pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0080322**
Facility Type	**Industrial**	APS ID	**3937**
Major / Minor	**Minor**	Authorization ID	**1407715**

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

Applicant and Facility Information

Applicant Name	**Greater Lebanon Refuse Authority**	Facility Name	**Greater Lebanon Refuse Landfill**
Applicant Address	1800 Russell Road	Facility Address	1610 Russell Road
	Lebanon, PA 17046-1425		Lebanon, PA 17046-1437
Applicant Contact	Robert Garner	Facility Contact	James Zendek
Applicant Phone	(717) 867-5790	Facility Phone	7178675790 Ext 314
Client ID	78270	Site ID	248521
SIC Code	4953	Municipality	North Lebanon Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Lebanon
Date Application Received	August 26, 2022	EPA Waived?	Yes
Date Application Accepted	September 9, 2022	If No, Reason	

Purpose of Application: Permit renewal to discharge treated industrial wastewater.

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for a discharge of treated leachate and storm water from a municipal waste landfill to various unnamed tributaries of Swatara Creek classified for warm water fishes. The facility known as Greater Lebanon Refuse Authority (GLRA) accepts solid waste from residents of Lebanon County and neighboring municipalities. Included within the site boundaries are closed unlined (unpermitted and permitted) landfill areas and an active lined landfill area permitted under waste management permit No. 101544. The wastewater treatment system consists of a leachate collection system and a system of wetland cells/ ponds known as natural aquatic leachate treatment system (NALTS). The NALTS ponds were established in the mid-to-late 1970's to naturally treat leachate and stormwater runoff from GLRA's unlined landfill sites. Fourteen original ponds were constructed on top of the existing creek bed. Ponds 1 & 2 were originally farm ponds on Site 100825 located east of Pond 5 and are now filled and capped. The leachate and stormwater was originally intended to reach the NALTS ponds through an existing groundwater table, a porous concrete landfill underdrain system with catch basins, and an overland topography. The ponds were established as settling, treatment and/or aeration ponds.

In the late 1980's, PADEP instructed the GLRA to install a groundwater interceptor system around sections of Site 100825 to divert groundwater to specific points within the NALTS system. The system components were specified by PADEP and include the Russell Road Interceptor, Southwest Interceptor, Northwest Interceptor, a series of manholes, and a connection through manhole MH4 to a conduit that crosses Russell Road. The Southwest

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	May 2, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	May 3, 2024
X		*Maria D. Bebenek* Maria D. Bebenek, P.E., / Program Manager	May 3, 2024

Summary of Review

Interceptor was installed when Ponds 1 & 2 were capped as part of final closure activities on Site 100825. A final cap was installed over approximately 36 acres of the unlined landfill site in 1994. As part of the capping project, a six-inch leachate perimeter drain and a series of French drains were installed to collect and convey leachate from under the capped area to the existing catch basins (No.1, No.2, and No.3) along the east side of the landfill site. The Interceptors were constructed with perforated HPDE piping; and act as both collection and conveyance lines. The Interceptors discharge to a series of manholes, basins and the landfill underdrain system. Some manholes have shutoff valves to direct flows to either the NALTS ponds or to the active landfill's leachate collection system

Stormwater runoff is also conveyed into the NALTS system for treatment. Stormwater flows into Pond 3 and 6 through culverts under Heilmandale Road and the existing landfill perimeter road respectively. Stormwater from the active landfill area (Permit 101544) enters NALTS from stormwater basins at Pond 10 through three culverts under the existing Haul Road.

An extensive network of groundwater monitoring wells surround both the inactive and active landfill areas, including monitoring wells in the vadose soil zone around the active landfill to detect potential landfill gas migration. Monitoring well results are not showing significant impact on the ground. Discharge from the NALTS system is monitored at outfall 001 south of Pond 14. The facility's operations fall under standard classification code 4953 and regulated as refuse system. The existing flow in the permit is 0.144MGD. The effluent is highly influenced by stormwater and snow melt due to the NALTS being exposed to the atmosphere. Reported effluent flow on wet weather days can be extremely high. There is no realistic way to estimate the dry weather flow but the average production data provided in the permit application is more than double the existing permitted discharge therefore the discharge flow for the current permit renewal has been revised to 0.331MGD. The existing permit had been tracking wet weather days and providing comments on DMR supplemental report and will continue during this permit cycle.

A leachate collection and pumping system is installed to capture leachate and storm water from the active landfill areas and conveyed to The City of Lebanon POTW for treatment and disposal.

A total of 5 outfalls that drain various portions of the facility are included in the current NPDES permit and the renewal application. Outfall 001 receives effluent from the NALTS system and outfalls 002 to 005 receive stormwater from various drainage areas in the landfill site.

The existing permit was issued on February 9, 2018 with effective date of March 1, 2018 and expiration date of February 28, 2023. The permittee submitted a timely NPDES permit renewal application to the Department and has been operating under the conditions in the existing permit pending permit renewal. A topographical map showing the various discharge points is presented in attachment A and process flow diagram is presented in attachment D.

1.1 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.

1.3 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.331
Latitude	40º 22' 5.93"	Longitude	-76º 29' 31.90"
Quad Name	Lebanon	Quad Code	1634
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary of Swatara Creek	Stream Code	63744
NHD Com ID	56397487	RMI	0.28
Drainage Area	0.55	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.06	Q_{7-10} Basis	USGS Gage Station
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Nutrients		
Source(s) of Impairment	Agriculture, Agriculture		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	PA American Water		
PWS Waters	Swatara Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	>20

Changes Since Last Permit Issuance: None

1.3.1 Water Supply:

The closest water supply intake located downstream from the discharge is PA American Water Company on Swatara Creek in South Hanover Twp., Dauphin County. The distance downstream from the discharge to the intake is approximately 20 miles. No impact is expected on the intake as a result of this discharge.

1.4 Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 22' 0.00"	Longitude	-76º 29' 38"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Swatara Creek	Stream Code	
NHD Com ID	56397487	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Nutrients		
Source(s) of Impairment	Agriculture, Agriculture		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

1.4.1 Other Comments:

Stormwater outfall 002 receive flow from drainage areas around the side slope of Hall Road, grassy area and around the pre-treatment facility area to a catchment basin. The permittee indicated there is no pre-treatment currently provided at the facility. All leachate captured are directed to City of Lebanon without pre-treatment. This outfall will have visual inspection requirement this permit cycle since there is no industrial activity currently conducted in the drainage area.

