Pennsylvania Department of Environmental Protection

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0096652**
Facility Type	**Non-Municipal**	APS ID	**1121997**
Major / Minor	**Minor**	Authorization ID	**1500092**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Pittsburgh PA Motor Speedway**	Facility Name	**PA Motor Speedway**
Applicant Address	170 Kelso Road	Facility Address	170 Kelso Road
	Mc Donald, PA 15057-2124		Mcdonald, PA 15057
Applicant Contact	Blair Cress	Facility Contact	Same as Applicant
Applicant Phone	(412) 605-8435	Facility Phone	Same as Applicant
Client ID	381250	Site ID	490591
Ch 94 Load Status	Not Overloaded	Municipality	North Fayette Township
Connection Status	No Limitations	County	Allegheny
Date Application Received	September 19, 2024	EPA Waived?	Yes
Date Application Accepted	September 30, 2024	If No, Reason	

Purpose of Application: NPDES Renewal Permit

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0096652. The previous permit was issued on September 1, 2019 and expired on August 31, 2024.

Sewage from this plant is treated with septic tanks, a dosing tank, an intermittent sand filter, and chlorination

The Monitoring frequencies for the proposed effluent limits have been updated per Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

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

The Act 14 notification letters were provided dated August 30, 2024 and no comments were received.

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*

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	August 5, 2025
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	August 18, 2025

Summary of Review
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)	.025
Latitude	40º 25' 27.65"	Longitude	-80º 15' 31.61"
Quad Name	Clinton	Quad Code	40080D3
Wastewater Description:	Sewage Effluent		
Receiving Waters	Half Crown Run (WWF)	Stream Code	63300
NHD Com ID	99687970	RMI	2.1
Drainage Area	0.73	Yield (cfs/mi^2)	0.0076
Q_{7-10} Flow (cfs)	0.00555	Q_{7-10} Basis	USGS StreamStat
Elevation (ft)	1192	Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, SILTATION		
Source(s) of Impairment	ACID MINE DRAINAGE, NATURAL SOURCES		
TMDL Status	Final, Tentative	Name	Chartiers Creek, N. Br. Robinson Run

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

Nearest Downstream Public Water Supply Intake	WEST VIEW WATER AUTHORITY		
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	25.75

Changes Since Last Permit Issuance: None

Other Comments:

The discharge is to Half Crown Run which flows into Chartiers Creek that has a Final TMDL and is impaired by metals. This sewage discharge is not expected to contribute to stream impairment for which abandoned mine drainage is source of such impairment. Application data states that maximum concentration values for total aluminum, total iron, and total manganese are <0.2 mg/L, 1.25 mg/L, and 0.143 mg/L, which are below the criteria-based concentration values. No additional monitoring requirements for these pollutants will be placed on this facility at this time, and these pollutants will be re-evaluated during the next permit renewal cycle.

Treatment Facility Summary

Treatment Facility Name: Pittsburgh PA Motor Speedway

WQM Permit No.	Issuance Date
0277408	2/18/77
0277408-T1	11/13/07

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Septic Tank/Intermittent Sand Filter System	Hypochlorite	0.025

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.025	42.5	Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance: none

Other Comments: current treatment process consists of:

- septic tanks
- dosing tank
- intermittent sand filter
- chlorination

Compliance History

Operations Compliance Check Summary Report

Facility: PGH PA MOTOR SPEEDWAY

NPDES Permit No.: PA0096652

Compliance Review Period: 8/1/20-8/13/25

Inspection Summary:

INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
01/09/2025	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
11/06/2024	Administrative/File Review	PA Dept of Environmental Protection	Violation(s) Noted
10/30/2023	Compliance Evaluation	County Health Dept	Violation(s) Noted
07/19/2022	Compliance Evaluation	County Health Dept	No Violations Noted
07/13/2021	Compliance Evaluation	County Health Dept	Violation(s) Noted

Violation Summary:

VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
01/09/2025	302.202	Operator Certification - Failure to submit annual system fee	
11/06/2024	92A.62	NPDES - Failure to pay annual fee	
10/30/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	02/13/2024
10/30/2023	92A.41(A)12B	NPDES - Failure to submit monitoring report(s) or properly complete monitoring reports	02/13/2024
07/13/2021	92A.44	NPDES - Violation of effluent limits in Part A of permit	02/13/2024

Open Violations by Client ID:

Client ID 75389 has two open violations with central office as listed above

Enforcement Summary:

ENF TYPE	ENF TYPE DESC	EXECUTED DATE	VIOLATIONS	ENF FINAL STATUS	ENF CLOSED DATE
NOV	Notice of Violation	01/09/2025	302.202		
NOV	Notice of Violation	11/06/2024	92A.62		

Effluent Violation Summary:

MON PD	PARAMETER	REPORTED VALUE	PERMIT LIMIT	UNIT	STAT_BASE_CODE
Jun-24	Carbonaceous Biochemical Oxygen Demand (CBOD5)	29.3	25	mg/L	Average Monthly
Jun-24	Fecal Coliform	< 1300	1000	No./100 ml	Instantaneous Maximum
Jun-24	Fecal Coliform	< 1300	200	No./100 ml	Geometric Mean
May-24	Total Residual Chlorine (TRC)	0.55	0.5	mg/L	Average Monthly
Oct-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	128	25	mg/L	Average Monthly
Oct-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	128	50	mg/L	Instantaneous Maximum
Oct-23	Fecal Coliform	2420	2000	No./100 ml	Geometric Mean
Aug-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	50.4	25	mg/L	Average Monthly
Aug-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	50.8	50	mg/L	Instantaneous Maximum
Aug-23	Fecal Coliform	1646	200	No./100 ml	Geometric Mean
Aug-23	Fecal Coliform	2420	1000	No./100 ml	Instantaneous Maximum
Jul-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	60.7	25	mg/L	Average Monthly
Jul-23	Carbonaceous Biochemical Oxygen Demand (CBOD5)	86	50	mg/L	Instantaneous Maximum
Jul-23	Dissolved Oxygen	2.8	4	mg/L	Instantaneous Minimum
May-21	Total Residual Chlorine (TRC)	1.05	0.5	mg/L	Average Monthly
May-21	Total Residual Chlorine (TRC)	2.02	1.6	mg/L	Instantaneous Maximum

Compliance Status: Exceedances have occurred since last compliance evaluation inspection and should be addressed with an NOV at the time of the next one.

There are no pending enforcements or open violations from Southwest Region, but two open violations and NOVs exists with Central Office for unpaid annual permit fees and operator certification program fees.

Completed by: Amanda Illar **Completed date:** 8/14/25

Compliance History

DMR Data for Outfall 001 (from July 1, 2024 to June 30, 2025)

Parameter	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24
Flow (MGD) Average Monthly											0.010	0.010
Flow (MGD) Daily Maximum											0.010	0.010
pH (S.U.) Instantaneous Minimum											E	7.8
pH (S.U.) Instantaneous Maximum											E	7.8
DO (mg/L) Instantaneous Minimum											E	4.5
TRC (mg/L) Average Monthly											E	E
TRC (mg/L) Instantaneous Maximum											E	E
CBOD5 (mg/L) Average Monthly											E	E
CBOD5 (mg/L) Instantaneous Maximum											E	E
TSS (mg/L) Average Monthly											E	E
TSS (mg/L) Instantaneous Maximum											E	E
Fecal Coliform (No./100 ml) Geometric Mean											E	E
Fecal Coliform (No./100 ml) Instantaneous Maximum											E	E
Ammonia (mg/L) Average Monthly											E	E

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .025
Latitude 40º 25' 17.00" **Longitude** -80º 15' 36.00"
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

The discharge was evaluated using WQM7.0 to determine the $CBOD_5$, ammonia nitrogen, and dissolved oxygen parameters. The TRC calc sheet was used to determine TRC. The results of this evaluation are listed below:

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	25 50	Average Monthly IMAX	WQM7.0
Dissolved Oxygen	5	Minimum	WQM7.0
TRC	0.037 0.123	Average Monthly IMAX	TRC Spreadsheet
Ammonia-Nitrogen Oct 1 - Apr 30	3.46 6.92	Average Monthly IMAX	WQM7.0
Ammonia-Nitrogen May 1 - Sep 30	2.14 4.28	Average Monthly IMAX	WQM7.0

Modeling shows more restrictive limits for TRC, Dissolved Oxygen, and Ammonia-Nitrogen. The facility only operates from June to August, therefore, no compliance schedule will be given for these new more restrictive limits.

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.

Additional Considerations

The discharge is to Half Crown Run which flows into Chartiers Creek that has a Final TMDL and is impaired by metals. This sewage discharge is not expected to contribute to stream impairment for which abandoned mine drainage is source of such impairment. Application data states that maximum concentration values for total aluminum, total iron, and total manganese are <0.2 mg/L, 1.25 mg/L, and 0.143 mg/L, which are below the criteria-based concentration values. No additional monitoring requirements for these pollutants will be placed on this facility at this time, and these pollutants will be re-evaluated during the next permit renewal cycle.

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

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

An annual sampling frequency for total phosphorus and total nitrogen will again be imposed per 25 PA Code §92a.61.

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)	0.025	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.037	XXX	0.123	Daily when Discharging	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	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 Oct 1 - Apr 30	XXX	XXX	XXX	3.46	XXX	6.92	2/month	Grab
Ammonia May 1 - Sep 30	XXX	XXX	XXX	2.14	XXX	4.28	2/month	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 Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
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

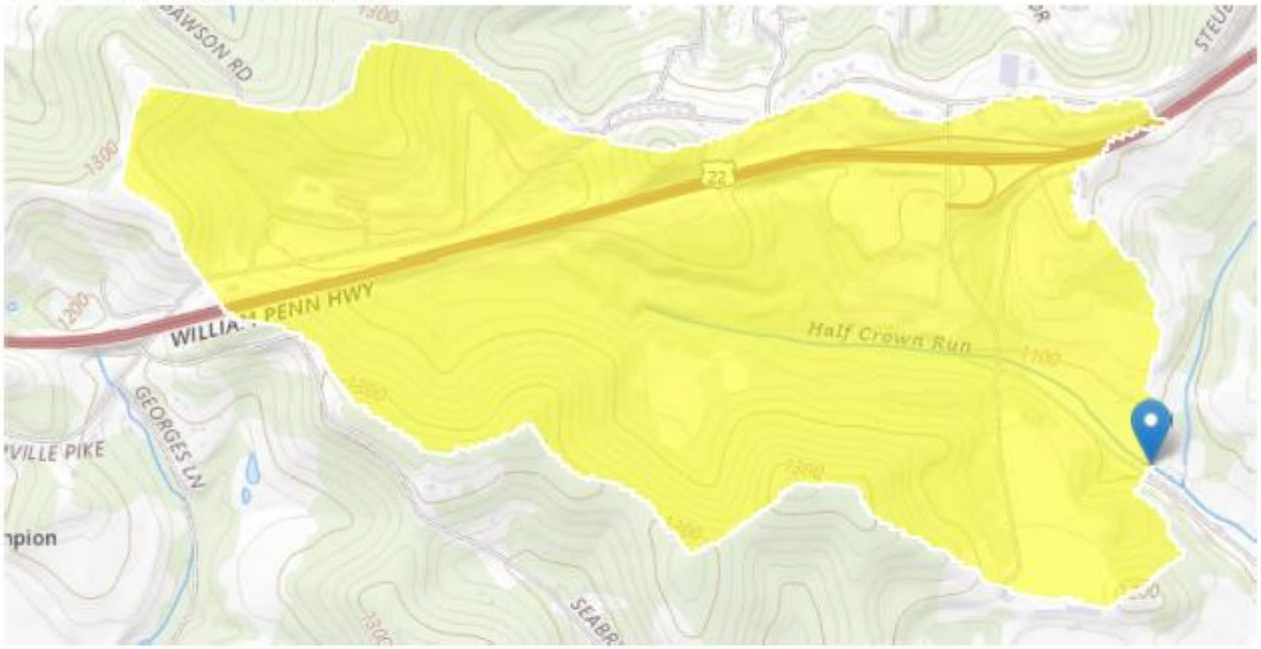
Compliance Sampling Location:

Other Comments:

Attachment 1
USGS StreamStat Upstream

StreamStats Report

Region ID: PA
Workspace ID: PA20250730132908506000
Clicked Point (Latitude, Longitude): 40.42428, -80.25860
Time: 2025-07-30 09:29:31 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.73	square miles
ELEV	Mean Basin Elevation	1192	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.73	square miles	2.26	1400
ELEV	Mean Basin Elevation	1192	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0195	ft^3/s
30 Day 2 Year Low Flow	0.0382	ft^3/s
7 Day 10 Year Low Flow	0.00555	ft^3/s
30 Day 10 Year Low Flow	0.0122	ft^3/s
90 Day 10 Year Low Flow	0.0252	ft^3/s

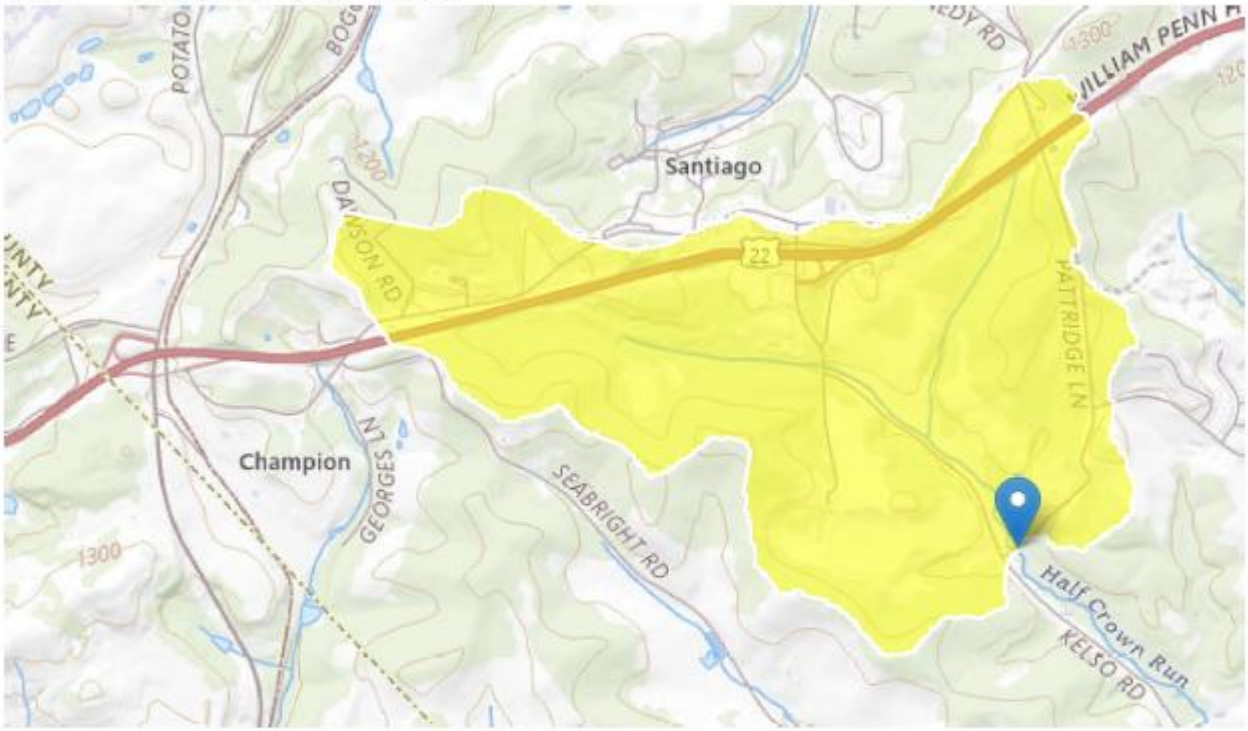
Low-Flow Statistics Citations

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/)

Attachment 2
USGS StreamStat Downstream

StreamStats Report

Region ID: PA
Workspace ID: PA20250730140347319000
Clicked Point (Latitude, Longitude): 40.41990, -80.25362
Time: 2025-07-30 10:04:18 -0400



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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.42	square miles
ELEV	Mean Basin Elevation	1181	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.42	square miles	2.26	1400
ELEV	Mean Basin Elevation	1181	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

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 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0413	ft^3/s
30 Day 2 Year Low Flow	0.0783	ft^3/s
7 Day 10 Year Low Flow	0.0125	ft^3/s
30 Day 10 Year Low Flow	0.0261	ft^3/s
90 Day 10 Year Low Flow	0.0524	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/)

Attachment 3
TRC Calculation Spreadsheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0076	= 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 = 0.082	1.3.2.iii	WLA cfc = 0.072
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.030	5.1d	LTA_cfc = 0.042

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.037	AFC
		INST MAX LIMIT (mg/l) = 0.123	

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)

Attachment 4
TMS Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

Model Results

PGH Motor Speedway, NPDES Permit No. PA0096652, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☑ ***Hydrodynamics***

$Q_{7\text{-}10}$

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.1	0.07		0.07	0.039	0.002	0.371	4.904	13.213	0.061	0.996	1.365
1.1	0.14		0.142								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
2.1	0.75		0.75	0.039	0.002	0.879	4.904	5.577	0.184	0.332	0.793
1.1	1.349		1.35								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 1.365 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	750	750	2,166	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 1.365 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	4,331	WQC = 30 day average; PMF = 1
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 1.365 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,888	

☑ ***CRL*** CCT (min): 0.793 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Iron	4,331	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,888	µg/L	Discharge Conc ≤ 10% WQBEL

Attachment 5
WQM 7 Summer Results

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
20F	63300	HALF CROWN RUN	**2.100**	1192.00	0.73	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	0.007	0.01	0.00	0.000	0.000	10.0	0.00	0.00	25.00	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
PA Motor Speedw	PA0096652	0.0250	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	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
20F	63300	HALF CROWN 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												
2.100	0.01	0.00	0.01	.0387	0.00208	.319	3.8	11.91	0.04	1.673	20.63	7.00
Q1-10 Flow												
2.100	0.00	0.00	0.00	.0387	0.00208	NA	NA	NA	0.04	1.717	20.42	7.00
Q30-10 Flow												
2.100	0.01	0.00	0.01	.0387	0.00208	NA	NA	NA	0.04	1.633	20.82	7.00

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		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN 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
2.100	PA Motor Speed	16.19	17.67	16.19	17.67	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
2.100	PA Motor Speed	1.79	2.14	1.79	2.14	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)		
2.10	PA Motor Speedw	25	25	2.14	2.14	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.100	0.025	20.627	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.798	0.319	11.913	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.11	1.395	1.87	0.735
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.407	19.870	Owens	5
Reach Travel Time (days)			
1.673			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.167	17.39	1.65	6.70
0.335	13.68	1.46	7.20
0.502	10.75	1.29	7.57
0.669	8.46	1.14	7.86
0.837	6.65	1.01	8.10
1.004	5.23	0.89	8.15
1.171	4.11	0.79	8.15
1.339	3.23	0.70	8.15
1.506	2.54	0.62	8.15
1.673	2.00	0.55	8.15

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN 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)
2.100	PA Motor Speedw	PA0096652	0.025	CBOD5	25		
				NH3-N	2.14	4.28	
				Dissolved Oxygen			5

Attachment 8
WQM 7 Winter Results

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
20F	63300	HALF CROWN RUN	**2.100**	1192.00	0.73	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	0.014	0.01	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
PA Motor Speedw	PA0096652	0.0250	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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN 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												
2.100	0.01	0.00	0.01	.0387	0.00208	.319	3.8	11.91	0.04	1.673	13.75	7.00
Q1-10 Flow												
2.100	0.00	0.00	0.00	.0387	0.00208	NA	NA	NA	0.04	1.717	14.16	7.00
Q30-10 Flow												
2.100	0.01	0.00	0.01	.0387	0.00208	NA	NA	NA	0.04	1.633	13.37	7.00

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		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN 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
2.100	PA Motor Speed	24.1	26.32	24.1	26.32	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
2.100	PA Motor Speed	2.89	3.46	2.89	3.46	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)		
2.10	PA Motor Speedw	25	25	3.46	3.46	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.100	0.025	13.745	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.798	0.319	11.913	0.037
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.11	1.451	3.02	0.433
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.068	16.878	Owens	5
Reach Travel Time (days)			
1.673			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.167	18.43	2.81	7.97
0.335	15.36	2.62	8.46
0.502	12.80	2.43	8.75
0.669	10.67	2.26	9.00
0.837	8.89	2.11	9.20
1.004	7.41	1.96	9.33
1.171	6.18	1.82	9.33
1.339	5.15	1.70	9.33
1.506	4.29	1.58	9.33
1.673	3.58	1.47	9.33

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	63300	HALF CROWN 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)
2.100	PA Motor Speedw	PA0096652	0.025	CBOD5	25		
				NH3-N	3.46	6.92	
				Dissolved Oxygen			4