pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0081281**
Facility Type	**Non-Municipal**	APS ID	**746476**
Major / Minor	**Minor**	Authorization ID	**1476631**

Applicant and Facility Information

Applicant Name	**Park Acquisition LLC**	Facility Name	**Cavalry Heights MHP**
Applicant Address	2160 Hanover Road	Facility Address	2160 Hanover Road
	Gettysburg, PA 17325-7719		Gettysburg, PA 17325-7719
Applicant Contact	George Adams	Facility Contact	Ron Cooper
Applicant Phone	(717) 479-6932	Facility Phone	(717) 253-0990
Client ID	286878	Site ID	249940
Ch 94 Load Status	Not Overloaded	Municipality	Mount Pleasant Township
Connection Status		County	Adams
Date Application Received	March 12, 2024	EPA Waived?	Yes
Date Application Accepted	March 13, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

KPI Technology, on behalf of the Park Acquisition LLC (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on September 30, 2019 and became effective on October 1, 2019. The permit expires on September 30, 2024.

The average annual design flow and hydraulic design capacity is 0.025 MGD. The treated effluent is discharged to Conewago Creek. This facility receives 100.0% of its flow from Mount Pleasant Township. The 2024 application states that there are no industrial users.

WQM Part II Permit No. 0175408 original & 0175408 T-2 ownership transfer was issued on 11/21/1975 & 7/30/2013.

Sludge use and disposal description and location(s): N/A because the sludge is hauled off site.

Changes from the previous permit: The flow monitoring requirement changed to “1/day, Estimate” in the proposed permit. The E. Coli. monitoring and report requirements will add to the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	May 10, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	May 22, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.025
Latitude	39º 49' 2.02"	Longitude	-77º 9' 56.95"
Quad Name	Gettysburg	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to White Run (WWF)	Stream Code	59115
NHD Com ID	134238953	RMI	0.28
Drainage Area	See comments below	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	See comments below
Elevation (ft)		Slope (ft/ft)	
Watershed No.	13-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	City of Frederick, MD		
PWS Waters	Monocacy River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 42.3 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharge is to a dry swale and then to Unnamed Tributary to White Run at RMI 0.28. A Point of First Use Survey (POFU) was conducted on May 9, 1989 by DEP and concluded that the discharge is to an intermittent stream and the point of first use is about 1500 feet downstream of the point of discharge, at confluence of this stream and another unnamed tributary to White Run (59114). A drainage area upstream of this POFU (lat:39.81190 long: -77.16733) is estimated to be 0.26 sq.mi. using USGS Stream Stats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS Stream Stats produced a Q7-10 of 0.004 cfs at the POFU. Low flow Yield is 0.015 cfs/mi.^{2} (0.004 cfs/0.26 mi.^{2}).

Unnamed Tributary to White Run
White Run is a tributary of Plum Run which is a tributary of Rock Creek. The stream designated water uses for White Run and Plum Run are not explicitly specified in 25 Pa Code Chapter 93. However, 25 Pa Code §93.9o classified the Rock Creek basin as warm water fishes (WWF). No special protection water is impacted by this discharge. No Class A Wild Trout Fishery is impacted by this discharge. DEP's 2024 integrated water quality report indicates that the discharge is located in a stream segment listed as attaining use(s).

Public Water Supply Intake
The fact sheet prepared for the last permit renewal indicates that the nearest downstream public water supply intake is City of Frederick located on Monocacy River approximately 42.3 miles from the discharge. Given the distance, the discharge is not expected to impact the water supply.

Treatment Facility Summary				

Treatment Facility Name: Cavalry Heights MHP

WQM Permit No.	Issuance Date
0175408	11/21/1975
0175408 T-2	7/30/2013

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	Hypochlorite	0.025

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.025		Not Overloaded	Aerobic Digestion	Other WWTP

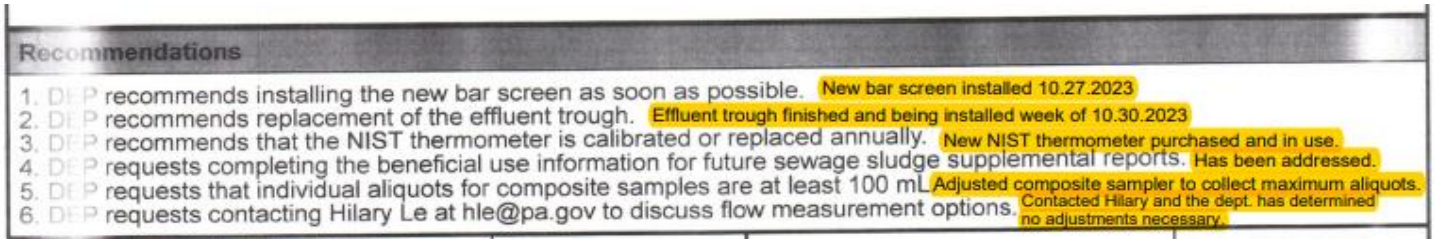
Changes Since Last Permit Issuance: none

The facility utilizes an extended aeration activated sludge treatment process consisting of a comminutor, equalization basin, aeration tank, clarifier, chlorine contact tank, post aeration tank, and then an outfall structure for stream discharge.

