Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0209074**
Facility Type	**Non-Municipal**	APS ID	**1078346**
Major / Minor	**Minor**	Authorization ID	**1422296**

Applicant and Facility Information

Applicant Name	**Vernon Pettengill**	Facility Name	**Hidden Valley MHP**
Applicant Address	97 Sandra Lee Drive	Facility Address	97 Sandra Lee Drive
	Linden, PA 17744-7003		Linden, PA 17744-7003
Applicant Contact	Vernon Pettengill	Facility Contact	Jason Pettengill
Applicant Phone	(570) 772-3461	Facility Phone	(570) 772-3461
Client ID	28736	Site ID	241779
Ch 94 Load Status	Not Overloaded	Municipality	Woodward Township
Connection Status	No Limitations	County	Lycoming
Date Application Received	December 28, 2022	EPA Waived?	Yes
Date Application Accepted	January 12, 2023	If No, Reason	

Purpose of Application: Application for the renewal of the existing individual NPDES permit.

Summary of Review

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.

Hidden Valley Mobile Home Park (MHP) is permitted up to a capacity of 32 units, 0.0069 MGD. The treatment system is comprised of an extended aeration system with an elevated sand filter and chlorine disinfection.

Approve	Deny	Signatures	Date
X		Jonathan P. Peterman / Project Manager	December 24, 2024
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 26, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0069
Latitude	41º 14' 27.99"	Longitude	-77º 9' 50.52"
Quad Name	Linden	Quad Code	0928
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Pine Run	Stream Code	20969
NHD Com ID	66915993	RMI	1.1
Drainage Area	N/A	Yield (cfs/mi^2)	N/A
Q_{7-10} Flow (cfs)	Intermittent	Q_{7-10} Basis	N/A
Elevation (ft)	820	Slope (ft/ft)	N/A
Watershed No.	10-A	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	N/A		
Source(s) of Impairment	N/A		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	PA American Water White Deer		
PWS Waters	West Branch of Susquehanna River	Flow at Intake (cfs)	682
PWS RMI	10.5	Distance from Outfall (mi)	35

Receiving Waters Information at Point of First Use (POFU)			
Receiving Waters	Unnamed Tributary to Quenshukeny Run	Stream Code	20969
NHD Com ID	66915993	RMI	1.1
Drainage Area	0.353	Yield (cfs/mi^2)	0.219
Q_{7-10} Flow (cfs)	0.077	Q_{7-10} Basis	Stream Gage No. 1553130
Elevation (ft)	820	Slope (ft/ft)	N/A

Changes Since Last Permit Issuance: None.
Other Comments: It was determined that an Unnamed Tributary to Quenshukeny Run would be the point of first use. A Q_{7-10} analysis was previously conducted using a comparable stream gage (1553130) to approximate the Q_{7-10} stream flow at the point of first use. The updated Q_{7-10} data was obtained from the updated stream gage information obtained from *Stuckey, M.H., and Roland, M.A., 2011, Selected Streamflow Statistics for Streamgage Locations In and Near Pennsylvania*. The Q_{7-10} calculations, which are attached in Appendix A, indicate that the Q_{7-10} is 0.0773 cfs.

Treatment Facility Summary

Treatment Facility Name: Hidden Valley MHP

WQM Permit No.	Issuance Date	Notes:
4197407 A-2	8/26/24	Amendment to remove groundwater monitoring from WQM permit.
4197407 A-1	9/29/98	Construction of an additional sand filter, increasing the sand filter dosage tank capacity, and increasing the chlorine contact tank capacity. Increased treatment plant capacity from 0.0035 to 0.0069.
4197407	9/2/97	Increased treatment plant capacity from 0.0016 to 0.0035.

Waste Type	Degree of Treatment	Process Type	Disinfection	Design Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.0069
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.0069	--	Not Overloaded	None.	Other WWTP.

Treatment System Components for Outfall 001:
- One (1) grinder pump.
- One (1) influent wet well.
- One (1) 15,000 gallon aeration tank.
- One (1) 3,100 gallon settling tank.
- One (1) 1,000 gallon storage tank.
- Two (2) 363 square foot elevated sand filters (726 sq. ft. total).
- One (1) tablet erosion chlorinator.
- Two (2) 1,000 gallon chlorine contact tanks in series (second tank is baffled).

Changes Since Last Permit Issuance: None.
Other Comments: None.

TMDL Impairment

-The Department's Geographic Information System (GIS) shows that the UNT to Quenshukeny Run is not impaired and a TMDL does not exist for the stream segment. Therefore, no TMDL was considered when during this review.

Chesapeake Bay Requirements

Previously, the permittee was required to monitor and report TN and TP throughout the permit term at a frequency no less than annually in accordance with the Phase III WIP Chesapeake Bay Strategy for Phase V facilities (0.002 MGD to 0.2 MGD) since it did not have at least two of years of monitoring completed. Monitoring for these parameters was conducted over the previous permit term and the yearly monitoring requirements for nutrients will be removed accordingly. No further monitoring is required at this time. The monitoring results are attached in the Appendix E.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits – Outfall 001

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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40.0	2/month	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	10.0	XXX	20.0	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
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab

*The existing effluent limits for Outfall 001 were based on a design flow of 0.0069 MGD.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0069
Latitude 41º 14' 43.16" **Longitude** -77º 9' 49.36"
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)

Comments: None.

Water Quality-Based Limitations
To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD5, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the Toxics Management Spreadsheet (TMS). The TMS was not utilized for this review.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen
Since there have been no changes to the watershed or the facility, the previous modeling results shall be utilized. The facility discharges to an intermittent stream, the model was based on the point of first use which is Unnamed Tributary to Quenshukeny Run. The model was previously run using the Q7-10 stream flow at the point of first use, background water quality, average annual design flow, and other discharge characteristics. The existing advanced treatment requirement effluent limit for $CBOD_5$ (10 mg/l) and existing water quality-based effluent limit for NH3-N (3.0 mg/l) were used as inputs for the modeling. The DO minimum daily average criterion from §93.7 (5.0 mg/L for WWF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD5	10	N/A	N/A
Ammonia-N	3.0	6.0	N/A
Dissolved Oxygen	N/A	N/A	3

The previous model did not recommend water-quality based effluent limitations with regards to CBOD5 and dissolved oxygen. The model indicated that the existing water quality-based effluent ammonia-nitrogen are protective of water quality. Refer to the Appendix B for the previous WQM 7.0 inputs and results. The existing effluent limits will remain.

Best Professional Judgment (BPJ) Limitations
See the D.O. section below.
Comments: None.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

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 the abovementioned 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) and/or BPJ.

Proposed Limits - 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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40.0	2/month	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	10.0	XXX	20.0	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
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	9.0	XXX	18.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.0069 MGD.

Effluent Limit Determination for Outfall 001

General Information
All of the limits proposed above are consistent with other permits issued for wastewater treatment plants in the region. The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits.

Flow
Reporting of the average monthly flow and daily maximum is consistent with monitoring requirements for other treatment plants of this size.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
The results of the WQM 7.0 model show that the existing advanced treatment requirements for $CBOD_5$ as stipulated in the *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers* (391-2000-014**)** are protective of water quality and will remain. Seasonal limits for BOD_5 were previously applied in accordance with the previous version of the intermittent stream guidance.

Total Suspended Solids (TSS)
The previously applied advanced treatment requirements stipulated in the *Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers* (391-2000-014**)** for TSS will remain as well.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH. The existing limits will remain.

Total Residual Chlorine (TRC)
In accordance with 25 Pa. Code 92a.48(b)(2), a best available technology (BAT) value of 0.5 mg/l was used in the TRC Spreadsheet. This is also the existing effluent limit. The attached TRC model indicates that the technology based effluent limit of 0.5 mg/L (Average Monthly) and 1.6 mg/L (Instantaneous Maximum) are still protective of water quality and will remain.

Fecal Coliforms
The existing fecal coliform limits with I-max limits were updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5).

Dissolved Oxygen (DO)
Given results of the WQM 7.0 model, a discharge of effluent from this facility with a DO concentration of 3 mg/l would not result in an exceedance of water quality requirements for this stream. Therefore, based on BPJ, only monitoring will be required for this facility.

