pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**New**	Application No.	**PA0293008**
Facility Type	**Non-Municipal**	APS ID	**1083840**
Major / Minor	**Minor**	Authorization ID	**1431603**

Applicant and Facility Information

Applicant Name	**National Association Church of God**	Facility Name	**Church of God Campground**
Applicant Address	410 Campground Road	Facility Address	410 Campground Road
	West Middlesex, PA 16159-2814		West Middlesex, PA 16159-2814
Applicant Contact	Arnetta Bailey	Facility Contact	
Applicant Phone	(765) 621-9669	Facility Phone	
Client ID	58575	Site ID	450369
Ch 94 Load Status		Municipality	Shenango Township
Connection Status		County	Mercer
Date Application Received	March 3, 2023	EPA Waived?	Yes
Date Application Accepted	March 28, 2023	If No, Reason	

Purpose of Application: New NPDES Permit for an existing discharge of treated sewage.

Summary of Review

This facility is a campground with primary summertime use, with a peak week of occupancy in the month of August.

The facility has an active WQM Permit for a two-cell lagoon and chlorination system, but never obtained a NPDES Permit for the discharge to the Department's knowledge.

There are currently no open violations listed in EFACTS for this client (5/22/2023). *CWY 7/7/2023*

Sludge use and disposal description and location(s): No records of sludge removal documented from the lagoons.

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		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	May 22, 2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. / Environmental Engineer Manager	7/7/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.025
Latitude	41º 8' 51.00"	Longitude	-80º 27' 18.00"
Quad Name	Sharon East	Quad Code	0902
Wastewater Description:	Treated domestic sewage		
Receiving Waters	Unnamed Tributary to Shenango River	Stream Code	35921
NHD Com ID	130033505	RMI	0.2
Drainage Area	0 (Dry); 0.88 mi^2 (perennial)	Yield (cfs/mi^2)	0.02212 (perennial)
Q_{7-10} Flow (cfs)	0.0194656 (perennial)	Q_{7-10} Basis	USGS #03104760
Elevation (ft)	920	Slope (ft/ft)	0.02249
Watershed No.	20A	Chapter 93 Class.	WWF
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 (°C)	25	Default (WWF)
Hardness (mg/L)		
Other: NH_3-N	0.1	Default

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company – New Castle		
PWS Waters	Shenango River	Flow at Intake (cfs)	16.2
PWS RMI	5.1	Distance from Outfall (mi)	14.75

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Church of God Campground

WQM Permit No.	Issuance Date
4371407	6/06/1971

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Lagoon	Tablet Chlorination	0.025

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.25	425			None

Changes Since Last Permit Issuance:

Other Comments: Treatment consists of a primary and secondary lagoon, tablet chlorinator, and chlorine contact tank.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.025
Latitude 41º 8' 51.00" **Longitude** -80º 27' 18.00"
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	Report (No./100 ml)	IMAX	-	92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen	3.4	Average Monthly	WQM 7.0 Ver 1.1

Comments: In accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits," a seasonal multiplier of "3" will be applied to ammonia nitrogen during the winter period.

TRC was not modeled as there is approximately 0.8 miles or dry/intermittent stream before perennial conditions and it is believed chlorine residual will be reacted by that point.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen daily minimum limit of 4.0 mg/l, a TRC MAX limit 1.6 mg/l and monitoring for total nitrogen and total phosphorus will be placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	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/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	3.4	XXX	6.8	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	10.2	XXX	20.4	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001 (after disinfection)

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
20A	35921	Trib 35921 to Shenango River	**1.000**	920.00	0.01	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	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.50	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
Ch of God CG	PA0293008	0.0250	0.0000	0.0000	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	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
20A	35921	Trib 35921 to Shenango River	**0.200**	825.00	0.88	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	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.50	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
Ch of God CG	PA02393008	0.0250	0.0000	0.0000	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	12.33	2.00	0.00	1.50
Dissolved Oxygen	5.58	7.54	0.00	0.00
NH3-N	17.73	0.10	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

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												
1.000	0.00	0.00	0.00	.0387	0.02249	.415	.88	2.12	0.11	0.460	20.00	7.50
Q1-10 Flow												
1.000	0.00	0.00	0.00	.0387	0.02249	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
1.000	0.00	0.00	0.00	.0387	0.02249	NA	NA	NA	0.00	0.000	0.00	0.00

WQM 7.0 Modeling Specifications

Parameters	D.O.	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	2		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

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)		
1.00	Ch of God CG	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.000	0.025	20.000	7.500
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
0.880	0.415	2.121	0.106
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.94	1.500	24.94	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.011	24.600	Owens	2
Reach Travel Time (days)			
0.460			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.046	23.27	24.14	3.86
0.092	21.72	23.38	3.98
0.138	20.27	22.64	4.18
0.184	18.92	21.92	4.39
0.230	17.66	21.23	4.60
0.276	16.48	20.55	4.80
0.322	15.38	19.90	5.00
0.368	14.35	19.27	5.18
0.414	13.40	18.66	5.36
0.460	12.50	18.07	5.52

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

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)
1.000	Ch of God CG	PA0293008	0.025	CBOD5	25		
				NH3-N	25	50	
				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
20A	35921	Trib 35921 to Shenango River	**0.200**	825.00	0.88	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	0.022	0.00	0.00	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
Ch of God CG	PA02393008	0.0250	0.0000	0.0000	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	12.50	1.00	0.00	1.50
Dissolved Oxygen	5.52	7.54	0.00	0.00
NH3-N	18.07	0.03	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
20A	35921	Trib 35921 to Shenango River	**0.001**	820.00	0.91	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	0.022	0.00	0.00	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
20A	35921	Trib 35921 to Shenango River

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												
0.200	0.02	0.00	0.02	.0387	0.00476	.324	4.1	12.66	0.04	0.278	21.67	7.26
Q1-10 Flow												
0.200	0.01	0.00	0.01	.0387	0.00476	NA	NA	NA	0.04	0.299	21.22	7.32
Q30-10 Flow												
0.200	0.03	0.00	0.03	.0387	0.00476	NA	NA	NA	0.05	0.261	22.03	7.23

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		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

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
0.200	Ch of God CG	10.78	14.24	10.78	14.24	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
0.200	Ch of God CG	1.49	2.49	1.49	2.49	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)		
0.20	Ch of God CG	12.5	12.5	2.49	2.49	5.52	5.52	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.200	0.025	21.674	7.263
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.102	0.324	12.661	0.044
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
8.65	1.427	1.66	0.796
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.196	22.318	Owens	5
Reach Travel Time (days)			
0.278			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.028	8.29	1.63	6.91
0.056	7.94	1.59	7.31
0.083	7.61	1.56	7.54
0.111	7.29	1.52	7.54
0.139	6.98	1.49	7.54
0.167	6.69	1.46	7.54
0.195	6.41	1.42	7.54
0.222	6.14	1.39	7.54
0.250	5.88	1.36	7.54
0.278	5.64	1.33	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	35921	Trib 35921 to Shenango River

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)
0.200	Ch of God CG	PA02393008	0.025	CBOD5	12.5		
				NH3-N	2.49	4.98	
				Dissolved Oxygen			5.52

$$Co = Ct*e^{(k)(t)}$$
$$Co = 2.49*e^{(0.7)(0.46)}$$
$$Co = 3.436 \text{ mg/l}$$