A sludge holding tank is available for solids storage. Sludge is then hauled off site via a local septage hauler.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	**7/11/23:** Mr. Hoy, DEP WQS, conducted a compliance evaluation inspection. There were violations noted during inspection. The field test results were within permit limits. Recommendations: 1. Install the new bar screen as soon as possible. 2. Replace the effluent trough. 3. The NIST thermometer is calibrated or replaced annually. Requests: 1. Complete the beneficial use information for future sewage sludge supplemental reports. 2. The individual aliquots for composite samples are at least 100 mL. 3. The flow measurement options need to discuss. **11/28/23:** Mr. Hoy, DEP WQS, conducted a follow up inspection. There were violations noted during inspection. Recommendation was a continuous addition of chlorine in an appropriate dosage to ensure effective disinfection.
Other Comments:	DEP's database revealed that there were four open violations associated with this facility. 7/11/2023: 1. violation Code 92A.41(A)5 – failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance. 2. Flow device: 92A.61(D)ND failure to monitor flow as required by the NPDES permit. No flow measurement Device. 3. 92A.41(A)5 – failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance. 11/28/2023: violation Code 92A.41(A)5 - failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance.

Other Comments: The responses from the company were as picture below.


Recommendations

1. DEP recommends installing the new bar screen as soon as possible. New bar screen installed 10.27.2023
2. DEP recommends replacement of the effluent trough. Effluent trough finished and being installed week of 10.30.2023
3. DEP recommends that the NIST thermometer is calibrated or replaced annually. New NIST thermometer purchased and in use.
4. DEP requests completing the beneficial use information for future sewage sludge supplemental reports. Has been addressed.
5. DEP requests that individual aliquots for composite samples are at least 100 mL. Adjusted composite sampler to collect maximum aliquots.
6. DEP requests contacting Hilary Le at hle@pa.gov to discuss flow measurement options. Contacted Hilary and the dept. has determined no adjustments necessary.

Compliance History

DMR Data for Outfall 001 (from April 1, 2023 to March 31, 2024)

Parameter	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23
Flow (MGD) Average Monthly	0.008	0.011	0.012	0.014	0.012	0.012	0.011	0.01	0.009	0.009	0.007	0.008
Flow (MGD) Daily Maximum	0.012	0.018	0.017	0.020	0.022	0.020	0.015	0.017	0.013	0.013	0.010	0.013
pH (S.U.) Instantaneous Minimum	6.5	7.0	7.0	7.2	7.3	7.3	7.3	7.1	7.2	7.1	7.2	7.2
pH (S.U.) Instantaneous Maximum	7.8	8.2	7.9	7.8	7.8	7.9	7.9	7.9	7.9	7.8	7.8	8.0
DO (mg/L) Daily Minimum	6.0	6.7	6.0	7.5	7.8	5.9	5.8	7.4	7.0	7.0	7.5	6.8
TRC (mg/L) Average Monthly	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
TRC (mg/L) Instantaneous Maximum	< 0.10	0.14	< 0.10	< 0.10	< 0.10	0.17	< 0.10	0.11	< 0.10	0.14	< 0.10	< 0.10
CBOD5 (mg/L) Average Monthly	3.5	< 2.5	< 2.4	2.8	< 2.5	< 2.4	< 2.4	< 2.4	< 2.4	< 2.4	< 2.4	< 2.4
TSS (mg/L) Average Monthly	1.0	2.0	1.0	2.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1	< 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1.0	1.0	2.0	< 1.0	4.0	2.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nitrate-Nitrite (lbs/day) Average Monthly	0.37	0.458	1.4	0.03	0.07	0.1	0.10	0.30	1.69	1.38	1.4	0.05
Nitrate-Nitrite (mg/L) Average Monthly	7.3	11	17.0	0.31	0.94	15	1.33	24.0	29	30.0	34.0	19.0
Total Nitrogen (lbs/day) Average Monthly	0.49	0.438	1.4	0.03	0.07	< 0.06	0.10	0.30	1.69	1.38	1.4	0.05
Total Nitrogen (mg/L) Average Monthly	9.75	11	17.0	0.33	0.94	15	1.33	24.0	29	30.0	34.0	19
Ammonia (mg/L) Average Monthly	2.42	0.15	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.12	< 0.10	0.30	0.19	< 0.10

TKN (lbs/day) Average Monthly	< 0.10	< 0.02	0.05	< 0.05	< 0.04	< 0.05	< 0.04	< 0.05	< 0.03	< 0.20	< 0.02	< 0.03
TKN (mg/L) Average Monthly	< 2.7	< 0.50	< 0.50	< 0.69	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.67
Total Phosphorus (lbs/day) Average Monthly	0.01	0.01	0.04	0.04	0.03	0.04	0.04	0.06	< 0.05	0.04	< 0.02	0.02
Total Phosphorus (mg/L) Average Monthly	0.21	0.25	0.39	0.40	0.44	0.40	0.51	0.66	0.89	0.86	0.57	0.43