Ammonia-Nitrogen (NH3-N
The results of the previous WQM 7.0 model showed that existing water quality-based effluent limits for ammonia-nitrogen are sufficient and a more stringent water quality-based limit would not be required. Seasonal limits were considered in accordance with the *Implementation Guidance of Section 93.7 Ammonia Criteria* (391-2000-013) which states that a multiplier of 2.0 times the average monthly concentration limit (3.0 mg/L) was used to establish the I-max concentration limit (6.0 mg/L). The Implementation Guidance also states that the winter seasonal limits shall be 3.0 times the summer limits.

E. Coli
25 PA Code § 92a.61 provide the basis of monitoring requirements for E. Coli. Yearly monitoring will be required going forward.

Compliance History

Summary of Inspections -The last inspection of the facilities was conducted by the Department on 5/1/24. The inspection indicated that the facility was operating normally.
WMS Query Summary - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed that there were no unresolved violations.
DMRs Summary - Upon review of the last year of DMR's, the facility appears to be generally operating within the given concentration limits. Two exceedances of fecal coliform limits were noted, but they were resolved by the next sample.

Compliance History

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.003	0.004	0.004	0.005	0.004
Flow (MGD) Daily Maximum	0.006	0.005	0.004	0.004	0.004	0.004	0.005	0.004	0.005	0.006	0.006	0.005
pH (S.U.) Instantaneous Minimum	7.3	7.2	7.0	7.0	7.2	7.1	7.1	7.2	7.2	7.2	7.2	7.2
pH (S.U.) Instantaneous Maximum	7.7	7.6	7.6	7.6	7.7	7.6	7.7	7.6	7.6	7.5	7.9	7.7
DO (mg/L) Daily Minimum	7.7	8.1	8.1	7.8	7.6	7.6	7.7	7.6	8.0	7.9	7.6	8.1
TRC (mg/L) Average Monthly	0.18	0.21	0.18	0.19	0.20	0.18	0.16	0.16	0.18	0.16	0.20	0.15
TRC (mg/L) Instantaneous Maximum	0.33	0.33	0.26	0.28	0.26	0.31	0.23	0.20	0.30	0.26	0.32	0.28
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	< 2.0	< 5.0
CBOD5 (mg/L) Instantaneous Maximum	< 2.0	< 2.0	< 2.0	< 2.0	3.3	< 2.0	< 2.0	< 2.0	< 2.0	3.82	< 2.0	8.92
TSS (mg/L) Average Monthly	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L) Instantaneous Maximum	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	49	4.0	< 49	< 1.0	< 2.0	2.0	< 1.0	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	< 1.0	< 1.0	< 1.0	2420	5.0	2420	< 1.0	5.0	3.0	2	8.0
Total Nitrogen (mg/L) Annual Average											14	

Total Nitrogen (lbs) Annual Average											0.58	
Total Nitrogen (lbs) Total Annual											0.58	
Ammonia (mg/L) Average Monthly	< 1.0	< 0.10	< 0.10	< 0.40	< 1.0	< 0.10	< 0.10	< 0.40	< 0.40	< 0.40	1.0	< 4.0
Ammonia (mg/L) Instantaneous Maximum	0.143	< 0.10	< 0.10	< 0.40	< 1.0	< 0.738	0.40	< 0.40	< 0.40	< 0.40	2.0	< 4.0
Total Phosphorus (mg/L) Annual Average											4.9	
Total Phosphorus (lbs) Annual Average											0.20	
Total Phosphorus (lbs) Total Annual											0.20	

Compliance History

Effluent Violations for Outfall 001, from: December 1, 2023 To: October 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/24	IMAX	2420	No./100 ml	1000	No./100 ml

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	Toxics Management Spreadsheet (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, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☒	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

APPENDIX A

Q7-10 ANALYSIS AND STREAM DATA

Q_{7-10} Calculations @ Point of first Use

Comparative Analysis

Stream Name	Sand Spring Run
Reference Gage	1553130
Station Name	Sand Spring Run near White Deer, PA
Gage Drainage Area (sq. mi.)	4.93
Q_{7-10} at gage (cfs)	1.08
Drainage Area at site (sq. mi.)	0.353
Q_{7-10} at discharge site (cfs)	0.0773
Q_{7-10} at discharge site (mgd)	0.0500

Low Flow Yield Ratio of 0.1 cfs/mi^2

Q_{7-10} at discharge site (cfs)	0.0353
Q_{7-10} at discharge site (mgd)	0.0228

Check Dilution Ratio		
	sf (cfs)	wf (cfs)
Dilution Ratio = sf/wf	0.0773	0.01392506
Dilution Ratio =	5.553343 to 1	

Basin Characteristics Report

Date: Thu Apr 26 2012 07:45:42 Mountain Daylight Time
NAD27 Latitude: 41.2461 (41 14 46)
NAD27 Longitude: -77.1592 (-77 09 33)
NAD83 Latitude: 41.2462 (41 14 46)
NAD83 Longitude: -77.1589 (-77 09 32)

Parameter	Value
Area in square miles	0.353
Mean Basin Elevation in feet	899
Unadjusted basin slope, in degrees	10.5998
Adjusted basin slope, in degrees	10.4
Total stream length in miles	0.5
Stream density (miles/square mile)	1.41
Percent of area covered by lakes, ponds, reservoirs and wetlands	0.0986
Percent of area covered by carbonate bedrock	0.0000
Percent of area covered by glacial activity	0.0000
Depth to rock in feet	3.325
Mean annual precipitation in inches	41.000
Maximum Daily Temperature in degrees F	57.9
Percent of area covered by forest	58.2740
Percentage of impervious area determined from NLCD 2001 impervious dataset	0.35
Percent of area covered by urban land according to an enhanced version of NLCD 1992	0.0000
Percentage of urban land cover determined from NLCD 2001 land cover dataset	5.5
Drainage Runoff Curve Number	3.1
X coordinate of the centroid, in map projection, meters	70252.2
Y coordinate of the centroid, in map projection, meters	250052.2
X coordinate of the outlet, in map projection, meters	70495.0
Y coordinate of the outlet, in map projection, meters	249745.0
Longitude of the outlet, in decimal degrees	-77.15885

APPENDIX B

PREVIOUS WQM 7.0 MODEL INPUT/OUTPUT

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
10A	20963	QUENSHUKENY RUN	1.100	820.00	0.35	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	0.100	0.00	0.08	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
Hidden Valley	PA0209074	0.0000	0.0000	0.0069	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	10.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	3.00	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
10A	20963	QUENSHUKENY RUN	**0.760**	810.00	0.40	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	0.100	0.00	0.10	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
10A	20963	QUENSHUKENY 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												
1.100	0.08	0.00	0.08	.0107	0.00557	.354	3.63	10.25	0.07	0.305	20.61	7.00
Q1-10 Flow												
1.100	0.07	0.00	0.07	.0107	0.00557	NA	NA	NA	0.07	0.309	20.63	7.00
Q30-10 Flow												
1.100	0.09	0.00	0.09	.0107	0.00557	NA	NA	NA	0.07	0.278	20.52	7.00

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
10A	20963	QUENSHUKENY 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												
1.100	0.08	0.00	0.08	.0107	0.00557	.354	3.63	10.25	0.07	0.305	20.61	7.00
Q1-10 Flow												
1.100	0.07	0.00	0.07	.0107	0.00557	NA	NA	NA	0.07	0.309	20.63	7.00
Q30-10 Flow												
1.100	0.09	0.00	0.09	.0107	0.00557	NA	NA	NA	0.07	0.278	20.52	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
10A	20963	QUENSHUKENY 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
1.100	Hidden Valley	9.24	6	9.24	6	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
1.100	Hidden Valley	1.85	3	1.85	3	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)		
1.10	Hidden Valley	10	10	3	3	3	3	0	0

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
10A	20963	QUENSHUKENY 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
1.100	Hidden Valley	9.24	6	9.24	6	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
1.100	Hidden Valley	1.85	3	1.85	3	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)		
1.10	Hidden Valley	10	10	3	3	3	3	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
10A	20963	QUENSHUKENY 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)
1.100	Hidden Valley	PA0209074	0.007	CBOD5	10		
				NH3-N	3	6	
				Dissolved Oxygen			3

APPENDIX C

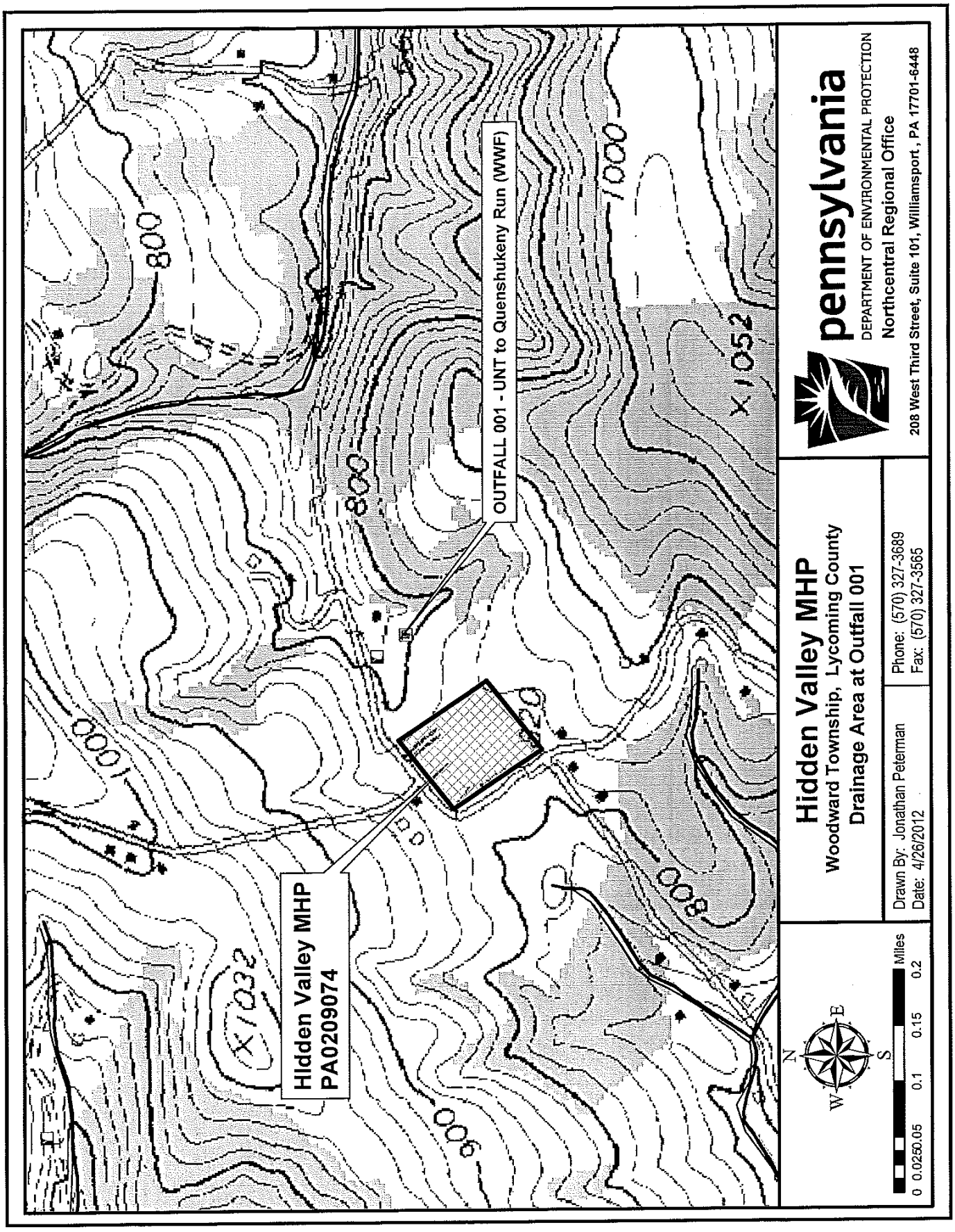
TRC ANALYSIS

1A	B	C	D	E	F	G
2	**TRC EVALUATION**	Hidden Valley MHP				
3	Input appropriate values in B4:B8 and E4:E7					
4	0.077	= Q stream (cfs)		0.5	= CV Daily	
5	0.0069	= 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 = 2.320	1.3.2.iii	WLA cfc = 2.254	
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581	
13	PENTOXSD TRG	5.1b	LTA_afc= 0.865	5.1d	LTA_cfc = 1.311	
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)**

