Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0217140**
Facility Type	**Municipal**	APS ID	**1100640**
Major / Minor	**Minor**	Authorization ID	**1461315**

Applicant and Facility Information

Applicant Name	**Indiana County Municipal Service Authority**	Facility Name	**Shelocta STP**
Applicant Address	602 Kolter Drive Indiana, PA 15701-3570	Facility Address	179 Sewage Plant Road Indiana, PA 15701
Applicant Contact	Tricia Lefko	Facility Contact	Robert Allenbaugh
Applicant Phone	(724) 349-6640	Facility Phone	(724) 349-6640
Client ID	38534	Site ID	259139
Ch 94 Load Status	Not Overloaded	Municipality	Armstrong Township
Connection Status	No Limitations	County	Indiana
Date Application Received	October 23, 2023	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: NPDES permit renewal of a minor sewage facility discharge.

Summary of Review

This is an existing discharge for a minor municipal sewage treatment facility.

Act 14 proof of notification was submitted and received.

There are currently 11 open violations for this client (38534) as of 10/30/2024, but none for this facility.

Quarterly monitoring for E. Coli has been added per Department SOP for new and reissued NPDES permits with design flows exceeding 0.05 MGD but less than 1.0 MGD.

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	October 30, 2024
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	November 1, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.07
Latitude	40º 39' 31.01"	Longitude	-79º 18' 23.09"
Quad Name	Elderton	Quad Code	40079F3
Wastewater Description:	Sewage Effluent		

Receiving Waters	Crooked Creek (WWF)	Stream Code	46216
NHD Com ID	123865542	RMI	
Drainage Area	106	Yield (cfs/mi^2)	0.056
Q_{7-10} Flow (cfs)	5.99	Q_{7-10} Basis	Streamstats
Elevation (ft)	977	Slope (ft/ft)	---
Watershed No.	17-E	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, ORGANIC ENRICHMENT		
Source(s) of Impairment	AGRICULTURE, AGRICULTURE		
TMDL Status	Final	Name	Crooked Creek Watershed

Background/Ambient Data		Data Source
pH (SU)	7.3	USGS Stream Gage #03038000
Temperature (°F)	19.5	USGS Stream Gage #03038000
Hardness (mg/L)	84	USGS Stream Gage #03038000
Other:		

Nearest Downstream Public Water Supply Intake	Cadogan Water District		
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI	320.45	Distance from Outfall (mi)	34.6

Changes Since Last Permit Issuance: None

Other Comments: Yield was back-calculated from Q7-10 in Streamstats, 5.99cfs / 106 mi^2

Treatment Facility Summary

Treatment Facility Name: Shelocta STP

WQM Permit No.	Issuance Date
3297405	3/23/1998

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with NH3-N Reduction	Extended Aeration	UV	0.044

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.07	149	Not Overloaded	Aerated SHT	Other WWTP

Changes Since Last Permit Issuance: None.

Other Comments: Influent is pumped from the pump stations to an equalization tank where two pumps feed a splitter box, then pumped to two aeration tanks, then gravity flows to two clarifiers, then to the UV disinfection unit prior to discharge.

Lime is added at a rate of 50 lbs/day to increase alkalinity.

Compliance History

DMR Data for Outfall 001 (from September 1, 2023 to August 31, 2024)

Parameter	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23
Flow (MGD) Average Monthly	0.04	0.035	0.038	0.053	0.058	0.056	0.047	0.056	0.048	0.037	0.035	0.034
pH (S.U.) Instantaneous Minimum	6.5	6.8	7.0	7.1	6.9	6.9	6.9	6.9	6.8	6.7	6.7	6.8
pH (S.U.) Instantaneous Maximum	7.3	7.7	7.5	7.5	7.6	7.2	7.6	7.6	7.2	7.2	7.1	7.4
DO (mg/L) Instantaneous Minimum	5.0	5.0	5.0	5.0	4.3	5.2	5.0	5.0	5.4	5.3	5.0	4.3
CBOD5 (lbs/day) Average Monthly	< 1.0	< 0.9	< 3.0	< 1.9	< 3.1	< 2.6	< 2.0	< 1.5	< 1.4	< 0.9	< 0.9	< 0.8
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 4.0	< 6.0	< 5.0	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Instantaneous Maximum	< 3.0	< 3.0	< 3.0	4.21	9.41	6.84	5.02	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	25.0	41.0	49.0	55.0	58.0	36.0	59.0	95.0	78.0	64.0	53.0	56.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	77.2	135.3	150.0	110.7	115.0	70.4	125.0	198.8	165.0	208.0	178.0	209.0
TSS (lbs/day) Average Monthly	< 0.5	1.0	< 0.7	< 1.2	2.4	2.7	5.2	4.6	2.6	3.3	4.8	< 0.7
TSS (lbs/day) Raw Sewage Influent Average Monthly	41.0	75.0	65.0	47.0	65.0	40.0	53.0	45.0	75.0	34.0	66.0	61.0
TSS (mg/L) Average Monthly	< 2.0	3.0	< 2.0	< 2.0	5.0	5.0	10.0	10.0	6.0	11.0	16.0	< 3.0

TSS (mg/L) Raw Sewage Influent Average Monthly	122.0	247.0	196.0	108.0	129.0	79.0	115.0	94.0	156.0	107.0	217.0	226.0
TSS (mg/L) Instantaneous Maximum	< 1.6	5.0	2.8	3.2	6.8	6.0	14.0	14.8	8.8	15.2	26.4	3.6
Fecal Coliform (No./100 ml) Average Monthly	26.0	1.0	137.0	206.0	2.0	6.0	< 3.0	< 3.0	4.0	7.0	< 3.0	1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	328.2	2.0	686.7	1732.9	3.1	37.9	9.7	10.9	8.6	8.5	9.7	2.0
UV Transmittance (%) Daily Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2
Total Nitrogen (mg/L) Annual Average									24.99			
Ammonia (mg/L) Average Monthly	< 0.2013	8.023	14.33	10.1	3.1	< 0.75	< 0.1	< 0.1	0.1	< 0.1	< 0.1593	< 0.1154
Ammonia (mg/L) Instantaneous Maximum	0.3026	12.34	15.49	14.76	4.535	1.39	< 0.1	< 0.1	< 0.1	< 0.1	0.2186	0.1307
Total Phosphorus (mg/L) Annual Average									3.8			

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .07
Latitude 40º 39' 28.00" **Longitude** -79º 18' 24.00"
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)
E. Coli (No./100ml)	Report	IMAX		92a.61

Comments: E. Coli monitoring was added based on the Department's SOP for new and reissued permits.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Ammonia (May-Oct)	25	Average Monthly	WQM v.1.0b
$CBOD_5$	25	Average Monthly	WQM v1.0b
Dissolved Oxygen (DO)	3.0	Daily Minimum	WQM v.1.0b

Comments: For existing discharges, if WQM modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable, the Department will generally establish a year-round monitoring requirement for ammonia-nitrogen, at a minimum, per the Department SOP for Establishing Effluent Limitations for Individual Sewage Permits, revised Feb 2024. Therefore, Ammonia monitoring shall be retained from the previous permit cycle.

A Dissolved Oxygen minimum of 3.0 mg/l was determined by WQM modeling to be protective and the Department maintains a minimum limit of 4.0 as Best Professional Judgment, but the previous permit cycle's minimum limit of 5.0 mg/l shall be retained per the Department's Anti-Backsliding policy.

Best Professional Judgment (BPJ) Limitations

Comments: None.

Anti-Backsliding

A Dissolved Oxygen minimum limit of 5.0 mg/l shall be retained per Anti-Backsliding policy.

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	Daily Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Measured
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
CBOD5	14.6	XXX	XXX	25	XXX	50	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
TSS	17.5	XXX	XXX	30	XXX	60	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1000	2/month	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
E. Coli (No./100ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: Outfall 001, after disinfection.
Other Comments: None.

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17E	46216	CROOKED CREEK

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
32.500	Shelocta STP	7.74	50	7.74	50	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
32.500	Shelocta STP	1.66	25	1.66	25	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)		
32.50	Shelocta STP	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17E	46216	CROOKED CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
32.500	0.070	19.599	7.292
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
44.338	0.756	58.654	0.180
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.41	0.184	0.45	0.679
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.149	1.684	Tsivoglou	6
Reach Travel Time (days)			
0.712			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	2.38	0.43	8.14
0.142	2.35	0.41	8.13
0.213	2.32	0.39	8.13
0.285	2.29	0.37	8.13
0.356	2.26	0.35	8.14
0.427	2.23	0.34	8.15
0.498	2.20	0.32	8.16
0.569	2.18	0.30	8.18
0.640	2.15	0.29	8.20
0.712	2.12	0.28	8.22

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)
32.500	Shelocta STP	PA0217140	0.070	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

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
17E	46216	CROOKED CREEK	**32.500**	977.00	106.00	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	0.056	0.00	0.00	0.000	0.000	0.0	0.00	0.00	0.00	0.00	19.50	7.30
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
Shelocta STP	PA0217140	0.0700	0.0700	0.0700	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	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

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
17E	46216	CROOKED CREEK	**30.400**	966.00	190.00	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	0.056	0.00	0.00	0.000	0.000	0.0	0.00	0.00	0.00	0.00	19.50	7.30
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	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	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
17E	46216	CROOKED CREEK

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												
32.500	5.94	0.00	5.94	.1083	0.00099	.756	44.34	58.65	0.18	0.712	19.60	7.29
Q1-10 Flow												
32.500	3.80	0.00	3.80	.1083	0.00099	NA	NA	NA	0.14	0.909	19.65	7.29
Q30-10 Flow												
32.500	8.07	0.00	8.07	.1083	0.00099	NA	NA	NA	0.21	0.601	19.57	7.29

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	6		