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.025
Latitude 39º 49' 2.02" **Longitude** -77º 9' 56.95"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

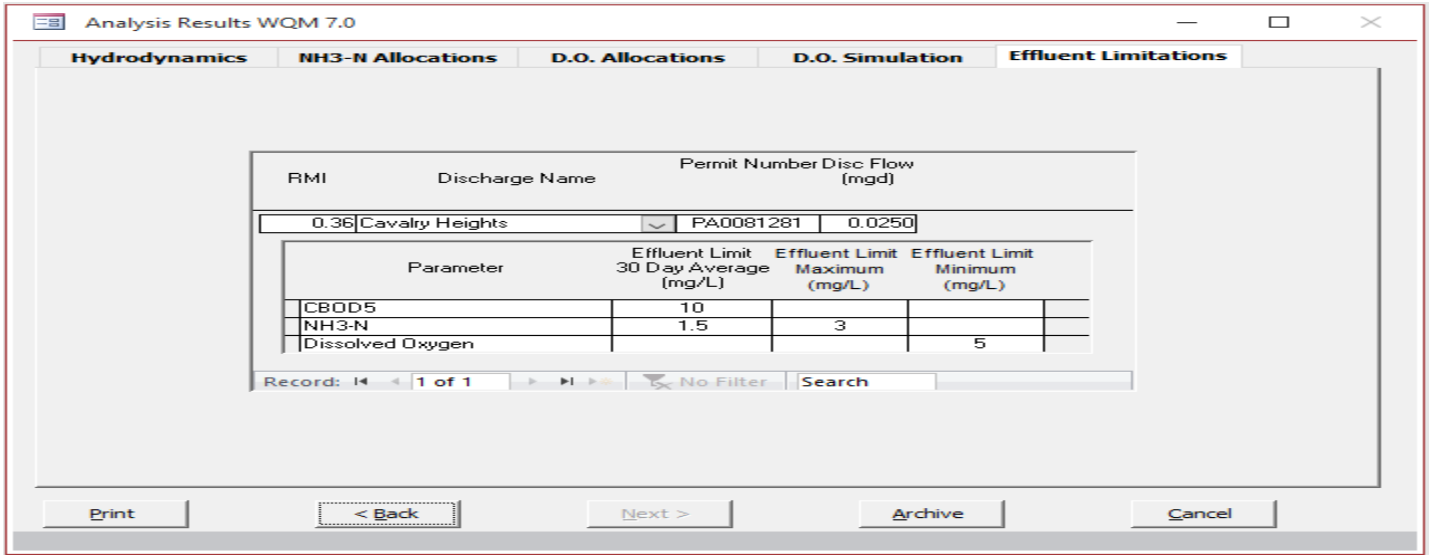
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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:

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3N calculations are 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 in-stream NH_3-N criteria used in the attached WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 1.5 mg/L as a monthly average and 3.0 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing limits of 1.5 mg/L monthly average & 3.0 mg/L IMAX are more stringent and will remain in the proposed permit. Per anti-backsliding policy, the existing winter average monthly limit of 4.5 mg/L & IMAX limit of 9.0 mg/L will remain in place. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits.

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 2.0 revised February 5, 2024, and has been applied to other point source dischargers throughout the state.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit of 10.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing permit 10.0 mg/L as AML, & 20.0 mg/L as IMAX will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Total Suspended Solids (TSS):
The existing technology-based limits of 10.0 mg/L average monthly, and 20.0 mg/L IMAX will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/year will be included in the permit to be consistent with the recommendation from this SOP.

Toxics:
Any minor sewage facilities designed less than 0.1 MGD are not required to collect samples for toxics.

Total Phosphorus:
The existing permit average monthly TP concentration of 2.0 mg/L, and 4.0 mg/L IMAX will remain in the proposed permit. See Best Professional Judgement (BPJ) effluent limitations section for BPJ limits for Total Phosphorus.

Stormwater:
There is no known stormwater outfall associated with this facility.

Total Residual Chlorine (TRC):
Based on the attached TRC Excel spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.024 mg/L and an instantaneous maximum limit of 0.078 mg/L. However, due to anti-backsliding policy, the previous limits of 0.1 mg/L average monthly and 0.2 mg/L instantaneous maximum will remain in place. See Best Professional Judgement (BPJ) effluent limitations section for BPJ limits for TRC.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.004	= Q stream (cfs)	0.5	= CV Daily
0.025	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.052	1.3.2.iii	WLA cfc =	0.043
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.019	5.1d	LTA_cfc =	0.025

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.024	AFC
		INST MAX LIMIT (mg/l) =	0.078	

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)

Best Professional Judgement (BPJ) Effluent Limitations

Flow Monitoring

The requirement to monitor the volume of effluent will change to "1/day, Estimate" in the draft permit per 40 CFR § 122.44(i)(1)(ii), see the attached below.