APPENDIX D

FACILITY MAP


Hidden Valley MHP
PA0209074
OUTFALL 001 - UNT to Quenshukeny Run (WWF)
800
1000
X1032
X1052
pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Northcentral Regional Office
208 West Third Street, Suite 101, Williamsport, PA 17701-6448
Hidden Valley MHP
Woodward Township, Lycoming County
Drainage Area at Outfall 001
Drawn By: Jonathan Peterman
Date: 4/26/2012
Phone: (570) 327-3689
Fax: (570) 327-3565
N
E
S
W
0 0.025 0.05 0.1 0.15 0.2
Miles

APPENDIX E

NITROGEN AND PHOSPHORUS SAMPLING RESULTS

PERMIT	PF NAME	CLIENT ID	MONITORING	MONITORING	REPORT FI	OUTFALL	DISCHARG	MONITORIN	PARAMETER		LOADUNIT	LOAD 1VA	LOAD 1LIN	LOAD 1SB	LOAD 2VA	LOAD 2LIN	LOAD 2SB	CONCUNI	CONC 2VA	CONC 2LIN	SAMPLE F	SAMPLE T
PA020907	HIDDEN VALLEY I	28736	01/01/2020	12/31/2020	Annually	001	Yes	Final Effluer	Total Nitrogen									mg/L	31.36	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2021	12/31/2021	Annually	001	Yes	Final Effluer	Total Nitrogen									mg/L	11.9	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2022	12/31/2022	Annually	001	Yes	Final Effluer	Total Nitrogen									mg/L	14.5	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2023	12/31/2023	Annually	001	Yes	Final Effluer	Total Nitrogen									mg/L	14	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2020	12/31/2020	Annually	001	Yes	Final Effluer	Total Nitrogen (Total Load, lbs)		lbs	1	Monitor a	Annual Av	382	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2021	12/31/2021	Annually	001	Yes	Final Effluer	Total Nitrogen (Total Load, lbs)		lbs	0.4	Monitor a	Annual Av	0.4	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2022	12/31/2022	Annually	001	Yes	Final Effluer	Total Nitrogen (Total Load, lbs)		lbs	0.6	Monitor a	Annual Av	0.6	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2023	12/31/2023	Annually	001	Yes	Final Effluer	Total Nitrogen (Total Load, lbs)		lbs	0.58	Monitor a	Annual Av	0.58	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2020	12/31/2020	Annually	001	Yes	Final Effluer	Total Phosphorus									mg/L	0.1	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2021	12/31/2021	Annually	001	Yes	Final Effluer	Total Phosphorus									mg/L	1.9	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2022	12/31/2022	Annually	001	Yes	Final Effluer	Total Phosphorus									mg/L	2.8	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2023	12/31/2023	Annually	001	Yes	Final Effluer	Total Phosphorus									mg/L	4.9	Monitor a	1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2020	12/31/2020	Annually	001	Yes	Final Effluer	Total Phosphorus (Total Load, l		lbs	< 0.003	Monitor a	Annual Av	< 1	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2021	12/31/2021	Annually	001	Yes	Final Effluer	Total Phosphorus (Total Load, l		lbs	0.06	Monitor a	Annual Av	0.06	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2022	12/31/2022	Annually	001	Yes	Final Effluer	Total Phosphorus (Total Load, l		lbs	0.1	Monitor a	Annual Av	0.1	Monitor a	Total Annual				1/year	Grab
PA020907	HIDDEN VALLEY I	28736	01/01/2023	12/31/2023	Annually	001	Yes	Final Effluer	Total Phosphorus (Total Load, l		lbs	0.2	Monitor a	Annual Av	0.2	Monitor a	Total Annual				1/year	Grab

Average TN Concentrations	17.94	mg/L
Average TP Concentrations	2.425	mg/L