pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0217271**
Facility Type	**Municipal**	APS ID	**1058089**
Major / Minor	**Minor**	Authorization ID	**1387248**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Ohio Township Sanitary Authority**	Facility Name	**Kilbuck Run STP**
Applicant Address	1719 Roosevelt Road	Facility Address	Red Mud Hollow Road
	Pittsburgh, PA 15237-1050		Pittsburgh, PA 15237
Applicant Contact	Dennis Coyle	Facility Contact	Dennis Blakley
Applicant Phone	(412) 364-4549	Facility Phone	(412) 366-2700
Client ID	45245	Site ID	553893
Ch 94 Load Status	Not Overloaded	Municipality	Sewickley Hills
Connection Status	No Limitations	County	Allegheny
Date Application Received	March 4, 2022	EPA Waived?	Yes
Date Application Accepted	March 14, 2022	If No, Reason	

Purpose of Application: Renewal of NPDES permit for the discharge of treated sewage.

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0217271. The previous permit was issued on August 4, 2017 and expired on August 31, 2022. The permit is currently under administrative extension.

Sewage from this plant is treated with activated sludge, sedimentation basins, and UV light disinfection.

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

The Act 14-PL 834 Municipal Notification was provided by the February 24, 2022 letters and no comments were received.

Below is a summary of changes made to this permit:

- *E. Coli* monitoring was imposed.
- Ammonia-nitrogen limits became more stringent. The facility's current effluent concentrations fall within the newly imposed limits. A compliance schedule would not be necessary.
- All instances of 8-hr composite sampling have been changed to 24-hr composite samples.
- All instances of weekday sampling have been changed to daily sampling.
- Mass loading limits for $CBOD_5$ and TSS have been rounded to comply with DEP guidance. They are slightly more stringent than the previous cycle.
- Total Lead monitoring was reimposed but sampling frequency was increased to 1/week.

Sludge use and disposal description and location(s): liquid sludge is brought to Pine Creek STP when necessary.

Approve	Deny	Signatures	Date
X		Grace Polakoski Grace Polakoski, E.I.T. / Environmental Engineering Specialist	February 9, 2023
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	February 14, 2023

Summary of Review

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)	0.295
Latitude	40º 33' 29.42"	Longitude	-80º 6' 53.2"
Quad Name	Emsworth	Quad Code	1405
Wastewater Description:	Sewage Effluent		
Receiving Waters	Kilbuck Run (CWF)	Stream Code	36739
NHD Com ID	99682740	RMI	3.57
Drainage Area	1.64 sq. mi.	Yield (cfs/mi^2)	0.009
Q_{7-10} Flow (cfs)	0.0148	Q_{7-10} Basis	USGS StreamStats (Attachment A)
Elevation (ft)		Slope (ft/ft)	
Watershed No.	20-G	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	**N/A**		
Source(s) of Impairment	**N/A**		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Moon Twp Municipal Authority		
PWS Waters	Ohio River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	6.64

Changes Since Last Permit Issuance: USGS StreamStats was used for the Q_{7-10} flow instead of Bulletin #12.

Treatment Facility Summary

Treatment Facility Name: Kilbuck Run STP

WQM Permit No.	Issuance Date	Purpose
0204405	03/03/1975	Construction of original STP
0275454 A-1	04/29/2005	Construction of new STP including: a comminutor with a bypass bar screen, a flow equalization basin, two aeration tanks, two final clarifiers, two aerobic sludge holding tanks, and a UV disinfection system

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Aerobic Digestion	UV	0.295

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.295	541	Not Overloaded	N/A	Other WWTP

Changes Since Last Permit Issuance: N/A

Compliance History

Facility: Kilbuck Run STP

NPDES Permit No.: PA0217271

Compliance Review Period: 6/2017 – 6/2022

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3187681	04/28/2021	Compliance Evaluation	County Health Dept	No Violations Noted
3096631	05/19/2020	Compliance Evaluation	County Health Dept	No Violations Noted
2855956	03/13/2019	Compliance Evaluation	County Health Dept	No Violations Noted
2747930	06/07/2018	Compliance Evaluation	County Health Dept	No Violations Noted
2726398	04/23/2018	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted
2618365	07/18/2017	Compliance Evaluation	County Health Dept	No Violations Noted

Violation Summary:
No Violations

Open Violations by Client ID:
No open violations for client id 45245

Enforcement Summary:
No open enforcements

DMR Violation Summary:
Fecal exceedance 5/22
TSS exceedance 11/21

Compliance Status:
Permittee in compliance.

Completed by: John Murphy

Completed date: 6/17/2022

Compliance History

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
Flow (MGD) Average Monthly	0.040	0.036	0.059	0.037	0.048	0.043	0.036	0.043	0.059	0.045	0.043	0.045
Flow (MGD) Daily Maximum	0.071	0.059	0.146	0.082	0.095	0.320	0.090	0.125	0.178	0.072	0.067	0.116
pH (S.U.) Minimum	6.6	6.8	6.8	6.6	6.6	7.1	6.7	7.1	6.8	6.6	7.2	7.3
pH (S.U.) Maximum	7.2	7.5	7.3	7.4	7.6	7.8	8.0	7.9	7.8	7.9	8.0	7.9
DO (mg/L) Minimum	6.2	7.0	7.0	6.8	7.2	6.7	6.3	6.2	6.2	6.3	6.0	6.7
CBOD5 (lbs/day) Average Monthly	1.7	1.5	1.6	1.3	1.7	1.7	0.8	1.7	2.0	1.3	1.8	1.7
CBOD5 (lbs/day) Weekly Average	2.1	2.1	2.7	2.0	3.0	3.9	1.0	3.3	5.4	2.4	3.4	2.5
CBOD5 (mg/L) Average Monthly	5.4	6.6	4.9	4.9	4.1	7.0	4.0	4.6	4.1	3.8	5.2	5.1
CBOD5 (mg/L) Weekly Average	6.9	11.2	9.1	6.8	4.7	16.3	4.0	5.4	4.4	6.1	6.4	6.9
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	94	93	117	99	120	96	84	129	184	126	116	102
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	103	130	163	113	158	107	106	240	499	195	181	129
BOD5 (mg/L) Raw Sewage Influent Average Monthly	294	392	320	389	320	401	365	345	373	426	341	329
TSS (lbs/day) Average Monthly	3.3	3.9	3.6	2.5	2.7	4.2	1.3	3.0	2.5	1.5	1.5	2.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	92	101	177	117	103	237	85	118	254	139	163	82
TSS (lbs/day) Raw Sewage Influent Daily Maximum	112	153	446	157	117	747	123	214	839	218	447	133

TSS (lbs/day) Weekly Average	4.5	8.1	6.5	4.9	4.8	12.1	2.1	5.9	4.7	3.0	3.6	6.2
TSS (mg/L) Average Monthly	10.1	17.7	9.7	9.5	7.8	17.0	6.0	7.8	6.0	4.3	4.1	7.2
TSS (mg/L) Raw Sewage Influent Average Monthly	291	429	496	468	296	949	372	322	435	471	532	262
TSS (mg/L) Weekly Average	12.0	44.0	11.2	19.6	14.5	50.0	9.0	10.2	10.0	7.6	6.8	17.2
Fecal Coliform (No./100 ml) Geometric Mean	10	8	2	6	84	9	4	3	4	3	4	4
Fecal Coliform (No./100 ml) Instantaneous Maximum	23	20	7	11	2420	21	12	25	12	30	14	16
UV Transmittance (%) Minimum	44.3	51.7	23.1	42.2	46.6	61	62	48.7	60.8	60	60.1	55.8
Total Nitrogen (mg/L) Daily Maximum					9.06							
Ammonia (lbs/day) Average Monthly	0.5	0.4	0.4	0.04	1.5	0.29	0.13	0.21	0.15	0.1	0.4	0.09
Ammonia (mg/L) Average Monthly	1.8	1.7	1.2	0.17	2.4	1.2	0.6	0.65	0.43	0.3	1.0	0.30
Total Phosphorus (mg/L) Daily Maximum					2.94							
Total Lead (mg/L) Daily Maximum					0.8							