1.5 Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 21' 54.00"	Longitude	-76º 29' 32.00"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Swatara Creek	Stream Code	
NHD Com ID	56397709	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Nutrients		
Source(s) of Impairment	Agriculture, Agriculture		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

1.5.1 Other Comments:

Outfall 003 receive stormwater that drains from a side of the landfill through a stormwater pond. This outfall will continue to be monitored semi-annually.

1.6 Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 22' 29.00"	Longitude	-76º 29' 6.0"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Swatara Creek	Stream Code	
NHD Com ID	56397249	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Siltation		
Source(s) of Impairment	Agriculture, Agriculture		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

1.6.1 Other Comments:

Outfall 004 receives flow from a grassy area/meadow that overflows to a basin. This outfall will have visual inspection requirement this permit cycle. No industrial activity is conducted in the drainage area currently.

1.7 Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 22' 3"	Longitude	-76º 29' 35.10"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Swatara Creek	Stream Code	
NHD Com ID	56397487	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Nutrients		
Source(s) of Impairment	Agriculture, Agriculture		
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None

1.7.1 Other Comments:

Outfall 005 receives flow from parking lot, office, and maintenance building area through wetland under a road. This outfall will be monitored this permit cycle due to the possibility of vehicle rinses and other activities around the maintenance building making it into the storm drain.

1.8 Monitoring Natural Aquatic Life Treatment Systems (NALTS) Influent Quality

The permit will continue to require the operator to sample and analyze flows contributing to the NALTS at locations known as “S-2” and “S-6”. “S-2” shall be sampled annually and “S-6” shall be sampled semi-annually. The Department did not approve the permittee’s request to sample only pollutants that are consistently detected in the influent, since influent quality changes can occur under certain circumstances. Sampling frequency has been reduced from quarterly to semi-annually for location S-6 since the data that has been collected are consistent. Copies of the sampling report shall be submitted to the Clean Water and Waste Management Programs in the Southcentral Regional Office. The reports shall be submitted as indicated in the permit.

2.0 Existing Effluent Limitations and Monitoring Requirements

2.1 Outfalls 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	20.0	40.0	50	1/week	8-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/week	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen(3)	XXX	XXX	XXX	Report	XXX	XXX	2/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	6.0	12.0	15	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	Report	Report	XXX	2.0	4.0	5	1/week	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus	Report	Report	XXX	2.0	4.0	5	1/week	8-Hr Composite
Aluminum, Total	Report	Report	XXX	0.6	1.2	1.5	1/month	8-Hr Composite
Iron, Total	Report	Report	XXX	1.87	3.74	4.67	1/month	8-Hr Composite
Manganese, Total	Report	Report	XXX	1.2	2.4	3	1/month	8-Hr Composite

2.2 Storm water Outfalls 002, 003 and 004

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	Daily Maximum	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	I-S
COD	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

2.3 Compliance History

2.3.1 DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	0.9490	0.9758	0.2108	0.1035	0.1145	0.0897	0.1517	0.1586	0.1675	0.1448	0.3227	0.2401
Flow (MGD) Daily Maximum	2.8090	4.4270	1.67	0.2870	0.6620	0.2870	0.662	0.363	0.786	0.551	0.786	0.451
pH (S.U.) Minimum	7.0	6.9	6.7	7.1	7.3	7.4	7.34	6.9	6.6	7.2	7.1	6.69
pH (S.U.) Maximum	8.1	8.0	8.0	8.1	8.4	8.4	8.27	8.3	8.2	8.4	8.4	8.12
DO (mg/L) Minimum	10.6	10.8	8.6	5.5	6.3	5.4	5.13	5.2	5.3	5.3	9.4	10.45
CBOD5 (lbs/day) Average Monthly	< 31.42	< 16.79	< 5.15	< 2.22	< 2.24	2.9368	3.585	< 3.84	< 2.76	2.668	< 11.55	9.012
CBOD5 (lbs/day) Daily Maximum	103.079	26.8548	13.0288	3.0199	3.6863	5.7796	7.0	6.05	6.05	3.72	20.22	10.46
CBOD5 (mg/L) Average Monthly	< 2.54	< 2.78	< 3.32	< 3.42	< 3.23	4.7	3.75	< 2.2	< 2.7	2.85	< 5.0	5.1
CBOD5 (mg/L) Daily Maximum	4.4	4.4	6.1	7.1	5.3	5.7	4.9	2.4	5.3	3.5	10.3	7.6
TSS (lbs/day) Average Monthly	155.290	75.3394	20.7232	< 1.27	7.3945	14.6317	14.5	20.7	< 9.68	4.0	25.4	37.8
TSS (lbs/day) Daily Maximum	562.249	214.838	51.2610	2.9774	11.0588	38.5308	27.647	39.356	33.302	5.905	64.335	63.943
TSS (mg/L) Average Monthly	10.6	9.3	11.6	< 2.28	11.3	19.0	17.25	8.0	< 6.22	4.25	9.4	18.75
TSS (mg/L) Daily Maximum	24.0	16.0	24.0	7.0	20.0	28.0	28.0	13.0	14.0	6.0	16.0	23.0
Nitrate-Nitrite (mg/L) Average Monthly	< 1.65	< 1.45	< 1.12	< 1.1	< 1.1	< 1.2	< 1.1	< 1.1	< 1.15	< 1.17	< 1.62	< 1.67
Total Nitrogen (mg/L) Average Monthly	< 2.88	< 2.27	< 1.73	< 1.6	< 1.9	< 2.13	< 2.41	< 2.14	< 1.92	< 2.02	< 3.22	< 3.86
Ammonia (lbs/day) Average Monthly				< 0.02	< 0.03	< 0.01	< 0.05	< 0.1145	< 0.14			
Ammonia (lbs/day) Daily Maximum				< 0.03	0.0737	0.0275	0.098	< 0.182	0.484			
Ammonia (mg/L) Average Monthly	0.8	0.3	< 0.04	< 0.02	< 0.02	< 0.02	< 0.07	0.1	< 0.11	0.09	0.606	0.588
Ammonia (mg/L) Daily Maximum	1.1	0.4	0.1	< 0.02	0.04	0.01	0.1	0.1	0.2	0.1	1.1	1.2

