pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0036102**
Facility Type	**Municipal**	APS ID	**860647**
Major / Minor	**Minor**	Authorization ID	**1290831**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Lehigh County Authority**	Facility Name	**Heidelberg Heights**
Applicant Address	PO Box 3348	Facility Address	5132 Heidelberg Heights Road
	Allentown, PA 18106-0348		Germansville, PA 18053
Applicant Contact	Pat Mandes	Facility Contact	Robert Kerchusky
Applicant Phone	(610) 398-2503	Facility Phone	(610) 437-7641
Client ID	67774	Site ID	4276
Ch 94 Load Status	Existing Organic Overload	Municipality	Heidelberg Township
Connection Status	Limitations	County	Lehigh
Date Application Received	September 19, 2019	EPA Waived?	Yes
Date Application Accepted	October 4, 2019	If No, Reason	

Purpose of Application: RENEWAL OF EXISTING NPDES PERMIT FOR TREATED SEWAGE

Summary of Review

This application is for the Heidelberg Heights Treatment Plant's NPDES permit renewal for the discharge of 0.06 MGD of treated sewage through Outfall 001 into an Unnamed Tributary to Mill Creek, a CWF- MF (Cold Water and Migratory Fishes) receiving stream in the Lower Lehigh River Creek Watershed 2-C. Per the Department's current existing use list, the receiving streams do not have an existing use classification that is more protective than their designated use. The discharge is not expected to affect public water supplies.

The existing permit has BPT limits for CBOD5, TSS, Fecal, and pH. The NH3-N, Nitrate/Nitrites, TRC and Dissolved Oxygen are water quality-based limits. These limits remain the same as the previous permit. Monitoring frequencies for all parameters with limitations have been updated to the recommended frequencies found in Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (doc. no. 362-0400-001).

Due to wet weather conditions the applicant has reported numerous instances of bypassing directly to their Chlorine Tank. The Permit will contain a Part C condition to develop a High Flow Maintenance Plan until all of the items stated in their submitted Correction Action Plan are implemented and the bypassing is resolved.

The WMS Report query "Water Management System Inspections" was run. On 05/15/2019 an Inspection was done with an unauthorized bypass Violation noted.

The WMS "Open Violations by Client Report" was run and there are No Open Violations.

The Existing Permit expires on June 30,2020 and the renewal was submitted September 19, 2019.

Approve	Deny	Signatures	Date
X		Bernard Feist, P.E. / Environmental Engineer /s/	November 12, 2019
X		Amy M. Bellanca, P.E. / Environmental Engineer Manager /s/	November 12, 2019

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.

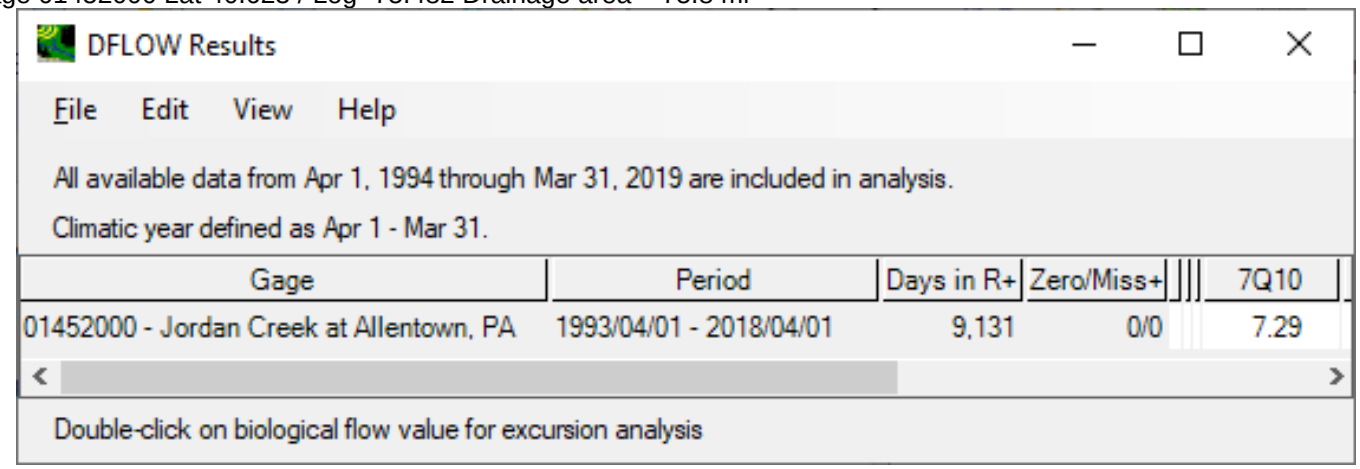
Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.06
Latitude	40º 41' 24.79"	Longitude	-75º 39' 17.41"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Mill Creek (CWF, MF)	Stream Code	3473
NHD Com ID	26292243	RMI	0.2
Drainage Area	0.4	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.04	Q_{7-10} Basis	DFlow USGS 0145200
Elevation (ft)	580	Slope (ft/ft)	0.007
Watershed No.	2-C	Chapter 93 Class.	CWF, MF
Existing Use	**na**	Existing Use Qualifier	
Exceptions to Use	na	Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	pathogens		
Source(s) of Impairment	source unknown		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Forrest Park, Point Pleasant Diversion		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	66 miles

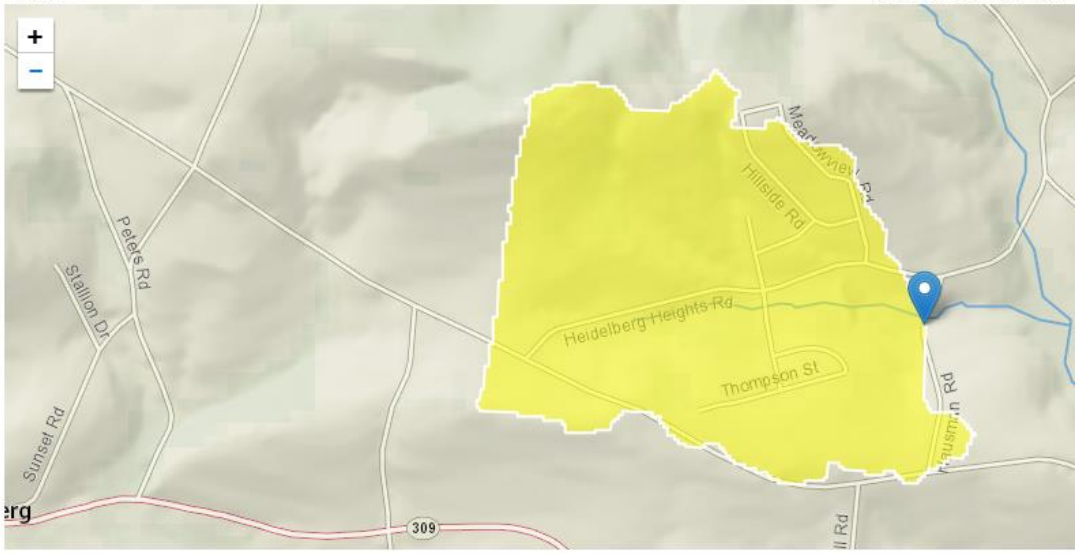
Gage 01452000 Lat 40.623 / Log -75.482 Drainage area = 75.8 mi^2



Low flow yield = 7.29 cfs/ 75.8 mi2 = 0.1

Outfall 001 Elevation 580 ft

Clicked Point (Latitude, Longitude): 40.68996, -75.65407
Time: 2019-10-24 16:11:31



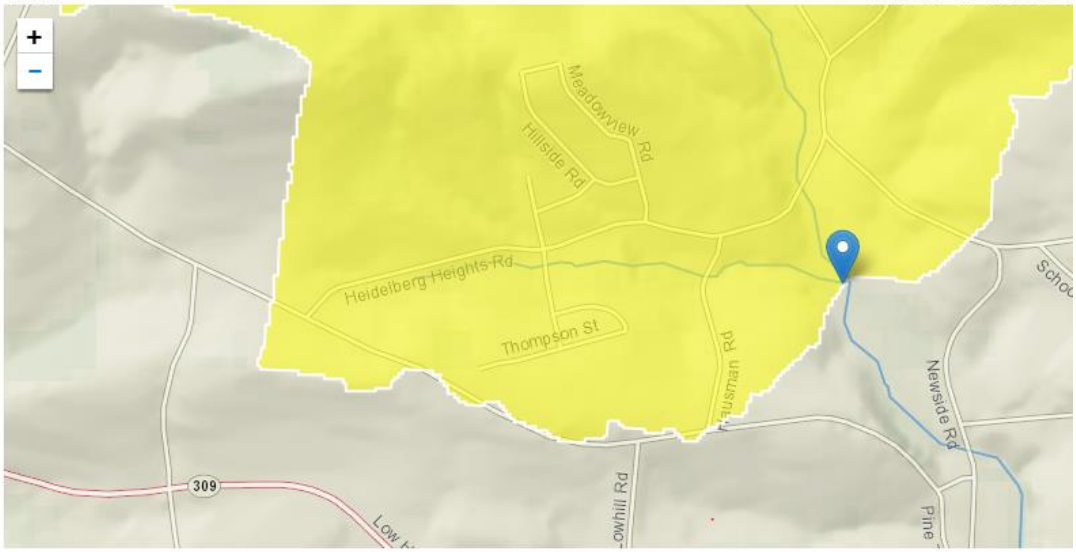
Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	0.37	square miles

$Q_{7\text{-}10}$ Flow (cfs) = 0.4 mi^2 * 0.1 cfs/mi^2 = 0.04
The Ratio of Effluent to seven-day low flow at the discharge is 1:1

RMI 0.0 Elevation 537

Clicked Point (Latitude, Longitude): 40.68996, -75.64973
Time: 2019-10-24 16:17:54



Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	3.09	square miles

Treatment Facility Summary				
Treatment Facility Name: Heidelberg Hgts STP				
WQM Permit No.	**Issuance Date**			
3999401	03/22/1999			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Sequencing Batch Reactor	Liquid sodium hypochlorite	0.06
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.06	100	Existing Organic Overload	Aerobic Digester	WMGR-099

The facility serves about 140 EDUs. The collection system consists of 8 " sewers that discharge by gravity to a 60,000 GPD sequential batch reactor (SBR) activated sludge WWTP that was constructed in 1999 and put on line in Jan 2000. It consists of two 30,000 GPD SBR trains and a chlorination unit. The headworks includes a bar screen, comminutor and a 12,000-gallon equalization tank. Sludge handling consists of a 13,500-gallon aerobic digester. Waste sludge will continue to be hauled off-site by a licensed hauler for disposal at the LCA Pretreatment Plant – WMGR-099 Residual Waste General Permit.

Other Comments: Dechlorination occurs with the addition of sodium thiosulfate.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .06
Latitude 40º 41' 22.00" **Longitude** -75º 39' 18.00"
Wastewater Description: Sewage Effluent

The limitations and monitoring requirements specified for the draft permit 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.

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
02C	3473	Trib 03473 to Mill 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)
0.200	Heidelberg	PA0036102	0.060	CBOD5	25		
				NH3-N	2.42	4.84	
				Dissolved Oxygen			6

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Heidelberg Heights WTP

0.04	= Q stream (cfs)	0.5	= CV Daily
0.06	= Q discharge (MGD)	0.5	= CV Hourly
4	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.156	1.3.2.iii	WLA cfc = 0.145
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.058	5.1d	LTA_cfc = 0.084

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.100	AFC
		INST MAX LIMIT (mg/l) = 0.235	

Anti-Backsliding

Existing Limits and DRBC Requests are as follows:

EFFLUENT TABLE A-1: DRBC Parameters Included in NPDES permit

OUTFALL 001 (UNT Mill Creek)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NPDES permit
Total Suspended Solids	30 mg/l	As required by NPDES permit
CBOD (5-Day at 20° C)	25 mg/l 85% minimum removal*	As required by NPDES permit
Ammonia-Nitrogen 5/1 – 9/30 10/1 – 4/30	 2.5 mg/l 7.5 mg/l	As required by NPDES permit
Fecal Coliform 5/1 – 9/30 10/1 – 4/30	 200 colonies per 100 ml as a geo. avg. 2,000 colonies per 100 ml as a geo. avg.	As required by NPDES permit
Dissolved Oxygen	6.0 mg/l (minimum at all times)	As required by NPDES permit
Nitrate+Nitrite as N	12.0 mg/l	As required by NPDES permit

* DRBC Requirement

EFFLUENT TABLE A-1: DRBC Parameters Not Included in NPDES permit

OUTFALL 001 (UNT Mill Creek)		
PARAMETER	**LIMIT**	**MONITORING**
Total Phosphorous	Monitor & Report	Monthly
Total Nitrogen	Monitor & Report	Monthly
Total Dissolved Solids*	Monitor & Report	Quarterly

Compliance History

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	0.024	0.054	0.035	0.059	0.046	0.044	0.039	0.054	0.050	0.075	0.034	0.048
Flow (MGD) Daily Maximum	0.050	0.287	0.108	0.281	0.123	0.106	0.080	0.267	0.146	0.152	0.104	0.061
pH (S.U.) Minimum	6.87	6.85	6.93	6.87	6.59	6.44	6.53	6.34	6.02	6.42	6.8	6.68
pH (S.U.) Maximum	7.23	7.73	7.55	7.27	7.27	6.93	7.07	7.1	7.17	7.07	7.24	7.23
DO (mg/L) Minimum	6.05	6.22	6.29	6.21	6.36	6.35	6.32	6.21	8.84	6.15	6.05	6.08
TRC (mg/L) Average Monthly	0.04	0.05	0.02	0.04	0.04	0.03	0.03	0.1	0.1	0.1	0.03	0.04

TRC (mg/L) Instantaneous Maximum	0.10	0.14	0.06	0.05	0.19	0.08	0.18	0.21	0.14	0.38	0.08	0.18
CBOD5 (lbs/day) Average Monthly	1.2	18.7	4.8	15.8	12.7	9.6	9.5	14.8	14.9	< 13.5	5.7	7.2
CBOD5 (lbs/day) Weekly Average	1.4	34.6	7.4	23.9	16.2	15.9	16.8	21.0	16	< 21	10	11
CBOD5 (mg/L) Average Monthly	5.0	14.7	9.0	16.9	20.7	11.6	18.8	20.0	19.3	< 13.3	8.8	10.5
CBOD5 (mg/L) Weekly Average	5.0	23.4	10.0	22.2	24.1	18.0	29.5	27.5	18	19	12	16
BOD5 (mg/L) Influent Average Monthly	201	145	42	135	215	145	165	192	158	99	264	130
TSS (lbs/day) Average Monthly	0.8	8.8	4.0	21.2	9.8	9.5	9.0	12.7	8.0	9.0	3.0	3.0
TSS (lbs/day) Weekly Average	0.8	15.6	6.7	32.8	13.2	17.6	9.0	25.0	10.9	17.2	9.5	3.7
TSS (mg/L) Average Monthly	3.5	7.8	7.0	17.4	15.7	11.4	18.1	17.2	9.4	8.5	4.8	3.7
TSS (mg/L) Influent Average Monthly	155	117	41	116	182	115	115	127	145	65	257	228
TSS (mg/L) Weekly Average	4.0	11.4	8.5	21.6	19.4	20.0	25.0	31.8	12.0	16.0	11.0	5.0
Total Dissolved Solids (lbs/day) Average Quarterly			47			75			71.0			63.6
Total Dissolved Solids (mg/L) Average Quarterly			262			254			304			380
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	> 6	< 2	< 41	> 18	< 6	< 3	< 3	< 3	> 9	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	> 2420	< 2	24200	> 9678	187	1159	141	16	> 2420	1	2
Nitrate-Nitrite (lbs/day) Average Monthly	1	5	2	4	3	3	2	5	3	7.0	5	5
Nitrate-Nitrite (mg/L) Average Monthly	5.3	5.8	3.6	4.7	6.2	4.4	5.3	9.0	9.6	8.3	8.6	7.3
Total Nitrogen (lbs/day) Average Monthly	2	9	3	8	6	6	2	9	4	9	7	7
Total Nitrogen (mg/L) Average Monthly	7	9.28	6.53	8.65	10.62	8.25	7.28	13.38	11.02	11.1	10.9	9.67
Ammonia (lbs/day) Average Monthly	0.06	< 0.50	< 0.30	< 0.50	< 0.50	0.60	< 0.60	< 0.70	< 0.60	< 0.80	0.20	< 0.30
Ammonia (mg/L) Average Monthly	0.3	< 0.5	< 0.5	< 0.6	< 0.8	0.9	< 1.3	< 0.9	< 0.7	0.8	0.4	< 0.5
TKN (lbs/day) Average Monthly	0.4	4	2	4	3	3	3	3	0.4	< 3	1	2
TKN (mg/L) Average Monthly	1.7	3.46	2.9	4	4.4	3.9	5.2	4.42	1.4	< 36.3	2	2.3
Total Phosphorus (lbs/day) Average Monthly	0.6	1	0.7	0.6	0.8	0.5	0.6	0.6	0.5	0.9	0.8	1
Total Phosphorus (mg/L) Average Monthly	2.35	1.5	1.56	0.74	1.47	0.91	1.48	0.97	1.68	1.04	1.82	1.54