pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0093718**
Facility Type	**Non-Municipal**	APS ID	**1076607**
Major / Minor	**Minor**	Authorization ID	**1419189**

Applicant and Facility Information

Applicant Name	**Karns City Area School District**	Facility Name	**Sugarcreek Elementary School**
Applicant Address	1446 Kittanning Pike	Facility Address	1290 State Route 268
	Karns City, PA 16041-1818		Cowansville, PA 16218-1814
Applicant Contact	Steven Andreassi	Facility Contact	Steven Andreassi
Applicant Phone	(724) 756-2030	Facility Phone	
Client ID	25757	Site ID	253705
Ch 94 Load Status	Not Overloaded	Municipality	Sugarcreek Township
Connection Status		County	Armstrong
Date Application Received	November 21, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Renewal of a discharge of treated sewage from an elementary school.

Summary of Review

This is an existing discharge serving an elementary school.

Act 14 – Proof of Notification was submitted and received.

Current treatment is a package plant consisting of aeration, clarification, and chlorine disinfection.

There are no open violations in WMS for the subject Client ID (25757) as of 7/31/2023. *8/17/2023 CWY*

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.

Approve	Deny	Signatures	Date
X		Jordan A. Frey, E.I.T. Jordan A. Frey, E.I.T. / Project Manager	August 16, 2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. / Environmental Engineer Manager	8/17/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0075
Latitude	40º 55' 15.16"	Longitude	-79º 36' 7.98"
Quad Name	East Brady	Quad Code	40079H5
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Huling Run (TSF)	Stream Code	49014
NHD Com ID	123857565	RMI	
Drainage Area	0.31	Yield (cfs/mi^2)	0.03
Q_{7-10} Flow (cfs)	0.01	Q_{7-10} Basis	Streamstats
Elevation (ft)	1347	Slope (ft/ft)	---
Watershed No.	17-C	Chapter 93 Class.	TSF
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		Name	

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	25	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	Kitanning Suburban Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	987
PWS RMI	45.6	Distance from Outfall (mi)	26

Changes Since Last Permit Issuance: None.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Sugarcreek Elementary School STP

WQM Permit No.	Issuance Date
0371402	05/11/1971

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with ammonia reduction	Activated sludge	No Disinfection	0.002
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0075		Not Overloaded		Other plant

Changes Since Last Permit Issuance: None

Other Comments: None

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	0.0020	0.0030	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0010	0.0010	0.0010
Flow (MGD) Daily Maximum	0.0070	0.0050	0.0060	0.0500	0.0050	0.0040	0.0060	0.0040	0.0030	0.0030	0.0030	0.0010
pH (S.U.) Minimum	7.0	7.0	7.1	7.0	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.1
pH (S.U.) Instantaneous Maximum	7.1	7.5	7.5	7.1	7.7	7.4	7.4	7.3	7.2	7.2	7.4	7.2
DO (mg/L) Minimum	4.1	4.0	4.1	4.1	4.1	4.1	4.1	4.2	4.2	4.1	4.2	4.2
TRC (mg/L) Average Monthly	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
TRC (mg/L) Instantaneous Maximum	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.6	0.5	0.6	0.6
CBOD5 (mg/L) Average Monthly	3.0	3.0	3.7	6.3	3.0	3.7	3.2	3.0	3.0	3.2	3.0	3.0
CBOD5 (mg/L) Instantaneous Maximum	3.0	3.0	4.4	9.7	3.0	4.5	3.4	3.0	3.0	3.5	3.0	3.0
TSS (mg/L) Average Monthly	3.0	3.5	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	5.5	3.5
TSS (mg/L) Instantaneous Maximum	3.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	8.0	4.0
Fecal Coliform (No./100 ml) Geometric Mean	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	49.100	1.100	1.100	1.100
Fecal Coliform (No./100 ml) Daily Maximum		1.100	1.100	1.100	1.100	1.100	1.100	1.100				
Fecal Coliform (No./100 ml) Instantaneous Maximum	1.100								242.100	1.100	1.100	1.100

Total Nitrogen (mg/L) Daily Maximum						2.96						
Ammonia (mg/L) Average Monthly	2.3	6.2	7.3	2.3	0.10		5.9	0.03	0.20	1.1	0.46	1.3
Ammonia (mg/L) Instantaneous Maximum	4.5	7.8	7.8	2.4	0.10		9.4	0.61	0.31	2.1	0.82	1.6
Total Phosphorus (mg/L) Daily Maximum						5.59						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0075
Latitude 40º 55' 15.00" **Longitude** -79º 36' 8.00"
Wastewater Description: 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 limitations have been imposed over the previous permit renewals. These limits were based on the discharge to a dry stream when the permit was first issued in 1971.

Parameter	Limit (mg/l)	SBC	Model
CBOD5	15	Average Monthly	NA
NH3N	10	Average Monthly	NA

The following limitations were determined through *the Department's current* water quality modeling (output files attached) *and SOPs*:

Parameter	Limit (mg/l)	SBC	Model
CBOD5	8.5	Average Monthly	NA
NH3N	2.7	Average Monthly	NA

Comments: WQM version 7.1b modeling was performed to calculate limits for CBOD5, Ammonia-Nitrogen (NH3-N), and Dissolved Oxygen (DO). *Based on a review of the previous 12 months of effluent data, the system should be able to meet the more stringent BOD5 and NH3-N limits therefore no compliance schedule will be proposed at this time. 8/17/2023 CWY*

Best Professional Judgment (BPJ) Limitations

Comments: Dissolved Oxygen will be limited at 4.0 mg/L as a minimum.

Disinfection

An average monthly limitation of 0.5 mg/l and instantaneous maximum limitation of 1.6 mg/l for TRC is now a regulatory standard under §§92a.47(a)(8) and 92a.48(b).

Nitrogen and Phosphorus

Nutrient monitoring is required to establish the nutrient load from the waste water treatment facility and the impacts that load may have on the quality of the receiving stream(s). Sewage discharges with design flows > 2,000 gpd require monitoring, at a minimum, for Total Nitrogen and Total Phosphorus in new and reissued permits. Monitoring for total nitrogen and total phosphorus is required once per year.

Monitoring Frequency Considerations

For pH, Dissolved Oxygen (DO) and Total Residual Chlorine (TRC), a monitoring frequency of daily when discharging has been imposed. In general, less frequent monitoring may be established only when the permittee demonstrates that there will be no discharge on days where monitoring is not required. The permittee may remain in compliance with the permit by using a No Discharge Indicator (NODI) code on the “Daily Effluent Monitoring” supplemental form to identify the lack of a discharge on a particular day. The daily monitoring frequencies are consistent with Table 6-3 of DEP’s Technical Guidance for the Development and Specification of Effluent Limitations

Anti-Backsliding

N/A *Because the proposed limits are the same or more restrictive than the previous permit, anti-backsliding provisions do not apply. 8/17/2023 CWY*

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)	0.0075	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	Daily when Discharging	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	Daily when Discharging	Grab
CBOD5	XXX	XXX	XXX	8.5	XXX	17.0	2/month	Grab
TSS	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	10000 Daily Max	XXX	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Mar 31	XXX	XXX	XXX	8.1	XXX	16.2	2/month	Grab
Ammonia Apr 1 - Oct 31	XXX	XXX	XXX	2.7	XXX	5.5	2/month	Grab

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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Other Comments: None.

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17C	49014	Trib 49014 of Huling Run

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
6.500	Sugarcreek Elem	11.07	16.52	11.07	16.52	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
6.500	Sugarcreek Elem	1.37	2.7	1.37	2.7	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
6.50	Sugarcreek Elem	8.64	8.64	2.7	2.7	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17C	49014	Trib 49014 of Huling Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.500	0.007	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.260	0.273	8.292	0.033
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.74	0.229	1.57	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.546	27.791	Owens	5
Reach Travel Time (days)			
3.653			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.365	5.17	1.08	7.54
0.731	4.65	0.74	7.54
1.096	4.18	0.51	7.54
1.461	3.76	0.35	7.54
1.827	3.39	0.24	7.54
2.192	3.05	0.16	7.54
2.557	2.74	0.11	7.54
2.923	2.47	0.10	7.54
3.288	2.22	0.10	7.54
3.653	2.00	0.10	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17C	49014	Trib 49014 of Huling Run

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
6.500	Sugarcreek Elem	PA0093718	0.007	CBOD5	8.64		
				NH3-N	2.7	5.4	
				Dissolved Oxygen			4

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17C	49014	Trib 49014 of Huling Run	**6.500**	1347.00	0.31	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.030	0.00	0.01	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Sugarcreek Elem	PA0093718	0.0075	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	8.64	2.00	0.00	1.50
Dissolved Oxygen	2.00	7.54	0.00	0.00
NH3-N	13.96	0.10	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17C	49014	Trib 49014 of Huling Run	**4.500**	1210.00	6.15	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.030	0.00	0.18	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17C	49014	Trib 49014 of Huling Run

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
6.500	0.01	0.00	0.01	.0116	0.01297	.273	2.26	8.29	0.03	3.653	25.00	7.00
Q1-10 Flow												
6.500	0.01	0.00	0.01	.0116	0.01297	NA	NA	NA	0.03	4.021	25.00	7.00
Q30-10 Flow												
6.500	0.01	0.00	0.01	.0116	0.01297	NA	NA	NA	0.04	3.366	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		