pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

-Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0020681**
Facility Type	**Municipal**	APS ID	**514507**
Major / Minor	**Minor**	Authorization ID	**1085213**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Sewickley Borough**	Facility Name	**Sewickley Borough STP**
Applicant Address	601 Thorn Street	Facility Address	101 Chadwick Street
	Sewickley, PA 15143-0428		Sewickley, PA 15143
Applicant Contact	Ms. Donna Kaib	Facility Contact	Same as Applicant
Applicant Phone	(412) 741-6510	Facility Phone	Same as Applicant
Client ID	64910	Site ID	250149
Ch 94 Load Status	Not Overloaded	Municipality	Sewickley Borough
Connection Status		County	Allegheny
Date Application Received	August 7, 2015	EPA Waived?	Yes
Date Application Accepted	August 18, 2015	If No, Reason	

Purpose of Application: Application for the renewal of an NPDES permit for the discharge of treated Sewage.

Summary of Review

The applicant has applied for a renewal of an existing NPDES Permit, Permit No. PA0020681, which was previously issued by the Department on January 4, 2011. That permit expired on January 31, 2016.

WQM Permit No. 0269415 authorized the construction of a conventional activated sludge STP with a design flow/hydraulic design capacity of 0.9 MGD. The existing treatment process consists of screening/grit removal, primary clarification, conventional activated sludge secondary treatment, final clarification, and gas chlorine disinfection. The design organic capacity is 1,800 lbs/day.

The receiving stream, Ohio River, is classified as a WWF and is located in State Watershed No. 20-G.

CSO Outfalls 002, 003, 004, and 005 will again be permitted. These outfalls serve as combined sewer overflows necessitated by storm water entering the sewer system and exceeding the hydraulic capacity of the sewers and/or the treatment plant and are permitted to discharge only for this reason. Dry weather discharges from these outfalls are Prohibited. Part A.I.B, Identification of Combined Sewer Overflow Discharges, and Part C.II, Combined Sewer Overflows, have been added to the permit.

The Department previously approved the NMC and LTCP Reports (LTCP approved on August 11, 2009). The LTCP proposes to comply with the Presumption Approach Criteria of the EPA CSO Policy with an 85% capture rate for the system-wide combined sewage volume collected in the combined sewer system during precipitation events under average design conditions.

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Project Manager	October 21, 2022
X		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	November 29, 2022

Summary of Review

The Borough has failed to submit a Post Construction Compliance Monitoring Plan (PCCMP) to the Department as required by the approved LTCP Task Implementation Schedule (Milestone Completion Date of May 1, 2012). Submission of the PCCMP will be required within 12 months of the permit effective date as stated in Part C.II.C.3.

Sludge use and disposal description and location(s): Anaerobic digestion utilized to stabilize solids, followed by a belt filter press to dewater stabilized sludge for landfill disposal.

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.9
Latitude	40º 32' 22.00"	Longitude	-80º 11' 33.00"
Quad Name	Ambridge	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Ohio River (WWF)	Stream Code	32317
NHD Com ID	996804060	RMI	969.0
Drainage Area	19,500	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	**4730**	Q_{7-10} Basis	2019 ORSANCO Pol. Ctrl. Stds.
Elevation (ft)	692 (normal pool elev.)	Slope (ft/ft)	0.0001
Watershed No.	20-G	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired (Fish Consumption, Recreation); Attaining (Aquatic Life, Potable Water Supply)		
Cause(s) of Impairment	1. PCBs (Fish Consumption); 2. Dioxins (Fish Consumption); 3. Pathogens (Recreation)		
Source(s) of Impairment	1. Source unknown; 2. Source unknown; 3. Source unknown		
TMDL Status	Final (PCBs; Fish Consumption)	Name	Ohio River TMDL (4/9/2001)