TKN (mg/L) Average Monthly	1.2	< 0.83	< 0.61	< 0.39	0.8	0.9	1.315	1.04	< 0.76	0.86	1.59	2.185
Total Phosphorus (lbs/day) Ave. Monthly	0.6034	0.4342	0.0631	< 0.04	0.0782	0.0863	0.10998	0.15825	0.07541	0.04878	< 0.17	0.13160
Total Phosphorus (lbs/day) Daily Max.	2.1084	1.0742	0.1389	< 0.07	0.1290	0.1789	0.20274	0.24219	0.15137	0.05904	0.36762	0.16588
Total Phosphorus (mg/L) Ave. Monthly	0.01	0.1	0.01	< 0.05	0.1	0.1	0.10	0.1	0.1	0.05	< 0.07	0.075
Total Phosphorus (mg/L) Daily Max.	0.1	0.1	0.1	< 0.06	0.1	0.2	0.10	0.1	0.1	0.05	0.10	0.10
Total Aluminum (lbs/day) Ave. Monthly	3.1896	2.7365	0.2232	< 0.02	0.0779	0.0628	0.082	0.165	0.078	0.069	0.658	0.370
Total Aluminum (lbs/day) Daily Max.	12.4163	8.0564	0.7476	0.0275	0.1659	0.1486	0.17	1.272	0.27	0.10	1.65	0.83
Total Aluminum (mg/L) Average Monthly	0.2	0.3	0.1	< 0.02	0.1	0.1	0.10	0.1	0.1	0.078	0.296	0.157
Total Aluminum (mg/L) Daily Maximum	0.530	0.600	0.35	0.03	0.160	0.220	0.21	0.4	0.1	0.110	0.960	0.220
Total Iron (lbs/day) Average Monthly	8.5542	5.8337	0.8370	0.1195	0.3996	0.3623	0.5	0.7	0.5	0.3	1.8	1.7
Total Iron (lbs/day) Daily Maximum	27.6439	14.9044	2.499	0.2064	0.8110	0.5877	0.848	1.272	1.907	0.427	4.228	3.272
Total Iron (mg/L) Average Monthly	0.60	0.70	0.50	0.20	0.50	0.60	0.525	0.34	0.31	0.358	0.682	0.757
Total Iron (mg/L) Daily Maximum	1.180	1.11	1.170	0.21	0.710	0.870	0.830	0.42	0.63	0.40	1.020	0.90
Total Manganese (lbs/day) Ave. Monthly	3.4738	1.3091	0.3000	0.0906	0.2244	0.3285	0.3349	0.3924	0.2936	0.2484	0.8012	0.8979
Total Manganese (lbs/day) Daily Max.	8.9023	2.8198	0.7988	0.1155	0.2749	0.5283	0.557	0.639	0.757	0.269	1.921	1.817
Total Manganese (mg/L) Ave. Monthly	0.3	0.2	0.2	0.1	0.4	0.6	0.442	0.2	0.3	0.293	0.3	0.398
Total Manganese (mg/L) Daily Max.	0.4	0.2	0.4	0.2	0.7	0.8	0.8	0.2	0.4	0.4	0.5	0.5

2.3.2 DMR Data for Storm water Outfall 002 (from November 1, 2022 to October 31, 2023)

Parameter	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22
pH (S.U.) Daily Maximum											8.04	
COD (mg/L) Daily Maximum											25	
TSS (mg/L) Daily Maximum											1	
Nitrate-Nitrite (mg/L) Daily Maximum											1.25	
Ammonia (mg/L) Daily Maximum											0.02	
TKN (mg/L) Daily Maximum											0.5	
Total Phosphorus (mg/L) Daily Maximum											0.06	
Total Iron (mg/L) Daily Maximum											0.2	

2.3.3 DMR Data for Outfall 003 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
pH (S.U.) Daily Maximum		7.69						GG				
COD (mg/L) Daily Maximum		85						GG				
TSS (mg/L) Daily Maximum		66						GG				
Nitrate-Nitrite (mg/L) Daily Maximum		18.0						GG				
Ammonia (mg/L) Daily Maximum		0.23						GG				
TKN (mg/L) Daily Maximum		4.19						GG				
Total Phosphorus (Daily Maximum		0.16						GG				
Total Iron (mg/L) Daily Maximum		2.37						GG				

2.3.4 Summary of Discharge Monitoring Reports (DMRs):

DMRs reviewed for the facility for the last 12 months of operation, presented on the table above in section 2.3.1 indicate permit limits have been met consistently. No effluent violations were noted on DMRs for the period reviewed.

2.3.5 Summary of Inspections:

The facility has been inspected a couple times during last permit cycle. No effluent violations were found during plant inspections. Comments and recommendations were provided in inspection reports regarding storm water sampling requirement.

3.0 Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	.331
Latitude	40º 22' 6.00"	**Longitude**	-76º 29' 32.00"

Wastewater Description: IW Process Effluent without ELG

3.1 Basis for Effluent Limitations:

In general, the Clean Water Act (CWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

3.2 Technology Based Limits:

Due to the direct and marked influence of precipitation events on the discharge from outfall 001, DEP BAT limits for landfill leachate have not been considered appropriate for application to this case. The ELG for landfill leachate (40CFR Part 445) is not applicable to this facility since the site falls under one of the exclusions in the Technical Support Document (TSD) for the ELG. The TSD excluded groundwater and wastewater from recovery-well operations that have been contaminated by a landfill. Thus, wastewater discharges at GLRA do not fall under the requirements of 40 CFR Part 445. Also, review of the quarterly NALTS influent samples indicated that most of the parameters considered under the ELG were not detected.

3.3 Water Quality-Based Limitations

3.3.1 Receiving Stream:

The receiving stream is UNT Swatara Creek. According to 25 PA § 93.9o, this stream is protected for Warm Water Fishes (WWF). It is located in Drainage List o and State Watershed 7-D. It has been assigned stream code 09888. According to the Department's 2014 Pennsylvania Integrated Water Quality Monitoring and Assessment Report, the UNT of Swatara Creek is impaired for flow alterations and nutrients due to agriculture. TMDL development is pending.

3.3.2 Streamflows:

Streamflow will be correlated with past streamflow records taken from the nearby USGS gage station No. 01573000 on Swatara creek. The drainage area at the gage is 309 mi^2. The yield at the gage is determined as follows:

$Q_{7\text{-}10}$ = 20.2 ft^3/s ÷ 309 mi^2 = 0.065 $ft^3/s/mi^2$
$Q_{30\text{-}10}/ Q_{7\text{-}10}$ = 1.36
$Q_{1\text{-}10}/ Q_{7\text{-}10}$ = 0.64

The drainage area at the discharge point calculated by USGS StreamStats is 0.55mi^2

The estimated $Q_{7\text{-}10}$ at the discharge is 0.1 $ft^3/s/mi^2$ x 0.55 mi^2 = 0.06 ft^3/s

3.3.3 NH_3N Calculations:

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

- STP pH = 7.2 (median DMR July -Sept.)

- STP Temperature = 20 ° C (default)
- Stream pH = 7.0 (default)
- Stream Temperature = 20 ° C (default)
- Background NH_3-N = 0.0 (default)

3.3.4 $CBOD_5$:

The results of the WQM 7.0 stream model (attachment B) indicates a limit of 25mg/L$CBOD_5$ is adequate to protect the water quality of the stream, the existing best BPJ limit of 20mg/L will be retained due to anti-backsliding. Past DMRs and inspection reports show that the STP has been consistently achieving below 20 mg/L $CBOD_5$. Therefore 20 mg/L AML, 40 mg/L daily maximum and 50 mg/L IMAX will remain for the current permit renewal. Mass limits will be monitored for technology- based limitations following recommendations in permit writer's manual Document No. 362-0400-001, Table 5-2, 10/1/97.

3.3.5 NH3-N:

The WQM 7.0 stream model results presented in attachment B also indicates that a limit of 2.0 mg/l NH_3 as a monthly average is necessary to protect the aquatic life from toxicity effects for summer limits. This limit is consistent with the existing permit and the facility is complying with the limit. The existing winter limit of 6.0 mg/L is 3 times the summer limit will also remain for the current permit cycle. Mass limits will be reported for this water quality - based limitations due to the influence of stormwater on the volume of effluent discharge. This deviates slightly from recommendations in permit writer's manual Document No. 362-0400-001, Table 5-2, 10/1/97.

3.3.6 Dissolved Oxygen:

The existing permit has a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, a minimum D.O of 5.0mg/l will be required in the permit with a daily monitoring requirement per DEP guidance. This limit is consistent with the existing permit and the facility is complying with the limitation

3.3.7 pH:

Following PA code 25 § 95.2, a pH of not less than 6 and not greater than 9, will be required in the permit for this industrial waste discharge with daily monitoring requirement.

3.3.8 Total Suspended Solids (TSS):

There are no water quality criteria for TSS. The existing BPJ average monthly limit of 30mg/l and daily maximum limit of 60mg/l in the permit is nearly consistent with the ELG at 40 CFR445.23 for municipal landfills even though the ELG is not applicable to this facility. Therefore, the existing limit will remain in the permit.

3.3.9 Phosphorus:

A monthly average limit of 2mg/L phosphorus has been set in the permit following 25 Pa. Code § 96.5(c) due to localized nutrient impairment of the receiving UNT to Swatara Creek The phosphorus limit will remain.

3.3.10 Chesapeake Bay Strategy:

In 2003, EPA established state-wide cap loads for Total Nitrogen and Total Phosphorus for Pennsylvania that are needed to ensure compliance with new water quality standards enacted to restore the water quality of the Chesapeake Bay. DEP released Pennsylvania's Chesapeake Bay Tributary Strategy (CBTS) in January of 2005 to guide Pennsylvania's efforts to meet those cap loads and made revisions to the Strategy in 2006-2007

following a stakeholder process. Industrial discharges have been prioritized based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed Chesapeake Bay IW monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with potential to introduce nutrients to the receiving stream and has been monitoring TN series (nitrate-nitrite, TKN) and will continue monitoring them monthly to collect data for Chesapeake Bay modelling efforts. There is TP limit in the permit, no monitoring is required.

3.3.11 Toxics:

A reasonable potential (RP) analysis was done for pollutant Groups 1 to 6 submitted with the application. All pollutants that were presented in the application sampling data were entered into the Toxics Management Spreadsheet (TMS) to calculate WQBELs. WQBELs recommended by the TMS are presented in attachment C. The discharge levels for all parameters analyzed in exception of Total Aluminum, Total Iron, Dissolved Iron and Total Manganese were well below DEP's target quantitation limits (TQL) and calculated WQBELs, therefore no limitation or monitoring is required in the permit. Monitoring is recommended for Total Aluminum, Total Iron, Dissolved Iron and Total Manganese. However, due to anti-backsliding restrictions, the existing limitation for Total Aluminum, Total Iron and Total Manganese will remain in the permit and 1/month monitoring is required for Dissolved Iron.

The recommended limitations follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

3.3.12 PFAS Monitoring Strategy:

PFAS, also known as 'forever chemicals,' are prevalent in the environment. They are a category of chemicals used since the 1940s to repel oil and water and resist heat, which makes them useful in everyday products such as nonstick cookware, stain resistant clothing, and firefighting foam. Exposure to certain PFAS over a long period of time can cause cancer, adverse health impacts and other illnesses. EPA categorized the following activities it believes are the main sources of PFAS: organic chemicals, plastics & synthetic fibers; metal finishing; electroplating; electric and electronic components; landfills; pulp, paper & paperboard; leather tanning & finishing; plastics molding & forming; textile mills; paint formulating, and airports. DEP is implementing PFAS monitoring program to investigate and address PFAS discharges and pollution. Under the plan, all new industrial and some major sewage permit applicants are required to test for 4 of the PFAS parameters, PFOA, PFOS, HFPO-DA and PFBS during permit applications. If the results of the tests are non-detect using screening level at or below DEP's Target QLs, an annual monitoring will be required and if there are detections or non-detects above the TQLs a quarterly monitoring will be required in the permit. Applications received without the tests and applications already received will be drafted with quarterly monitoring if an industrial facility falls under EPA categories or if a major sewage facility receives flow from one of EPA categories. If an industrial facility does not fall under or a major sewage facility does not receive flow any EPA categories, annual monitoring will be required in the draft permit. This facility falls in one of the EPA categories and requires quarterly monitoring of PFOA, PFOS, HFPO-DA, and PFBS is required in the permit. The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detect results at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees shall enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

3.3.13 Stormwater:

Existing permit has 4 stormwater outfalls 002, 003,004 and 005. Monitoring requirements for the stormwater outfalls in the existing permit are set from Appendix C of the current PAG-03 permit and is presented on the table below. The permittee has been monitoring and reporting analytical results for the parameters listed in the table on Discharge Monitoring Reports (DMRs) for storm water outfalls 002, 003, 004.The permittee requested to monitor outfall 003 as representative outfall for the entire site, but the Department determined outfalls 003 and 005 should be monitored as the best representative storm water outfalls for the site. The current permit will require monitoring of outfalls 003 and 005.The benchmark values listed are not effluent limitations, and exceedances do not constitute permit violations However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a corrective action plan within 90 days of the end of the monitoring period triggering the plan. Outfalls 002 and 004 will listed in part C of the permit with best management practice requirements.

Parameter	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
pH (S.U.)	1 / 6 months	Grab	XXX
Total Suspended Solids (TSS) (mg/L)	1 / 6 months	Grab	100
Chemical Oxygen Demand (COD) (mg/L)	1 / 6 months	Grab	120
Ammonia-Nitrogen (mg/L)	1 / 6 months	Grab	XXX
Total Iron (mg/L)	1 / 6 months	Grab	XXX
NO_3+NO_2-N*	1 / 6months	Grab	XXX
TKN*	1 / 6months	Grab	XXX
Total Phosphorus*	1 / 6months	Grab	XXX

*In addition, the Chesapeake Bay Strategy requires storm water to be monitored for the nitrogen series and TP. Semi- annual monitoring of NO_3+NO_2-N, TKN and Total Phosphorus have been added to Appendix C parameters.

3.3.14 Best Management Practices (BMPs)

The permit will include the following BMP conditions:

- The permittee shall implement a preventive maintenance program and shall maintain all elements of leachate collection and treatment systems, to prevent commingling of leachate with stormwater, and the integrity and effectiveness of any intermediate or final cover (including repairing the cover as necessary), to minimize the effects of settlement, sinking, and erosion.

- Provide temporary stabilization (e.g., temporary seeding, mulching, and placing geotextiles on the inactive portions of stockpiles) for the following in order to minimize discharges of pollutants in stormwater: materials stockpiled for daily, intermediate, and final cover; inactive areas of the landfill; landfills with final covers but where vegetation has yet to establish itself; and land application sites where waste application has been completed but final vegetation has not yet been established.

5.0 Other Considerations

5.1 Flow Monitoring:

40 CFR § 122.44(1)(ii) requires permittees to monitor effluent volume discharged from outfalls; therefore, DEP will continue to require the facility to continue monitoring the volume of effluents discharged from each monitoring points.

5.2 Antidegradation Requirements (25 PA Code § 93.4):

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.3 Anti-backsliding:

Not applicable to the permit.

5.4 Class A Wild Trout Streams:

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

5.5 Endangered Species:

There is no confirmed existence of endangered species in the area close to the discharge. Therefore, the discharge authorized by this permit is not likely to impact any endangered or threatened species or adversely affect its critical habitat.

5.6 303d Listed Streams:

The discharge is located on a 303d listed stream segment for nutrients and flow alterations due to agricultural activities. TMDL slated for 2015, is yet to be completed. A monthly average limit of 2 mg/L phosphorus has been set in the permit following 25 Pa. Code § 96.5(c) pending TMDL development.

5.7 Basis for Effluent and Surface Water Monitoring:

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.8 Effluent Monitoring Frequency:

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and

prior to discharge to the receiving water. If no discharge occurs during the reporting period, “no discharge” shall be reported on the DMR.

6.0 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)	Required
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	20.0	40.0	50	1/week	8-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/week	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	6.0	12.0	15	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	Report	Report	XXX	2.0	4.0	5	1/week	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	Report	Report	XXX	2.0	4.0	5	1/week	8-Hr Composite
Aluminum, Total	Report	Report	XXX	0.6	1.2	1.5	1/month	8-Hr Composite
Iron, Dissolved	Report	Report	XXX	Report	Report	XXX	1/month	8-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Iron, Total	Report	Report	XXX	1.87	3.74	4.67	1/month	8-Hr Composite
Manganese, Total	Report	Report	XXX	1.2	2.4	3	1/month	8-Hr Composite
PFOA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFOS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
PFBS (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
HFPO-DA (ng/L)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

6.1 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.

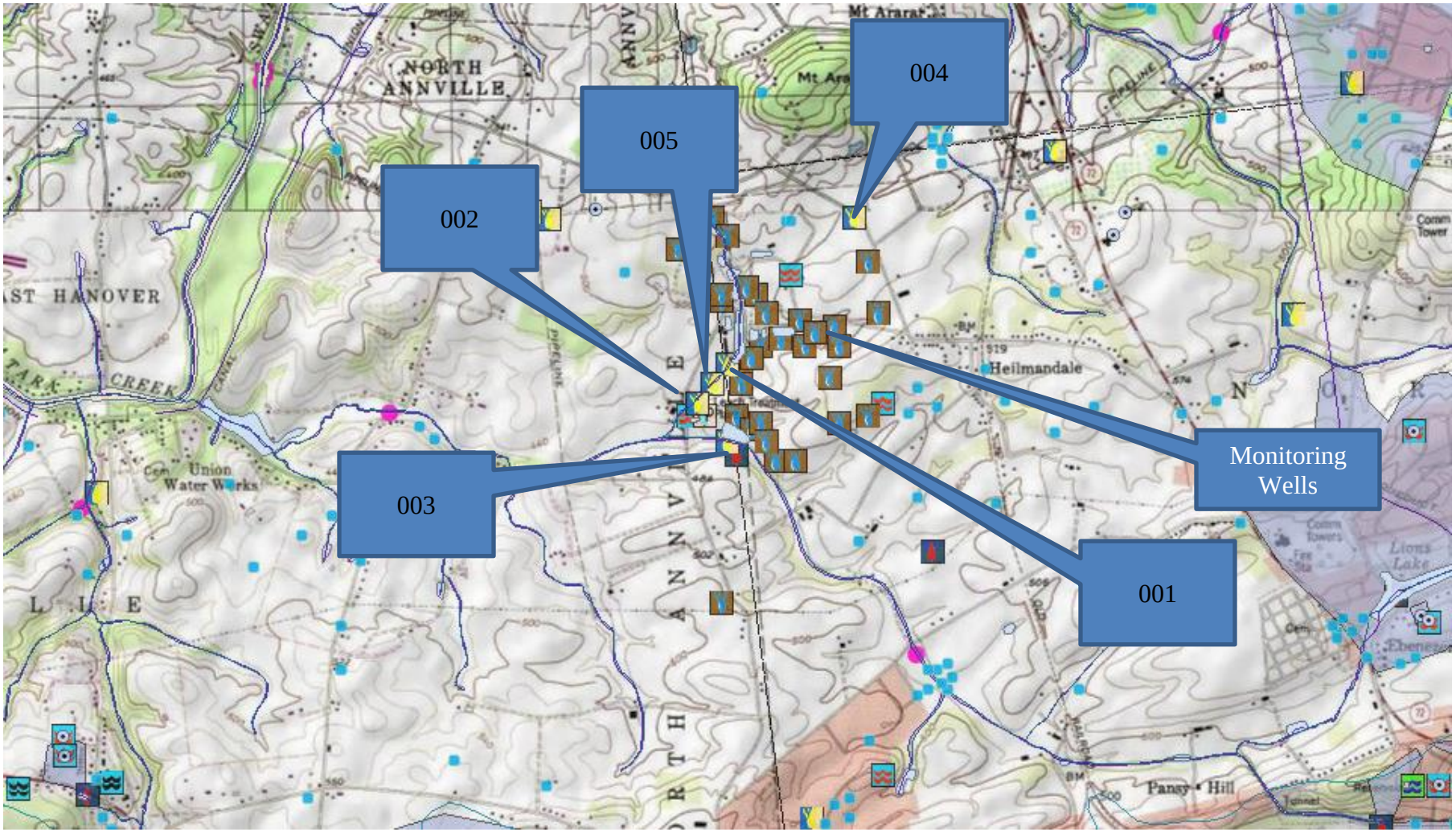
Outfall 003 and 005, Effective Period: Permit Effective Date through Permit Expiration Date.

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	Daily Maximum	Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	I-S
COD	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
TKN	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/6 months	Grab

7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment **C**)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
☒	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing effluent limitation for individual industrial permit.
☐	Other:

8. Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07D	63744	Trib 63744 of Swatara 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)
0.280	Greater Leb Ref	PA0080322	0.331	CBOD5	25		
				NH3-N	2.01	4.02	
				Dissolved Oxygen			5

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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
07D	63744	Trib 63744 of Swatara Creek	0.280	457.00	0.55	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	0.100	0.00	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
Greater Leb Ref	PA0080322	0.3310	0.3310	0.3310	0.000	20.00	7.20

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
07D	63744	Trib 63744 of Swatara Creek	**0.010**	382.50	0.65	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	0.100	0.00	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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07D	63744	Trib 63744 of Swatara 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
0.280	Greater Leb Ref	13.97	14.93	13.97	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
0.280	Greater Leb Ref	1.75	2.01	1.75	2.01	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)		
0.28	Greater Leb Ref	25	25	2.01	2.01	5	5	0	0

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07D	63744	Trib 63744 of Swatara Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.280	0.331	20.000	7.176
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.267	0.508	10.368	0.212
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.77	1.486	1.81	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.315	26.859	Owens	5
Reach Travel Time (days)			
0.078			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.008	22.51	1.80	5.64
0.016	22.25	1.79	5.92
0.023	21.99	1.78	6.14
0.031	21.74	1.77	6.33
0.039	21.49	1.76	6.48
0.047	21.24	1.75	6.62
0.055	21.00	1.74	6.73
0.062	20.76	1.73	6.82
0.070	20.52	1.72	6.90
0.078	20.28	1.71	6.97

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		

Friday, April 12, 2024 Version 1.1 Page 1 of 1

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07D	63744	Trib 63744 of Swatara 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												
0.280	0.06	0.00	0.06	.5121	0.05226	.508	5.27	10.37	0.21	0.078	20.00	7.18
Q1-10 Flow												
0.280	0.04	0.00	0.04	.5121	0.05226	NA	NA	NA	0.21	0.079	20.00	7.18
Q30-10 Flow												
0.280	0.07	0.00	0.07	.5121	0.05226	NA	NA	NA	0.22	0.076	20.00	7.17

Friday, April 12, 2024 Version 1.1 Page 1 of 1

C. TMS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Greater Lebanon Refuse Landfill** NPDES Permit No.: **PA0080322** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial watewater**

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
0.331	208	7.3						

					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		295									
	Chloride (PWS)	mg/L		33.8									
	Bromide	mg/L		0.2									
	Sulfate (PWS)	mg/L		20.4									
	Fluoride (PWS)	mg/L		0.19									
Group 2	Total Aluminum	µg/L		140									
	Total Antimony	µg/L	<	0.3									
	Total Arsenic	µg/L		1									
	Total Barium	µg/L		115									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L	<	200									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L	<	0.6									
	Total Copper	µg/L	<	2									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		59									
	Dissolved Iron	µg/L		50									
	Total Iron	µg/L		450									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		442									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		3.5									
	Total Phenols (Phenolics) (PWS)	µg/L		14									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.3									
	Total Zinc	µg/L		8									
	Total Molybdenum	µg/L	<	3									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L	<	0.5									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	5									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L		0.7									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	5									
	2,4-Dichlorophenol	µg/L	<	5									
	2,4-Dimethylphenol	µg/L	<	5									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	5									
	p-Chloro-m-Cresol	µg/L	<	5									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	14.7									
	2,4,6-Trichlorophenol	µg/L	<	5									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	2.5									
	Di-n-Butyl Phthalate	µg/L		5									
	2,4-Dinitrotoluene	µg/L	<	5									

	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	2.5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<	0.012									
	alpha-BHC	µg/L	<	0.012									
	beta-BHC	µg/L	<	0.018									
	gamma-BHC	µg/L	<	0.042									
	delta BHC	µg/L	<	0.027									
	Chlordane	µg/L	<	0.5									
	4,4-DDT	µg/L	<	0.036									
	4,4-DDE	µg/L	<	0.012									
	4,4-DDD	µg/L	<	0.033									
	Dieldrin	µg/L	<	0.006									
	alpha-Endosulfan	µg/L	<	0.042									
	beta-Endosulfan	µg/L	<	0.012									
	Endosulfan Sulfate	µg/L	<	0.198									
	Endrin	µg/L	<	0.018									
	Endrin Aldehyde	µg/L	<	0.07									
	Heptachlor	µg/L	<	0.009									
	Heptachlor Epoxide	µg/L	<	0.005									
	PCB-1016	µg/L	<	0.095									
	PCB-1221	µg/L	<	0.095									
	PCB-1232	µg/L	<	0.095									
	PCB-1242	µg/L	<	0.095									
	PCB-1248	µg/L	<	0.095									
	PCB-1254	µg/L	<	0.095									
	PCB-1260	µg/L	<	0.095									
	PCBs, Total	µg/L	<	0.095									
	Toxaphene	µg/L	<	0.228									
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

Greater Lebanon Refuse Landfill, NPDES Permit No. PA0080322, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT Swatara Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	063744	0.28	457	0.55			Yes
End of Reach 1	063744	0.01	382	0.65			Yes

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

Location	RMI	LFY (cfs/mi^2)*	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	0.28	0.1										100	7		
End of Reach 1	0.01	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	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	0.28														
End of Reach 1	0.01														

Model Results

Greater Lebanon Refuse Landfill, NPDES Permit No. PA0080322, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.004 PMF: 1 Analysis Hardness (mg/l): 197.52 Analysis pH: 7.26

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	831	
Total Antimony	0	0		0	1,100	1,100	1,218	
Total Arsenic	0	0		0	340	340	377	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	23,256	
Total Boron	0	0		0	8,100	8,100	8,970	
Total Cadmium	0	0		0	3.901	4.26	4.72	Chem Translator of 0.916 applied
Total Chromium (III)	0	0		0	994.967	3,149	3,487	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	18.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	105	
Total Copper	0	0		0	25.521	26.6	29.4	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	134.353	194	215	Chem Translator of 0.692 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.82	Chem Translator of 0.85 applied
Total Nickel	0	0		0	832.838	835	924	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	10.373	12.2	13.5	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	72.0	
Total Zinc	0	0		0	208.610	213	236	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	3.32	

Acrylonitrile	0	0		0	650	650	720	
Benzene	0	0		0	640	640	709	
Bromoform	0	0		0	1,800	1,800	1,993	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,101	
Chlorobenzene	0	0		0	1,200	1,200	1,329	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	19,933	
Chloroform	0	0		0	1,900	1,900	2,104	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	16,611	
1,1-Dichloroethylene	0	0		0	7,500	7,500	8,306	
1,2-Dichloropropane	0	0		0	11,000	11,000	12,182	
1,3-Dichloropropylene	0	0		0	310	310	343	
Ethylbenzene	0	0		0	2,900	2,900	3,211	
Methyl Bromide	0	0		0	550	550	609	
Methyl Chloride	0	0		0	28,000	28,000	31,007	
Methylene Chloride	0	0		0	12,000	12,000	13,289	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,107	
Tetrachloroethylene	0	0		0	700	700	775	
Toluene	0	0		0	1,700	1,700	1,883	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	7,530	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	3,322	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,765	
Trichloroethylene	0	0		0	2,300	2,300	2,547	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	620	
2,4-Dichlorophenol	0	0		0	1,700	1,700	1,883	
2,4-Dimethylphenol	0	0		0	660	660	731	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	88.6	
2,4-Dinitrophenol	0	0		0	660	660	731	
2-Nitrophenol	0	0		0	8,000	8,000	8,859	
4-Nitrophenol	0	0		0	2,300	2,300	2,547	
p-Chloro-m-Cresol	0	0		0	160	160	177	
Pentachlorophenol	0	0		0	11.328	11.3	12.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	509	
Acenaphthene	0	0		0	83	83.0	91.9	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	332	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.55	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	33,222	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,983	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	299	
Butyl Benzyl Phthalate	0	0		0	140	140	155	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	908	
1,3-Dichlorobenzene	0	0		0	350	350	388	
1,4-Dichlorobenzene	0	0		0	730	730	808	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	4,430	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,769	
Di-n-Butyl Phthalate	0	0		0	110	110	122	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,772	
2,6-Dinitrotoluene	0	0		0	990	990	1,096	
1,2-Diphenylhydrazine	0	0		0	15	15.0	16.6	
Fluoranthene	0	0		0	200	200	221	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	11.1	
Hexachlorocyclopentadiene	0	0		0	5	5.0	5.54	
Hexachloroethane	0	0		0	60	60.0	66.4	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	11,074	
Naphthalene	0	0		0	140	140	155	
Nitrobenzene	0	0		0	4,000	4,000	4,430	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	18,826	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	332	
Phenanthrene	0	0		0	5	5.0	5.54	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	144	
Aldrin	0	0		0	3	3.0	3.32	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.05	
Chlordane	0	0		0	2.4	2.4	2.66	
4,4-DDT	0	0		0	1.1	1.1	1.22	
4,4-DDE	0	0		0	1.1	1.1	1.22	
4,4-DDD	0	0		0	1.1	1.1	1.22	
Dieldrin	0	0		0	0.24	0.24	0.27	
alpha-Endosulfan	0	0		0	0.22	0.22	0.24	
beta-Endosulfan	0	0		0	0.22	0.22	0.24	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.095	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.58	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.55	
PCBs, Total	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	0.73	0.73	0.81	

