pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0051811**
Facility Type	**Industrial**	APS ID	**621117**
Major / Minor	**Minor**	Authorization ID	**1421941**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Lehigh County Authority**	Facility Name	**Green Hills Pumping Station**
Applicant Address	PO Box 3348	Facility Address	6394 Clauser Road
	Allentown, PA 18106-0348		Orefield, PA 18069
Applicant Contact	Andrew Moore, Director of Plant Operations	Facility Contact	Adam Lynn, Suburban Plant Operations Manager
Applicant Phone	(610) 597-8100	Facility Phone	(610) 703-7652
Client ID	67774	Site ID	246287
SIC Code	4941	Municipality	South Whitehall Township
SIC Description	Trans. & Utilities - Water Supply	County	Lehigh
Date Application Received	December 28, 2022	EPA Waived?	Yes
Date Application Accepted	January 3, 2023	If No, Reason	-

Purpose of Application: Renewal of NPDES permit to discharge industrial wastewater.

Summary of Review

The applicant is requesting the renewal of their NPDES permit to discharge up to 0.002 MGD of treated wastewater to an Unnamed Tributary to Little Cedar Creek, a High Quality, Cold-Water Fishery, Migratory Fish (HQ-CWF, MF) designated receiving stream in State Water Plan Basin 2-C (Lower Lehigh River). Per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than the designated use. This stream segment is not designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies. The facility is a public water supply – well and pump station.

The discharge is generated by chlorinated backwash from greensand filters that remove Iron & Manganese from an existing water supply known as the Green Hills Pumping Station.

The stream is impaired for Total Suspended Solids (TSS) and Flow Regime Modification due to Urban Runoff/ Storm Sewers. The stream is also part of the Little Cedar TMDL for TSS and Turbidity. The sediment TMDL was developed to address siltation and to ensure attainment and maintenance of water quality standards. Best Management Practices (BMPs) will be encouraged throughout the watershed to achieve the necessary load reductions. The TMDL does not affect this permit.

The limits for pH, Total Suspended Solids (TSS), Total Residual Chlorine (TRC), Total Aluminum, Total Iron, and Total Manganese are BPT technology-based limits from the “Technology-Based Control Requirements for Water Treatment Plant Wastes” (technical guidance document 362-2183-001). These limits have been carried over from the previous permit.

Pollutant sampling results submitted with the permit application were entered into the Toxic Management Spreadsheet (TMS). The TMS did not recommend stricter monitoring/reporting limitations.

The Total Residual Chlorine (TRC) Calculation Spreadsheet did not recommend stricter limitations than the previous permit.

Approve	Deny	Signatures	Date
X		/s/ Allison S. Zukosky / Project Manager	August 28, 2024
X		/s/ Amy M. Bellanca, P.E. / Program Manager	8-28-24

Summary of Review

The coordinates provided on the application for the Outfall location appear to show an open area to the northwest of the actual pump station. The coordinates were updated to be more accurate.

The previous NPDES Permit utilized USGS Stream Gage 01452000 – Jordan Creek at Allentown, PA. A geographically closer USGS Stream Gage was found: 01451500 – Little Lehigh Creek near Allentown, PA. This stream/ flow is still much larger than the receiving stream. The renewal application indicates that the discharge is to a swale with no flow and the Unnamed Tributary to Little Cedar Creek is ~2 miles from the point of discharge. The screenshot from eMapPA on page 4 of this fact sheet show the outfall location and what is currently considered the official beginning of the Unnamed Tributary to Little Cedar Creek. This beginning location was used for modeling as the Outfall location.

Calculations for the Low Flow Yield (LFY) and the Stream Flow were obtained using three different methods: USGS Stream Gage 01452000, USGS StreamStats, and the default Low Flow Yield (LFY) of 0.1 cfs/mi^2. These three different modeling methods were compared.

The USGS Stream Gage was not representative of the Unnamed Tributary conditions and the drainage area is too small for USGS StreamStats to estimate accurate low flow values and a $Q_{7\text{-}10}$. Therefore, the default LFY was used for modeling in the TRC Spreadsheet, TMS, and WQM 7.0.

The RMI values were obtained using the "PA Historic Streams" feature of eMapPA, drainage areas were delineated using USGS's StreamStats Interactive Map, and elevations were obtained using the elevation profile feature of StreamStats.

The existing permit expired on June 30, 2023 and the application for renewal was received on December 28, 2022.

A Water Management System Inspection query indicated that on November 22, 2022 a Routine/Partial Inspection was performed.

There are currently eight open violations for this client that may need to be resolved before issuance of the final permit:

1. 12/9/2021 - Violation ID 938695 – Violation Code 92A.44 – NPDES - Violation of effluent limits in Part A of permit (NPDES Permit # PA0034029)

2. 12/9/2021 - Violation ID 938696 – Violation Code 92A.61(C) – NPDES - Failure to monitor pollutants as required by the NPDES permit (NPDES Permit # PA0034029)

3. 12/9/2021 - Violation ID 938698 – Violation Code 92A.47(C) – NPDES - Illegal discharge to waters of the Commonwealth from a sanitary sewer overflow (SSO) (NPDES Permit # PA0034029)

4. 12/13/2022 - Violation ID 978129 – Violation Code 92A.44 – NPDES - Violation of effluent limits in Part A of permit (NPDES Permit # PA0034029)

5. 6/06/2024 - Violation ID 8190603 – Violation Code 92A.44 – NPDES - Violation of effluent limits in Part A of permit (NPDES Permit # PA0070254)

6. 3/07/2022 - Violation ID 947817 – Violation Code 92A.41(B) – NPDES - Failure to orally notify DEP within 4 hours of a pollution incident or submit written report within 5 days of incident (NPDES Permit # PAS902202)

7. 3/07/2022 - Violation ID 947822 – Violation Code 92A.41(A)4 – NPDES - Failure to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of a permit (NPDES Permit # PAS902202)

8. 3/07/2022 - Violation ID 947823 – Violation Code 92A.44 – NPDES - Violation of effluent limits in Part A of permit (NPDES Permit # PAS902202)

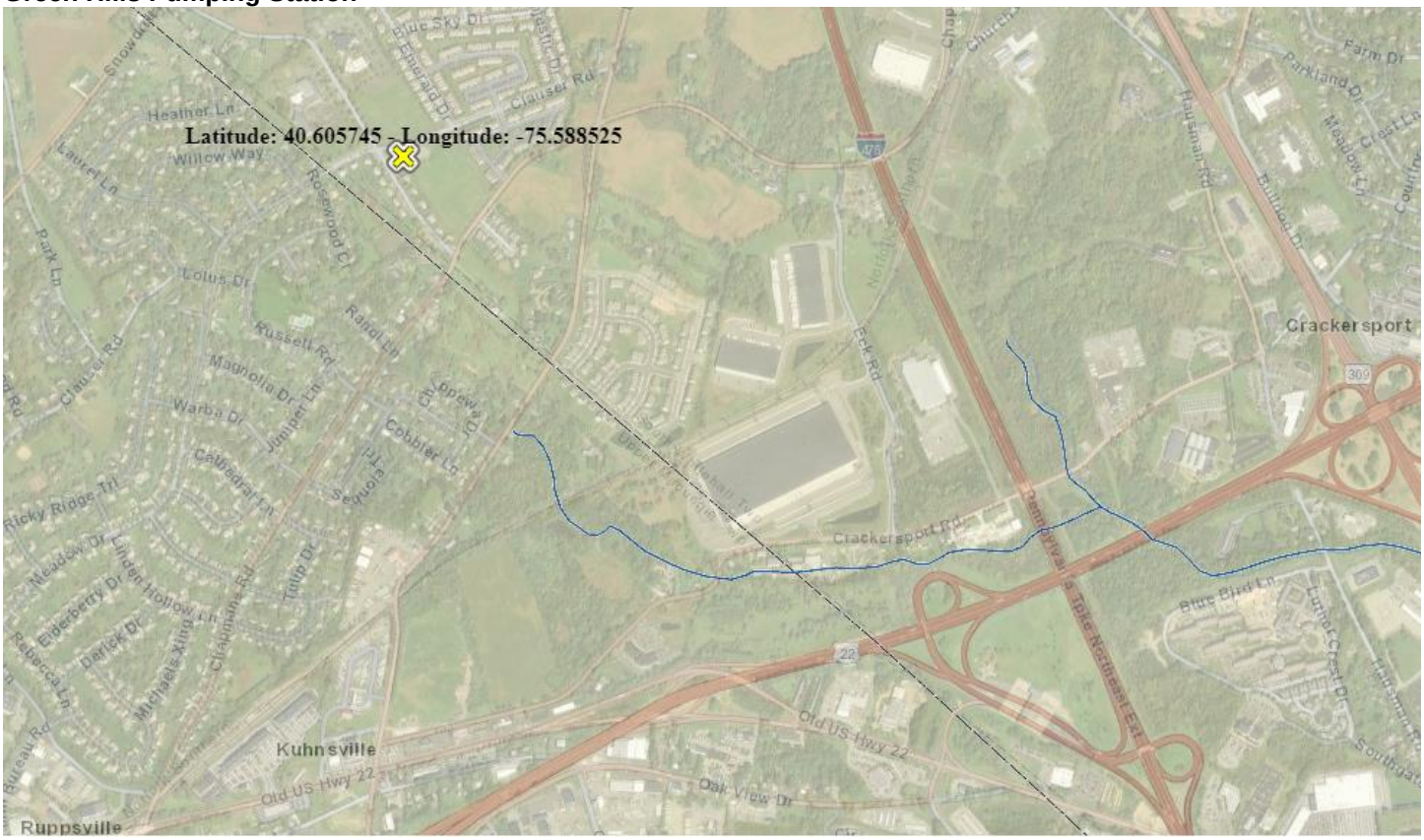
Public Participation

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

Summary of Review
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)	0.002
Latitude	40º 36' 20.6814"	Longitude	-75º 35' 18.69"
Quad Name	Allentown West	Quad Code	1441
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary to Little Cedar Creek (HQ-CWF, MF)	Stream Code	3571
NHD Com ID	26295545	RMI	1.07
Drainage Area	0.34 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.034	Q_{7-10} Basis	State-wide default
Elevation (ft)	493.54	Slope (ft/ft)	-
Watershed No.	2-C	Chapter 93 Class.	HQ-CWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION, PATHOGENS, TOTAL SUSPENDED SOLIDS (TSS)		
Source(s) of Impairment	SOURCE UNKNOWN, URBAN RUNOFF/STORM SEWERS, URBAN RUNOFF/STORM SEWERS		
TMDL Status	Final	Name	Little Cedar Creek
Nearest Downstream Public Water Supply Intake	LCA Allentown Division		
PWS Waters	Lehigh River	Flow at Intake (cfs)	-
PWS RMI	17.2	Distance from Outfall (mi)	~ 26



eMapPA Facility/Outfall Location and Start of Unnamed Tributary to Little Cedar Creek

Modeling Using USGS Stream Gage 1451500:

Name	Value
USGS Station Number	01451500
Station Name	Little Lehigh Creek near Allentown, Pa.
Station Type	Gaging Station, continuous record
Latitude	40.58232
Longitude	-75.48296
NWIS Latitude	40.5823197
NWIS Longitude	-75.48296088
Is regulated?	false
Agency	United States Geological Survey
NWIS Discharge Period of Record	09/30/1945 - 08/26/2024

Characteristic Name	Value	Units
Drainage Area	80.8	square miles

Statistic Name	Value	Units	Preferred?	Years of Record	Standard Error, percent	Citation	Comments
1 Day 10 Year Low Flow	27.6	cubic feet per second	✓	62		49	Statistic Date Range 4/1/1946 - 3/31/2008
7 Day 2 Year Low Flow	43.4	cubic feet per second	✓	62		49	Statistic Date Range 4/1/1946 - 3/31/2008
7 Day 10 Year Low Flow	28.8	cubic feet per second	✓	62		49	Statistic Date Range 4/1/1946 - 3/31/2008

$$\boldsymbol{LFY} = \frac{Q_{7-10}}{Stream\ Gage\ Drainage\ Area} \times \frac{28.8\ cfs}{80.8\ mi^2} = \mathbf{0.356}$$

$$\boldsymbol{Stream\ Flow} = Outfall\ 001\ Drainage\ Area \times LFY = 0.34\ mi^2 \times 0.356 = \mathbf{0.121\ cfs}$$

Modeling Using state-wide Low-Flow Yield (LFY) of 0.1 cfs/mi2:

$$\frac{0.1\ ft^3/sec}{mi^2} \times 0.34\ mi^2 = \frac{\mathbf{0.034\ ft^3}}{\mathbf{sec}}$$

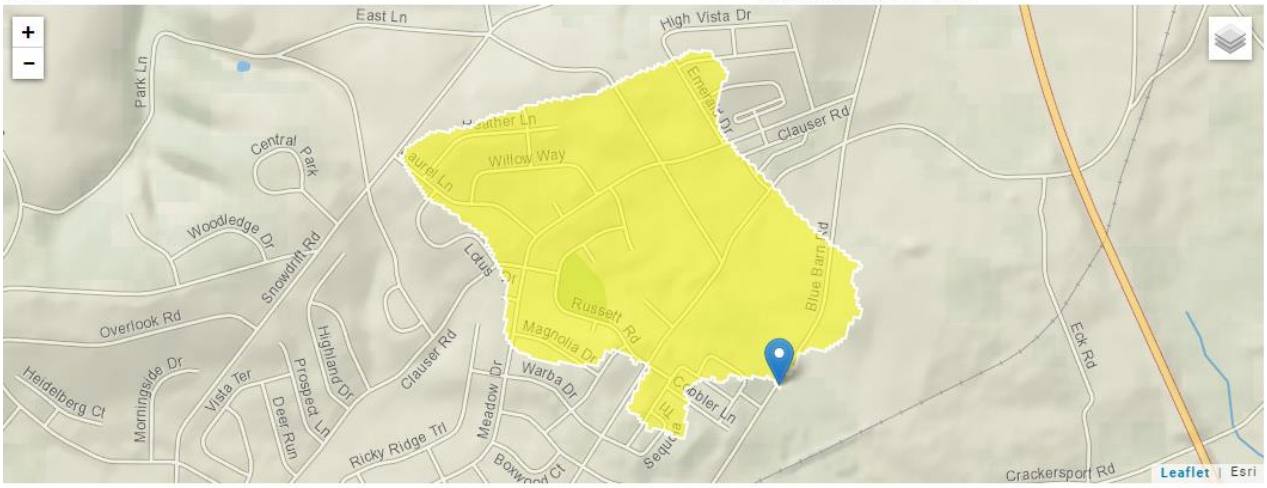
Modeling Using USGS StreamStats:

At "Outfall" where eMap first shows RMI on at Unnamed Tributary to Little Cedar Creek (3571):

RMI	Elevation (ft)	Drainage Area (mi^2)	Q_{7-10} Flow (cfs)
1.07	493.54	0.34	-

StreamStats Report

Region ID:	PA
Workspace ID:	PA20240828123746390000
Clicked Point (Latitude, Longitude):	40.59983, -75.58507
Time:	2024-08-28 08:38:11 -0400



Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	0.34	square miles

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

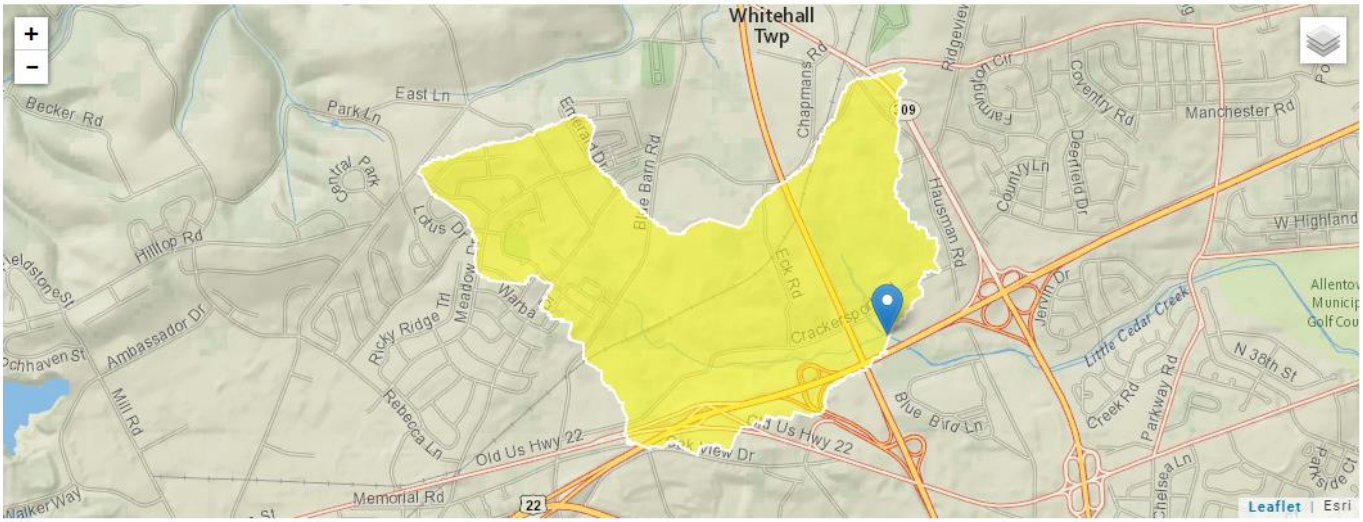
No Q_{7-10} Information Available

At Confluence with Little Cedar Creek (3570):

RMI	Elevation (ft)	Drainage Area (mi^2)
0.0 2.98 (On Little Cedar Creek)	408.36	1.21

StreamStats Report

Region ID:	PA
Workspace ID:	PA20240828124356473000
Clicked Point (Latitude, Longitude):	40.59775, -75.56738
Time:	2024-08-28 08:44:23 -0400



Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	1.21	square miles

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

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.034	= Q stream (cfs)	0.5	= CV Daily
0.002	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 3.524	1.3.2.iii	WLA cfc = 3.429
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 1.313	5.1d	LTA_cfc = 1.993

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)

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