Compliance History

Effluent Violations for Outfall 001, from: June 1, 2021 To: April 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	11/30/21	Wkly Avg	50.0	mg/L	45.0	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.295
Latitude 40º 33' 29.42" **Longitude** -80º 6' 53.2"
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

WQM7.0
WQM7.0 is a water quality modeling program for Windows that determines Waste Load Allocations ("WLAs") and effluent limitations for carbonaceous biochemical oxygen demand ("CBOD5"), ammonia-nitrogen, and dissolved oxygen for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the ammonia-nitrogen module, the model simulates the mixing and degradation of ammonia-nitrogen in the stream and compares calculated instream ammonia-nitrogen concentrations to ammonia-nitrogen water quality criteria. In the dissolved oxygen module, the model simulates the mixing and consumption of dissolved oxygen in the stream due to the degradation of CBOD5 and ammonia-nitrogen and compares calculated instream dissolved oxygen concentrations to dissolved oxygen water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for the summer period is done first because allowable ammonia-nitrogen concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period.

The model inputs used to model the discharge from Kilbuck Run STP are shown below:

Stream Parameters			
Reach 1		**Reach 2**	
Stream Code	36739	Stream Code	36739
RMI	3.57	RMI	3.47
Elevation (ft)	1019	Elevation (ft)	1018
Drainage Area (mi^2)	1.64	Drainage Area (mi^2)	1.66
Q_{7-10} Flow (cfs)	0.0148	Q_{7-10} Flow (cfs)	0.0151

Facility/Design Parameters	
Discharge Flow (MGD)	0.295
LFY (cfs/mi^2) [for use in summer modeling]	0.009
2*LFY (cfs/mi^2) [for use in winter modeling]	0.018

Summer Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	20	Temperature (°C)	20
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	9.01	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	6	DO Goal (mg/L)	6
Winter Modeling Inputs			
Tributary		**Discharge**	
Temperature (°C)	5	Temperature (°C)	15
pH (S.U.)	7	pH (S.U.)	7
DO (mg/L)	12.51	DO (mg/L)	4
$CBOD_5$ (mg/L)	2	$CBOD_5$ (mg/L)	25
NH_3-N (mg/L)	0	NH_3-N (mg/L)	25
DO Goal (mg/L)	6	DO Goal (mg/L)	6

The modeling results (output files can be found in Attachments B and C) show that water-quality based effluent limitations for these parameters are appropriate.

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	6	Minimum	WQM7.0
Ammonia Nitrogen (Nov 1 – Apr 30)	2.79	Average Monthly	WQM7.0
Ammonia Nitrogen (May 1 – Oct 31)	1.97	Average Monthly	WQM7.0

The modeling results show that technology-based effluent limitations for $CBOD_5$ are appropriate. However, during the last permit cycle, seasonal $CBOD_5$ limits were imposed. These seasonal $CBOD_5$ limits prove to be more stringent than the recommended TBELs for $CBOD_5$ so they will be reimposed this permit cycle to comply with anti-backsliding regulations.

Toxics Management Spreadsheet (TMS)
WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." The Department of Environmental Protection developed the Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and

pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP's TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling.

The TMS evaluates each pollutant by computing a Wasteload Allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations that are not detectable at the level of DEP's Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

Per DEP SOP "Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers" (SOP No. BCW-PMT-037), the Toxics Management Spreadsheet (TMS) will be run for all pollutants for which sampling data is available. All sewage facilities with a design flow of greater than or equal to 0.1 MGD are required to provide effluent samples for: pH, TRC, fecal coliform, $CBOD_5$ or BOD_5, TSS, NH_3-N, Total N, Total P, DO, temperature, TKN, NO_2-N + NO_3-N, TDS, Chloride, Bromide, Sulfate, oil and grease, and any applicable TMDL parameters. Kilbuck Run STP does not have any industrial or commercial contributors so they were not required to sample for Total Copper, Total Lead, or Total Zinc. However, since eDMR data was available for Total Lead for the previous permit cycle, they were included in the analysis. Additionally, Kilbuck Run STP conducted additional lead testing, the results of which can be found in Attachments E and F. The Quantitation Limit of the initial resampling (Attachment E) was 0.007 mg/L, which is less sensitive than the DEP Target Quantitation Limit of 1.0 µg/L. As such, the permittee was given the opportunity to resample again (Attachment F), in which the Quantitation Limit was 0.800 µg/L. After the completion of both rounds of resampling, there were more than 10 samples available to analyze. Therefore, any samples that were considered to be "outliers" were removed from consideration. Additionally, because there were more than 10 samples available, the resampling data was evaluated using the TOXCONC model to get an AMEC value (Attachment G). The following WQBELs were recommended for this facility as a result of the Reasonable Potential Analysis:

Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)
Total Lead	Report	Report

Additionally, since this facility uses UV disinfection instead of chlorine disinfection, TBELs for TRC are not applicable. Per DEP SOP "Establishing Effluent Limitations for Individual Sewage Permits" (SOP No. BCW-PMT-033, Rev. March 24, 2021), routine monitoring of UV transmittance (%), UV dosage (µWs/cm^2), or UV intensity (µW/cm^2) will be established at the same frequency that would be used for TRC. Per Table 6.3 of the "Technical Guidance for the Development and Specification of Effluent Limitations", TRC monitoring should occur daily for a facility between 0.1 and 1.0 MGD. UV transmittance will be reimposed at a frequency of 1/day during this permit cycle.

Best Professional Judgment (BPJ) Limitations

Typically, a dissolved oxygen minimum limitation of 4.0 mg/L will be implemented based on the standard in 25 PA Code Chapter 93 and best professional judgment. However, since the WQM7.0 suggested the more stringent value of 6.0 mg/L, the more stringent of the two will be imposed during this permit cycle.

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.

Mass Loading Limitations

Per Department SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-033), mass loading limits will be established for POTWs for $CBOD_5$, TSS, ammonia nitrogen. Average monthly mass loading limits will be established for $CBOD_5$, TSS, and ammonia nitrogen. Average weekly mass loading limits will be established for $CBOD_5$ and TSS. Mass loading limits will be calculated according to the formula below:

$$average\ annual\ design\ flow\ (MGD) \times concentration\ limit\ \left(\frac{mg}{L}\right) \times 8.34\ (converstion\ factor)$$
$$= mass\ loading\ limit\ \left(\frac{lbs}{day}\right)$$

The following mass loading limitations were calculated:

Parameter	Average Monthly (lbs/day)	Average Weekly (lbs/day)
$CBOD_5$ (May 1 – Oct 31)	49.2	92.3
$CBOD_5$ (Nov 1 – Apr 30)	61.5	73.8
TSS	73.8	110.7
Ammonia Nitrogen (May 1 – Oct 31)	4.8	-
Ammonia Nitrogen (Nov 1 – Apr 30)	6.9	-

Influent Monitoring

Per Department SOP "New and Reissuance Sewage Individual NPDES Permit Applications" (BCW-PMT-002), POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring will be established in the permit. The influent monitoring will be established with the same frequency and sample type as the effluent sampling.

Additional Considerations

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

The receiving stream is not impaired for nutrients, therefore, annual sampling for nitrogen and phosphorus will be imposed per 25 PA Code §92.61b.

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

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)	Required
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	60.0	90.0	XXX	25.0	37.5	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	49.0	70.0	XXX	20.0	30.0	40	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	70.0	110.0	XXX	30.0	45.0	60	1/week	24-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	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Ammonia Nov 1 - Apr 30	6.9	XXX	XXX	2.79	XXX	5.58	1/week	24-Hr Composite

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

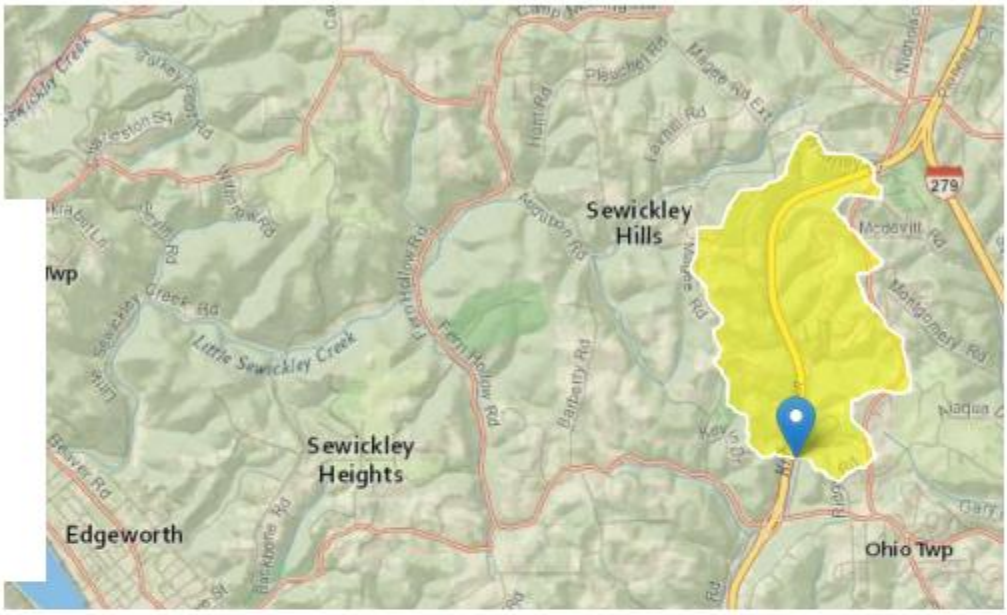
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia May 1 - Oct 31	4.8	XXX	XXX	1.97	XXX	3.94	1/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	24-Hr Composite
Lead, Total (ug/L)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

ATTACHMENT A:
USGS STREAMSTATS

StreamStats Report

Region ID: PA
Workspace ID: PA20220616184627677000
Clicked Point (Latitude, Longitude): 40.55812, -80.11479
Time: 2022-06-16 14:46:47 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.64	square miles
ELEV	Mean Basin Elevation	1162	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.64	square miles	2.26	1400

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1162	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.048	ft^3/s
30 Day 2 Year Low Flow	0.0903	ft^3/s
7 Day 10 Year Low Flow	0.0148	ft^3/s
30 Day 10 Year Low Flow	0.0306	ft^3/s
90 Day 10 Year Low Flow	0.0606	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/)

Application Version: 4.9.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.0

ATTACHMENT B:
WQM7.0 MODELING RESULTS (SUMMER)

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	36739	KILBUCK RUN	**3.570**	1019.00	1.64	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	0.009	0.01	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Kilbuck Run STP	PA0217271	0.0000	0.0000	0.2950	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	9.01	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20G	36739	KILBUCK RUN	**3.470**	1018.00	1.66	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	0.009	0.02	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK 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												
3.570	0.01	0.00	0.01	.4564	0.00189	.462	8.94	19.36	0.11	0.054	20.00	7.00
Q1-10 Flow												
3.570	0.01	0.00	0.01	.4564	0.00189	NA	NA	NA	0.11	0.054	20.00	7.00
Q30-10 Flow												
3.570	0.02	0.00	0.02	.4564	0.00189	NA	NA	NA	0.11	0.053	20.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.570	0.295	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.942	0.462	19.357	0.114
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.28	1.496	1.91	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.095	21.146	Owens	6
Reach Travel Time (days)			
0.054			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	24.08	1.90	6.12
0.011	23.89	1.89	6.14
0.016	23.70	1.89	6.16
0.021	23.51	1.88	6.18
0.027	23.32	1.87	6.21
0.032	23.14	1.87	6.23
0.038	22.95	1.86	6.25
0.043	22.77	1.85	6.27
0.048	22.59	1.85	6.29
0.054	22.41	1.84	6.31

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK 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
3.570	Kilbuck Run STP	16.76	17.11	16.76	17.11	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
3.570	Kilbuck Run STP	1.89	1.97	1.89	1.97	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)		
3.57	Kilbuck Run STP	25	25	1.97	1.97	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK 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)
3.570	Kilbuck Run STP	PA0217271	0.000	CBOD5	25		
				NH3-N	1.97	3.94	
				Dissolved Oxygen			6

ATTACHMENT C:
WQM7.0 MODELING RESULTS (WINTER)

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	36739	KILBUCK RUN	**3.570**	1019.00	1.64	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	0.018	0.01	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Kilbuck Run STP	PA0217271	0.0000	0.0000	0.2950	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20G	36739	KILBUCK RUN	**3.470**	1018.00	1.66	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	0.018	0.02	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Modeling Specifications

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
08B	26798	CHEST 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												
25.440	3.06	0.00	3.06	.8354	0.01515	.678	26.87	39.63	0.21	0.029	5.00	7.00
Q1-10 Flow												
25.440	1.96	0.00	1.96	.8354	0.01515	NA	NA	NA	0.18	0.034	5.00	7.00
Q30-10 Flow												
25.440	4.16	0.00	4.16	.8354	0.01515	NA	NA	NA	0.25	0.025	5.00	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.570	0.295	14.686	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.942	0.462	19.357	0.114
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.28	1.496	2.71	0.465
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.204	18.642	Owens	6
Reach Travel Time (days)			
0.054			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	24.13	2.70	6.34
0.011	23.97	2.69	6.45
0.016	23.82	2.69	6.56
0.021	23.68	2.68	6.67
0.027	23.53	2.67	6.76
0.032	23.38	2.67	6.84
0.038	23.23	2.66	6.92
0.043	23.09	2.65	6.99
0.048	22.94	2.65	7.06
0.054	22.80	2.64	7.12

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK 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
3.570	Kilbuck Run STP	24.1	24.6	24.1	24.6	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
3.570	Kilbuck Run STP	2.68	2.79	2.68	2.79	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)		
3.57	Kilbuck Run STP	25	25	2.79	2.79	6	6	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20G	36739	KILBUCK 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)
3.570	Kilbuck Run STP	PA0217271	0.000	CBOD5	25		
				NH3-N	2.79	5.58	
				Dissolved Oxygen			6

ATTACHMENT D:
TMS MODELING RESULTS

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Kilbuck Run STP** NPDES Permit No.: **PA0217271** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **treated 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
0.295	100	7.2						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		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		444									
	Chloride (PWS)	mg/L		115									
	Bromide	mg/L		0.127									
	Sulfate (PWS)	mg/L		62.5									
	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											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		1.35									
	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											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Kilbuck Run STP, NPDES Permit No. PA0217271, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ No. Reaches to Model: 1

◉ Statewide Criteria
○ Great Lakes Criteria
○ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	036739	3.57	1019	1.64			Yes
End of Reach 1	036739	3.47	1018	1.66			Yes

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

Location	RMI	LFY (cfs/mi²)*	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	3.57	0.009										100	7		
End of Reach 1	3.47	0.0091													

Q_h

Location	RMI	LFY (cfs/mi²)	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	3.57														
End of Reach 1	3.47														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Kilbuck Run STP, NPDES Permit No. PA0217271, 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)
3.57	0.01		0.01	0.456	0.002	0.462	8.942	19.356	0.114	0.054	0.008
3.47	0.01		0.015								

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)
3.57	0.19		0.19	0.456	0.002	0.53	8.942	16.882	0.136	0.045	0.55
3.47	0.189		0.19								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.008 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.19

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 Lead	0	0		0	64.581	81.6	84.3	Chem Translator of 0.791 applied

☑ ***CFC*** CCT (min): 0.008 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.19

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 Lead	0	0		0	2.517	3.18	3.28	Chem Translator of 0.791 applied

☑ ***THH*** CCT (min): 0.008 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

☑ ***CRL*** CCT (min): 0.550 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

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

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Lead	Report	Report	Report	Report	Report	µg/L	3.28	CFC	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

ATTACHMENT E:
ADDITIONAL LEAD TESTING (2022)

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

2093171

Analytical Testing Parameters

Client Sample ID: Kilbuck Eff
Sample Matrix: Aqueous
Lab Sample ID: 2093171-01
Collected By: Client
Collection Date: 08/24/2022 9:30

Metals Total by ICP	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.7, Rv. 4.4 (1994)									
Lead	<0.002	0.002	0.007	mg/L	1		09/16/22 0943	09/20/22 0038	SEA

Client Sample ID: Kilbuck Run Eff
Sample Matrix: Aqueous
Lab Sample ID: 2093171-02
Collected By: Client
Collection Date: 08/31/2022 9:00

Metals Total by ICP	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.7, Rv. 4.4 (1994)									
Lead	<0.002	0.002	0.007	mg/L	1		09/16/22 0943	09/20/22 0045	SEA

Client Sample ID: Kilbuck Run Eff
Sample Matrix: Aqueous
Lab Sample ID: 2093171-03
Collected By: Client
Collection Date: 09/07/2022 9:30

Metals Total by ICP	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.7, Rv. 4.4 (1994)									
Lead	<0.002	0.002	0.007	mg/L	1		09/16/22 0943	09/20/22 0051	SEA

Client Sample ID: Kilbuck Run Eff
Sample Matrix: Aqueous
Lab Sample ID: 2093171-04
Collected By: Client
Collection Date: 09/14/2022 9:40

Metals Total by ICP	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.7, Rv. 4.4 (1994)									
Lead	<0.002	0.002	0.007	mg/L	1		09/16/22 0943	09/20/22 0058	SEA

Definitions

mg/L: Milligrams per Liter
RL: Reporting Limit

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 3.9°C

ATTACHMENT F:
ADDITIONAL LEAD TESTING (2023)

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

3014516

Analytical Testing Parameters

Client Sample ID:	Kilbuck OTSA		
Sample Matrix:	Aqueous	**Collected By:**	Tim Barker
Lab Sample ID:	3014516-01	**Collection Date:**	01/04/2023 9:50

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Lead	**1.57**	0.088	0.800	ug/L	1		02/03/23 1026	02/06/23 1747	SEV

Client Sample ID:	Kilbuck OTSA		
Sample Matrix:	Aqueous	**Collected By:**	Tim Barker
Lab Sample ID:	3014516-02	**Collection Date:**	01/11/2023 9:53

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Lead	**0.785**	0.088	0.800	ug/L	1		02/03/23 1026	02/06/23 1749	SEV

Client Sample ID:	Kilbuck OTSA		
Sample Matrix:	Aqueous	**Collected By:**	Tim Barker
Lab Sample ID:	3014516-03	**Collection Date:**	01/19/2023 9:30

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Lead	**0.968**	0.088	0.800	ug/L	1		02/03/23 1026	02/06/23 1751	SEV

Client Sample ID:	Kilbuck OTSA		
Sample Matrix:	Aqueous	**Collected By:**	Tim Barker
Lab Sample ID:	3014516-04	**Collection Date:**	01/25/2023 10:00

Metals Total by ICPMS	Result	MDL	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Method: EPA 200.8, Rv. 5.4 (1994)									
Lead	**0.388**	0.088	0.800	ug/L	1		02/03/23 1026	02/06/23 1753	SEV

Definitions

RL:	Reporting Limit
ug/L:	Micrograms per Liter

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.9°C

ATTACHMENT G:
TOXCONC RESULTS FOR LEAD

	Facility:	Kilbuck Run STP
	NPDES #:	PA0217271
	Outfall No:	001
	n (Samples/Month):	4
	Reviewer/Permit Engineer:	GRP

Parameter Name	Total Lead
Units	other
Detection Limit	1
Sample Date	***When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)***
01/25/18	<1
08/24/18	<1
07/18/19	1
09/16/21	0.8
08/24/22	<2
08/31/22	<2
09/07/22	<2
09/14/22	<2
01/04/23	1.57
01/11/23	0.785
01/19/23	0.968
01/25/23	0.388

		Reviewer/Permit Engineer:	GRP
Facility:	Kilbuck Run STP		
NPDES #:	PA0217271		
Outfall No:	001		
n (Samples/Month):	4		
Parameter	**Distribution Applied**	**Coefficient of Variation (daily)**	**Avg. Monthly**
Total Lead (other)	Delta-Lognormal	0.3318726	1.3532128

ATTACHMENT H:
PRE-DRAFT LETTER

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

December 6, 2022

Dennis Coyle
Ohio Township Sanitary Authority
1719 Roosevelt Road
Pittsburgh, PA 15237-1050

Re: Draft NPDES Permit- Sewage
Kilbuck Run STP
Application No. PA0217271
Authorization ID No. 1387248
Ohio Township, Allegheny County

Dear Dennis Coyle:

The Department of Environmental Protection (DEP) has reviewed your NPDES permit application and has reached a preliminary finding that new or more stringent water quality-based effluent limitations (WQBELs) for toxic pollutant(s) should be established in the permit. This finding is based on DEP's assessment that reasonable potential exists to exceed water quality criteria under Chapter 93 in the receiving waters during design flow conditions.

Outfall No.	Pollutant	Average Monthly (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)	DEP Target QL (µg/L)
001	Total Lead	3.28	5.12	8.21	1.0

Attached is a survey that DEP requests that you complete and return to DEP via email by **December 9, 2022**. Completion of this survey will help DEP understand your current capabilities or plans to treat or control these pollutant(s). Your response to this notice does not constitute an official comment for DEP response but will be taken under consideration. When the draft NPDES permit is formally noticed in the *Pennsylvania Bulletin*, you may make official comments for DEP's further consideration and response.

In addition to completion of the survey, you may elect to collect a minimum of four (4) additional effluent samples, as 24-hour composites, and have the samples analyzed for the pollutant(s) identified above, using a quantitation limit (QL) that is no greater than the Target QLs identified in the table above. The samples should be collected at least one week apart. If you elect this option, please check the appropriate box on the survey and return the survey to DEP. Review of your application will remain on hold until the additional sampling results are provided to DEP. **The resampling must be completed within 45 days of the receipt of this letter (January 20, 2023).**

Please contact me if you have any questions about this information or the attached survey.

Sincerely,

Grace Polakoski

Grace Polakoski, E.I.T.
Environmental Engineering Specialist
Clean Water Program

Enclosures
cc: Dennis Blakley – McCandless Township Sanitary Authority
Douglas J. Evans, P.E. – NIRA Consulting Engineers, Inc.
Southwest Regional Office
Central Office
Division of Operations

ATTACHMENT I:
PRE-DRAFT SURVEY

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **Ohio Township Sanitary Authority** Permit No.: **PA0217271**

Pollutant(s) identified by DEP that may require WQBELs: Total Lead

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☒ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☒ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☒ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: January 20, 2023 ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☒ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied: