthly	< 5.0	3.77	5.0	5.7	< 5.0	4.7	5.9	3.85	6.25	< 6.9	< 5.0	< 5.0
TSS (mg/L) Instantaneous Maximum	< 6.0	7.4	5.0	6.4	< 5.0	5.6	6.7	5.6	8.8	< 8.8	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	9	5.0	< 2	< 1	< 2	< 1	< 1	< 13	< 1.0	< 1	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	82.6	21.6	4.1	< 1	4.1	< 1	< 1	172.5	< 1.0	2	4.1
Total Nitrogen (lbs/day) Average Monthly	0.2	0.6	0.2	0.3	0.6	0.3	0.3	0.08	0.45	< 0.40	< 0.01	0.07
Total Nitrogen (mg/L) Average Monthly	10.50	41.4	23.07	22.6	40.1	24.1	19.6	< 11.53	29.48	< 28.62	< 4.7	6.26

Total Nitrogen (mg/L) Instantaneous Maximum	11.59	47.65	28.23	24.63	41.15	26.21	24.37	< 12.16	43.32	< 52.18	< 6.67	7.87
Ammonia (mg/L) Average Monthly	1.6	13.6	6.04	0.48	1.0	1.8	0.8	1.14	2.56	0.61	0.4	1.68
Ammonia (mg/L) Instantaneous Maximum	2.1	15.90	7.96	0.53	1.55	3.07	0.89	1.22	3.10	0.98	0.45	2.58
Total Phosphorus (mg/L) Average Monthly	0.4	3.99	0.18	1.8	2.7	< 4.4	7.95	5.10	5.75	4.40	2.6	0.44
Total Phosphorus (mg/L) Instantaneous Maximum	0.55	7.80	0.28	3.2	3.05	< 5.0	11.6	5.40	7.00	5.30	2.95	0.64

Compliance History

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" (386-0400-001), 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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/week	Grab
CBOD5	1.314	XXX	XXX	25.0	XXX	50.0	2/month	8-Hr Composite
TSS	1.576	XXX	XXX	30.0	XXX	60.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml)	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	2.627	XXX	XXX	50.0	XXX	100.0	2/month	8-Hr Composite
Ammonia-Nitrogen	1.576	XXX	XXX	30.0	XXX	60.0	2/month	8-Hr Composite
Total Phosphorus	0.525	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:


Acrobat Document