Background/Ambient Data		Data Source
pH (SU)	7.7	WQN 902 – Ohio River at Sewickley (10/1998 to 3/2020) Median of data reported between July 1 and Sept. 30
Temperature (°F)	25.27	WQN 902 – Ohio River at Sewickley (10/1998 to 3/2020) Median of data reported between July 1 and Sept. 30
Hardness (mg/L)	100.1	WQN 902 – Ohio River at Sewickley (10/1998 to 3/2020) Arithmetic mean of data
Other:		

Nearest Downstream Public Water Supply Intake		Center Township Water Authority	
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: NONE

Other Comments: Ohio River TMDL

A TMDL for the Ohio River was approved by the EPA on April 9, 2001 for the control of PCBs and chlordane. This TMDL applies to RMI 981 – 940.74 on the Ohio River. 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 waste load allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The TMDL document states that the production and use of PCBs were banned in the US in July 1979 and the use of chlordane in the US has been banned since April 1988. Therefore, there are no new point sources for either of these pollutants. Known, existing point sources of PCBs and/or chlordane have obtained NPDES permits with WQBELs for those pollutants. PCBs and chlordane in the Ohio River are expected to be present primarily in the sediment due to historic use and improper disposal practices. Natural attenuation is expected to reduce PCB and chlordane contamination

in the Ohio River over time. The TMDL is monitoring the concentrations of PCBs and chlordane in fish therefore Sewickley Borough STP will not be assigned waste load allocations or monitoring for PCBs and chlordane.

Treatment Facility Summary

Treatment Facility Name: Sewickley Borough STP

WQM Permit No.	Issuance Date
0269415	5/26/1969

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Conventional Activated Sludge	Gas Chlorine	0.686

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.9	1800	Not Overloaded	Anerobic Digester & Belt Filter Press	Landfill

Changes Since Last Permit Issuance: NONE

Other Comments: N/A

Compliance History

Operations Compliance Check Summary Report

Facility: Sewickley Borough STP

NPDES Permit No.: PA0020681

Compliance Review Period: 10/2017 – 10/2022

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3346177	04/05/2022	Compliance Evaluation	County Health Dept	Violation(s) Noted
3247442	09/09/2021	Combined Sewer Overflow-Non-Sampling	County Health Dept	Pending
3166888	03/04/2021	Compliance Evaluation	County Health Dept	Violation(s) Noted
2993445	02/04/2020	Compliance Evaluation	County Health Dept	Violation(s) Noted
2881963	05/07/2019	Compliance Evaluation	County Health Dept	Violation(s) Noted
2738914	06/06/2018	Compliance Evaluation	County Health Dept	Violation(s) Noted
2726480	04/25/2018	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
951246	04/05/2022	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	05/03/2022
951247	04/05/2022	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	05/03/2022
951248	04/05/2022	92A.46	NPDES - Violation of Part C permit condition(s)	05/03/2022
911336	03/04/2021	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	10/28/2021
911337	03/04/2021	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	10/28/2021
911338	03/04/2021	92A.46	NPDES - Violation of Part C permit condition(s)	10/28/2021

876021	02/04/2020	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	10/28/2021
876022	02/04/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	10/28/2021
876023	02/04/2020	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	10/28/2021
849809	05/07/2019	92A.44	NPDES - Violation of effluent limits in Part A of permit	06/10/2019
849810	05/07/2019	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	06/10/2019
849811	05/07/2019	302.1202	Operator Certification - Owner failed to comply with the Act or Chapter 302 regulations	06/10/2019
849812	05/07/2019	92A.46	NPDES - Violation of Part C permit condition(s)	06/10/2019
849813	05/07/2019	CSL201	CSL - Unauthorized, unpermitted discharge of sewage to waters of the Commonwealth	06/10/2019
819194	06/06/2018	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	06/06/2018

Open Violations by Client ID:

No open violations for Client ID 64910

Enforcement Summary:

ENF ID	ENF TYPE	EXECUTED DATE	# OF VIOLATIONS	ENF FINALSTATUS	ENF CLOSED DATE
404884	NOV	05/03/2022	3	Comply/Closed	05/03/2022
375969	NOV	06/10/2019	5	Administrative Close Out	04/12/2021
367862	NOV	08/06/2018	1	Administrative Close Out	08/30/2019

DMR Violation Summary:

START	END	PARAMETER	SAMPLE	PERMIT	UNIT OF MEASURE	STATISTICAL BASE CODE
09/01/2019	09/30/2019	Total Suspended Solids	77	45	mg/L	Weekly Average
09/01/2019	09/30/2019	Total Suspended Solids	362	338	lbs/day	Weekly Average
03/01/2019	03/31/2019	Total Residual Chlorine (TRC)	1.1	1.0	mg/L	Average Monthly

08/01/2018	08/31/2018	Carbonaceous Biochemical Oxygen Demand (CBOD5)	58	38	mg/L	Weekly Average
08/01/2018	08/31/2018	Carbonaceous Biochemical Oxygen Demand (CBOD5)	382	285	lbs/day	Weekly Average

Compliance Status:

In compliance

Completed by: John Murphy

Completed date: 10/17/2022

Compliance History

DMR Data for Outfall 001 (from September 1, 2021 to August 31, 2022)

Parameter	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21
Flow (MGD) Average Monthly	0.663	0.679	0.688	0.951	0.834	0.788	1.227	0.773	0.764	0.593	0.749	0.824
Flow (MGD) Daily Maximum	1.249	0.970	0.975	2.663	1.290	1.076	2.525	1.509	1.231	0.673	1.229	2.207
pH (S.U.) Minimum	7.0	6.9	7.0	7.0	7.2	7.3	7.1	7.0	7.0	6.8	7.1	6.8
pH (S.U.) Maximum	7.5	7.5	7.5	7.7	7.7	7.7	7.8	7.7	7.5	7.4	7.5	7.8
TRC (mg/L) Average Monthly	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
TRC (mg/L) Instantaneous Maximum	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0
CBOD5 (lbs/day) Average Monthly	30	23	28	39	35	29	58	45	37	17	20	55
CBOD5 (lbs/day) Weekly Average	47	30	37	60	54	37	64	56	70	24	29	142
CBOD5 (mg/L) Average Monthly	6	4	4	6	5	4	7	7	6	3	3	5
CBOD5 (mg/L) Weekly Average	8	5	6	8	6	6	9	9	9	5	5	8
TSS (lbs/day) Average Monthly	26	48	41	27	31	24	46	57	33	33	84	65
TSS (lbs/day) Weekly Average	45	94	89	41	55	35	84	97	64	89	161	82
TSS (mg/L) Average Monthly	5	8	6	4	4	4	6	9	6	7	15	8
TSS (mg/L) Weekly Average	8	15	11	7	8	3	10	14	11	18	29	13
Fecal Coliform (CFU/100 ml) Geometric Mean	1	6	7	27	44	17	6	5	2	6	16	5
Fecal Coliform (CFU/100 ml) Instantaneous Maximum					87	172	19	30	4	179		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.9
Latitude 40º 32' 22.00" **Longitude** -80º 11' 33.00"
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)

Comments: The discharge was evaluated using WQM 7.0 Version 1.1 & TRC_CALC (Attachment 2 & 3) to evaluate $CBOD_5$, Ammonia Nitrogen, Dissolved Oxygen, and TRC parameters. The modeling results show the above technology based effluent limitations for $CBOD_5$ and TRC are appropriate.

For existing discharges, if WQM modeling results for summer indicates that an average monthly limit of 25 mg/L (ammonia-nitrogen) is acceptable, the application manager will generally establish a year-round monitoring requirement for ammonia-nitrogen (Section I.A, Note 5, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9).

Water Quality-Based Limitations

Comments: NO WQBELs will be established at this time for this facility (Department Models WQM 7.0 Version 1.1, TRC_CALC, and TMS Version 1.3).

Best Professional Judgment (BPJ) Limitations

Comments: A minimum Dissolved Oxygen (DO) limit of 4.0 mg/L should be established based on BPJ to ensure adequate operation and maintenance (Section I.A, Note 6, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9).

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.

ORSANCO Pollution Control Standards

The Ohio River Valley Water Sanitation Commission (ORSANCO) is an interstate commission established by interstate compact that sets water quality standards (Pollution Control Standards) for the Ohio River. The Ohio River is a water of the Commonwealth and is the receiving water for discharges from Sewickley Borough STP. DEP implements ORSANCO's Standards pursuant to 25 Pa. Code § 92.12(b), which states:

> When interstate or international agencies under an interstate compact or international agreement establish applicable effluent limitations or standards for dischargers of this Commonwealth to surface waters that are more stringent than those required by this title, the more stringent standards and limitations apply.

Chapter 5.4(A) of ORSANCO's 2019 Pollution Control Standards (the current version) requires the following level of treatment for sewage discharges to the Ohio River:

Table 3. ORSANCO TBELs and Effluent Standards for Sewage Discharges

Parameter	Average Monthly (mg/L)	Weekly Average (mg/L)	Basis
Total Suspended Solids	30	45	Section 5.4(A)(2)
$CBOD_5$	25	40	Section 5.4(A)(1)(ii)
Fecal Coliform (No. /100mL)	2,000 (Geometric Mean)	—	Section 5.4(A)(4)(i)
E. coli (No. /100mL) April 1 – October 31	130 (90-day Geometric Mean)	240 (in 25% of samples)	Section 5.4(A)(4)(ii)
pH	not less than 6.0 and not greater than 9.0 s.u.		Section 5.4(A)(3)

The effluent standards given by ORSANCO are similar to those required by 25 Pa. Code § 92a.47(a) except for the application of *E. coli* limits from April 1 through October 31 and a fecal coliform limit of 2,000/100mL as a 30-day geometric mean that applies year-round. ORSCANO's fecal coliform effluent standard is already superseded by the effluent standards of § 92a.47(a)(4) and (a)(5) because the same 2,000/100mL fecal coliform limit as ORSANCO's applies to sewage discharges between October 1 and April 30 and a more stringent limit (200/100mL) applies during the rest of the year.

With respect to ORSANCO's *E. coli* limit, DEP previously determined that the fecal coliform limits currently in effect in Borough's permit are more stringent than the *E. coli* effluent standards given by ORSANCO. That determination was based on calculations performed using a correlation equation developed by Ohio EPA[1] that converts between the numbers of fecal coliform and *E. coli* bacteria present in a sample. For reference, the calculations are shown below.

Ohio EPA: Fecal Coliform to *E. coli* Conversion Equation

$$E.coli = 0.403 \times (Fecal\ Coliform)^{1.028}$$

$$Fecal\ Coliform = \sqrt[1.028]{\frac{E.coli}{0.403}}$$

Fecal Coliform Equivalent of 130/100mL *E. coli* (90-Day Geometric Mean)

[1] Ohio EPA Bacterial TMDL Correlation Equations for Converting Between Fecal Coliform and *E. Coli* (December 2006).

$$Fecal\ Coliform = \sqrt[1.028]{\frac{130}{0.403}} \approx 275/100mL$$

Fecal Coliform Equivalent of 240/100mL *E. coli* (in 25% of Samples)

$$Fecal\ Coliform = \sqrt[1.028]{\frac{240}{0.403}} \approx 500/100mL$$

The Borough's existing fecal coliform limit of 200/100mL as a 30-day geometric mean is more stringent than the 275/100mL fecal coliform equivalent of ORSANCO's *E. coli* limit of 130/100mL as a 90-day geometric mean. That is, the Borough is already obligated by its existing permit limits to achieve a higher level of disinfection over a shorter timeframe (30 days instead of 90 days) than ORSANCO requires.

Additionally, the Borough's existing instantaneous maximum fecal coliform limit of 400/100mL is more stringent than the 500/100mL fecal coliform equivalent of ORSANCO's *E. coli* limit of 240/100mL in 25% of samples. That is, the Borough is already obligated by its existing permit limits to achieve a higher level of disinfection in all samples than ORSANCO requires in only 25% of samples.

Since the Borough's existing fecal coliform limits are more stringent than the fecal coliform equivalents of ORSANCO's *E. coli* effluent standards, the *E. coli* effluent standards from ORSANCO will not be imposed at Outfall 001. Monitoring for *E. coli* still will be required at Outfall 001, as discussed previously.

As with the previous permit, the months during which the Borough's fecal coliform limits are in effect are modified from the time periods given in § 92a.47(a)(4) and (a)(5) to match the months during which ORSANCO's *E. coli* limits apply, which is necessary to maintain equivalent (or greater) stringency between the Borough's fecal coliform requirements and ORSANCO's *E. coli* requirements. As a result, the Borough's 200/100mL and 400/100mL limits will apply from April 1 through October 31 (one month earlier and one month later than § 92a.47(a)(4) requires). The months during which the Borough's 2,000/100mL and 10,000/100mL limits apply are reduced accordingly to November 1 through March 31.

Pursuant to the above discussion and 40 CFR § 122.44(l) (regarding anti-backsliding) the Borough's existing fecal coliform limits will be maintained in the renewed permit.

Chapter 5, Section B of ORSANCO's Pollution Control Standards also requires each holder of an individual NPDES permit to post a permanent marker on the stream bank at each outfall discharging directly to the Ohio River. That requirement will be included as a condition of the permit.

Additional Considerations

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 and Other Permit Conditions in NPDES Permits (Document No. 362-0400-001).

For POTWs, mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for CBOD5 and TSS (Section IV, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9)

For POTWs with design flows greater than 2,000 GPD and for non-municipal sewage facilities that service municipalities or portions thereof, the application manager will establish influent BOD5 and TSS monitoring in the permit using the same frequency and sample type as is used for other effluent parameters (Section IV.E.8, SOP for Clean Water Program, New and Reissuance Sewage Individual NPDES Permit Applications, Final November 9, 2012, Revised February 3, 2022, Version 2.0).

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for facilities with design flows of >= 0.05 MGD and < 1.0 MGD per Chapter 92a.61.

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 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" (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	1/week	Metered
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	0.5	XXX	1.6	1/day	Grab
CBOD5	185.0	300.0	XXX	25.0	40.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
TSS	225.0	335.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Nov 1 - Mar 31	XXX	XXX	XXX	2000	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) Apr 1 - Oct 31	XXX	XXX	XXX	200	XXX	400	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	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		
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

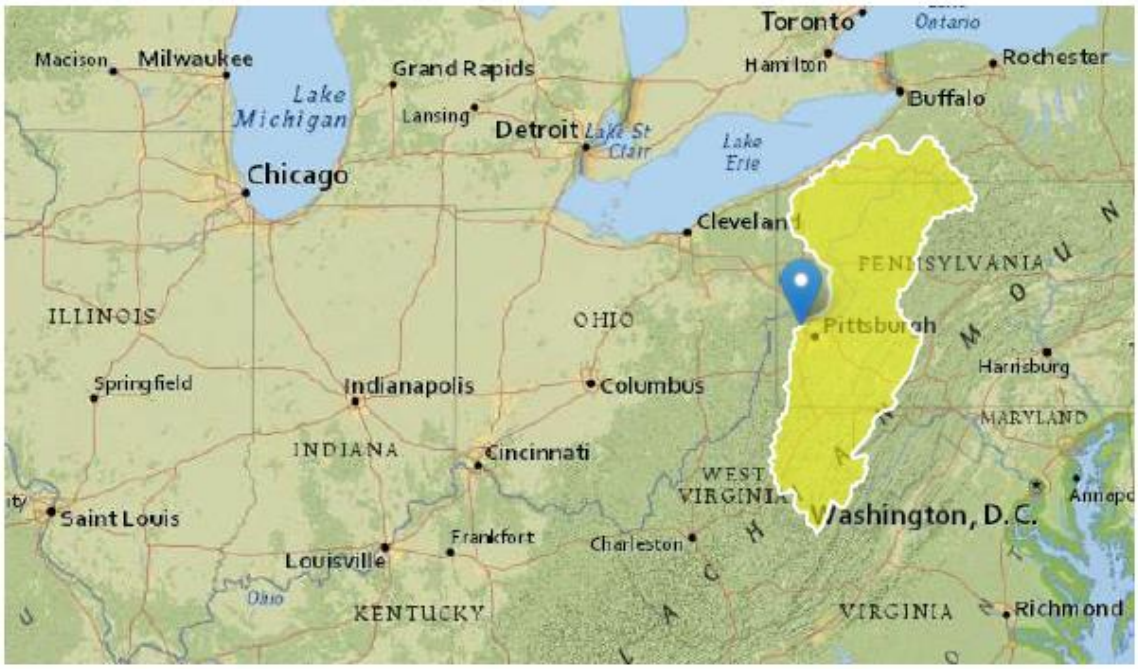
Compliance Sampling Location: Outfall 001

Other Comments: N/A

Attachment #1 – USGS StreamStats Report

StreamStats Report - PA0020681

Region ID: PA
Workspace ID: PA20221005184906388000
Clicked Point (Latitude, Longitude): 40.53901, -80.19419
Time: 2022-10-05 14:49:47 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	19500	square miles
ELEV	Mean Basin Elevation	1673	feet
PRECIP	Mean Annual Precipitation	45	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [57.4 Percent (11200 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19500	square miles	2.33	1720
ELEV	Mean Basin Elevation	1673	feet	898	2700
PRECIP	Mean Annual Precipitation	45	inches	38.7	47.9

Low-Flow Statistics Parameters [42.3 Percent (8240 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	19500	square miles	2.26	1400
ELEV	Mean Basin Elevation	1673	feet	1050	2580

Low-Flow Statistics Disclaimers [57.4 Percent (11200 square miles) 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 [57.4 Percent (11200 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2820	ft^3/s
30 Day 2 Year Low Flow	3550	ft^3/s
7 Day 10 Year Low Flow	2000	ft^3/s
30 Day 10 Year Low Flow	2320	ft^3/s
90 Day 10 Year Low Flow	3100	ft^3/s

Low-Flow Statistics Disclaimers [42.3 Percent (8240 square miles) 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 [42.3 Percent (8240 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2860	ft^3/s
30 Day 2 Year Low Flow	3550	ft^3/s
7 Day 10 Year Low Flow	1940	ft^3/s
30 Day 10 Year Low Flow	2030	ft^3/s
90 Day 10 Year Low Flow	2770	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2830	ft^3/s
30 Day 2 Year Low Flow	3540	ft^3/s
7 Day 10 Year Low Flow	1970	ft^3/s
30 Day 10 Year Low Flow	2190	ft^3/s
90 Day 10 Year Low Flow	2950	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/)

functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.10.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment # 2 – WQM 7.0 Version 1.1 – Warmer Period

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
20E	32317	OHIO RIVER	969.000	692.00	19500.00	0.00010	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	0.100	4730.00	0.00	0.000	0.000	0.0	1063.00	12.00	25.27	7.70	20.00	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
Sewickley STP	PA0020681	0.9000	0.9000	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

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
20E	32317	OHIO RIVER	968.000	691.90	19501.00	0.00010	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	0.100	4730.00	0.00	0.000	0.000	0.0	0.00	12.00	25.27	7.70	20.00	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	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

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

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												
969.000	4730.00	0.00	4730.00	1.3923	0.00010	12	1063	88.58	0.37	0.165	20.00	7.70
Q1-10 Flow												
969.000	3027.20	0.00	3027.20	1.3923	0.00010	NA	NA	NA	0.24	0.257	20.00	7.70
Q30-10 Flow												
969.000	6432.80	0.00	6432.80	1.3923	0.00010	NA	NA	NA	0.50	0.121	20.00	7.70

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
20E	32317	OHIO RIVER

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
969.000	Sewickley STP	6.72	50	6.72	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
969.000	Sewickley STP	1.14	25	1.14	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)		
969.00	Sewickley STP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
969.000	0.900	20.000	7.699
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1063.000	12.000	88.583	0.371
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.005	0.01	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.242	0.189	O'Connor	5
Reach Travel Time (days)			
0.165			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.016	2.01	0.01	8.24
0.033	2.01	0.01	8.24
0.049	2.01	0.01	8.24
0.066	2.01	0.01	8.24
0.082	2.01	0.01	8.24
0.099	2.01	0.01	8.24
0.115	2.01	0.01	8.24
0.132	2.01	0.01	8.24
0.148	2.01	0.01	8.24
0.165	2.01	0.01	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20E	32317	OHIO RIVER

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)
969.000	Sewickley STP	PA0020681	0.900	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Attachment # 3 – TRC_CALC

Copy of TRC_CALC

TRC EVALUATION

4730	= Q stream (cfs)	0.5	= CV Daily
0.9	= 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)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1083.744	1.3.2.iii	WLA cfc = 1056.558
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 403.829	5.1d	LTA_cfc = 614.233

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)**

Attachment # 4 – TMS Version 1.3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Sewickley STP** NPDES Permit No.: **PA0020681** Outfall No.: **001**

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

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
0.9	100	7						

	Discharge Pollutant	Units		Max Discharge Conc	0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		951									
	Chloride (PWS)	mg/L		368									
	Bromide	mg/L		0.24									
	Sulfate (PWS)	mg/L		81.5									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	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	µg/L		30									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L	<	20									
	Total Manganese	µg/L											
	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	µg/L		60									
	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	<										
	1,1,2,2-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)Anthrancene	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											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Sewickley STP, NPDES Permit No. PA0020681, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Ohio River

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	032317	969	692	19500	0.0001		Yes
End of Reach 1	032317	968	691.9	19501	0.0001		Yes

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

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	969	0.2425	4730			1063	12					100.1	7.7		
End of Reach 1	968	0.2425													

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	969														
End of Reach 1	968														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Sewickley STP, NPDES Permit No. PA0020681, 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)
969	4,730		4,730	1.392	0.0001	12.	1063.	88.583	0.371	0.165	3723.631
968	4730.243		4730.2425								

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)
969	12100.89		12100.89	1.392	0.0001	18.14	1063.	58.598	0.628	0.097	2004.115
968	12101.436		12101.44								

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 15 PMF: 0.063 Analysis Hardness (mg/l): 100.1 Analysis pH: 7.69

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 Copper	0	0		0	13.452	14.0	3,035	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.651	81.7	17,708	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.279	120	25,977	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 720 PMF: 0.440 Analysis Hardness (mg/l): 100.1 Analysis pH: 7.70

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 Copper	0	0		0	8.963	9.34	13,957	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.519	3.19	4,762	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.239	120	179,261	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.440 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 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 Copper	0	0		0	1,300	1,300	1,943,324	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	7,400	7,400	11,061,999	

☑ ***CRL*** CCT (min): 720 PMF: 0.599 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 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 Copper	0	0		0	N/A	N/A	N/A	
Total Lead	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: 4

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

☑ ***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 Copper	1,946	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	4,762	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	16,650	µg/L	Discharge Conc ≤ 10% WQBEL