

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0219142
APS ID 1008410
Authorization ID 1300035

Applicant and Facility Information

Applicant Name	<u>Westmoreland County Municipal Authority</u>	Facility Name	<u>Sewickley Township WWTP</u>
Applicant Address	<u>124 Park And Pool Road New Stanton, PA 15672</u>	Facility Address	<u>730 Lowber Road Irwin, PA 15642-4993</u>
Applicant Contact	<u>Norman Stout</u>	Facility Contact	<u>Dave Depetris</u>
Applicant Phone	<u>(724) 640-7403</u>	Facility Phone	<u>(724) 787-3563</u>
Client ID	<u>64197</u>	Site ID	<u>557247</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Sewickley Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Westmoreland</u>
Date Application Received	<u>December 23, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>December 26, 2019</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of an existing NPDES permit for the discharge of treated sewage.</u>		

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		<i>Derek S. Garner</i> Derek S. Garner / Project Manager	February 6, 2021
X		<i>Donald J. Leone</i> Donald J. Leone, P.E. / Environmental Engineer Manager	February 8, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.44</u>
Latitude	<u>40° 15' 19.69"</u>	Longitude	<u>-79° 44' 55.36"</u>
Quad Name	<u>Irwin</u>	Quad Code	<u>1608</u>
Wastewater Description:	<u>Sewage Effluent</u>		
Receiving Waters	<u>Little Sewickley Creek</u>	Stream Code	<u>37557</u>
NHD Com ID	<u>69912979</u>	RMI	<u>0.8</u>
Drainage Area	<u>30</u>	Yield (cfs/mi ²)	<u>0.043</u>
Q ₇₋₁₀ Flow (cfs)	<u>1.3</u>	Q ₇₋₁₀ Basis	<u>Streamgage No. 03083100</u>
Elevation (ft)	<u>777</u>	Slope (ft/ft)	<u>n/a</u>
Watershed No.	<u>19-D</u>	Chapter 93 Class.	<u>TSF</u>
Existing Use	<u>n/a</u>	Existing Use Qualifier	<u>n/a</u>
Exceptions to Use	<u>n/a</u>	Exceptions to Criteria	<u>n/a</u>
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u>n/a</u>		
Source(s) of Impairment	<u>n/a</u>		
TMDL Status	<u>Final, 4/8/2009</u>	Name	<u>Sewickley Creek Watershed</u>
Nearest Downstream Public Water Supply Intake	<u>WCMA McKeesport Plant</u>		
PWS Waters	<u>Youghiogheny River</u>	Flow at Intake (cfs)	<u>510</u>

Treatment Facility Summary

The Sewickley Township Wastewater Treatment Plant ("STWWTP") is owned and operated by the Westmoreland County Municipal Authority. The STWWTP has a hydraulic design capacity of 0.44 MGD and an organic capacity of 748 lbs/day. Treatment at the facility features:

- One (1) mechanical bar screen,
- Two (2) sequencing batch reactors (operated in parallel),
- One (1) UV disinfection unit,
- One (1) aerobic digester, and
- One (1) sludge dewatering centrifuge

The dewatered sludge is hauled to a landfill.

Treated effluent is ultimately discharged via Outfall 001 to Little Sewickley Creek.

The facility has not accepted hauled-in wastes within the last three years and does not anticipate accepting hauled-in wastes over the next five years.

Compliance History

The following effluent violations occurred during the existing permit's term:

Noncompliance Date	Noncompliance Type	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
3/15/2019	Violation of permit condition	TSS	77	>	45	mg/L	Weekly Average
3/15/2019	Violation of permit condition	TSS	251.7	>	165.2	lbs/day	Weekly Average
6/13/2019	Violation of permit condition	Fecal Coliform	1553	>	1000	No./100 ml	IMAX

None of the effluent violations appear to be continuous or reoccurring. Accordingly, the facility's compliance history should not impact the renewal of the permit.

There are no open violations associated with the permittee.

The facility was last inspected by DEP on December 9, 2020. All treatment units were operational, and no violations were noted.

Development of Effluent Limitations

Outfall No. 001 Design Flow (MGD) 0.44
 Latitude 40° 15' 21.18" Longitude -79° 44' 55.36"
 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)

Water Quality-Based Limitations

The applicability of WQBELs was evaluated using DEP's WQM 7.0 v1.0b and the Toxics Management Spreadsheet ("TMS"). WQM 7.0 is a multiple source discharge model that is used to determine NPDES effluent limits for ammonia-nitrogen, CBOD₅, and dissolved oxygen, if applicable. The TMS is a single discharge model that is used to determine NPDES effluent limits and monitoring requirements for toxics. All model input/output data and supporting documentation is attached.

Reaches were created in WQM 7.0 along Little Sewickley Creek starting at Outfall 001 until a recovery in dissolved oxygen was observed. Existing effluent limits for CBOD₅, ammonia-n, and dissolved oxygen were used for input values. The model results are as follows:

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Maximum	Minimum
CBOD ₅	20	-	-
Ammonia-nitrogen	4.8	9.6	-
Dissolved Oxygen	-	-	4

Based on the above model output, the model recommends establishing slightly more stringent ammonia-nitrogen limits of 4.8 and 9.6 mg/l versus the existing limits of 5.0 and 10 mg/l. Existing water quality-based effluent limits for CBOD₅ and dissolved oxygen are protective of Little Sewickley Creek.

For the TMS, input concentrations were taken from sample results included with the renewal application. The TMS output results are as follows:

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	Report	Report	Report	Report	Report	mg/L	0.026	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.22	AFC	Discharge Conc > 10% WQBEL (no RP)

Based on the TMS results, DEP has proposed to establish monitoring requirements for total copper and total zinc.

Best Professional Judgment (BPJ) Limitations

DEP recommends the existing requirement to monitor UV transmittance remains in the permit to verify UV disinfection is occurring. DEP also recommends that the existing annual monitoring requirements for total nitrogen and total phosphorus remain in the permit to continue to characterize the wastewater.

The permit has historically included seasonal limits for CBOD5 and ammonia-n, based on the treatability of wastewater being significantly impacted by temperature and seasonal variances in stream flow. Since the facility has demonstrated compliance with the existing limits and no impacts to Little Sewickley Creek have been documented in relation to these parameters, DEP recommends the existing seasonal limits remain in the permit.

The permit currently requires influent monitoring for BOD5 and TSS to help characterize the wastewater for Chapter 94 reporting requirements. DEP recommends that these requirements remain in the permit.

TMDL Considerations

The Sewickley Creek Watershed TMDL, approved March 12, 2009, was developed to address the watershed's impairment from iron, aluminum, manganese, and pH caused by abandoned mine drainage. The TMDL does not assign a waste load allocation to the discharge. Sampling completed for the renewal application indicates discharge concentrations of iron, aluminum, and manganese are all below Chapter 93 criterion. Accordingly, the discharge does not contribute to the watershed's impairment. Existing pH limits require the discharge maintain a range between 6.0 and 9.0; satisfying the TMDL's pH concerns.

Anti-Backsliding

No limits or monitoring requirements are less stringent than what is established in the existing permit. Anti-backsliding is not applicable.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5 May 1 - Oct 31	73.4	110.2	XXX	20	30	40	1/week	8-Hr Composite
CBOD5 Nov 1 - Apr 30	91.8	137.7	XXX	25	37.5	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	110.2	165.2	XXX	30	45	60	1/week	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
UV Transmittance (%)	XXX	XXX	Report	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen May 1 - Oct 31	18.4	27.5	XXX	5.0	7.5	10.0	1/week	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	55.1	82.6	XXX	15.0	22.5	30.0	1/week	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous 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	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	91.7	137.6	XXX	25.0	37.5	50	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	73.4	110.1	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	110.2	165.2	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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	52.8	79.3	XXX	14.4	21.6	28.8	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	17.6	26.4	XXX	4.8	7.2	9.6	1/week	8-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

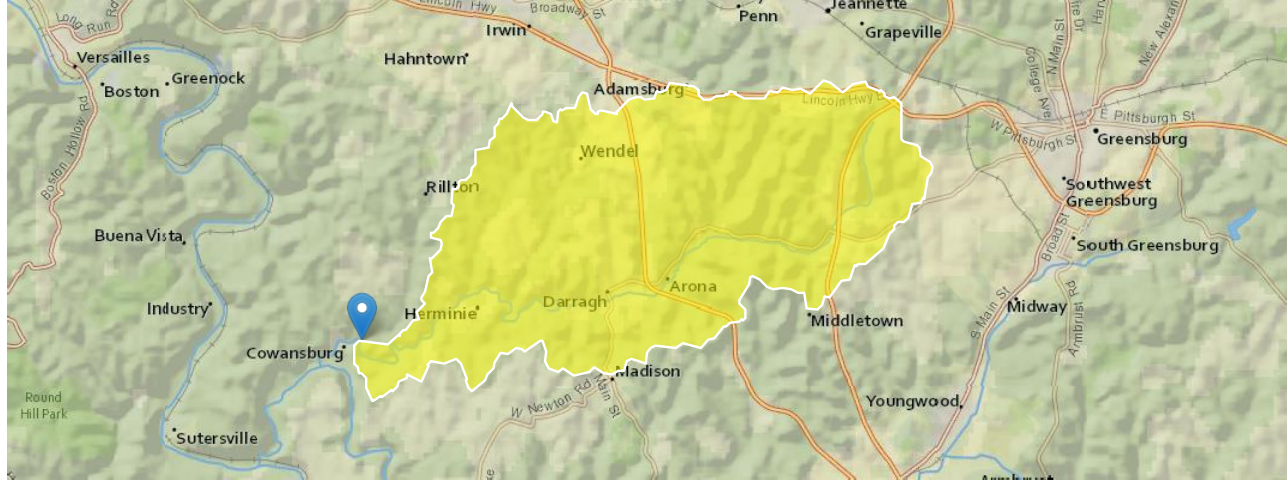
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Copper	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Zinc	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001

A study area is needed before viewing the report

Sewickley Township Wastewater Treatment Plant

Region ID: PA
 Workspace ID: PA20210203195826878000
 Clicked Point (Latitude, Longitude): 40.25588, -79.74871
 Time: 2021-02-03 14:58:48 -0500



Outfall 001 Drainage Area

Basin Characteristics			
Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	6.9696	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	7.1858	degrees
BSLPDRPA20	Unadjusted basin slope, in degrees, from PA v1	9.2652	degrees
CARBON	Percentage of area of carbonate rock	0	percent
CENTROXA83	X coordinate of the centroid, in NAD_1983_Albers, meters	-141610.7731	meters
CENTROYA83	Basin centroid horizontal (y) location in NAD 1983 Albers	143558.9817	meters
DRN	Drainage quality index from STATSGO	3.6	dimensionless
DRNAREA	Area that drains to a point on a stream	24.9	square miles
ELEV	Mean Basin Elevation	1121	feet
ELEVMAX	Maximum basin elevation	1453	feet
FOREST	Percentage of area covered by forest	50.9032	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	4.9284	percent
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	17.9117	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	21.2673	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	6.3516	percent
LONG_OUT	Longitude of Basin Outlet	-79.748721	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	61.3	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-148751.2773	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	140902.4607	meters
PRECIP	Mean Annual Precipitation	40	inches
ROCKDEP	Depth to rock	4.4	feet

Low-Flow (Q₇₋₁₀) Calculation

Facility: **Sewickley Township WWTP**
NPDES Permit No. **PA0219142**

Gage Information

Drainage Area: **94.9** mi²
Q₇₋₁₀: **4.1** cfs
LFY: **0.043** cfs

Outfall Information

Drainage Area: **30** mi²
Q₇₋₁₀: **1.3** cfs

Downstream Locations

RMI: **0.65**
Drainage Area: **31** mi²
Q₇₋₁₀: **1.339** cfs

RMI:
Drainage Area: mi²
Q₇₋₁₀: cfs

RMI:
Drainage Area: mi²
Q₇₋₁₀: cfs

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Drainage Area: mi²
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Drainage Area: mi²
Q₇₋₁₀: cfs

RMI:
Drainage Area: mi²
Q₇₋₁₀: cfs

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
19D	37557	LITTLE SEWICKLEY CREEK	0.800	777.00	30.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)	pH	(°C)	pH
Q7-10	0.043	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 Permitted Design			Reserve Factor	Disc Temp	Disc pH
		Disc Flow (mgd)	Disc Flow (mgd)	Disc Flow (mgd)		(°C)	
Sewickley Twp	PA0219142	0.4400	0.4400	0.4400	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	20.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	5.00	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
19D	37557	LITTLE SEWICKLEY CREEK	0.650	775.00	31.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)	pH	(°C)	pH
Q7-10	0.043	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 Permitted Design			Reserve Factor	Disc Temp	Disc pH
		Disc Flow (mgd)	Disc Flow (mgd)	Disc Flow (mgd)		(°C)	pH
		0.0000	0.0000	0.0000	0.000	0.00	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

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
19D	37557	LITTLE SEWICKLEY CREEK	0.000	759.00	167.00	0.00000	0.00	<input checked="" type="checkbox"/>

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	0.043	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	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 Permitted Design			Reserve Factor	Disc Temp (°C)	Disc pH
		Disc Flow (mgd)	Disc Flow (mgd)	Disc Flow (mgd)			
		0.0000	0.0000	0.0000	0.000	0.00	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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
19D		37557				LITTLE SEWICKLEY CREEK						
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.800	1.29	0.00	1.29	.6807	0.00253	.599	23.96	40.01	0.14	0.067	25.00	7.00
0.650	1.33	0.00	1.33	.6807	0.00466	.595	23.31	39.2	0.15	0.274	25.00	7.00
Q1-10 Flow												
0.800	0.83	0.00	0.83	.6807	0.00253	NA	NA	NA	0.12	0.078	25.00	7.00
0.650	0.85	0.00	0.85	.6807	0.00466	NA	NA	NA	0.12	0.319	25.00	7.00
Q30-10 Flow												
0.800	1.75	0.00	1.75	.6807	0.00253	NA	NA	NA	0.15	0.059	25.00	7.00
0.650	1.81	0.00	1.81	.6807	0.00466	NA	NA	NA	0.16	0.243	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
19D	37557	LITTLE SEWICKLEY CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.800	Sewickley Twp	6.76	10	6.76	10	0	0
0.650		NA	NA	6.76	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.800	Sewickley Twp	1.34	4.8	1.34	4.8	0	0
0.650		NA	NA	1.34	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.80	Sewickley Twp	20	20	4.8	4.8	4	4	0	0
0.65		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
19D	37557	LITTLE SEWICKLEY CREEK			
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
0.800	0.440	25.000		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
23.960	0.599	40.010		0.137	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
8.22	1.248	1.66		1.029	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
6.777	3.710	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.067	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.007	8.13	1.65	6.64	
	0.013	8.05	1.63	6.50	
	0.020	7.96	1.62	6.38	
	0.027	7.88	1.61	6.25	
	0.033	7.80	1.60	6.13	
	0.040	7.72	1.59	6.02	
	0.047	7.64	1.58	5.91	
	0.053	7.56	1.57	5.80	
	0.060	7.48	1.56	5.70	
	0.067	7.40	1.55	5.60	
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
0.650	0.440	25.000		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
23.313	0.595	39.196		0.145	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
7.28	1.163	1.51		1.029	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
5.656	7.243	Tsivoglou		5	
<u>Reach Travel Time (days)</u>	Subreach Results				
0.274	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.027	7.00	1.47	5.58	
	0.055	6.72	1.43	5.54	
	0.082	6.46	1.39	5.53	
	0.109	6.21	1.35	5.53	
	0.137	5.96	1.32	5.56	
	0.164	5.73	1.28	5.60	
	0.191	5.50	1.24	5.64	
	0.219	5.29	1.21	5.70	
	0.246	5.08	1.18	5.76	
	0.274	4.88	1.14	5.82	
<hr/>					

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
19D		37557		LITTLE SEWICKLEY CREEK			
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.800	Sewickley Twp	PA0219142	0.440	CBOD5	20		
				NH3-N	4.8	9.6	
				Dissolved Oxygen			4

Discharge Information

Instructions **Discharge** Stream

Facility: **Sewickley Township WWTP** NPDES Permit No.: **PA0219142** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.44	100	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank		1 if left blank		
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	335								
	Chloride (PWS)	mg/L	295								
	Bromide	mg/L	0.053								
	Sulfate (PWS)	mg/L	219								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	mg/L	0.053								
	Total Antimony	µg/L									
	Total Arsenic	µg/L									
	Total Barium	µg/L									
	Total Beryllium	µg/L									
	Total Boron	µg/L									
	Total Cadmium	µg/L									
	Total Chromium (III)	µg/L									
	Hexavalent Chromium	µg/L									
	Total Cobalt	µg/L									
	Total Copper	mg/L	0.012								
	Free Cyanide	µg/L									
	Total Cyanide	µg/L									
	Dissolved Iron	µg/L									
	Total Iron	mg/L	0.0401								
	Total Lead	mg/L	< 0.001								
	Total Manganese	mg/L	0.007								
	Total Mercury	µg/L									
	Total Nickel	µg/L									
	Total Phenols (Phenolics) (PWS)	µg/L									
	Total Selenium	µg/L									
	Total Silver	µg/L									
	Total Thallium	µg/L									
Total Zinc	mg/L	0.065									
Total Molybdenum	µg/L										
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									

Group 3	Carbon Tetrachloride	µg/L	<																							
	Chlorobenzene	µg/L																								
	Chlorodibromomethane	µg/L	<																							
	Chloroethane	µg/L	<																							
	2-Chloroethyl Vinyl Ether	µg/L	<																							
	Chloroform	µg/L	<																							
	Dichlorobromomethane	µg/L	<																							
	1,1-Dichloroethane	µg/L	<																							
	1,2-Dichloroethane	µg/L	<																							
	1,1-Dichloroethylene	µg/L	<																							
	1,2-Dichloropropane	µg/L	<																							
	1,3-Dichloropropylene	µg/L	<																							
	1,4-Dioxane	µg/L	<																							
	Ethylbenzene	µg/L	<																							
	Methyl Bromide	µg/L	<																							
	Methyl Chloride	µg/L	<																							
	Methylene Chloride	µg/L	<																							
	1,1,1,2-Tetrachloroethane	µg/L	<																							
	Tetrachloroethylene	µg/L	<																							
	Toluene	µg/L	<																							
	1,2-trans-Dichloroethylene	µg/L	<																							
	1,1,1-Trichloroethane	µg/L	<																							
	1,1,2-Trichloroethane	µg/L	<																							
	Trichloroethylene	µg/L	<																							
Vinyl Chloride	µg/L	<																								
Group 4	2-Chlorophenol	µg/L	<																							
	2,4-Dichlorophenol	µg/L	<																							
	2,4-Dimethylphenol	µg/L	<																							
	4,6-Dinitro-o-Cresol	µg/L	<																							
	2,4-Dinitrophenol	µg/L	<																							
	2-Nitrophenol	µg/L	<																							
	4-Nitrophenol	µg/L	<																							
	p-Chloro-m-Cresol	µg/L	<																							
	Pentachlorophenol	µg/L	<																							
	Phenol	µg/L	<																							
	2,4,6-Trichlorophenol	µg/L	<																							
	Group 5	Acenaphthene	µg/L	<																						
Acenaphthylene		µg/L	<																							
Anthracene		µg/L	<																							
Benzidine		µg/L	<																							
Benzo(a)Anthracene		µg/L	<																							
Benzo(a)Pyrene		µg/L	<																							
3,4-Benzofluoranthene		µg/L	<																							
Benzo(ghi)Perylene		µg/L	<																							
Benzo(k)Fluoranthene		µg/L	<																							
Bis(2-Chloroethoxy)Methane		µg/L	<																							
Bis(2-Chloroethyl)Ether		µg/L	<																							
Bis(2-Chloroisopropyl)Ether		µg/L	<																							
Bis(2-Ethylhexyl)Phthalate		µg/L	<																							
4-Bromophenyl Phenyl Ether		µg/L	<																							
Butyl Benzyl Phthalate		µg/L	<																							
2-Chloronaphthalene		µg/L	<																							
4-Chlorophenyl Phenyl Ether		µg/L	<																							
Chrysene		µg/L	<																							
Dibenzo(a,h)Anthracene		µg/L	<																							
1,2-Dichlorobenzene		µg/L	<																							
1,3-Dichlorobenzene		µg/L	<																							
1,4-Dichlorobenzene		µg/L	<																							
3,3-Dichlorobenzidine		µg/L	<																							
Diethyl Phthalate		µg/L	<																							
Dimethyl Phthalate		µg/L	<																							
Di-n-Butyl Phthalate		µg/L	<																							
2,4-Dinitrotoluene		µg/L	<																							

	2,6-Dinitrotoluene	µg/L	<								
	Di-n-Octyl Phthalate	µg/L	<								
	1,2-Diphenylhydrazine	µg/L	<								
	Fluoranthene	µg/L	<								
	Fluorene	µg/L	<								
	Hexachlorobenzene	µg/L	<								
	Hexachlorobutadiene	µg/L	<								
	Hexachlorocyclopentadiene	µg/L	<								
	Hexachloroethane	µg/L	<								
	Indeno(1,2,3-cd)Pyrene	µg/L	<								
	Isophorone	µg/L	<								
	Naphthalene	µg/L	<								
	Nitrobenzene	µg/L	<								
	n-Nitrosodimethylamine	µg/L	<								
	n-Nitrosodi-n-Propylamine	µg/L	<								
	n-Nitrosodiphenylamine	µg/L	<								
	Phenanthrene	µg/L	<								
	Pyrene	µg/L	<								
	1,2,4-Trichlorobenzene	µg/L	<								
Group 6	Aldrin	µg/L	<								
	alpha-BHC	µg/L	<								
	beta-BHC	µg/L	<								
	gamma-BHC	µg/L	<								
	delta BHC	µg/L	<								
	Chlordane	µg/L	<								
	4,4-DDT	µg/L	<								
	4,4-DDE	µg/L	<								
	4,4-DDD	µg/L	<								
	Dieldrin	µg/L	<								
	alpha-Endosulfan	µg/L	<								
	beta-Endosulfan	µg/L	<								
	Endosulfan Sulfate	µg/L	<								
	Endrin	µg/L	<								
	Endrin Aldehyde	µg/L	<								
	Heptachlor	µg/L	<								
	Heptachlor Epoxide	µg/L	<								
	PCB-1016	µg/L	<								
	PCB-1221	µg/L	<								
	PCB-1232	µg/L	<								
	PCB-1242	µg/L	<								
	PCB-1248	µg/L	<								
	PCB-1254	µg/L	<								
	PCB-1260	µg/L	<								
	PCBs, Total	µg/L	<								
	Toxaphene	µg/L	<								
	2,3,7,8-TCDD	ng/L	<								
	Group 7	Gross Alpha	pCi/L								
Total Beta		pCi/L	<								
Radium 226/228		pCi/L	<								
Total Strontium		µg/L	<								
Total Uranium		µg/L	<								
Osmotic Pressure		mOs/kg									

Stream / Surface Water Information

Sewickley Township WWTP, NPDES Permit No. PA0219142, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: Little Sewickley Creek

No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037557	0.8	777	30			Yes
End of Reach 1	037557	0.65	775	31			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.8	0.043										100	7		
End of Reach 1	0.65	0.043										100	7		

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.8														
End of Reach 1	0.65														

Model Results

Sewickley Township WWTP, NPDES Permit No. PA0219142, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

All Inputs Results Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	2,171	
Total Copper	0	0		0	13.439	14.0	40.5	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	236	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	117.180	120	347	Chem Translator of 0.978 applied

CFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	27.0	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	4,343	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	9.21	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	118.139	120	347	Chem Translator of 0.986 applied

THH

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,895	
Total Zinc	0	0		0	N/A	N/A	N/A	

 CRL

 CCT (min):

 PMF:

 Analysis Hardness (mg/l):

 Analysis pH:

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

 Recommended WQBELs & Monitoring Requirements

 No. Samples/Month:

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	Report	Report	Report	Report	Report	mg/L	0.026	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.22	AFC	Discharge Conc > 10% WQBEL (no RP)

 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 Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable

Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	1.39	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	4.34	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	N/A	N/A	Discharge Conc < TQL
Total Manganese	2.9	mg/L	Discharge Conc ≤ 10% WQBEL