pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0093980**
Facility Type	**Non-Municipal**	APS ID	**849969**
Major / Minor	**Minor**	Authorization ID	**1322423**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Better Built Mobile Homes**	Facility Name	**Kimberly Estates MHP**
Applicant Address	102 Kimberlin Drive	Facility Address	102 Kimberlin Drive
	Irwin, PA 15642		Irwin, PA 15642
Applicant Contact	Roger Breig	Facility Contact	Roger Breig
Applicant Phone	(724) 446-2100	Facility Phone	(724) 446-2100
Client ID	43977	Site ID	251539
Ch 94 Load Status	Not Overloaded	Municipality	Sewickley Township
Connection Status	No Limitations	County	Westmoreland County
Date Application Received	July 31, 2020	EPA Waived?	Yes
Date Application Accepted	August 5, 2020	If No, Reason	-

Purpose of Application: Renewal of a minor NPDES Permit for an existing discharge of treated sanitary wastewater.

Summary of Review

Act 14 - Proof of Notification was submitted and received.

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

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

I. OTHER REQUIREMENTS:

A. Stormwater into sewers
B. Right of way
C. Solids handling
D. Public Sewer Availability
E. Effluent Chlorine Optimization and Minimization
F. Limited Assimilative Capacity/Dilution

SPECIAL CONDITIONS:

II. Solids Management

There are no open violations in efacts associated with the subject Client ID (43977) as of 3/12/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	3/12/2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	March 15, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.03
Latitude	40º 15' 35.00"	Longitude	-79º 45' 12.00"
Quad Name	-	Quad Code	-
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to the Little Sewickley Creek (TSF)	Stream Code	N/A
NHD Com ID	69912913	RMI	N/A
Drainage Area	0.57	Yield (cfs/mi^2)	0.19
Q_{7-10} Flow (cfs)	0.10	Q_{7-10} Basis	calculated
Elevation (ft)	876	Slope (ft/ft)	0.060566
Watershed No.	19-D	Chapter 93 Class.	TSF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	Final, 4/8/2009	Name	Sewickley Creek Watershed*

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

Nearest Downstream Public Water Supply Intake	Municipal Authority of Westmoreland County		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	334
PWS RMI	1.4	Distance from Outfall (mi)	20.0

* - There is a TMDL for metals in the Sewickley Creek Watershed. The contribution for metals from a sewage plant of this nature is expected to be less than water quality criteria and therefore not contributing to stream impairment. However, 1/year monitoring is imposed per the SOP for Total Iron, Total Manganese, and Total Aluminum in order to establish data to ensure there are no impacts on the quality of the receiving stream.

Sludge use and disposal description and location(s): Sludge is spread at the Hapchuck facility in Westmoreland County, otherwise, it is disposed of at an approved landfill.

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.03 MGD of treated sewage from a non-municipal STP in Sewickley Township, Westmoreland County.

Treatment permitted under WQM Permit no. 6577431 consists of the following: manual screening, extended aeration, clarification, sand filtration, and chlorination/dechlorination. Wasted sludge is stored in an aerated holding tank. Sludge is pumped and hauled off site.

1. Streamflow:

Youghiogheny River at Sutersville, PA (USGS gage 03083500):

Q_{7-10}:	332	cfs	(USGS StreamStats)
Drainage Area:	1715	sq. mi.	(USGS StreamStats)
Yieldrate:	0.19	cfsm	calculated

Unnamed Tributary to the Little Sewickley Creek:

Yieldrate:	0.19	cfsm	calculated above
Drainage Area:	0.57	sq. mi.	(USGS StreamStats)
Q_{7-10}:	0.10	cfs	calculated

% of stream allocated: 100% Basis: No nearby discharges

2. Wasteflow:

Maximum discharge: 0.03 MGD = 0.046 cfs

Runoff flow period: 16 hours Basis: Runoff flow for a non-municipal STP

24 hour flow 0.03 MGD x 24/16 = 0.045 MGD = 0.069 cfs

There is less than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). However, since this is an existing discharge, the more stringent treatment requirements cannot be achieved, and the receiving stream is not impaired by the discharge, the standards in DEP guidance (391-2000-014) will not be applied. Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

3. Parameters:

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, Phosphorus, NH_3-N, $CBOD_5$, Dissolved Oxygen, and Total Residual Chlorine. NH_3-N, $CBOD_5$, and Dissolved Oxygen were evaluated using WQM 7.0 at the discharge point.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as an instantaneous maximum.

Basis: Application of Chapter 92a47 technology-based limits. However, the previous limits of 25 mg/l as a monthly average and 50 as an instantaneous maximum were set based on older "dry stream guidances". Since those limits are attainable, they will be retained.

c. Fecal Coliform

05/01 - 09/30:	200/100ml	(monthly average geometric mean)
	1,000/100ml	(instantaneous maximum)
10/01 - 04/30:	2,000/100ml	(monthly average geometric mean)
	10,000/100ml	(instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. Phosphorus

☐ Limit necessary due to:

☐ Discharge to lake, pond, or impoundment
☐ Discharge to stream

Basis: N/A

☒ Limit not necessary

Basis: Chapter 96.5 does not apply. However, the previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61.

e. Total Nitrogen

The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61.

f. Ammonia-Nitrogen (NH_3-N)

Median discharge pH to be used:	6.7	Standard Units (S.U.)
		Basis: eDMR data
Discharge temperature:	25°C	(default value used in the absence of data)
Median stream pH to be used:	7.0	Standard Units (S.U.)
		Basis: default value used in the absence of data
Stream Temperature:	20˚C	(default value used for TSF modeling)
Background NH_3-N concentration:	0.1	mg/l
		Basis: Default value.
Calculated NH_3-N Summer limits:	4.4	mg/l (monthly average)
	8.8	mg/l (instantaneous maximum)
Calculated NH_3-N Winter limits:	13.2	mg/l (monthly average)
	26.4	mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer water quality-based limits above (see Attachment 1). The winter limits are calculated as three times the summer limits. However, since the more restrictive limits of 2.5 mg/l as a monthly average and 5 mg/l as an instantaneous maximum from the previous permit are attainable, they will be retained.

g. $CBOD_5$

Median discharge pH to be used: 6.7 Standard Units (S.U.)

Basis: eDMR data

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 20˚C (default value used for TSF modeling)

Background $CBOD_5$ concentration: 2.0 mg/l

Basis: Default value

$CBOD_5$ Summer limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

$CBOD_5$ Winter limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the above $CBOD_5$ limits (see Attachment 1). However, since the more restrictive technology-based limits of 10 mg/l as a monthly average and 20 mg/l as an instantaneous maximum from the previous permit are attainable, they will be retained. Since the summer and winter limits are technology-based, per the SOP, the previous year-round limits of 10 mg/l monthly average and 20 mg/l instantaneous maximum will be retained.

h. Dissolved Oxygen (DO)

- ☐ 4.0 mg/l - minimum desired in effluent to protect all aquatic life
- ☒ 5.0 mg/l - desired in effluent for CWF, WWF, or TSF
- ☐ 6.0 mg/l - minimum required due to discharge falling under guidance document 391-2000-014
- ☐ 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: The Dissolved Oxygen minimum of 5.0 mg/l will be retained with this renewal. The technology-based minimum of 5.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

i. Total Residual Chlorine (TRC)

☐ No limit necessary

Basis: N/A

☒ TRC limits: 0.22 mg/l (monthly average)
0.72 mg/l (instantaneous maximum)

Basis: The water quality-based TRC limits above were calculated using the TRC_Calc spreadsheet (see Attachment 2). Since the previous monthly average limits of 0.22 mg/l are the same, they will be retained. The calculated instantaneous maximum limits are less restrictive than the previous permit, but since the previous limit of 0.50 mg/l is attainable, it will be retained.

The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

j. Anti-Backsliding

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 since no sampling has been performed for this facility.

5. Reasonable Potential for Downstream Public Water Supply (PWS):

Bromide has been linked to the formation of disinfection byproducts at increased levels in public water systems. Where the concentration of bromide in a discharge exceeds 1 mg/L, as is shown from eDMR, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Since this facility is designed for only 0.03 MGD, and has no Bromide sampling data, monitoring for Bromide will not be added to this renewal permit.

Nearest Downstream potable water supply (PWS): Municipal Authority of Westmoreland County

Distance downstream from the point of discharge: 20.0 miles (approximate)

☒ No limits necessary
☐ Limits needed

Basis: Significant dilution available.

6. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC_Calc Spreadsheet

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.0035	0.0035	0.0035	0.0032	0.0035	0.0036	0.0035	0.0037	0.0036	0.0037	0.0037	0.037
pH (S.U.) Minimum	6.6	6.3	6.5	6.3	6.6	6.3	6.5	6.8	7.0	6.8	6.4	6.6
pH (S.U.) Maximum	7.0	6.9	6.8	7.0	7.0	6.8	7.2	7.3	7.5	7.4	7.4	8.2
DO (mg/L) Minimum	6.7	6.5	6.4	6.0	6.6	7.3	6.9	7.0	7.5	8.0	8.0	8.9
TRC (mg/L) Average Monthly	0.22	0.21	0.20	0.21	0.18	0.21	0.21	0.20	0.21	0.18	0.14	0.14
TRC (mg/L) Instantaneous Maximum	0.30	0.42	0.27	0.40	0.24	0.33	0.45	0.42	0.45	0.44	0.50	0.33
CBOD5 (mg/L) Average Monthly	3	9.9	7.6	4	3	3	3	3.6	3.9	4.1	4.4	4.15
CBOD5 (mg/L) Instantaneous Maximum	3	12	9.4	4.1	3	3	3	4.3	4.8	4.2	8.85	4.38
TSS (mg/L) Average Monthly	8.5	12.5	11.5	5	5	5	5	5	5	5	5.0	6
TSS (mg/L) Instantaneous Maximum	9	15	12	5	5	5	5	5	5	5	5.0	7
Fecal Coliform (CFU/100 ml) Geometric Mean	100	530	100	100	200	100	150	100	100	100	100	150
Total Nitrogen (mg/L) Daily Maximum		27.1						6.12			16.9	
Ammonia (mg/L) Average Monthly	2.74	7.5	4.26	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Ammonia (mg/L) Instantaneous Maximum	4.69	10.0	5.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total Phosphorus (mg/L) Daily Maximum		2.5						2.8			2.8	

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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.22	XXX	0.50	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20.0	2/month	Grab
TSS	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	7.5	XXX	15.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.5	XXX	5.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Total Aluminum	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab
Total Iron	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Manganese	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for Total Residual Chlorine (TRC) are water quality-based on Chapter 93.7. The limits for $CBOD_5$, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for Total Nitrogen, Total Phosphorus, Total Aluminum, Total Iron, and Total Manganese is based on Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37557	LITTLE SEWICKLEY CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.287	Better Homes	PA0093980	0.045	CBOD5	25		
				NH3-N	4.48	8.96	
				Dissolved Oxygen			5

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37557	LITTLE SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.287	0.045	25.000	6.857
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.799	0.421	9.023	0.111
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
11.00	1.310	1.75	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.974	27.795	Owens	5
Reach Travel Time (days)			
0.158			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.016	10.72	1.73	7.02
0.032	10.44	1.70	7.07
0.047	10.17	1.67	7.11
0.063	9.91	1.64	7.14
0.079	9.66	1.62	7.17
0.095	9.41	1.59	7.20
0.110	9.17	1.57	7.23
0.126	8.93	1.54	7.26
0.142	8.71	1.52	7.29
0.158	8.48	1.49	7.31

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37557	LITTLE SEWICKLEY CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.287	Better Homes	7.48	14.93	7.48	14.93	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
0.287	Better Homes	1.44	4.48	1.44	4.48	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)		
0.29	Better Homes	25	25	4.48	4.48	5	5	0	0

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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37557	LITTLE SEWICKLEY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.287	0.11	0.00	0.11	.0696	0.06071	.421	3.8	9.02	0.11	0.158	25.00	6.86
Q1-10 Flow												
0.287	0.07	0.00	0.07	.0696	0.06071	NA	NA	NA	0.10	0.181	25.00	6.82
Q30-10 Flow												
0.287	0.15	0.00	0.15	.0696	0.06071	NA	NA	NA	0.12	0.141	25.00	6.88

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37557	LITTLE SEWICKLEY CREEK	**0.287**	876.00	0.57	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	0.190	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Better Homes	PA0093980	0.0450	0.0000	0.0000	0.000	25.00	6.70

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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37557	LITTLE SEWICKLEY CREEK	**0.000**	784.00	0.60	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	0.190	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Attachment 2

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.1	= Q stream (cfs)	0.5	= CV Daily
0.045	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.477	1.3.2.iii	WLA cfc =	0.458
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.178	5.1d	LTA_cfc =	0.266

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.219	AFC
		INST MAX LIMIT (mg/l) =	0.716	

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)**