pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0043036**
Facility Type	**Non-Municipal**	APS ID	**1033448**
Major / Minor	**Minor**	Authorization ID	**1345163**

Applicant and Facility Information

Applicant Name	**PA Conference Association of Seventh Day Adventists Inc.**	Facility Name	**Laurel Lake Camp & Retreat Center**
Applicant Address	76 Lodge Road Rossiter, PA 15772-6720	Facility Address	76 Lodge Road Rossiter, PA 15772-6720
Applicant Contact	Ezequiel Perez (Manager)	Facility Contact	
Applicant Phone	(814) 938-9300 (laurellake@paconference.org)	Facility Phone	
Client ID	45112	Site ID	269
Ch 94 Load Status	Not Overloaded	Municipality	Banks Township
Connection Status		County	Indiana
Date Application Received	February 11, 2021	EPA Waived?	Yes
Date Application Accepted	March 15, 2021	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit for an existing discharge of treated sewage

Summary of Review

This is a non-municipal STP serving a church camp and retreat center. The facility does not receive hauled in waste.

No changes to discharge quality or quantity are proposed as part of this NPDES Permit renewal.

According to eDMRs and inspection reports, flows are in the range of 350 gallons/day most of the year except for occasional spikes in the summer when camps are going on and flows peak, which is way below the design loading of 10,500 gallons/day.

There are currently 26 open violations listed in EFACTS for this client (3/19/2024)

Sludge use and disposal description and location(s): Sludge is hauled offsite for further processing at a WWTP.

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	March 19, 2024
X		*Vacant* / Environmental Engineer Manager	Okay to Draft JCD 3/25/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0105
Latitude	40º 51' 27"	Longitude	-78º 53' 29"
Quad Name	Rochester Mills	Quad Code	01214
Wastewater Description:	Sewage Effluent		

Receiving Waters	Straight Run	Stream Code	47606
NHD Com ID	123853469	RMI	2.75
Drainage Area	0.91	Yield (cfs/mi^2)	0.0607
Q_{7-10} Flow (cfs)	0.0553	Q_{7-10} Basis	USGS Streamstats
Elevation (ft)	1695	Slope (ft/ft)	
Watershed No.	17-D	Chapter 93 Class.	HQ-CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	None
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)	20	Default (CWF)
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Kittanning Suburban Joint Water Authority	
PWS Waters	Allegheny River	Flow at Intake (cfs)	2070
PWS RMI	48.4	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: Streamflow was updated due to new information.

Other Comments:

Treatment Facility Summary

Treatment Facility Name: Laurel Lake Camp STP

WQM Permit No.	Issuance Date
3277405 A-1	5/4/2007

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Chlorine Disinfection	

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0105	201	Not Overloaded	Aerated Sludge Holding	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:

Compliance History	
Summary of DMRs:	There have been 16 effluent violations reported since the beginning of 2019. One for TRC, two for CBOD5, one for D.O., seven for ammonia nitrogen, and five for fecal coliform.
Summary of Inspections:	Last site inspection was conducted on 2/6/2020. The inspection report did not report any violations.

Other Comments: An NOV was issued 12/28/2023 for failure to pay the Chapter 302 Operator Certification Service Fee. NOVs were also issued for failure to pay the 2022 and 2023 NPDES Permit Annual Fee.

Compliance History

DMR Data for Outfall 001 (from November 1, 2022 to October 31, 2023)

Parameter	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22
Flow (MGD) Average Monthly	0.0010	0.0006	0.0045	0.005000	0.0043	0.0007	0.0004					
pH (S.U.) Minimum	6.7	6.7	6.7	6.4	6.2	7.1	7.1					
pH (S.U.) Maximum	7.0	7.1	7.2	7.5	7.8	7.4	7.9					
DO (mg/L) Minimum	6.8	6.8	6.9	6.1	7.0	7.2	8.5					
TRC (mg/L) Average Monthly	0.14	0.12	0.13	0.14	0.28	0.186	0.27					
TRC (mg/L) Instantaneous Maximum	0.2	0.17	0.25	0.22	0.96	0.34	0.81					
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 4.1	< 3.0	< 4.54					
CBOD5 (mg/L) Instantaneous Maximum	< 3.0	< 3.0	< 3.0	< 3.0	5.19	< 3.0	6.07					
TSS (mg/L) Average Monthly	8.0	< 1.8	2.0	< 2.4	20.0	6.2	< 1.8					
TSS (mg/L) Instantaneous Maximum	12.4	2.0	2.0	2.8	22.0	9.6	< 2.0					
Fecal Coliform (CFU/100 ml) Average Monthly	6.0	4.0	< 1.0	< 1.0	3.0	< 1.0	< 1.0					
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	34.5	17.3	1.0	1.0	4.1	< 1.0	< 1.0					
Total Nitrogen (mg/L) Daily Maximum											< 0.5	
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.004	< 0.1	< 0.1	< 0.1					
Ammonia (mg/L) Instantaneous Maximum	< 0.1	< 0.1	< 0.1	0.1299	< 0.1	< 0.1	< 0.1					
Total Phosphorus (mg/L) Daily Maximum											5.48	

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0105
Latitude 40º 51' 27.00" **Longitude** -78º 53' 29.00"
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
$CBOD_5$	15.0	Average Monthly	Previous WQAM 6.3 modeling
Ammonia Nitrogen	3.0	Average Monthly	Previous WQAM 6.3 modeling
Dissolved Oxygen	5.0	Daily Minimum	Previous WQAM 6.3 modeling
Total Residual Chlorine	0.3	Average Monthly	TRC Spreadsheet
Total Residual Chlorine	1.0	IMAX	TRC Spreadsheet

Comments: WQM 7.0 modeling and the TRC Spreadsheet conducted for this renewal (attached) did not calculate more stringent effluent limits for this renewal.

A seasonal multiplier of "3" was applied to the ammonia nitrogen effluent limit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Best Professional Judgment (BPJ) Limitations

Comments: Monitoring for total nitrogen and total phosphors was 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" (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	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.3	XXX	1.0	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	25.0	XXX	50	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
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-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6	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
17D	47606	STRAIGHT RUN	**2.750**	1695.00	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	0.061	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	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
Laurel Lake C&R	PA0043036	0.0105	0.0000	0.0000	0.000	20.00	7.10

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	4.00	8.24	0.00	0.00
NH3-N	25.00	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
17D	47606	STRAIGHT RUN	**2.200**	1670.00	2.55	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	0.061	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	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	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
17D	47606	STRAIGHT 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												
2.750	0.06	0.00	0.06	.0162	0.00861	.331	4.22	12.75	0.05	0.656	20.00	7.02
Q1-10 Flow												
2.750	0.04	0.00	0.04	.0162	0.00861	NA	NA	NA	0.04	0.788	20.00	7.03
Q30-10 Flow												
2.750	0.08	0.00	0.08	.0162	0.00861	NA	NA	NA	0.06	0.572	20.00	7.02

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		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17D	47606	STRAIGHT 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
2.750	Laurel Lake C&R	16.33	50	16.33	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
2.750	Laurel Lake C&R	1.88	10.09	1.88	10.09	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)		
2.75	Laurel Lake C&R	25	25	10.09	10.09	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17D	47606	STRAIGHT RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.750	0.011	20.000	7.021
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.219	0.331	12.753	0.051
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.23	1.033	2.37	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.279	22.933	Owens	6
Reach Travel Time (days)			
0.656			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.066	6.75	2.26	8.13
0.131	6.31	2.16	8.24
0.197	5.90	2.06	8.24
0.263	5.51	1.97	8.24
0.328	5.15	1.88	8.24
0.394	4.81	1.80	8.24
0.459	4.50	1.72	8.24
0.525	4.20	1.64	8.24
0.591	3.93	1.57	8.24
0.656	3.67	1.50	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17D	47606	STRAIGHT 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)
2.750	Laurel Lake C&R	PA0043036	0.010	CBOD5	25		
				NH3-N	10.09	20.18	
				Dissolved Oxygen			4

1A	B	C	D	E	F	G
2	**TRC EVALUATION**			Laurel Lake Camp & Retreat Center		
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0553	**= Q stream (cfs)**		0.5	**= CV Daily**	
5	0.0105	**= Q discharge (MGD)**		0.5	**= CV Hourly**	
6	30	**= no. samples**		1	**= AFC_Partial Mix Factor**	
7	0.3	**= Chlorine Demand of Stream**		1	**= CFC_Partial Mix Factor**	
8	0	**= Chlorine Demand of Discharge**		15	**= AFC_Criteria Compliance Time (min)**	
9	**0.5**	**= BAT/BPJ Value**		720	**= CFC_Criteria Compliance Time (min)**	
	0	**= % Factor of Safety (FOS)**		0	**=Decay Coefficient (K)**	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	**1.3.2.iii**	WLA afc = 1.105		**1.3.2.iii**	WLA cfc = 1.070
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 0.412		**5.1d**	LTA_cfc = 0.622
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

Laurel Lake Camp & Retreat Center
Banks Township, Indiana County
PA0043036 Discharge pH

Outfall 001

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Jul-21	7.0	8.0	1E-07	1E-08	5.5E-08	**7.3**
Aug-21	6.9	7.3	1.26E-07	5.01E-08	8.8E-08	**7.1**
Sep-21	6.7	7.8	2E-07	1.58E-08	1.08E-07	**7.0**
Jul-22	6.9	7.3	1.26E-07	5.01E-08	8.8E-08	**7.1**
Aug-22	6.9	7.1	1.26E-07	7.94E-08	1.03E-07	**7.0**
Sep-22	6.9	7.4	1.26E-07	3.98E-08	8.29E-08	**7.1**
Jul-23	6.4	7.5	3.98E-07	3.16E-08	2.15E-07	**6.7**
Aug-23	6.7	7.2	2E-07	6.31E-08	1.31E-07	**6.9**
Sep-23	6.7	7.1	2E-07	7.94E-08	1.39E-07	**6.9**
					Median:	**7.1**

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Approve	Deny	Signatures	Date
X		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	March 19, 2024
X		*Vacant* / Environmental Engineer Manager	Okay to Draft JCD 3/25/2024