pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218561**
Facility Type	**Non-Municipal**	APS ID	**918571**
Major / Minor	**Minor**	Authorization ID	**1374579**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Cambria County Commissioners**	Facility Name	**Duman Lake Park**
Applicant Address	200 S Center Street	Facility Address	157 County Park Road
	Ebensburg, PA 15931-1941		Ebensburg, PA 15931
Applicant Contact	Patrick Kelly	Facility Contact	Paul Lubert
Applicant Phone	814-472-8514	Facility Phone	814-977-9761
Client ID	76469	Site ID	243628
Ch 94 Load Status	Not Overloaded	Municipality	Barr Township
Connection Status	No Limitations	County	Cambria
Date Application Received	October 21, 2021	EPA Waived?	Yes
Date Application Accepted	November 1, 2021	If No, Reason	

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated sewage.

Summary of Review

The permittee has applied for a renewal of NPDES Permit No. PA0218561. NPDES Permit No. PA0218561 was previously issued by the PA Department of Environmental Protection (DEP) on May 1, 2017 and expires on April 30, 2022.

Sewage from this facility is treated with:

- Two (2) flow equalization tanks of 6,600 gallons each
- Two (2) aeration tanks, one with a 7,000 gallon capacity and one with a 3,000 gallon capacity
- One (1) 770 gallon clarifier
- One (1) 1,370 gallon sludge holding tank
- Chlorine contact tank
- Dechlorinator

The applicant is currently enrolled in and will continue to use eDMR.

The Act-14 PL 834 Municipal Notification was provided by the letters that were received by the DEP on November 1, 2021. No comments were received.

Sludge use and disposal description and location(s): hauled offsite for disposal at Kamzik Septic.

Public Participation

Approve	Deny	Signatures	Date
X		Grace Polakoski Grace Polakoski, E.I.T. / Environmental Engineering Specialist	December 2, 2021
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	December 16, 2021

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.00315
Latitude	40º 33' 56.69"	Longitude	-78º 50' 27.56"
Quad Name	Colver	Quad Code	40078E7
Wastewater Description:	Sewage Effluent		
Receiving Waters	Crooked Run (CWF)	Stream Code	44533
NHD Com ID	123717273	RMI	1.48
Drainage Area	1.09 sq. mi.	Yield (cfs/mi^2)	0.0513
Q_{7-10} Flow (cfs)	0.0559	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1686	Slope (ft/ft)	
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	SILTATION		
Source(s) of Impairment	DAM OR IMPOUNDMENT		
TMDL Status	Final, Tentative	Name	Elk Creek (Cambria County),Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Saltsburg Muni Waterworks		
PWS Waters	Conemaugh River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	58.4

Changes Since Last Permit Issuance:

Other Comments:

Elk Creek (Cambria County) TMDL

This TMDL has been superseded by the Kiskiminetas-Conemaugh River TMDL completed by EPA on January 29, 2010. The TMDL can be viewed by following the link http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/Kiskiminetas/index.html.

Kiskiminetas-Conemaugh River Watershed TMDL

A TMDL for the Kiskiminetas-Conemaugh River Watershed – of which Crooked Run is a part – was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment, and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The Duman Lake Park STP was not assigned wasteload allocations

for aluminum, iron, and manganese by the Kiskiminetas-Conemaugh River Watershed TMDL (Appendix G) and the STP is listed as a Negligible Discharge Facility in Appendix C.

Effluent concentrations (as found in eDMR records) for Aluminum, Iron and Manganese were less than the most stringent water quality criteria for those pollutants. Reasonable Potential does not exist, the Department will reimpose annual monitoring for Aluminum, Iron and Manganese.

Treatment Facility Summary				
Treatment Facility Name: Duman Lake Park STP				
WQM Permit No.	**Issuance Date**			
1101401	May 17, 2001			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Aeration	Chlorination	0.00315
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.00315	0.15	Not Overloaded	N/A	Landfill

Changes Since Last Permit Issuance: None

Other Comments:

Compliance History

Facility: Duman Lake Park STP
NPDES Permit No.: PA0218561
Compliance Review Period: 11/2016 – 11/2021

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3225502	07/28/2021	Administrative/File Review	PA Dept of Environmental Protection	No Violations Noted
3225497	07/28/2021	Compliance Evaluation	PA Dept of Environmental Protection	Violation(s) Noted
2978638	01/06/2020	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
2885215	04/11/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2615775	05/23/2017	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2569505	01/11/2017	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID
924569	07/28/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	07/28/2021	3225497
872688	01/06/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit		2978638
780185	01/11/2017	92A.44	NPDES - Violation of effluent limits in Part A of permit	02/22/2017	2569505

Open Violations by Client ID:

CLIENT ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION
76469	2978638	872688	01/06/2020	NPDES - Violation of effluent limits in Part A of permit

Enforcement Summary:

ENF ID	ENF TYPE	ENF TYPE DESC	ENF CREATION DATE	PENALTY AMOUNT	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
396187	FLNOV	Field Notice of Violation	07/28/2021				
351527	CACP	Consent Assessment of Civil Penalty	03/09/2017	$2,000.00	$2,000.00	Comply/Closed	02/22/2017

DMR Violation Summary:

MONITORING START DATE	MONITORING END DATE	NON COMPLIANCE CATEGORY	PARAMETER	SAMPLE VALUE	PERMIT VALUE	UNIT OF MEASURE	STATISTICAL BASE CODE
07/01/2021	07/31/2021	Concentration 2 Effluent Violation	Ammonia-Nitrogen	4.1	3.4	mg/L	Average Monthly
07/01/2021	07/31/2021	Concentration 3 Effluent Violation	Ammonia-Nitrogen	8.1	6.8	mg/L	Instantaneous Maximum
07/01/2021	07/31/2021	Concentration 3 Effluent Violation	Fecal Coliform	2419	1000	No./100 ml	Instantaneous Maximum
06/01/2021	06/30/2021	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.15	.1	mg/L	Average Monthly
05/01/2021	05/31/2021	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.14	.1	mg/L	Average Monthly
08/01/2020	08/31/2020	Load 1 Effluent Violation	Flow	0.00370	0.00315	MGD	Average Monthly

07/01/2020	07/31/2020	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.11	0.1	mg/L	Average Monthly
06/01/2020	06/30/2020	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.16	0.1	mg/L	Average Monthly
08/01/2019	08/31/2019	Load 1 Effluent Violation	Flow	0.00580	0.00315	MGD	Average Monthly
07/01/2019	07/31/2019	Load 1 Effluent Violation	Flow	0.00540	0.00315	MGD	Average Monthly
06/01/2019	06/30/2019	Concentration 2 Effluent Violation	Ammonia-Nitrogen	9.7	3.4	mg/L	Average Monthly
06/01/2019	06/30/2019	Concentration 3 Effluent Violation	Ammonia-Nitrogen	13.0	6.8	mg/L	Instantaneous Maximum
05/01/2019	05/31/2019	Concentration 2 Effluent Violation	Ammonia-Nitrogen	9.3	3.4	mg/L	Average Monthly
05/01/2019	05/31/2019	Concentration 3 Effluent Violation	Ammonia-Nitrogen	9.3	6.8	mg/L	Instantaneous Maximum
05/01/2019	05/31/2019	Load 1 Effluent Violation	Flow	0.00375	0.00315	MGD	Average Monthly
09/01/2018	09/30/2018	Load 1 Effluent Violation	Flow	0.00370	0.00315	MGD	Average Monthly
07/01/2018	07/31/2018	Load 1 Effluent Violation	Flow	0.00390	0.00315	MGD	Average Monthly
05/01/2018	05/31/2018	Concentration 2 Effluent Violation	Total Suspended Solids	48.0	30.0	mg/L	Average Monthly
05/01/2018	05/31/2018	Load 1 Effluent Violation	Flow	0.00753	0.00315	MGD	Average Monthly
09/01/2017	09/30/2017	Concentration 2 Effluent Violation	Ammonia-Nitrogen	6.47	3.4	mg/L	Average Monthly
09/01/2017	09/30/2017	Concentration 3 Effluent Violation	Ammonia-Nitrogen	12.62	6.8	mg/L	Instantaneous Maximum
07/01/2017	07/31/2017	Concentration 1 Effluent Violation	Dissolved Oxygen	5.2	6.0	mg/L	Minimum
07/01/2017	07/31/2017	Concentration 2 Effluent Violation	Ammonia-Nitrogen	60.6	3.4	mg/L	Average Monthly
07/01/2017	07/31/2017	Concentration 2 Effluent Violation	Fecal Coliform	2757	200	No./100 ml	Geometric Mean
07/01/2017	07/31/2017	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.52	0.33	mg/L	Average Monthly
07/01/2017	07/31/2017	Concentration 3 Effluent Violation	Ammonia-Nitrogen	72.5	6.8	mg/L	Instantaneous Maximum
07/01/2017	07/31/2017	Concentration 3 Effluent Violation	Fecal Coliform	4000	1000	No./100 ml	Instantaneous Maximum
07/01/2017	07/31/2017	Load 1 Effluent Violation	Flow	0.00370	0.00315	MGD	Average Monthly
06/01/2017	06/30/2017	Concentration 1 Effluent Violation	Dissolved Oxygen	5.58	6.0	mg/L	Minimum
06/01/2017	06/30/2017	Concentration 2 Effluent Violation	Ammonia-Nitrogen	29.9	3.4	mg/L	Average Monthly
06/01/2017	06/30/2017	Concentration 2 Effluent Violation	Fecal Coliform	866	200	No./100 ml	Geometric Mean
06/01/2017	06/30/2017	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	0.57	0.33	mg/L	Average Monthly

06/01/2017	06/30/2017	Concentration 3 Effluent Violation	Ammonia-Nitrogen	33.0	6.8	mg/L	Instantaneous Maximum
06/01/2017	06/30/2017	Concentration 3 Effluent Violation	Fecal Coliform	2500	1000	No./100 ml	Instantaneous Maximum
06/01/2017	06/30/2017	Concentration 3 Effluent Violation	Total Residual Chlorine (TRC)	2.20	0.78	mg/L	Instantaneous Maximum
06/01/2017	06/30/2017	Load 1 Effluent Violation	Flow	0.00600	0.00315	MGD	Average Monthly
05/01/2017	05/31/2017	Concentration 2 Effluent Violation	Ammonia-Nitrogen	9.76	3.4	mg/L	Average Monthly
05/01/2017	05/31/2017	Concentration 2 Effluent Violation	Fecal Coliform	1000	200	No./100 ml	Geometric Mean
05/01/2017	05/31/2017	Concentration 2 Effluent Violation	Total Residual Chlorine (TRC)	1.08	0.33	mg/L	Average Monthly
05/01/2017	05/31/2017	Concentration 3 Effluent Violation	Ammonia-Nitrogen	9.76	6.8	mg/L	Instantaneous Maximum
05/01/2017	05/31/2017	Concentration 3 Effluent Violation	Total Residual Chlorine (TRC)	2.20	0.78	mg/L	Instantaneous Maximum
05/01/2017	05/31/2017	Load 1 Effluent Violation	Flow	0.00960	0.00315	MGD	Average Monthly

Compliance Status: CW operations will review DMR exceedances and determine if a CACP is necessary or close out the violation. Technical assistance is recommended.
Completed by: John Murphy
Completed date: 11/5/2021

*****Note: violation was closed out on 11/9/2021, Operations has recommended technical assistance. There are no other open violations for this facility**

Compliance History

DMR Data for Outfall 001 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
Flow (MGD) Average Monthly	0.00168	0.00183	0.00200	0.00175	0.00156							0.00050
Flow (MGD) Daily Maximum	0.00630	0.0063	0.0105	0.01050	0.01050							0.00210
pH (S.U.) Minimum	7.31	6.15	6.78	7.19	6.22							6.79
pH (S.U.) Maximum	8.23	8.25	8.14	7.93	8.29							8.26
DO (mg/L) Minimum	6.02	6.14	6.18	6.62	6.01							7.08
TRC (mg/L) Average Monthly	0.098	0.09	0.09	0.15	0.14							0.07
TRC (mg/L) Instantaneous Maximum	0.28	0.26	0.21	0.28	0.29							0.09
CBOD5 (mg/L) Average Monthly	4.97	3.36	4.13	3.0	3.0							3.0
CBOD5 (mg/L) Instantaneous Maximum	6.94	3.72	5.26	3.0	3.0							3.0
TSS (mg/L) Average Monthly	5.80	6.80	5.80	1.60	1.60							8.0
TSS (mg/L) Instantaneous Maximum	6.80	12.00	8.40	1.60	1.60							11.6
Fecal Coliform (No./100 ml) Geometric Mean	2.02	5.96	16.9	1.0	2.0							2.28
Fecal Coliform (No./100 ml) Instantaneous Maximum	4.1	35.5	2419	1.0	4.0							5.2
Total Nitrogen (mg/L) Daily Maximum										1.70		
Ammonia (mg/L) Average Monthly	0.238	0.100	4.1	0.100	0.10							0.313
Ammonia (mg/L) Instantaneous Maximum	0.375	0.100	8.1	0.100	0.10							0.526

Total Phosphorus (mg/L) Daily Maximum										0.790		
Total Aluminum (mg/L) Daily Maximum										< 0.100		
Total Iron (mg/L) Daily Maximum										0.339		
Total Manganese (mg/L) Daily Maximum										0.106		

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2020 To: September 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	06/30/21	Avg Mo	0.15	mg/L	.1	mg/L
TRC	05/31/21	Avg Mo	0.14	mg/L	.1	mg/L
Fecal Coliform	07/31/21	IMAX	2419	No./100 ml	1000	No./100 ml
Ammonia	07/31/21	Avg Mo	4.1	mg/L	3.4	mg/L
Ammonia	07/31/21	IMAX	8.1	mg/L	6.8	mg/L

Other Comments:

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.00315
Latitude 40º 33' 56.69" **Longitude** -78º 50' 27.56"
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 Nitrogen	Report	Average Monthly	-	92a.61
Total Phosphorus	Report	Average Monthly	-	92a.61

Comments: Water Quality Analysis Modeling for CBOD5 confirms that the above Technology-Based Limitations apply.

Water Quality-Based Limitations

Where the following limitations were determined through water quality modeling, the output files are attached:

Parameter	Limit (mg/L)	SBC	Model
Ammonia-Nitrogen (May 1 – Sept 30)	3.4	Average Monthly	WQM6.3 (WR Bulletin 12)
	6.8	IMAX	
Ammonia-Nitrogen (Oct 1 – Apr 30)	10.2	Average Monthly	WQM6.3 (WR Bulletin 12)
	20.4	IMAX	
Ammonia-Nitrogen (May 1 – Sept 30)	25	Average Monthly	WQM7.0 (USGS StreamStats)
	50	IMAX	
Ammonia-Nitrogen (Oct 1 – Apr 30)	25	Average Monthly	WQM7.0 (USGS StreamStats)
	50	IMAX	

Pursuant to EPA's approval of Pennsylvania's 2017 Triennial Review of Water Quality Standards and corresponding regulatory changes published in the *Pennsylvania Bulletin* on July 11, 2020, new water quality criteria for ammonia-nitrogen apply to waters off the commonwealth. Therefore, WQBELs for ammonia-nitrogen for Outfall 001 are re-evaluated even though there have been no changes to the STP. The output files from the new modeling results are attached (Appendices B and C). The data in the previous permit cycle was derived from WR Bulletin 12, which is now considered outdated. Data in this permit is derived from the latest version of USGS Stream Stats. WR Bulletin 12 listed the low flow yield of Crooked Run as 0.0272 cfs/mi^2. USGS StreamStats lists the low flow yield of Crooked Run as 0.0513 cfs/mi^2. An increased yield does result in less stringent limits in the model. However, due to EPA's antibacksliding regulation (40 CFR § 122.44) effluent limits in reissued permits must be at least as stringent as the final effluent limits in the previous permit. Therefore, even though WQM7.0 did recommend less stringent ammonia-nitrogen limits in this permit, the final effluent limits from the previous permit cycle must be maintained.

Parameter	Limit (mg/L)	SBC	Model
TRC	0.1	Average Monthly	TRC_CALC (2017)
	0.3	IMAX	
TRC	0.5	Average Monthly	TRC_CALC (2021)
	1.635	IMAX	

The data in the previous permit cycle was derived from WR Bulletin 12, which is now considered outdated. Data in this permit is derived from the latest version of USGS Stream Stats. WR Bulletin 12 listed the low flow yield of Crooked Run as 0.0272 cfs/mi^2. USGS StreamStats lists the low flow yield of Crooked Run as 0.0513 cfs/mi^2. An increased yield does result in less stringent limits in the model. However, due to EPA's antibacksliding regulation (40 CFR § 122.44) effluent limits in reissued permits must be at least as stringent as the final effluent limits in the previous permit. Therefore, even though TRC_CALC did recommend less stringent total residual chlorine limits in this permit (modeling results found in Appendix D), the final effluent limits from the previous permit cycle must be maintained.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.**

The facility is not seeking to revise the previously permitted effluent limits.

Best Professional Judgment (BPJ) Limitations

A Dissolved Oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment.

Additional Considerations

Sewage discharges will include monitoring, at a minimum, for E. coli, in new and reissued permits, with a monitoring frequency of 1/year for design flows >= 0.002 and <0.05 MGD.

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/year monitoring requirement for Total N & Total P has been added to the permit per Chapter 92.a.61.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations, except where otherwise noted.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.00315	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.1	XXX	0.3	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	10.2	XXX	20.4	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	3.4	XXX	6.8	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Outfall 001, Continued (from 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		
Total Aluminum	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

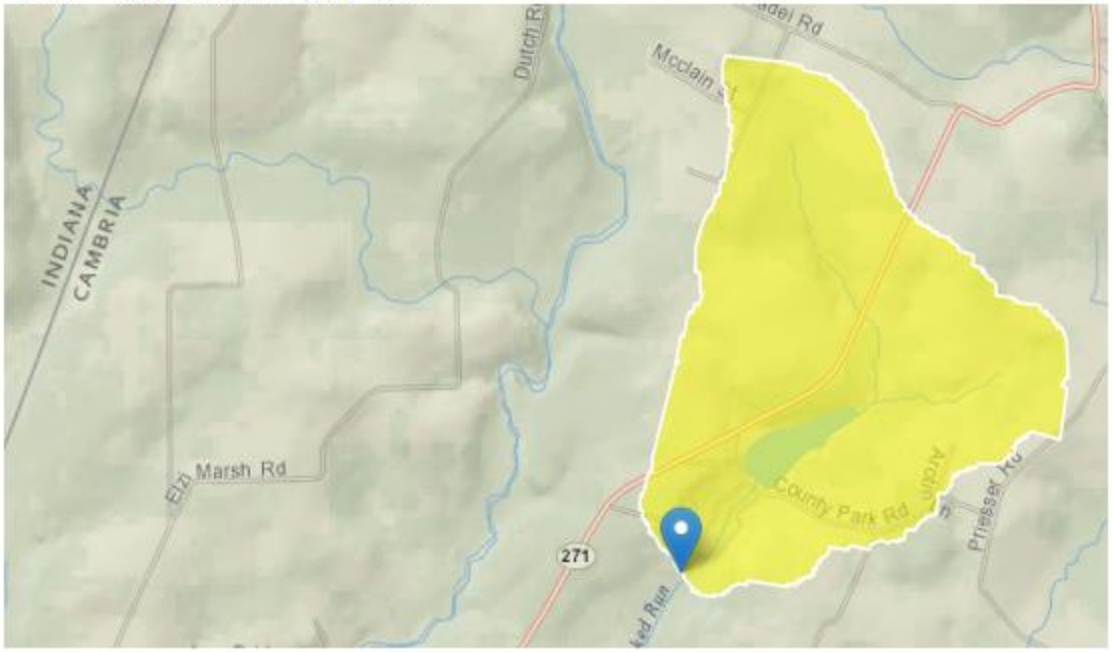
Compliance Sampling Location: Outfall 001

Other Comments:

APPENDIX A:
USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20211104180507078000
Clicked Point (Latitude, Longitude): 40.56579, -78.84094
Time: 2021-11-04 14:05:28 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.09	square miles
ELEV	Mean Basin Elevation	1751	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.09	square miles	2.33	1720
ELEV	Mean Basin Elevation	1751	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.133	ft^3/s
30 Day 2 Year Low Flow	0.199	ft^3/s
7 Day 10 Year Low Flow	0.0559	ft^3/s
30 Day 10 Year Low Flow	0.079	ft^3/s
90 Day 10 Year Low Flow	0.118	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/)

APPENDIX B:
WQM7.0 Modeling Results (Summer)

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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
18D	44533	CROOKED RUN	**1.480**	1686.00	1.09	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.051	0.00	0.00	0.000	0.000	10.0	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
Duman Lake Park	PA0218561	0.0032	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	4.00	9.01	0.00	0.00
NH3-N	25.00	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
18D	44533	CROOKED RUN	**1.470**	1681.00	1.16	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	0.060	0.00	0.00	0.000	0.000	10.0	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
18D	44533	CROOKED 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												
1.480	0.06	0.00	0.06	.0049	0.09470	.379	2.92	7.71	0.05	0.011	20.00	7.00
Q1-10 Flow												
1.480	0.04	0.00	0.04	.0049	0.09470	NA	NA	NA	0.04	0.014	20.00	7.00
Q30-10 Flow												
1.480	0.08	0.00	0.08	.0049	0.09470	NA	NA	NA	0.06	0.009	20.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.480	0.003	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.924	0.379	7.715	0.055
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.84	0.779	2.00	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.608	18.670	Owens	6
Reach Travel Time (days)			
0.011			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	3.84	2.00	8.24
0.002	3.84	2.00	8.24
0.003	3.83	2.00	8.24
0.004	3.83	2.00	8.24
0.006	3.83	2.00	8.24
0.007	3.82	1.99	8.24
0.008	3.82	1.99	8.24
0.009	3.82	1.99	8.24
0.010	3.81	1.99	8.24
0.011	3.81	1.99	8.24

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED 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
1.480	Duman Lake Par	16.76	50	16.76	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.480	Duman Lake Par	1.89	25	1.89	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.48	Duman Lake Park	25	25	25	25	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED 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)
1.480	Duman Lake Park	PA0218561	0.003	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

APPENDIX C:
WQM7.0 Modeling Results (Winter)

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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
18D	44533	CROOKED RUN	**1.480**	1686.00	1.09	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.103	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Duman Lake Park	PA0218561	0.0032	0.0000	0.0000	0.000	15.00	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	4.00	12.51	0.00	0.00
NH3-N	25.00	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
18D	44533	CROOKED RUN	**1.470**	1681.00	1.16	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	0.120	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.480	0.003	5.418	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.464	0.426	8.128	0.079
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.96	0.528	1.04	0.228
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.155	13.579	Owens	6
Reach Travel Time (days)			
0.008			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	2.96	1.04	11.33
0.002	2.96	1.04	11.33
0.002	2.96	1.04	11.33
0.003	2.96	1.04	11.33
0.004	2.96	1.04	11.33
0.005	2.96	1.04	11.33
0.005	2.96	1.04	11.33
0.006	2.96	1.04	11.33
0.007	2.95	1.04	11.33
0.008	2.95	1.04	11.33

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED 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
1.480	Duman Lake Par	24.1	50	24.1	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.480	Duman Lake Par	4.36	25	4.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.48	Duman Lake Park	25	25	25	25	4	4	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44533	CROOKED 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)
1.480	Duman Lake Park	PA0218561	0.003	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

APPENDIX D:
TRC_CALC Results

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0559	= Q stream (cfs)	0.5	= CV Daily
0.00315	= 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 = 3.678	1.3.2.iii	WLA cfc = 3.579
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.371	5.1d	LTA_cfc = 2.080

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		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)**