pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0096318**
Facility Type	**Municipal**	APS ID	**883146**
Major / Minor	**Minor**	Authorization ID	**1364976**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**The Municipal Authority of the Township of Robinson**	Facility Name	**Covi Douglas STP**
Applicant Address	4200 Campbells Run Road	Facility Address	Forest Grove Road
	Pittsburgh, PA 15205-1306		Robinson Township, PA 15136
Applicant Contact	Shawn Rosensteel	Facility Contact	Leo Gismondi
Applicant Phone	(412) 923-2411	Facility Phone	(412) 923-2411
Client ID	74269	Site ID	237416
Ch 94 Load Status	Not Overloaded	Municipality	Robinson Township
Connection Status	No Limitations	County	Allegheny
Date Application Received	July 30, 2021	EPA Waived?	Yes
Date Application Accepted	July 30, 2021	If No, Reason	

Purpose of Application: Renewal Application for a Minor POTW Sewage Treatment Facility.

Summary of Review

This is a NPDES permit renewal for a minor Publicly Owned Treatment Works sewage discharge of 0.210 MGD located in Robinson Township, Allegheny County.

Act 14 – Proof of Notification was submitted and received.

There are 28 open violations for subject client ID (74269) as of 1/26/2022. 27 with Safe Drinking Water, and 1 with WPC for Moon Run STP. SWRO Safe Drinking Water Program's Environmental Group Manager John Thomas has verified on 1/26/2022 that there is a plan in place to resolve these violations and has no objections to issuing this permit renewal.

A Part II Water Quality Management permit is not required at this time.

Sludge use and disposal description and location(s): Septage must be pumped and hauled off-site by a septage hauler for land application under a general permit authorized by DEP or disposal at an STP.

The applicant should be able to meet the limits of this permit, which will protect the uses of the receiving stream.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Jon F. Bucha Jonathan F. Bucha / Civil Engineer General	December 21, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	January 28, 2022

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.210
Latitude	40º 28' 41"	Longitude	-80º 7' 17"
Quad Name	Pittsburgh West	Quad Code	1505
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Moon Run (WWF)	Stream Code	36733
NHD Com ID	99685280	RMI	0.1
Drainage Area	0.45	Yield (cfs/mi^2)	0.037
Q_{7-10} Flow (cfs)	0.0167	Q_{7-10} Basis	Previous Pollution Report
Elevation (ft)	920	Slope (ft/ft)	-
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	ORGANIC ENRICHMENT, SILTATION		
Source(s) of Impairment	URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Moon Run Watershed

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

Nearest Downstream Public Water Supply Intake	Moon Township Municipal Authority on the Ohio River		
PWS Waters	Ohio River	Flow at Intake (cfs)	-
PWS RMI	972.48	Distance from Outfall (mi)	3.28

Changes Since Last Permit Issuance: None

Other Comments: This treatment system is capable of meeting effluent requirements.

Treatment Facility Summary

Treatment Facility Name: Covi Douglas STP

WQM Permit No.	Issuance Date
0285431 A-2	Feb 5, 2013
0285431 A-1	Nov 7, 2008
0285431	Dec 20, 1985

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Activated Sludge	Ultraviolet	0.210

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.21	415	Not Overloaded	None	Combination of methods

Changes Since Last Permit Issuance: No changes since last permit issuance. Dendron Drive Pump Station was upgraded to a capacity of peak design flow 0.2628 MGD in 2013. The plant was upgraded from an average design flow of 0.1538 MGD to 0.210 MGD in Nov 7, 2008. All these were done in order to take care of wet weather hydraulic flow overload.

Other Comments: Treatment consists of off-line equalization tank, combined carbon oxidation-nitrification mode of activated sludge process, final clarification, and ultraviolet disinfection. The plant is equipped with Parshall Flume and flow recorder which are located at the head end of plant before the processing units.

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	0.184	0.185	0.166	0.118	0.180	0.127	0.204	0.177	0.166	0.187	0.123	0.118
Flow (MGD) Daily Maximum	0.753	0.551	0.311	0.232	0.421	0.199	0.432	0.506	0.366	0.319	0.197	0.280
pH (S.U.) Minimum	6.23	6.86	6.08	6.2	6.14	6.31	6.33	6.15	6.14	6.31	**5.95**	6.23
pH (S.U.) Maximum	7.33	7.89	7.19	7.34	7.36	7.36	7.18	7.12	7.21	7.64	7.29	7.62
DO (mg/L) Minimum	7.2	7.1	7.0	7.3	7.9	6.5	7.3	7.6	7.8	7.7	7.0	7.6
CBOD5 (lbs/day) Average Monthly	< 11.0	< 3.0	< 4.0	< 3.0	< 5.0	< 10.0	< 6.0	10.0	< 5.0	< 6.0	< 3.0	< 2.0
CBOD5 (lbs/day) Weekly Average	39.0	< 3.0	< 6.0	5.0	< 5.0	29.0	10.0	20.0	< 7.0	12.0	< 3.0	< 3.0
CBOD5 (mg/L) Average Monthly	< 4.6	< 3.0	< 3.0	< 3.5	< 3.2	< 9.0	< 3.7	5.4	< 4.0	3.4	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	11.0	< 3.0	< 3.0	5.0	4.0	26.0	5.0	7.0	< 5.0	5.0	< 3.0	< 3.0
BOD5 (mg/L) Raw Sewage Influent Daily Maximum	332	254	262	387	281	225	153	268	230	293	289	263.0
TSS (lbs/day) Average Monthly	< 10.0	< 3.0	< 7.0	< 3.0	< 5.0	< 10.0	< 6.0	28.0	< 7.0	< 16.0	< 5.0	< 5.0
TSS (lbs/day) Weekly Average	32.0	5.0	18.0	< 4.0	9.0	23.0	10.0	67.0	12.0	48.0	8.0	9.0
TSS (mg/L) Average Monthly	< 5.0	< 3.0	< 5.0	< 3.0	< 4.0	< 10	< 5	15	< 7	< 8	< 5.0	< 6.0
TSS (mg/L) Raw Sewage Influent Daily Maximum	520	368	472	468	262	218	155	374	179	226	240	166.0
TSS (mg/L) Weekly Average	12.0	4.0	9.0	4.0	4.0	21	11	18	14	19	8.0	12.0
Fecal Coliform (CFU/100 ml) Geometric Mean	45	62	40	19	6.0	< 17	< 4	21	20	50	13	16.0

Fecal Coliform (CFU/100 ml) Instantaneous Maximum						2420	214	107	36	153	147	299.0
UV Transmittance (%) Average Monthly	99.8	98.0	98.3	100.0	100.0	98.8	100.0	92.0	99.93	100	100.0	100.0
Total Nitrogen (mg/L) Daily Maximum										40.1		
Ammonia (lbs/day) Average Monthly	**6.0**	0.3	0.4	0.4	0.6	2.0	2.0	0.4	0.2	0.3	0.18	0.1
Ammonia (lbs/day) Weekly Average	**26.0**	0.3	0.6	0.5	2.0	6.0	11.0	1.0	0.3	0.5	0.2	0.2
Ammonia (mg/L) Average Monthly	1.74	0.25	0.3	0.37	0.39	1.47	1.09	0.21	0.18	0.15	0.18	0.16
Ammonia (mg/L) Weekly Average	**7.26**	0.29	0.5	0.57	1.16	5.4	4.65	0.33	0.25	0.2	0.2	0.26
Total Phosphorus (mg/L) Daily Maximum										4.65		

Compliance History

Effluent Violations for Outfall 001, from: September 30, 2018 To: September 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	10/31/18	Wkly Avg	49	mg/L	45	mg/L
TSS	7/31/19	Wkly Avg	90	lbs/day	78.9	lbs/day
TSS	9/30/19	Wkly Avg	160	lbs/day	78.9	lbs/day
TSS	9/30/19	Wkly Avg	48	mg/L	45	mg/L
pH	11/30/20	Min	5.95	S.U.	6.0	S.U.
Ammonia	09/30/21	Avg Mo	6.0	lbs/day	3.7	lbs/day
Ammonia	09/30/21	Wkly Avg	26.0	lbs/day	5.6	lbs/day
Ammonia	09/30/21	Wkly Avg	7.26	mg/L	3.2	mg/L

Summary of Inspections: ACHD conducted a compliance inspection on 7/19/2016 where no violations were noted and the plant seems to be in general compliance.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .210
Latitude 40º 28' 41.00" **Longitude** -80º 7' 17.00"
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 following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	20.0	Average Monthly	WQM 7.0 (version 1.1)

Comments: WQM 7.0 model calculated a water quality based $CBOD_5$ limit of 22.48 mg/L, which was rounded to 20.0 mg/L in order to remain consistent with department rounding practices for $CBOD_5$. Ammonia Nitrogen limit was calculated as $C_0 = 2.84*e^{(0.7)(0.0266)} = 2.9$ mg/L from WQM 7.0 modeling, therefore the existing limit of 2.1 mg/L will be continued on this permit renewal due to anti-backsliding regulations, the facilities ability to meet the existing limit, and to continue to protect stream uses.

Best Professional Judgment (BPJ) Limitations

Comments: Total Nitrogen, Total Phosphorus, and E. Coli monitoring is based on Ch. 92a.61 and the Departments SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BPNPSM-PMT-033). Total Nitrogen and Total Phosphorus monitoring frequency will remain at 1/year, based on this facilities eDMR history. E. Coli monitoring is a new addition to this permit renewal and will have a monitoring frequency of 1/quarter. Raw sewage influent monitoring will remain in the permit renewal as recommended by the SOP titled “New and Reissuance Sewage Individual NPDES Permit Applications” for parameters BOD_5 and Total Suspended Solids (TSS), at the same frequency as the effluent.

Monitoring for DO, pH, and UV Transmittance are being increased from 5/week to daily in order to comply with the departments statewide policy, as mentioned in the previous permit renewal.

Influent TSS and BOD5 monitoring was revised to reflect an average monthly concentration reporting and load reporting for both the average monthly loading and Daily Maximum loading. JCD

Anti-Backsliding

Anit-Backsliding considerations do not apply since effluent limits are not being relaxed.

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.

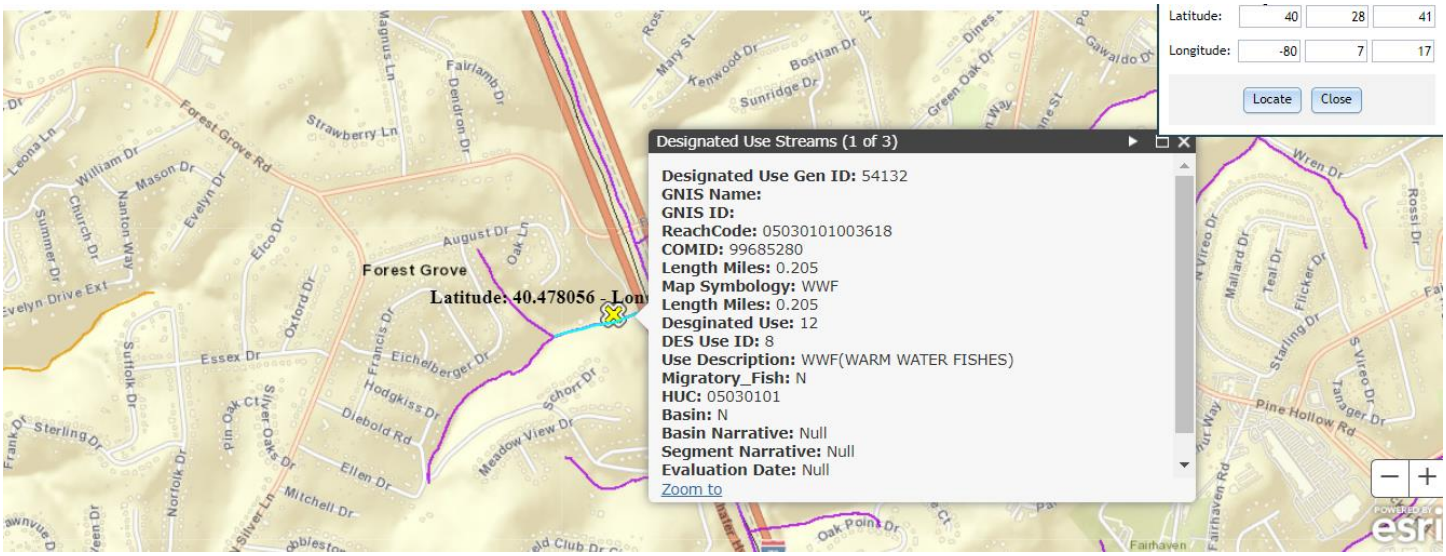
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	35.0	52.5	XXX	20.0	30.0	40	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	52.6	78.9	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	7.9	11.9	XXX	4.5	6.8	9	1/week	8-Hr Composite

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia May 1 - Oct 31	3.7	5.6	XXX	2.1	3.2	4.2	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection.

Attachment A – eMAP Stream Designation



Attachment B – Streamstats Drainage Area (Discharge Point)

Region ID:	PA
Workspace ID:	PA20211103212002555000
Clicked Point (Latitude, Longitude):	40.47788, -80.12147
Time:	2021-11-03 17:20:22 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.45	square miles
ELEV	Mean Basin Elevation	1097	feet

Attachment C – Streamstats Drainage Area (End of Reach 1)

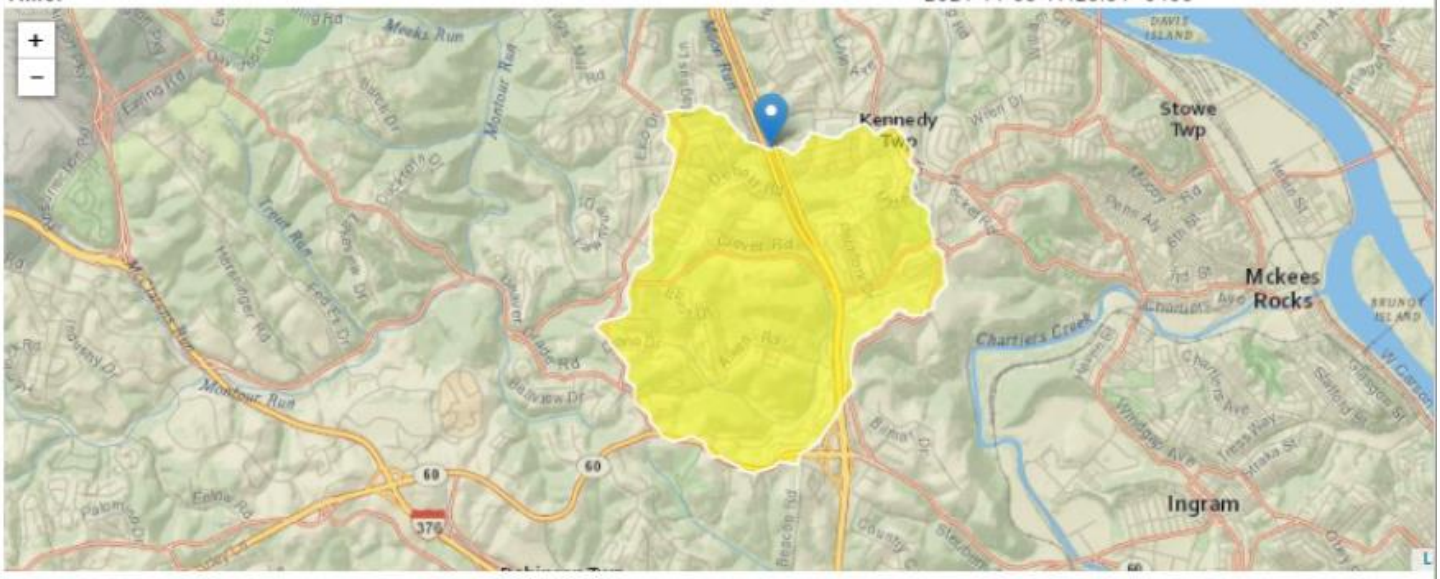
Region ID:	PA
Workspace ID:	PA20211103212410240000
Clicked Point (Latitude, Longitude):	40.47823, -80.11997
Time:	2021-11-03 17:24:29 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.46	square miles
ELEV	Mean Basin Elevation	1095	feet

Attachment D – Streamstats Drainage Area (Moon Run Confluence)

Region ID:	PA
Workspace ID:	PA20211103212811472000
Clicked Point (Latitude, Longitude):	40.47844, -80.11984
Time:	2021-11-03 17:28:31 -0400

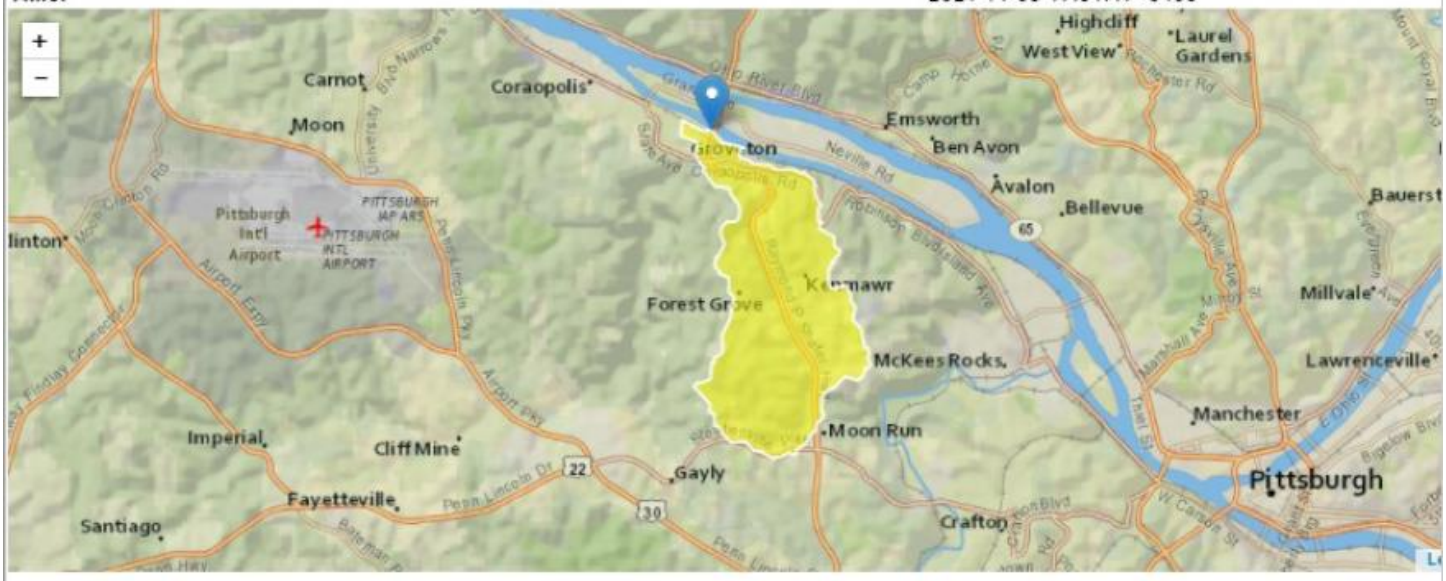


Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.32	square miles
ELEV	Mean Basin Elevation	1106	feet

Attachment E – Streamstats Drainage Area (Moon Run End of Reach 2)

Region ID:	PA
Workspace ID:	PA20211103213125879000
Clicked Point (Latitude, Longitude):	40.50904, -80.13692
Time:	2021-11-03 17:31:47 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5.55	square miles
ELEV	Mean Basin Elevation	1058	feet

Attachment F – WQM 7.0 Modeling (Reach 1)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36733	Trib 36733 to Moon 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)
0.100	Covi-DouglasSTP	PA0096318	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36733	Trib 36733 to Moon Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.100	0.210	20.000	6.500
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
4.724	0.449	10.524	0.161
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.78	1.500	23.78	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.173	28.098	Owens	2
Reach Travel Time (days)			
0.038			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	23.65	23.72	4.21
0.008	23.51	23.66	4.25
0.011	23.38	23.59	4.28
0.015	23.25	23.53	4.31
0.019	23.12	23.47	4.35
0.023	22.99	23.41	4.38
0.026	22.86	23.35	4.40
0.030	22.73	23.29	4.43
0.034	22.61	23.22	4.46
0.038	22.48	23.16	4.48

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
20G	36733	Trib 36733 to Moon Run	0.100	920.00	0.45	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	0.037	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	6.50	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
Covi-DouglasSTP	PA0096318	0.0000	0.0000	0.2100	0.000	20.00	6.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	7.54	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
20G	36733	Trib 36733 to Moon Run	0.001	902.00	0.46	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	0.037	0.00	0.00	0.000	0.000	0.0	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
		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
20G	36733	Trib 36733 to Moon 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												
0.100	0.02	0.00	0.02	.3249	0.03444	.449	4.72	10.52	0.16	0.038	20.00	6.50
Q1-10 Flow												
0.100	0.01	0.00	0.00	.3249	0.03444	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.100	0.02	0.00	0.00	.3249	0.03444	NA	NA	NA	0.00	0.000	0.00	0.00

WQM 7.0 Modeling Specifications

Parameters	D.O.	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	2		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36733	Trib 36733 to Moon Run

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.10	Covi-DouglasSTP	25	25	25	25	4	4	0	0

Attachment G – WQM 7.0 Modeling (Reach 2)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36730	MOON 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)
3.180	Covi-DouglasSTP	PA0096318	0.000	CBOD5	22.48		
				NH3-N	2.84	5.68	
				Dissolved Oxygen			4.48

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36730	MOON RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.180	0.210	21.372	6.590
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
9.095	0.444	20.464	0.111
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.86	1.141	2.06	0.778
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.320	23.004	Owens	5
Reach Travel Time (days)			
1.754			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.175	13.62	1.80	7.47
0.351	11.01	1.57	7.54
0.526	8.89	1.37	7.54
0.702	7.19	1.19	7.54
0.877	5.81	1.04	7.54
1.053	4.69	0.91	7.54
1.228	3.79	0.79	7.54
1.403	3.06	0.69	7.54
1.579	2.48	0.60	7.54
1.754	2.00	0.53	7.54

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
20G	36730	MOON RUN	3.180	902.00	3.32	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	0.037	0.00	0.00	0.000	0.000	0.0	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
Covi-DouglasSTP	PA0096318	0.0000	0.0000	0.2100	0.000	20.00	6.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	22.48	2.00	0.00	1.50
Dissolved Oxygen	4.48	7.54	0.00	0.00
NH3-N	23.16	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
20G	36730	MOON RUN	0.001	698.00	5.55	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	0.037	0.00	0.00	0.000	0.000	0.0	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
		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
20G	36730	MOON 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												
3.180	0.12	0.00	0.12	.3249	0.01215	.444	9.1	20.46	0.11	1.754	21.37	6.59
Q1-10 Flow												
3.180	0.08	0.00	0.08	.3249	0.01215	NA	NA	NA	0.10	1.859	20.97	6.56
Q30-10 Flow												
3.180	0.17	0.00	0.17	.3249	0.01215	NA	NA	NA	0.12	1.664	21.70	6.61

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
20G	36730	MOON 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
3.180	Covi-DouglasSTP	20.4	25.34	20.4	25.34	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
3.180	Covi-DouglasSTP	1.87	2.84	1.87	2.84	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)		
3.18	Covi-DouglasSTP	22.48	22.48	2.84	2.84	4.48	4.48	0	0

Attachment H – Discharge pH

Covi-Douglas STP
Robinson Twp, Allegheny County
PA0096318 Discharge pH

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Sep-21	6.23	7.33	5.8884E-07	4.6774E-08	3.1781E-07	6.5
Aug-21	6.86	7.89	1.3804E-07	1.2882E-08	7.546E-08	7.1
Jul-21	6.08	7.19	8.3176E-07	6.4565E-08	4.4816E-07	6.3
Sep-20	6.24	7.26	5.7544E-07	5.4954E-08	3.152E-07	6.5
Aug-20	6.33	7.31	4.6774E-07	4.8978E-08	2.5836E-07	6.6
Jul-20	6.03	8.14	9.3325E-07	7.2444E-09	4.7025E-07	6.3
Sep-19	6.7	7.44	1.9953E-07	3.6308E-08	1.1792E-07	6.9
Aug-19	6.03	7.42	9.3325E-07	3.8019E-08	4.8564E-07	6.3
Jul-19	6.69	7.34	2.0417E-07	4.5709E-08	1.2494E-07	6.9
Sep-18	6.63	7.39	2.3442E-07	4.0738E-08	1.3758E-07	6.9
					Median:	6.5