pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0082601**
Facility Type	**Non-Municipal**	APS ID	**846750**
Major / Minor	**Minor**	Authorization ID	**1244646**

Applicant and Facility Information

Applicant Name	**Shover Investment Group LLC**	Facility Name	**Hartslog Court MHP**
Applicant Address	225 Pine Hill Road	Facility Address	9634 Hartslog Road
	Landisburg PA 17040		Huntingdon, PA 16652
Applicant Contact	Brad Shover	Facility Contact	Calvin Eaken
Applicant Phone	(717) 789-2456	Facility Phone	(717) 437-3912
Client ID	296493	Site ID	444120
Ch 94 Load Status	Not Overloaded	Municipality	Porter Township
Connection Status	No Limitations	County	Huntingdon
Date Application Received	September 12, 2018	EPA Waived?	Yes
Date Application Accepted	September 18, 2018	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Shover Investment Group LLC has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit was issued March 25, 2014 and became effective on April 1, 2014, authorizing discharge of treated sewage from the existing wastewater treatment plant (WWTP) located in Porter Township, Huntingdon County into UNT to Crooked Creek. The existing permit expiration date was March 31, 2019, and the permit has been administratively extended since that time.

Per the previous fact sheet, The Hartslog Court Mobile Home Park was formerly owned by James Decker, Jr., and the permit was transferred to Landmark Signature Homes LLC. The facility formerly known as Fink's MHP was permitted on January 9, 1974 under WQM Permit No. 3173406. The NPDES Permit for this facility was first issued on September 6, 1988. On June 21, 2001, a new WWTP with a design flow of 0.045 million gallons per day (mgd) was constructed on the other side of the stream. A Part II Permit No. 3100402 was issued for this upgrade. The new WWTP had an outfall located approximately 20' downstream of the old WWTP. The new WWTP discharges to an unnamed tributary (UNT) of Crooked Creek. The old WWTP was abandoned. On March 17, 2015, an amendment to the NPDES permit was issued. The amendment transferred the NPDES permit from Landmark Signature Homes LLC to Shover Investment Group LLC, and also transferred the associated WQM permit 3100402.

Changes in this renewal: Total Nitrogen and Total Phosphorus monitoring requirements have been added to the permit.

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	March 31, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review

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.

Supplemental information is attached to this fact sheet.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.045
Latitude	40º 29' 43.28"	Longitude	76º 5' 58.88"
Quad Name	Huntingdon	Quad Code	1521
Wastewater Description:	Sewage Effluent		
Receiving Waters	UNT to Crooked Creek	Stream Code	15555
NHD Com ID	65607232	RMI	0.25
Drainage Area	0.78 mi^2	Yield (cfs/mi^2)	0.08
Q_{7-10} Flow (cfs)	0.062	Q_{7-10} Basis	USGS Gage# 01559500
Elevation (ft)	808	Slope (ft/ft)	
Watershed No.	11-B	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
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	Newport Borough		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	>100

Changes Since Last Permit Issuance: A drainage area of 0.78 mi^2 and a Q_{7-10} flow of 0.062 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01559500 on Standing Stone Creek. The Q_{7-10} and drainage area at the gage are 10.5 cfs and 128 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Yield = (10.5 cfs)/ 128 mi^2 = 0.08 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 0.78 mi^2

The Q_{7-10} at the discharge point = 0.78 mi^2 x 0.08 cfs/mi^2 = 0.062 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Hypochlorite	0.045
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.045	82.6	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The wastewater treatment process consists of an influent comminutor, a 9,000 gallon equalization tank, five (5) 9,000 gallon aeration tanks, a clarifier, a chlorine contact tank, a dechlorination tank, post aeration, and discharge to UNT to Crooked Creek via Outfall 001. Sludge is aerated in two (2) 9,000 gallon holding tanks.

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet
Summary of Inspections:	2/9/2016: A follow up inspection was conducted by Fred Clark, DEP Water Quality Specialist. The treatment plant appeared to be operating properly, the effluent was clear, and field test results were within permit limits. The clarifier skimmers had been retrofitted to extend the return lines to the first aeration tank. The surface of the skimmers looked clear. All the blower units were functional; one motor was replaced, and all filters were replaced. No changes had been made to the pump station, and the operator reported two clogs since the October 2015 inspection. 9/21/2016: A routine inspection was conducted by Fred Clark. The treatment plant appeared to be operating properly, the effluent was clear, and field tests were within permit limits. One blower motor was out of service and being repaired. The second EQ tank pump was not in place. The operator reported that it had been missing for many years. The treatment plant was permitted for two pumps in the EQ tank, and both pumps need to be in working order. A notice of violation (NOV) was issued on October 4, 2016, regarding the EQ tank pump. On November 29, 2016, another NOV was issued to due to response to the first NOV. 3/9/2017: A follow up inspection was conducted by Fred Clark to check on the maintenance and operational issues from the September 21, 2016 inspection. The EQ tank had two functioning pumps. All the blower units were functional; one motor was replaced. 10/12/2017: A routine inspection was conducted by Fred Clark. The treatment plant appeared to be operating properly, the effluent was clear, and the field tests were within permit limits. One blower unit was replaced since the last inspection. One pump station float was repaired. 10/19/2018: A routine inspection was conducted by Fred Clark. The treatment plant appeared to be operating properly, the effluent was clear, and the field tests were within permit limits. 10/13/2019: A routine inspection was conducted by Fred Clark. The treatment plant appeared to be operating properly, the effluent was clear, and the field tests were within permit limits. Since the last inspection one blower and a sump pump were replaced.

Other Comments: There are no open violations associated with the permittee or facility.

Compliance History

DMR Data for Outfall 001 (from March 1, 2019 to February 29, 2020)

Parameter	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19
Flow (MGD) Average Monthly	0.0102	0.009078	0.010473	0.00897	0.008593	0.007813	0.008755	0.00772	0.008	0.014229	0.009521	0.01704
Flow (MGD) Daily Maximum	0.02057	0.01846	0.023486	0.01858	0.018022	0.01608	0.015022	0.02508	0.0207	0.05643	0.02542	0.1734
pH (S.U.) Daily Minimum	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.2
pH (S.U.) Daily Maximum	7.5	7.3	7.3	7.8	7.5	7.8	7.4	7.4	7.5	7.5	7.5	7.8
DO (mg/L) Daily Minimum	8.7	9.0	8.6	8.6	7.5	7.1	7.0	7.1	6.9	6.3	6.6	9.2
TRC (mg/L) Average Monthly	0.05	0.10	0.05	0.01	< 0.10	0.01	0.10	0.10	0.05	0.05	0.10	0.05
TRC (mg/L) Instantaneous Maximum	0.09	0.09	0.1	0.06	0.18	0.24	0.12	0.10	0.09	0.09	0.10	0.1
CBOD5 (mg/L) Average Monthly	< 4.0	< 3.0	5.0	6.0	< 4.0	4.0	< 3.0	< 3.0	< 3.0	< 4.0	< 3.0	3.0
TSS (mg/L) Average Monthly	5.0	< 3.0	7.0	4.0	4.0	3.0	3.0	6.0	8.0	4.0	6.0	6.0
Fecal Coliform (No./100 ml) Geometric Mean	10	3	2	< 1	5.0	2	< 1	< 1	1211	6	< 2	< 3
Fecal Coliform (No./100 ml) Instantaneous Maximum	16	3	2	< 1	6.3	2	1	< 1	2419	6.3	2	5.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	3.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Existing Effluent Limitations and Monitoring Requirements

The tables below summarize the effluent limits and monitoring requirements implemented in the existing NPDES permit.

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.20	XXX	0.60	1/day	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	2,000 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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	10.5	XXX	21	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.5	XXX	7.0	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .045
Latitude 40º 29' 43.28" **Longitude** 78º 5' 58.88"
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)

Water Quality-Based Limitations

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.0b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N), and dissolved oxygen (D.O.). The model simulates two basic processes: In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3-N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions. DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges.

The model was utilized for this permit application. The flow data used to run the model was acquired from USGS PA StreamStats, and USGS Gage # 01559500 on Standing Stone Creek, and is included in an attachment. Default stream pH and temperature inputs were used for this model run. The model output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 3.62 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The $CBOD_5$ limit is the same as the existing limit, which will remain in the permit. Rounded in accordance with DEP's Technical Guidance No. 362-0400-001, the NH_3-N limit of 3.5 mg/l is the same as the existing limit, which will remain in the permit.

There are no industrial/commercial users contributing industrial wastewater to the system and Shover Investment Group LLC does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Best Professional Judgement (BPJ) Limitations

Dissolved Oxygen (D.O.)

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit. This limit will continue to be included in the permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. Rounded in accordance with DEP's Guidance No. 362-0400-001, the attached printout indicates that a water quality limit of 0.14 mg/l would be needed to prevent toxicity concerns. It is recommended that a TRC limit of 0.14 mg/l monthly average and 0.45 mg/l instantaneous maximum be applied to the permit.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan* (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant discharger with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to DEP's latest-revised Phase 3 Supplement, issuance of permits with monitoring and reporting for TN and TP is recommended for any Phase 5 non-significant sewage facilities (i.e., facilities with average annual design flows on August 29, 2005 less than 0.2 MGD but greater than 0.002 MGD). Furthermore, DEP's SOP No. BCW-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. Therefore, TN and TP monitoring will be included in the renewed permit. Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001) recommends a measurement frequency of 2/month for NH_3-N and phosphorus, however DEP'S SOP No. BCW-PMT-033 states that a lesser frequency can be used for discharges to waters not impaired for nutrients. UNT to Crooked Creek is attaining uses, therefore, a measurement frequency of 1/year will be applied. An 8-Hr Composite sample type will be used to be consistent with the existing limits.

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. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams

The discharge is located on a stream segment that is designated as attaining uses.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

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)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Total Annual	Minimum	Average Monthly	Daily 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/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.14	XXX	0.45	1/day	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	2,000 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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	10.5	XXX	21	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.5	XXX	7.0	2/month	8-Hr Composite
Nitrate-Nitrite (lbs/year)	XXX	Report	XXX	Report Annual Avg	XXX	XXX	1/year	8-Hr Composite
TKN (lbs/year)	XXX	Report	XXX	Report Annual Avg	XXX	XXX	1/year	8-Hr Composite
Total Nitrogen (lbs/year)	XXX	Report	XXX	Report Annual Avg	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs/year)	XXX	Report	XXX	Report Annual Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

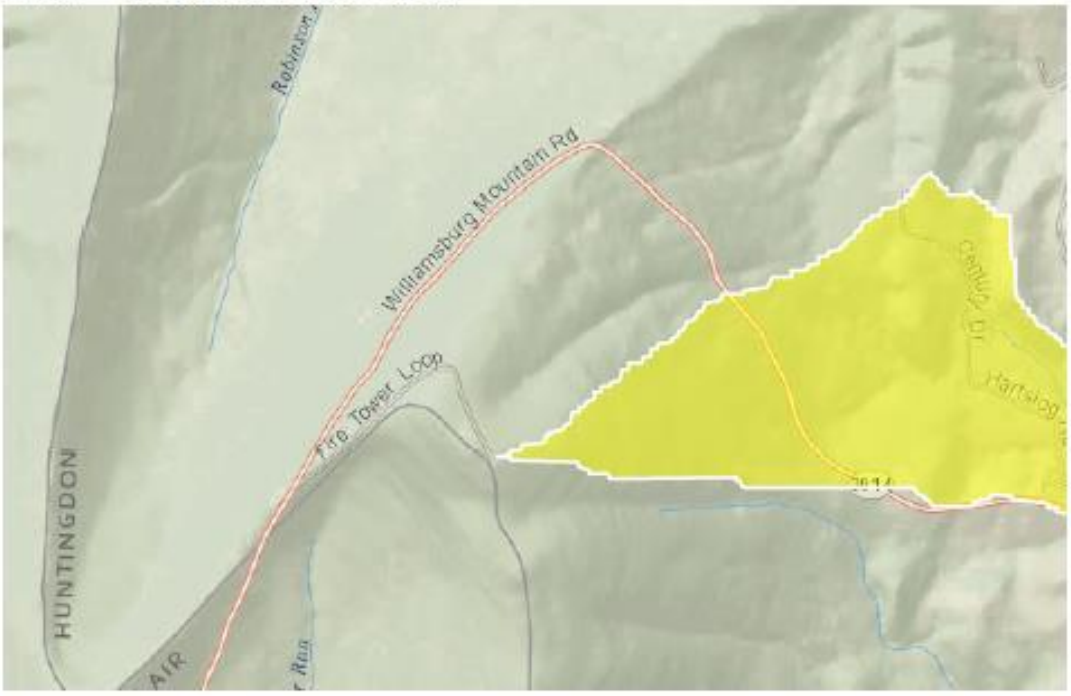
Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics 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.
☐	SOP:
☐	Other:

Permit No. PA0082601

1	**TRC EVALUATION**								
2	Input appropriate values in A3:A9 and D3:D9								
3	0.062	= Q stream (cfs)		0.5	= CV Daily				
4	0.045	= Q discharge (MGD)		0.5	= CV Hourly				
5	30	= no. samples		1	= AFC_Partial Mix Factor				
6	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor				
7	0	= Chlorine Demand of Discharg		15	= AFC_Criteria Compliance Time (min)				
8	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)				
9	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)				
10	Source	Reference	AFC Calculations		Reference	CFC Calculations			
11	TRC	1.3.2.iii	WLA afc = 0.303		1.3.2.iii	WLA cfc = 0.288			
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581			
13	PENTOXSD TRG	5.1b	LTA_afc= 0.113		5.1d	LTA_cfc = 0.167			
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) = 0.139		AFC				
18			INST MAX LIMIT (mg/l) = 0.455						
19									
20									
21									
22	WLA afc		**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...**						
23			**...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**						
24	LTAMULT afc		EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)						
25	LTA_afc		wla_afc*LTAMULT_afc						
26									
27	**WLA_cfc**		**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...**						
28			**...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**						
29	LTAMULT_cfc		EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)						
30	**LTA_cfc**		wla_cfc*LTAMULT_cfc						
31									
32	AML MULT		EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))						
33	AVG MON LIMIT		MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)						
34	INST MAX LIMIT		**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**						
35									
36									
37									
38									
39									
40									
41	**(0.011/EXP(-K*CFC_tc/1440))+(((CFC_Yc*Qs*0.011)/(1.547*Qd)....**								
42	**....*EXP(-K*CFC_tc/1440)))+Xd+(CFC_Yc*Qs*Xs/1.547*Qd))*(1-FOS/100)**								
43									
44									
45									
46									
47									

Hartslog Court MHP PA0082601 Outfall 001

Region ID: PA
Workspace ID: PA20200318143832551000
Clicked Point (Latitude, Longitude): 40.49526, -78.09981
Time: 2020-03-18 10:38:50 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.78	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	0.86	miles per square mile
ROCKDEP	Depth to rock	4.2	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.78	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	0.86	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.2	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers[Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0958	ft^3/s
30 Day 2 Year Low Flow	0.136	ft^3/s
7 Day 10 Year Low Flow	0.0367	ft^3/s
30 Day 10 Year Low Flow	0.0533	ft^3/s
90 Day 10 Year Low Flow	0.0982	ft^3/s

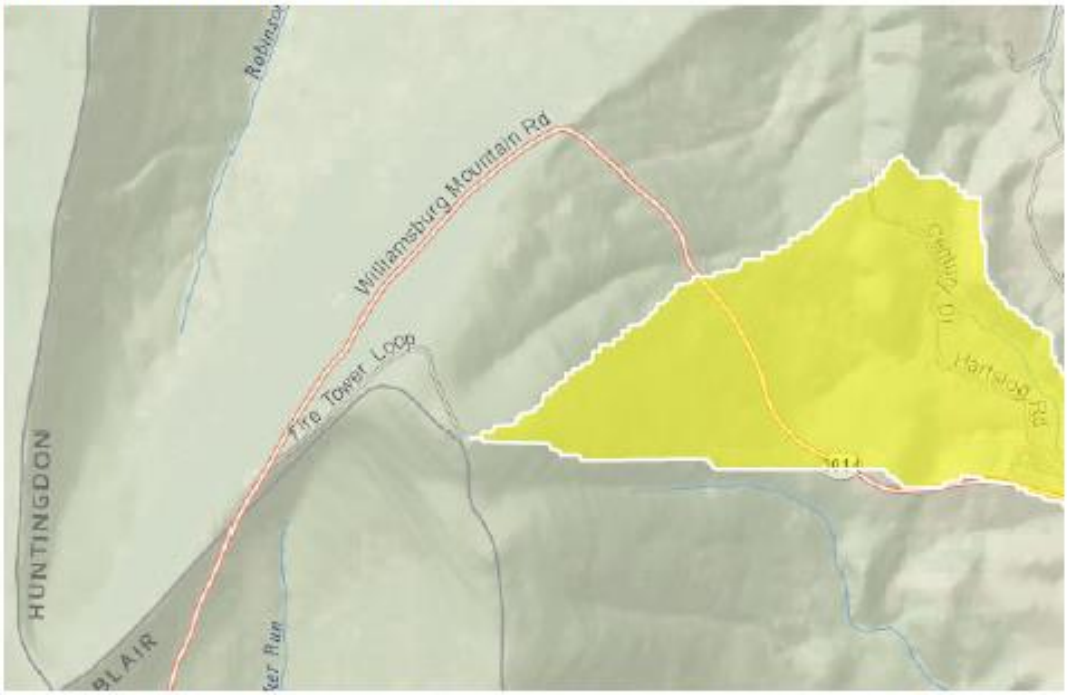
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.3.11

Hartslog Court MHP PA0082601 Downstream Pt.

Region ID: PA
Workspace ID: PA20200318144435399000
Clicked Point (Latitude, Longitude): 40.49292, -78.09672
Time: 2020-03-18 10:44:53 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.81	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.14	miles per square mile

Permit No. PA0082601

Parameter Code	Parameter Description	Value	Unit
ROCKDEP	Depth to rock	4.2	feet
CARBON	Percentage of area of carbonate rock	0	percent

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.81	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.14	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.2	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers[Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0771	ft^3/s
30 Day 2 Year Low Flow	0.111	ft^3/s
7 Day 10 Year Low Flow	0.0289	ft^3/s
30 Day 10 Year Low Flow	0.0423	ft^3/s
90 Day 10 Year Low Flow	0.078	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.3.11

Permit No. PA0082601

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11B	15555	Trib 15555 of Crooked 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)
0.250	Hartslog Court	PA0082601	0.045	CBOD5	25		
				NH3-N	3.62	7.24	
				Dissolved Oxygen			5

Permit No. PA0082601

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11B	15555	Trib 15555 of Crooked Creek

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.250	Hartslog Court	7.69	12.11	7.69	12.11	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
0.250	Hartslog Court	1.63	3.62	1.63	3.62	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)		
0.25	Hartslog Court	25	25	3.62	3.62	5	5	0	0

Tuesday, March 31, 2020 Version 1.0b Page 1 of 1

Permit No. PA0082601

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11B	15555	Trib 15555 of Crooked Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.250	0.045	22.637	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.629	0.366	12.652	0.078
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.13	1.383	1.91	0.857
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.533	26.853	Owens	5
Reach Travel Time (days)			
0.196			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.020	13.70	1.87	6.82
0.039	13.29	1.84	7.01
0.059	12.89	1.81	7.14
0.078	12.50	1.78	7.23
0.098	12.13	1.75	7.30
0.118	11.76	1.72	7.36
0.137	11.41	1.69	7.40
0.157	11.06	1.67	7.44
0.176	10.73	1.64	7.48
0.196	10.41	1.61	7.52

Tuesday, March 31, 2020 Version 1.0b Page 1 of 1

Permit No. PA0082601

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		

Tuesday, March 31, 2020 Version 1.0b Page 1 of 1

Permit No. PA0082601

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
11B	15555	Trib 15555 of Crooked Creek

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.250	0.06	0.00	0.06	.0696	0.01439	.366	4.63	12.65	0.08	0.196	22.64	7.00
Q1-10 Flow												
0.250	0.04	0.00	0.04	.0696	0.01439	NA	NA	NA	0.07	0.218	23.18	7.00
Q30-10 Flow												
0.250	0.08	0.00	0.08	.0696	0.01439	NA	NA	NA	0.09	0.179	22.25	7.00

Tuesday, March 31, 2020 Version 1.0b Page 1 of 1

Permit No. PA0082601

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
11B	15555	Trib 15555 of Crooked Creek	**0.250**	808.00	0.78	0.00000	0.00	☑

Stream Data

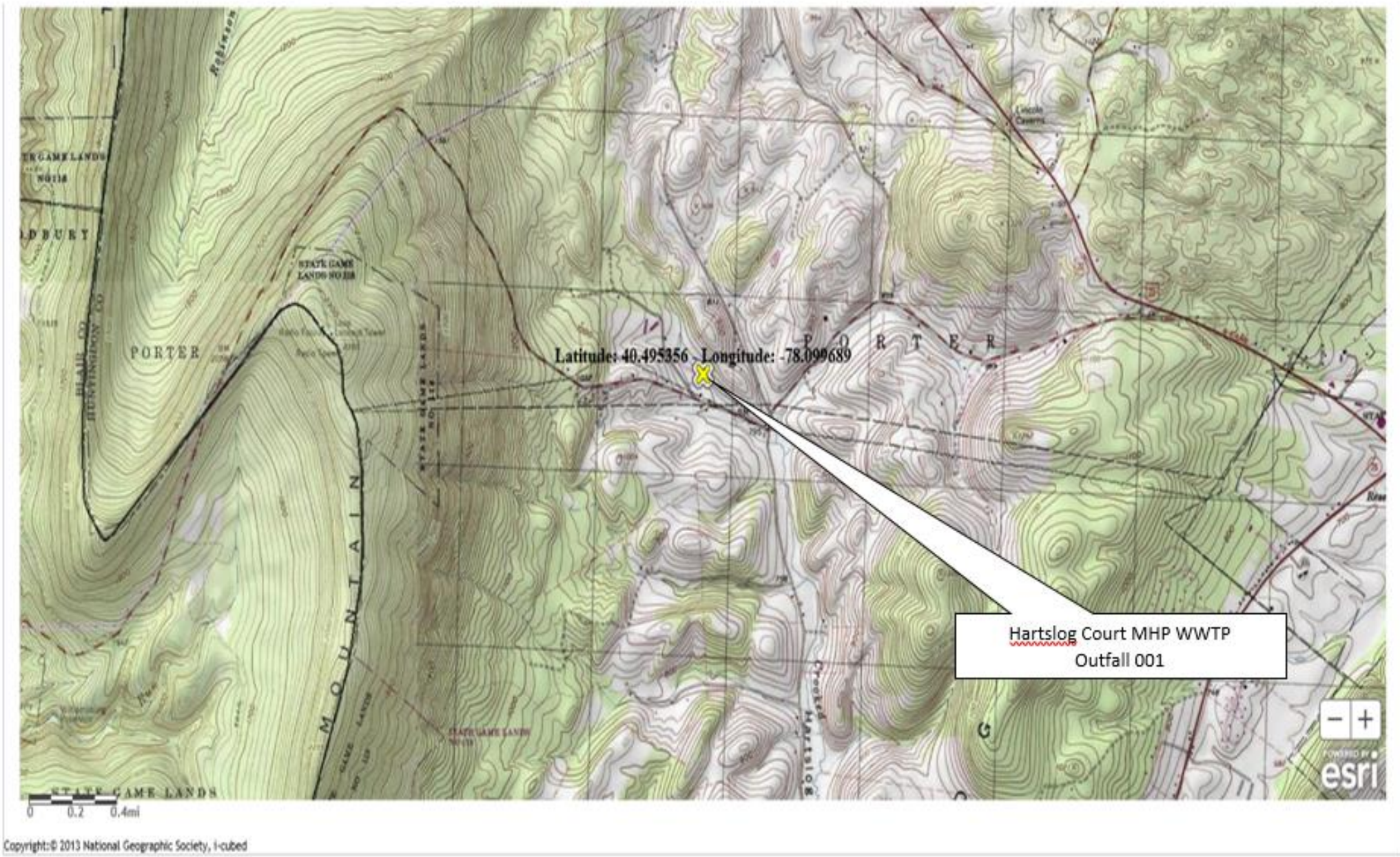
Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.06	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
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
Hartslog Court	PA0082601	0.0450	0.0450	0.0450	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70


Latitude: 40.495356 Longitude: -78.099689
Hartslog Court MHP WWTP
Outfall 001
PORTER
MOUNTAIN
STATE GAME LANDS
0 0.2 0.4mi
esri
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