pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0244171**
Facility Type	**Industrial**	APS ID	**1099769**
Major / Minor	**Minor**	Authorization ID	**1459789**

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

Applicant and Facility Information

Applicant Name	**Lower Merion Township**	Facility Name	**Glanraffan Creek Passive TMDL Remediation Site**
Applicant Address	75 E Lancaster Avenue	Facility Address	Centennial Road
	Ardmore, PA 19003-2323		Gladwyne, PA 19035
Applicant Contact	Donald Cannon	Facility Contact	
Applicant Phone	(610) 645-6133	Facility Phone	
Client ID	60250	Site ID	671506
SIC Code	4952	Municipality	Lower Merion Township
SIC Description	Trans. & Utilities - Sewerage Systems	County	Montgomery
Date Application Received	October 5, 2023	EPA Waived?	Yes
Date Application Accepted	July 17, 2024	If No, Reason	

Purpose of Application: NPDES permit renewal application.

Summary of Review

The Pa Department of Environmental Protection (PADEP/Department) received an NPDES permit renewal application from Pennoni (consultant) on October 5, 2023 on behalf of Lower Merion Township (permittee) for Permittee's Glanraffan Creek Passive TMDL Remediation Site (facility). This is a minor industrial waste facility with a design flow of 0.12 MGD that discharges into Glanraffan Creek (WWF, MF) in state watershed 3-F. The current permit expired on February 29, 2024. The terms and conditions of the current permit is automatically extended since the renewal application was received at least 180 days prior to expiration date. Renewal NPDES permit application under Clean Water Program are not covered by PADEP's PDG per 021-2100-001. This fact sheet is developed in accordance with 40 CFR §124.56.

Changes to existing permit: None.

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.

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	July 17, 2024
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	07/18/2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.12
Latitude	40º 1' 46.31"	Longitude	-75º 14' 32.96"
Quad Name	Germantown	Quad Code	1844
Wastewater Description:	Groundwater seep from former landfill		
Receiving Waters	Glanraffan Creek	Stream Code	00901
NHD Com ID	25974964	RMI	0.25
Drainage Area	0.5 mi^2	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	3-F	Chapter 93 Class.	
Existing Use	**WWF, MF**	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, TOTAL SUSPENDED SOLIDS (TSS)		
Source(s) of Impairment	SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final, 10/09/2003	Name	Glanraffan Creek
Nearest Downstream Public Water Supply Intake	PWD on the Schuylkill River		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	12.83	Distance from Outfall (mi)	2.67

Changes Since Last Permit Issuance: None

PWS Intake:
The nearest downstream public water supply is Philadelphia Water Department's Schuylkill River intake at RMI 12.83 on Schuylkill River. Its approximately 2.67 miles downstream of Outfall 001. Discharge from this facility is expected not to impact the PWS intake because of the effluent limits and larger dilution in the Schuylkill River.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. The receiving streams are designated as Warm Water Fishes (WWF) and Migratory Fishes (MF.) No High-Quality stream or Exceptional Value water is impacted by this discharge; therefore, no Antidegradation Analysis is performed for the discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

Glanraffan Creek TMDL:
The receiving stream, Glanraffan Creek, has an EPA approved TMDL on December 3, 2003. Glanraffan Creek, a watershed of approximately 0.56 square miles, has been identified as impaired due to excessive metals. A groundwater seep from a former Lower Merion Township landfill has been identified as the sole point source of contamination into the creek, and a TMDL with a wasteload allocation (WLA) that required reductions to the point source discharge was issued. Historical records indicate the former landfill was built on a spring in the vicinity of the seep, which is contaminated with total iron above criteria. Wasteload allocations were developed for the former Lower Merion Township landfill for Iron, Manganese, and Aluminum using Monte Carlo Simulation; however, the TMDL required reductions for only iron.

The effluent limits included in the draft NPDES permit were developed previously and are consistent with the Glanraffan Creek TMDL. There are no changes to the quality or quantity of the wastewater since the last permit renewal. Therefore, the existing permit limits are continued in the draft permit. The technical review contained in the following pages summarizes the development of the permit conditions.

Treatment Facility Summary				
Treatment Facility Name: Glanraffan Creek Remediation Project				
WQM Permit No.	**Issuance Date**			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Physical (Industrial Waste)	Sedimentation	No Disinfection	0.12
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.12				Landfill

Technology Based Limits

Lower Merion Township owns and operates a passive seep treatment from a landfill leachate. Groundwater leachate from the landfill is collected in an underdrain/spring box. The groundwater discharges over a cascade aerator into the aeration pond which allows oxidation and subsequent precipitation of the iron. The aeration basin has three baffles/curtains with cutouts/windows to increase the travel path and consequently the retention time and atmospheric exposure to maximize oxidation and settlement of the iron before discharging into the outfall. The Department's Office of Mineral Resources had established the following technology-based effluent limitations for discharges of wastewater to streams:

Parameter	30-day Average	Daily Maximum	Instantaneous Maximum
Iron (total)	3.0 mg/l	6.0 mg/l	7.0 mg/l
Manganese (total)	2.0 mg/l	4.0 mg/l	5.0 mg/l
Suspended solids	35 mg/l	70 mg/l	90 mg/l
PH*	Between 6.0 and 9.0 standard units		
Alkalinity greater than acidity*			

* These parameters apply at all times

Water Quality Based Effluent Limits

Iron (total)

The allowable wasteload allocations (WLA) for the Glanraffan Creek Remediation Project were listed in the TMDL as long-term averages (LTA). The LTA for total iron was converted into an average monthly limit (AML) using the statistical procedures outlined in EPA's TSD manual. Based on the calculation described below, the WLA for total iron was translated to an AML of 1.5 mg/l. Note that Pennsylvania's water quality criteria for total iron is 1.5 mg/l (as a 30-day average). Therefore, the AML for total iron is consistent with both the TMDL and the water quality criteria for total iron. The MDL was calculated by multiplying the AML by a factor of 2.0. The instantaneous maximum limit (IML) was calculated by multiplying the AML by a factor of 2.5.

The conversion of the TMDL LTA limit into an average monthly limit (AML) is as follows:

AML = LTA * (LTA multiplier)
AML = 0.71 mg/l * 2.08 = 1.5 mg/l

For LTA multiplier assume: 99^{th} percentile, n=4, CV = 0.7

The conversion of the AML to a daily maximum limit (MDL) is as follows:

MDL = AML * 2
MDL = 1.5 mg/l * 2 = 3.0 mg/l

The conversion of the AML to an instantaneous maximum limit (IML) is as follows:

IML = AML * 2.5
IML = 1.5 mg/l * 2.5 = 3.7 mg/l

The in-stream water quality criteria for "total iron" is 1.5 mg/l as a 30-day average (TMDL, page 9), which is identical to the final effluent limit listed in the permit.

The TMDL states that "All allocations will be specified as long-term average daily concentrations. These long-term average daily concentrations are expected to meet water quality criteria 99 percent of the time." (TMDL Report, Page 9). Thus, the long-term average daily concentration for the seep (e.g. 0.71 mg/l (See TMDL, page 11)) was statistically converted to AML (1.5 mg/l) and MDL (3.0 mg/l) permit limits.

Manganese

The Glanraffan Creek TMDL does not require a reduction for Manganese. The allowable long-term average (LTA) wasteload allocation (WLA), listed in the TMDL, represents the "measured sample data" from the landfill seep, not an actual effluent concentration that must be achieved in order to meet in-stream criteria.

The applicant provided monthly monitoring data for Manganese, collected between June 2004 and January 2006, from three locations: (1) Glanraffan Creek Upstream of Groundwater Seep, (2) Tributary of Seep discharge, and (3) Glanraffan Creek Downstream of Groundwater Seep. The downstream data from these samples showed: 0.04 mg/l (minimum), 0.09 mg/l (average), 0.21 mg/l (maximum); well below the 1.0 mg/l statewide criteria for Manganese. Therefore, Manganese is not a parameter of concern and existing technology limit will be continued in the permit.

Aluminum

The Glanraffan Creek TMDL does not require a reduction for Aluminum. The allowable long-term average (LTA) wasteload allocation (WLA), listed in the TMDL, represents the "measured sample data" from the landfill seep, not an actual effluent concentration that must be achieved in order to meet in-stream criteria.

The applicant provided monthly monitoring data for Aluminum, collected between June 2004 and January 2006, from three locations: (1) Glanraffan Creek Upstream of Groundwater Seep, (2) Tributary of Seep discharge, and (3) Glanraffan Creek Downstream of Groundwater Seep. The seep discharge data from these samples showed: 0.09 mg/l (minimum), 0.13 mg/l (average), 0.52 mg/l (maximum); well below the 0.75-mg/l statewide criteria for Aluminum. Therefore, Aluminum is not a parameter of concern and monitoring is not required in the permit.

Compliance History

DMR Data for Outfall 001 (from June 1, 2023 to May 31, 2024)

Parameter	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23
Flow (MGD) Average Monthly	0.02880	0.02880	0.02880	0.02880	0.02880	0.02880	0.02880	0.0288	0.02880	0.02880	0.02880	0.02880
pH (S.U.) Instantaneous Minimum	7.6	7.6	7.8	7.7	7.8	8.0	7.9	7.80	7.8	7.8	7.8	7.9
pH (S.U.) IMAX	7.8	7.7	7.8	7.8	7.9	8.0	8.1	7.98	7.9	8.0	8.0	8.1
TSS (mg/L) Average Monthly	9	5	4	< 4	< 4.0	< 4	< 4	4.4	14	16	14	< 4
TSS (mg/L) IMAX	12	6	4	< 4	< 4.0	< 4	< 4	4.8	16	26	24	< 4
Total Acidity (mg/L) Average Monthly	< 10	< 10	< 10	< 10	< 10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Acidity (mg/L) IMAX	< 10	< 10	< 10	< 10	< 10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Alkalinity (mg/L) Average Monthly	397	435	423	490	450	380	390	413	380	399	383	387
Total Alkalinity (mg/L) IMAX	421	443	430	504	457	383	400	427	386	409	385	392
Total Iron (mg/L) Average Monthly	1.3	1.0	0.7	0.8	0.8	0.6	0.6	1.11	2.6	2.8	2.0	0.8
Total Iron (mg/L) IMAX	1.8	1.3	0.8	0.8	0.8	0.7	0.7	1.3	3.0	4.0	3.2	0.8
Total Manganese (mg/L) Average Monthly	0.4	0.4	0.3	0.4	0.4	0.3	0.2	0.36	0.5	0.6	0.8	0.4
Total Manganese (mg/L) IMAX	0.5	0.5	0.3	0.5	0.4	0.3	0.2	0.42	0.7	0.8	1.1	0.4

Compliance History

Effluent Violations for Outfall 001, from: July 1, 2023 To: May 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Iron	08/31/23	Avg Mo	2.8	mg/L	1.5	mg/L
Total Iron	09/30/23	Avg Mo	2.6	mg/L	1.5	mg/L
Total Iron	08/31/23	IMAX	4.0	mg/L	3.7	mg/L

Non-compliance report: NCR for August 2023 stated the large quantity of precipitation that re-suspended the settled solids was the reason for August violations. Excessive rain was also the reason for September 2023 violation. The permittee is planning to remove accumulated solids from the pond.

03/03/2022: CEI conducted, no violations noted. Permittee was advised to submit plans for removing the sludge from the retention basin. The outfall 001 effluent was clear. There was some iron precipitate deposition in the wetland area but only in the area immediately around the discharge.

02/16/2021: CEI conducted. No violations were observed. Permittee was advised to investigate the cause of the underdrain discharging.

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" (386-0400-001), 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 Inst Min	XXX	XXX	9.0	2/month	Grab
TSS	XXX	XXX	XXX	35	XXX	90	2/month	Grab
Total Acidity	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Alkalinity	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Iron	XXX	XXX	XXX	1.5	XXX	3.7	2/month	Grab
Total Manganese	XXX	XXX	XXX	2.0	XXX	5.0	2/month	Grab

Compliance Sampling Location: At Outfall 001

Other Comments: Non