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Cavalry Heights MHP PA0082181 flow monitor permit required Notice of Violation

Reply Reply All Forward

Le, Hilary
To Arendtsville Sewer Plant
Cc geojadams@hotmail.com; Kunkel, Summer; Wriglesworth, Sarah; Hoy, Cody; Martin, Daniel; Bebenek, Maria; Le, Hilary

Thu 10/26/2023 9:00 AM

Hi Ron Cooper,

Thanks for your email!

We are following up in response to your request for assistance to correct a violation of 25 Pa. Code 92a.61(d) for Failure to monitor "**Continuous Measure**" flow as required by the NPDES permit noted in a recent inspection report. We have reviewed available data and have determined the following:

1. After reviewing the DMR flow reported data from 4/2019 to 9/2023, the monthly average flow for the facility was between 0.004 MGD – 0.01 MGD which is very well below the average annual flow and hydraulic design capacity of 0.025 MGD.
2. The NPDES PA0081281 permit will expire on September 30, 2024.

Based on the above, we have determined that it is not necessary to install the flow meter. The facility may continue to estimate WWTP effluent flow from water system usage data.

Because the expiration date of the existing permit is less than one year out, we will correct the wording to "**Estimated**" in the next renewal permit.

Thanks!"

Hilary

From: Arendtsville Sewer Plant <plantmgr@arendtsville.org>
Sent: Tuesday, October 17, 2023 10:07 AM
To: Le, Hilary <hle@pa.gov>
Cc: geojadams@hotmail.com
Subject: [External] Notice of Violation

You don't often get email from plantmgr@arendtsville.org. Learn why this is important

This email message is from an external sender. Do not open links or attachments from unknown senders. To report suspicious email, use the Report Phishing button in Outlook.

Hilary,

Thanks for reaching out to me this morning. I will try to provide you with the information that you have requested for NPDES permit # PA0081281 below
On July 11 , 2023 The DEP conducted an inspection at the Cavalry Heights Mobile Home Park's Sewer Treatment Plant located in Adams County. During that inspection it was noted that a violation of 25 Pa. Code 92a.61(d) for Failure to monitor flow as required by the NPDES permit. I was informed by inspector Cody Hoy to contact you to discuss my flow measurement options.

As I explained to you this morning, the treatment plant in discussion has been in operation since the 1970's has never had a flow measuring device and that the plants discharge was simply recorded to be what the water systems usage for that day was. I'm thinking that this was acceptable due to the very small amount of flow the park averages daily. The plant discharges into a dry swale and averages 4,000 to 4,500 GPD. Please let me know if this practice is acceptable going forward and that next permit can indicate as such. If not let me know what steps need to be taken.
Thank you very much for your consideration in this matter and I am looking forward to hearing back from you.

Ron Cooper

Ron Cooper
Arendtsville Boro Superintendent

o: 717-677-9300
f: 717-677-9302
c: 717-357-1072
email: plantmgr@arendtsville.org

Total Residual Chlorine

While the water quality analysis requires more stringent WQBELs, slightly less stringent effluent limits (i.e., 0.1 mg/L average monthly and 0.2 mg/L IMAX) have been consistently granted over a number of permit renewals given that the discharge is to a dry swale. Because the point of first use is about 1,500 feet downstream of the discharge, DEP determined that there is a likelihood of significant chlorine reduction from evaporation, infiltration and the presence of organic matter in the flow path up to the point of first use. The facility has been discharging since early 90's and utilizes a dechlorination to effectively eliminate residual chlorine levels in the effluent (25 Pa Code §§92a.48(b)(1)(i) and (ii)). There has been no known water quality and/or non-water quality environmental impacts and public concerns related to this discharge particularly associated with chlorine ((25 Pa Code §§92a.48(b)(1)(iv) and (v)). Given these factors, DEP determined using best professional judgment that the existing effluent limits are still appropriate.

Total Phosphorus

Nutrient impairment was previously identified by DEP for the Rock Creek basin, a mainstem of Chicken Run. DEP previously determined that local Phosphorus concentration-based effluent limits are necessary for this facility to ensure that the facility does not additionally contribute to impairment. This is a reasonable approach and therefore DEP will continue to include this requirement in the upcoming permit renewal as per 40 CFR §122.44(l)(1).

Chesapeake Bay TMDL & TN/TP SOP Monitoring Requirement

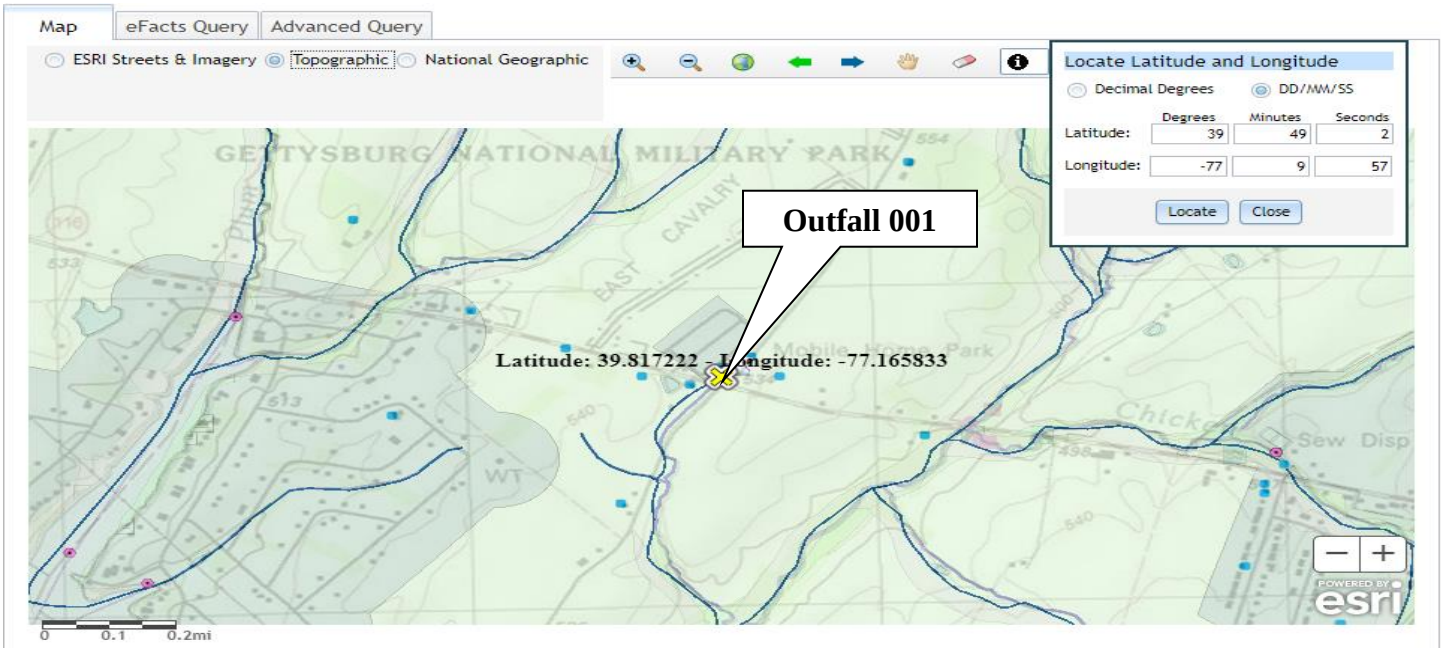
The discharge is located within the Chesapeake Bay watershed and is considered under the Supplement to Phase II Watershed Implementation Plan a Phase 5 facility designed to treat between 0.002 MGD and 0.2 MGD. The requirement to monitor for Total Phosphorus and Total Nitrogen is recommended. This approach is also consistent with DEP's Standard Operating Procedure (SOP) No. BCW-PMT-033 in which the SOP recommends a routine monitoring of Total Phosphorus and Total Nitrogen for any sewage facilities greater than 0.002 MGD regardless of the discharge location. The facility has already been monitoring for Total Phosphorus; no change is therefore recommended for Total Phosphorus. For Total Nitrogen, 2/month 8-hr composite monitoring is recommended for all TN species.

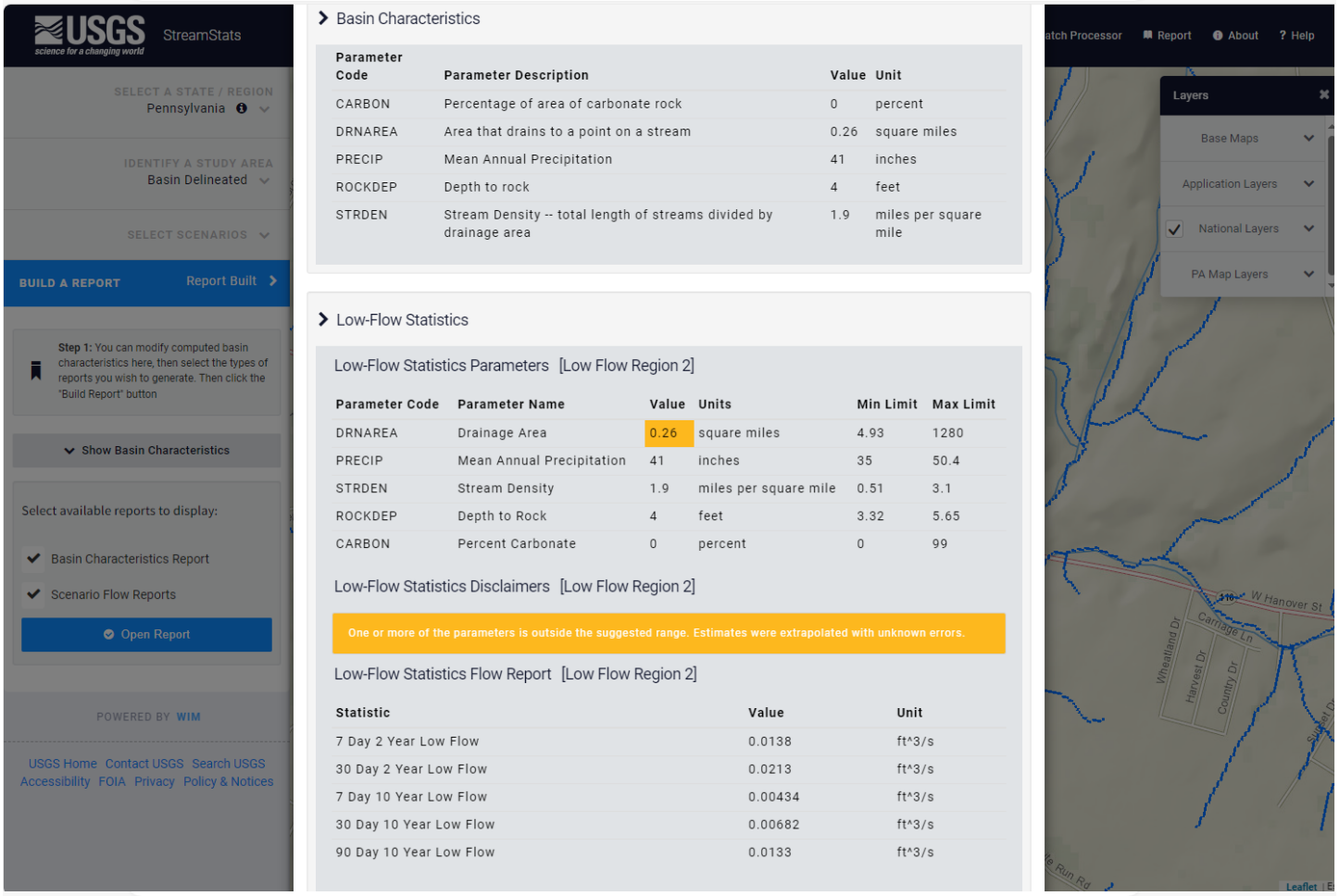
Antidegradation Requirements

All effluent limitations and monitoring requirements 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.

Anti-Degradation Requirements

Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as permit requirements specified in the existing permit renewal in accordance with 40 CFR §122.44(l)(1).




USGS
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IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 0 | percent
DRNAREA | Area that drains to a point on a stream | 0.26 | square miles
PRECIP | Mean Annual Precipitation | 41 | inches
ROCKDEP | Depth to rock | 4 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 1.9 | miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 0.26 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
STRDEN | Stream Density | 1.9 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4 | 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 | 0.0138 | ft^3/s
30 Day 2 Year Low Flow | 0.0213 | ft^3/s
7 Day 10 Year Low Flow | 0.00434 | ft^3/s
30 Day 10 Year Low Flow | 0.00682 | ft^3/s
90 Day 10 Year Low Flow | 0.0133 | ft^3/s
Report
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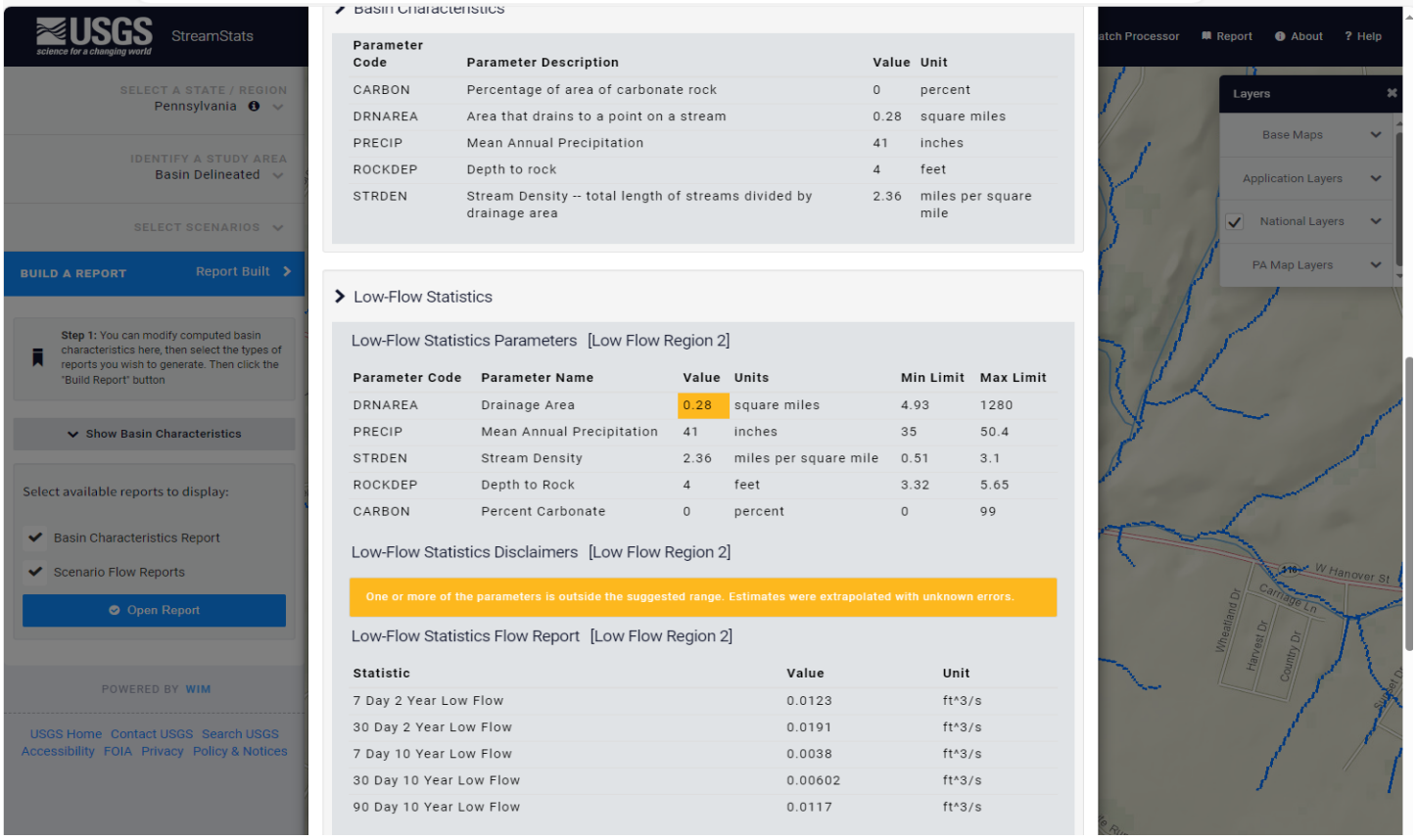
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
W Hanover St
Carriage Ln
Wheatland Dr
Harvest Dr
Country Dr
Leaflet


USGS
science for a changing world
StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 0 | percent
DRNAREA | Area that drains to a point on a stream | 0.28 | square miles
PRECIP | Mean Annual Precipitation | 41 | inches
ROCKDEP | Depth to rock | 4 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 2.36 | miles per square mile
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 2]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 0.28 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 41 | inches | 35 | 50.4
STRDEN | Stream Density | 2.36 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4 | 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 | 0.0123 | ft^3/s
30 Day 2 Year Low Flow | 0.0191 | ft^3/s
7 Day 10 Year Low Flow | 0.0038 | ft^3/s
30 Day 10 Year Low Flow | 0.00602 | ft^3/s
90 Day 10 Year Low Flow | 0.0117 | ft^3/s
Report
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Layers
Base Maps
Application Layers
National Layers
PA Map Layers
W Hanover St
Carriage Ln
Wheatland Dr
Harvest Dr
Country Dr

WQM 7.0:

The following data were used in the attached computer model (WQM 7.0) of the stream:

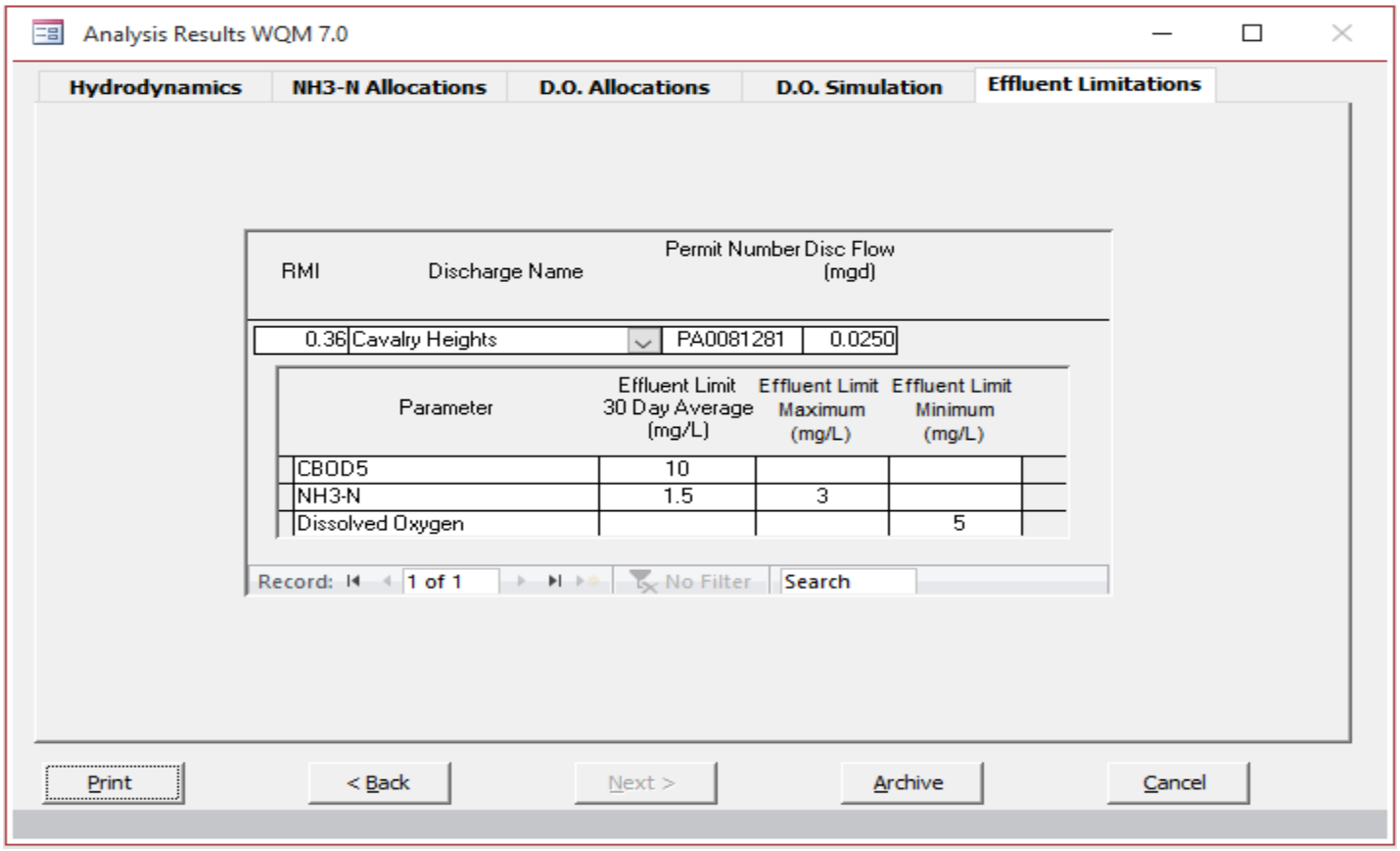
*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20°C	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

Node 1: Outfall 001 to Trib 59114 to White Run (59114)

Elevation:	523 ft (USGS National Map Viewer)
Drainage Area:	0.26 mi^2 (USGS PA StreamStats)
River Mile Index:	0.360 (PA DEP eMapPA)
Low Flow Yield:	0.015 cfs/mi^2
Discharge Flow:	0.025 MGD (NPDES PA0081281 Application)

Node 2: Just after confluence of White Run (59099)

Elevation:	500 ft (USGS National Map Viewer)
Drainage Area:	0.28 mi^2 (USGS PA StreamStats)
River Mile Index:	0.001 (PA DEP eMapPA)
Low Flow Yield:	0.015 cfs/mi^2
Discharge Flow:	0.00 MGD



rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13D	SR114	Trib SR114 to White Run

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
0.360	Cavalry Heights	PA0081281	0.025	CBOD5	10		
				NH3-N	1.5	3	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13D	SR114	Trib SR114 to White 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
0.360	Cavalry Heights	16.76	3	16.76	3	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
0.360	Cavalry Heights	1.89	1.5	1.89	1.5	0	0

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen			
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Critical Reach	Percent Reduction
0.36	Cavalry Heights	10	10	1.5	1.5	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
13D	SR114	Trib SR114 to White Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.360	0.025	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach W/D Ratio**	**Reach Velocity (fps)**
2.613	0.310	8.420	0.051
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.45	1.469	1.40	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.225	25.812	Owens	5
Reach Travel Time (days)			
0.428			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.043	8.87	1.35	7.22
0.086	8.33	1.31	7.92
0.128	7.82	1.26	8.18
0.171	7.34	1.24	8.24
0.214	6.90	1.20	8.24
0.257	6.48	1.17	8.24
0.300	6.08	1.13	8.24
0.343	5.71	1.10	8.24
0.385	5.36	1.07	8.24
0.428	5.03	1.03	8.24

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rptModelSpecs

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		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13D	59114	Trib 59114 to White 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												
0.360	0.00	0.00	0.00	.036	7.021213	.31	2.61	8.42	0.05	0.426	20.00	7.00
Q1-10 Flow												
0.360	0.00	0.00	0.00	.036	7.021213	NA	NA	NA	0.05	0.434	20.00	7.00
Q30-10 Flow												
0.360	0.00	0.00	0.00	.036	7.021213	NA	NA	NA	0.05	0.422	20.00	7.00

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rptGeneral

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
13D	59114	Trib 59114 to White Run	0.360	523.00	0.26	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	0.015	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
Cavalry Heights	PA0081281	0.0250	0.0250	0.0250	0.000	20.00	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	5.00	8.24	0.00	0.00
NH3-N	1.50	0.00	0.00	0.70

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rptGeneral

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
13D	59114	Trib 59114 to White Run	0.001	500.00	0.26	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	0.015	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
Cavalry Heights	PA0081281	0.0000	0.0000	0.0000	0.000	20.00	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

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Existing Effluent Limitations and Monitoring Requirements

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	Continuous	Measure
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.10	XXX	0.20	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20	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
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3	2/month	8-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.10	XXX	0.20	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20.0	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.0	2/month	8-Hr Composite
TKN	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	2.0	XXX	4.0	2/month	8-Hr Composite

Compliance Sampling Location:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	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: BCW-PMT-033
☐	Other: