pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0084476**
Facility Type	**Non-Municipal**	APS ID	**630796**
Major / Minor	**Minor**	Authorization ID	**1244592**

Applicant and Facility Information

Applicant Name	**Girl Scouts In The Heart Of PA**	Facility Name	**Camp Small Valley Girl Scout Camp**
Applicant Address	350 Hale Avenue	Facility Address	88 Hemlock Road
	Harrisburg, PA 17105		Halifax, PA 17032
Applicant Contact	Patrick McGuire	Facility Contact	Dan Jenkins
Applicant Phone	717-233-1656	Facility Phone	(717) 678-9005
Client ID	34282	Site ID	240699
Ch 94 Load Status	Not Overloaded	Municipality	Jefferson Township
Connection Status		County	Dauphin
Date Application Received	August 27, 2018	EPA Waived?	Yes
Date Application Accepted	September 14, 2018	If No, Reason	

Purpose of Application: Permit renewal to discharge treated sewage

Summary of Review

1.0 General Discussion

This factsheet supports the renewal of an existing NPDES permit for a 0.0065 mgd discharge of treated domestic sewage from a wastewater treatment plant that serves a seasonal camp. The Camp serves girl scouts during the summer months where flows are higher. Flows reduce during winter months since only the ranger and maintenance staff are using the facility. Treatment is provided by individual septic tanks, four lined constructed wetland system, and chlorination. Treated effluent is discharged into an unlined constructed wetland that flows into a natural wetland/swale that may eventually drains to Conleys Creek classified as HQ-CWF. A Point of First Use (POFU) survey conducted in 1992 determined the POFU to be on the Conleys Creek at the point where the natural wetland/swale enters the creek. The existing NPDES permit was issued on February 24, 2014 with an effective date of March 1, 2014 and expiration date of February 28, 2019. The applicant submitted a timely renewal application to the Department and is currently operating under the terms and conditions in the existing permit pending Department action on the renewal application. A topographic map showing the discharge location attachment

1.1 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

Approve	Deny	Signatures	Date
X		J. Pascal Kwedza, P.E. / Environmental Engineer	November 15, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E., Program Manager	

Summary of Review

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.

1.2 Changes to the existing Permit

- Sediment load was added to the permit due to final TMDL approved for Armstrong Creek watershed

1.3 Existing Permit Limits and Monitoring Requirements

DISCHARGE LIMITATIONS							MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)					
Discharge Parameter	Average Monthly	Maximum Daily	Inst. Minimum	Average Monthly	Maximum Daily	Inst. Maximum	Monitoring Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
DO	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/week	Grab
TRC	XXX	XXX	XXX	2.0	XXX	5.0	1/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
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
Nitrate-Nitrite	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.0065
Latitude	40º 29' 34"	Longitude	-76º 47' 33"
Quad Name	Enders	Quad Code	1531
Wastewater Description:	Sewage Effluent		
Receiving Waters	Via Wetland to POFU @ Conleys Creek	Stream Code	@POFU 16835
NHD Com ID	54974177	RMI	4.68 mi
Drainage Area	1.6	Yield (cfs/mi^2)	0.1027
Q_{7-10} Flow (cfs)	0.16	Q_{7-10} Basis	USGS Gage Station
Elevation (ft)		Slope (ft/ft)	
Watershed No.	6-C	Chapter 93 Class.	HQ-CWF
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, 09/27/2011	Name	Armstrong Creek
Background/Ambient Data		Data Source	
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Suez Water PA		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	30

Changes Since Last Permit Issuance: None

1.4.1 Water Supply Intake

The nearest downstream water supply intake is approximately 30 miles downstream by Suez Water PA on Susquehanna River, in Susquehanna Township, Dauphin County. No impact is expected from this discharge on the intake.

2.0 Treatment Facility Summary

Treatment Facility Name: Camp Small Valley

WQM Permit No.	Issuance Date
2290406	

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Lagoon System	Hypochlorite	0.0065

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0065		Not Overloaded		

Changes Since Last Permit Issuance: None

2.1 Treatment Facility

The treatment system consists of 7 septic tanks serving different areas of the site, 4 constructed wetlands, chlorine contact tank, and a natural wetland. Overflow from the septic tanks flow via manholes and splits into the first 2 constructed wetlands and flows in 2 parallel trains to the second 2 wetlands. Effluent from the constructed wetlands flow to a pump station and gets pumped to a chlorine tank for disinfection. Effluent from the chlorine tank is discharge through a 100 feet perforated pipe with rock underneath to enhance filtering. Effluent will percolate through the natural wetland and eventually flow to outfall 001 on Conleys Creek if there is enough flow. The effluent may never reach the Creek which is about 100 yards away from the perforated pipe, at the entrance to the natural wetland due to low flow from the facility. Calcium Chloride is used for disinfection. The operator and maintenance staff indicated that Kline's has been contracted to work on the constructed wetlands.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from October 1, 2018 to September 30, 2019)

Parameter	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18
Flow (MGD) Average Monthly	0.041	0.039	0.055	0.044	0.026	0.022	0.014	0.016	0.011	0.008	0.008	0.019
Flow (MGD) Daily Maximum	0.006	0.0065	0.0092	0.0082	0.005	0.0044	0.002	0.0041	0.0025	0.0012	0.001	0.005
pH (S.U.) Minimum	6.9	7.1	7.1	7.7	7.7	7.1	7.2	7.0	7.0	7.0	7.0	6.7
pH (S.U.) Maximum	7.2	7.2	8.0	8.0	7.9	7.9	7.9	7.3	7.1	7.2	7.4	6.9
DO (mg/L) Minimum	3.9	3.5	3.3	3.1	5.7	4.6	5.1	5.9	5.5	6.2	3.9	2.0
TRC (mg/L) Average Monthly	1.03	1.26	1.26	1.24	1.72	1.44	1.69	1.67	1.37	1.61	1.32	1.39
TRC (mg/L) Instantaneous Maximum	1.61	1.91	1.96	2.1	2.20	2.11	2.20	2.20	2.11	2.13	1.90	2.20
CBOD5 (mg/L) Average Monthly	< 3.0	19.9	3.6	5.5	3.0	< 3.0	< 3.0	< 3.0	< 3	3	< 3	3.5
TSS (mg/L) Average Monthly	< 5.0	4.5	< 5.0	6.5	6.5	8	< 5.0	< 5.0	5.5	11	8	7.5
Fecal Coliform (CFU/100 ml) Geometric Mean	26.5	7.3	26.8	23.7	< 2	< 2	< 2	< 2	2	< 2	2.8	28.3
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	352	26.5	> 120	280	< 2	< 2	< 2	< 2	2	< 2	8	80
Nitrate-Nitrite (mg/L) Annual Average										0.0500		
Total Nitrogen (mg/L) Annual Average										30.3		
TKN (mg/L) Annual Average										30.3		
Total Phosphorus (mg/L) Annual Average										4.04		

3.2 Compliance History	
Summary of DMRs:	Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented on the table above indicate permit limits have been met consistently. No permit violation was noted on DMRs during the period reviewed. It appears average monthly flow and daily maximum flow data were switched on e-DMR
Summary of Inspections:	The facility was inspected 6 times during the past permit cycle. Inspection reports review for the facility during the period indicate permit limits have been met consistently. The reports made some recommendations to improve operation and maintenance of the facility. Particularly, replacement of vegetation in the constructed wetlands and redirection of the spring around the pump station to avoid excessive inflow. The facility was reminded to follow the ground water sampling requirement in the part II permit for the facility. The facility was required to provide operation and maintenance manual to the Department.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0065
Latitude 40º 29' 34.00" **Longitude** -76º 47' 33.00"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the Clean Water Act (AWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.1.1 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)

Comments: Weekly averages are not applicable to this discharge.

4.1.2 Treatment Requirements

Since treated effluent is discharged into an unlined constructed wetland that flows into a natural wetland/swale, health criteria and underground water protection were evaluated at the point of discharge and aquatic criteria evaluated at the POFU on the Conleys Creek.

4.2 Ground water Monitoring Requirement

The part II permit of the facility described 6 monitoring wells to that needs to be monitored quarterly to ensure groundwater quality is not impacted at the site and its environs. Quarterly sampling of three monitoring wells near the lagoon system and two private water supply wells. No The permits section hydrogeologist indicates that there are no problems with groundwater quality associated with the treatment system

4.3.0 Water Quality-Based Limitations

4.3.1 Streamflows

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No 01568500 On Clark Creek near Carsonville. The Q_{7-10} and drainage area at the gage is 2.31ft3/s and 22.5 mi^2 respectively. The resulting streamflows are as follows:

- Q_{7-10} = (2.31ft^3/s)/ 22.5 mi^2 = 0.1027ft^3/s/ mi^2
- Q_{30-10} / Q_{7-10} = 1.17
- Q_{1-10} / Q_{7-10} = 0.79

The drainage area at POFU= 1.42 mi^2
The Q_{7-10} at POFU = 1.6 mi^2 x .10 ft^3/s/mi^2 = 0.16 ft^3/s.

4.3.2 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

- Discharge pH = 7.1 (DMR median July – Sept.)
- Discharge Temperature = 25 ^{o} C (Default)
- Stream pH = 7.0 (Default)
- Stream Temperature = 20 ^{o}C (Default)
- Background NH_3-N = 0.0 (Default)
- Discharge flow = 0.0065MGD

4.3.3 $CBOD_5$ & NH_3-N

The attached result of the WQM 7.0 stream model presented in attachment B indicates that, an average monthly limit of 25mg/l $CBOD_5$. is adequate to protect the water quality of the stream at the POFU. This agrees with the previous permit. Past DMRs and inspection reports show that the STP has been consistently achieving below 25 mg/l $CBOD_5$. Therefore, an AML 25 mg/l $CBOD_5$. and 50mg/l daily maximum are again recommended for this permit cycle. The attached results of the WQM 7.0 stream model also indicates that no limit on NH_3-N as a monthly average is necessary to protect the aquatic life from toxicity effects at the POFU.

4.3.4 Dissolved Oxygen

The existing permit requires monitoring for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. The model was run with a DO of 1.0 to evaluate the impact on the stream. Print out indicate a discharge a limit of 1mg/l is adequate; and the discharge may never reach the stream. Therefore, DO monitoring recommended in the existing permit will be continued during this current permit renewal.

4.3.5 Total Suspended Solids(TSS)

There are no water quality criteria for TSS. An average monthly limit of 30 mg/l in the existing permit based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR Chapter 1, Part 133, Section 133.102b(1) and 25 PA § 92a.47(a)(1) will continue. IMAX of 60mg/l is adequate to meet the 3.25mg/l TMDL sediment load allocated to this facility.

4.3.6 Toxics

No parameter of concern is associated with this discharge.

4.3.7Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay Foundation requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) will be required to monitor and report TN and TP during permit renewal at a monitoring frequency following Table 6-3 of DEP's Technical Guidance for Development and Specification of effluent Limitations (No. 362-0400-001). Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away.

EPA published the Chesapeake Bay Total Maximum Daily Load (TMDL) in December of 2010. Despite extensive restoration efforts during the past 25 years, the TMDL was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries.

In order to address the TMDL, Pennsylvania developed in addition to the Bay Strategy, a Chesapeake Watershed Implementation Plan (WIP) Phase 1 in January 2011 and Phase 2 in March 2012. In accordance with the Phase 2 WIP and its supplement, re-issuing permits for significant dischargers follow the same phased approach formulated in the original Bay strategy, whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewal. This facility is, classified as a phase 5, and has been monitoring Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, Total Nitrogen and Total Phosphorus annually and will be required to continue monitoring them annually during this permit cycle.

4.3.8 Total Residual Chlorine

The attached TRC results presented in attachment C utilizes the equations and calculations presented in the Department's 2003 Implementation Guidance for Residual Chlorine (TRC) (ID # 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached result indicates that, a water quality limit of 2.34 mg/l monthly average and 7.64 mg/l IMAX would be needed to prevent toxicity concerns at POFU which is located about 100 yards from the discharge point. The permit was written with a facility-specific BAT limit of 2.0 mg/l monthly average and 5.0 mg/l IMAX to discourage over-chlorination while ensuring adequate disinfection at the site where contact with the effluent by campers is possible. The TRC limit is higher than the standard BAT limit of 0.5 mg/l to ensure adequate disinfection to protect campers who may come into contact with the effluent. Also, the effluent may never reach the creek unless there is heavy rainfall in which case, the effluent will be heavily diluted prior to reaching the creek.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Stormwater:

No storm water outfall is associated with this facility

5.3 Special Permit Conditions

The permit will contain the following special conditions:

Stormwater Prohibition, Approval Contingencies, Proper Waste/solids Management, Septic Tank maintenance requirement and Chlorine minimization.

5.5 Anti-Degradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The discharge goes to a natural wetland to infiltrate effluent rather than direct discharge to High Quality waterways. There is no known impact on the High-Quality Waters by this discharge No Exceptional Value Waters are impacted by this discharge.

5.6 Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

5.7 303d Listed Streams:

The discharge is not located on a 303d listed stream segment, however portions Armstrong Creek Watershed is impaired due to sediment. A Total Maximum Daily Load (TMDL) was developed and approved in September 2011 for sediment to address impairment of the watershed. Excessive siltation resulting from agricultural activities has been identified as the cause of the impairment in the watershed. A waste load of 1,188lbs/yr or 3.25lbs/day based on a maximum discharge of 60mg/l at design flow of 0.0065MGD was allocated to this facility which is the only point source discharger in the watershed. Currently, PA does not have water quality criteria for sediment. TSS is used to control sediment. A TSS mass load of 3.25lbs/day will be written in the permit. The facility should be able to meet this limit without difficulty since the maximum concentration limit in the permit is 60mg/l.

5.8 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.9 Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

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.

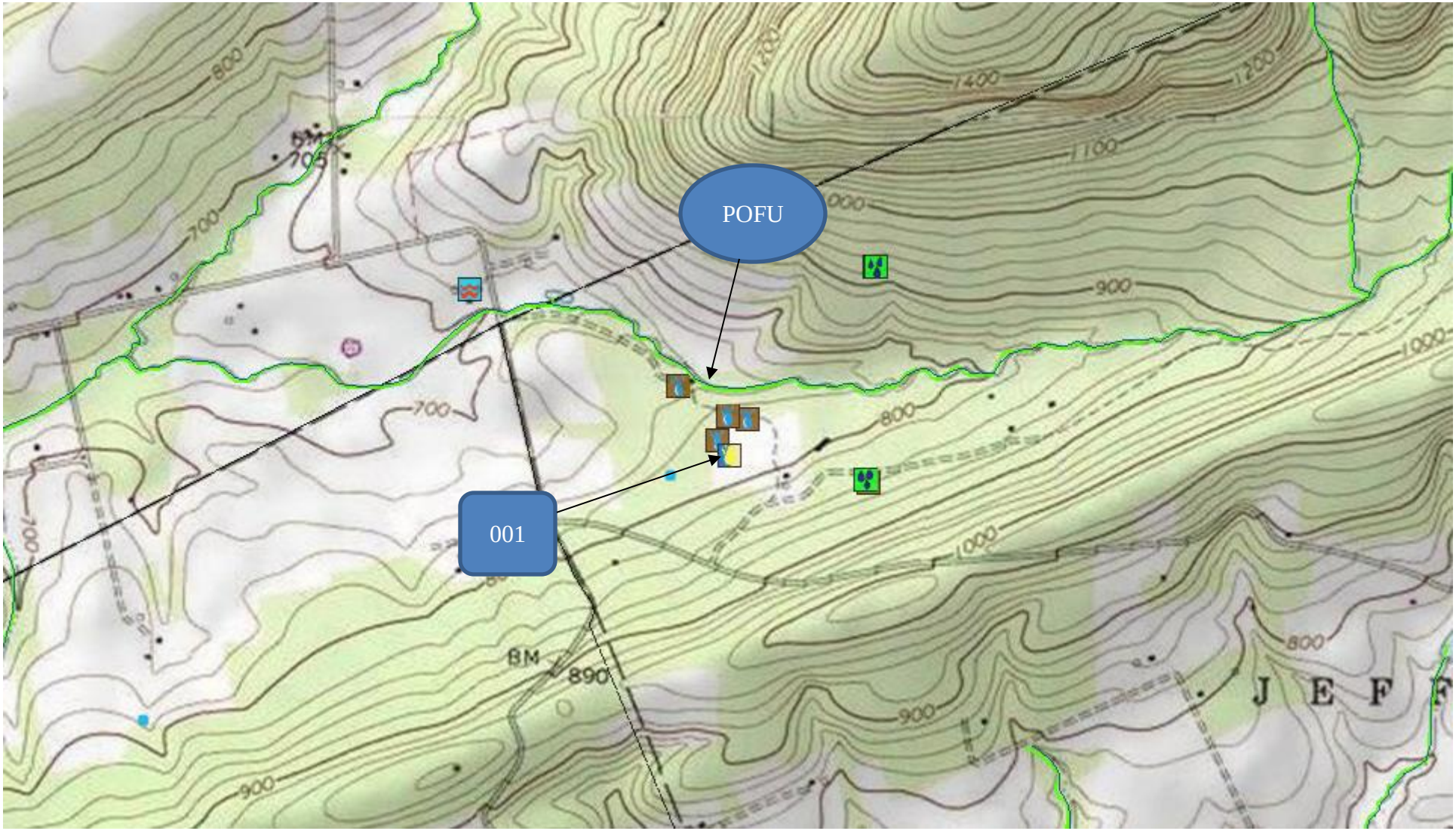
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
DO	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/week	Grab
TRC	XXX	XXX	XXX	2.0	XXX	5.0	1/week	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	3.25	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment **)**
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	Other:
☐	Other:

Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
06C	16835	Trib 16835 to Armstrong Creek

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)
4.680	Girl Scouts PA	PA0084476	0.007	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			1

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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
06C	16835	Trib 16835 to Armstrong Creek	**4.680**	790.00	1.60	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	0.103	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
Girl Scouts PA	PA0084476	0.0065	0.0065	0.0065	0.000	25.00	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	1.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Permit No. PA0084476

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
06C	16835	Trib 16835 to Armstrong Creek	**3.630**	670.00	2.09	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	0.103	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	1.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Permit No. PA0084476

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
06C	16835	Trib 16835 to Armstrong 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												
4.680	0.16	0.00	0.16	.0101	0.02165	.386	5.63	14.59	0.08	0.796	20.29	7.01
Q1-10 Flow												
4.680	0.13	0.00	0.13	.0101	0.02165	NA	NA	NA	0.07	0.901	20.36	7.01
Q30-10 Flow												
4.680	0.19	0.00	0.19	.0101	0.02165	NA	NA	NA	0.09	0.733	20.25	7.00

Permit No. PA0084476

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	0.79	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.17	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Permit No. PA0084476

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
06C	16835	Trib 16835 to Armstrong 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
4.680	Girl Scouts PA	9.38	50	9.38	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
4.680	Girl Scouts PA	1.88	25	1.88	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)		
4.68	Girl Scouts PA	25	25	25	25	1	1	0	0

Permit No. PA0084476

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
06C	16835	Trib 16835 to Armstrong Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
4.680	0.007	20.288	7.005
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.627	0.386	14.591	0.081
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.32	0.449	1.44	0.716
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.826	23.559	Owens	5
Reach Travel Time (days)			
0.796			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.080	3.20	1.36	8.20
0.159	3.09	1.28	8.20
0.239	2.98	1.21	8.20
0.319	2.87	1.14	8.20
0.398	2.77	1.08	8.20
0.478	2.67	1.02	8.20
0.557	2.58	0.96	8.20
0.637	2.49	0.91	8.20
0.717	2.40	0.86	8.20
0.796	2.31	0.81	8.20

Permit No. PA0084476

C. TRC Calculations

1A	B	C	D	E	F	G
2	**TRC EVALUATION**			Enter Facility Name in E3		
3	Input appropriate values in B4:B8 and E4:E7			**PA0084476 Girl Scout in PA**		
4	0.16	**= Q stream (cfs)**		0.5	**= CV Daily**	
5	0.0065	**= 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	10	**= BAT/BPJ Value**		720	**= CFC_Criteria Compliance Time (min)**	
		= % Factor of Safety (FOS)			**=Decay Coefficient (K)**	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	**1.3.2.iii**	WLA afc = 5.095		**1.3.2.iii**	WLA cfc = 4.960
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 1.898		**5.1d**	LTA_cfc = 2.883
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) = 2.337		AFC	
18			INST MAX LIMIT (mg/l) = 7.642			

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)**