☑ ***CFC*** CCT (min): 0.004 PMF: 1 Analysis Hardness (mg/l): 197.52 Analysis pH: 7.26

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	244	
Total Arsenic	0	0		0	150	150	166	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,540	
Total Boron	0	0		0	1,600	1,600	1,772	
Total Cadmium	0	0		0	0.395	0.45	0.5	Chem Translator of 0.881 applied
Total Chromium (III)	0	0		0	129.425	150	167	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	11.5	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	21.0	
Total Copper	0	0		0	16.022	16.7	18.5	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,661	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.236	7.57	8.38	Chem Translator of 0.692 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.0	Chem Translator of 0.85 applied
Total Nickel	0	0		0	92.503	92.8	103	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.53	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	14.4	
Total Zinc	0	0		0	210.317	213	236	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	3.32	
Acrylonitrile	0	0		0	130	130	144	
Benzene	0	0		0	130	130	144	
Bromoform	0	0		0	370	370	410	
Carbon Tetrachloride	0	0		0	560	560	620	
Chlorobenzene	0	0		0	240	240	266	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,876	
Chloroform	0	0		0	390	390	432	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	3,433	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,661	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,436	
1,3-Dichloropropylene	0	0		0	61	61.0	67.6	
Ethylbenzene	0	0		0	580	580	642	

Methyl Bromide	0	0		0	110	110	122	
Methyl Chloride	0	0		0	5,500	5,500	6,091	
Methylene Chloride	0	0		0	2,400	2,400	2,658	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	233	
Tetrachloroethylene	0	0		0	140	140	155	
Toluene	0	0		0	330	330	365	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,550	
1,1,1-Trichloroethane	0	0		0	610	610	676	
1,1,2-Trichloroethane	0	0		0	680	680	753	
Trichloroethylene	0	0		0	450	450	498	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	122	
2,4-Dichlorophenol	0	0		0	340	340	377	
2,4-Dimethylphenol	0	0		0	130	130	144	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	17.7	
2,4-Dinitrophenol	0	0		0	130	130	144	
2-Nitrophenol	0	0		0	1,600	1,600	1,772	
4-Nitrophenol	0	0		0	470	470	520	
p-Chloro-m-Cresol	0	0		0	500	500	554	
Pentachlorophenol	0	0		0	8.691	8.69	9.62	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	101	
Acenaphthene	0	0		0	17	17.0	18.8	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	65.3	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.11	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	6,644	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,008	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	59.8	
Butyl Benzyl Phthalate	0	0		0	35	35.0	38.8	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	177	
1,3-Dichlorobenzene	0	0		0	69	69.0	76.4	
1,4-Dichlorobenzene	0	0		0	150	150	166	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	886	
Dimethyl Phthalate	0	0		0	500	500	554	
Di-n-Butyl Phthalate	0	0		0	21	21.0	23.3	
2,4-Dinitrotoluene	0	0		0	320	320	354	

2,6-Dinitrotoluene	0	0		0	200	200	221	
1,2-Diphenylhydrazine	0	0		0	3	3.0	3.32	
Fluoranthene	0	0		0	40	40.0	44.3	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.21	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.11	
Hexachloroethane	0	0		0	12	12.0	13.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,326	
Naphthalene	0	0		0	43	43.0	47.6	
Nitrobenzene	0	0		0	810	810	897	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	3,765	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	65.3	
Phenanthrene	0	0		0	1	1.0	1.11	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	28.8	
Aldrin	0	0		0	0.1	0.1	0.11	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.005	
4,4-DDT	0	0		0	0.001	0.001	0.001	
4,4-DDE	0	0		0	0.001	0.001	0.001	
4,4-DDD	0	0		0	0.001	0.001	0.001	
Dieldrin	0	0		0	0.056	0.056	0.062	
alpha-Endosulfan	0	0		0	0.056	0.056	0.062	
beta-Endosulfan	0	0		0	0.056	0.056	0.062	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.04	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.004	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.004	
PCBs, Total	0	0		0	0.014	0.014	0.016	
Toxaphene	0	0		0	0.0002	0.0002	0.0002	

☑ ***THH*** CCT (min): 0.004 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	

Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.2	
Total Arsenic	0	0		0	10	10.0	11.1	
Total Barium	0	0		0	2,400	2,400	2,658	
Total Boron	0	0		0	3,100	3,100	3,433	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	332	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,107	
Total Mercury	0	0		0	0.050	0.05	0.055	
Total Nickel	0	0		0	610	610	676	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.27	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	3.32	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	111	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	6.31	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	36.5	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	75.3	
Methyl Bromide	0	0		0	100	100.0	111	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	63.1	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	111	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,074	

Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	37.7	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.1	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	22.1	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.078	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	4.65	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	22.1	
beta-Endosulfan	0	0		0	20	20.0	22.1	
Endosulfan Sulfate	0	0		0	20	20.0	22.1	
Endrin	0	0		0	0.03	0.03	0.033	
Endrin Aldehyde	0	0		0	1	1.0	1.11	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
PCBs, Total	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.084 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.13	
Benzene	0	0		0	0.58	0.58	1.25	
Bromoform	0	0		0	7	7.0	15.1	
Carbon Tetrachloride	0	0		0	0.4	0.4	0.86	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1.72	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	2.04	
1,2-Dichloroethane	0	0		0	9.9	9.9	21.3	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1.94	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.58	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	43.0	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.43	
Tetrachloroethylene	0	0		0	10	10.0	21.5	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.18	
Trichloroethylene	0	0		0	0.6	0.6	1.29	
Vinyl Chloride	0	0		0	0.02	0.02	0.043	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	

2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.065	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	3.23	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0002	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.022	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.065	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.69	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.26	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0002	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.11	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.11	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.11	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.065	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0002	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.022	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.22	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.002	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.011	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	7.1	
Phenanthrene	0	0		0	N/A	N/A	N/A	

Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.000002	
alpha-BHC	0	0		0	0.0004	0.0004	0.0009	
beta-BHC	0	0		0	0.008	0.008	0.017	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.0006	
4,4-DDT	0	0		0	0.00003	0.00003	0.00006	
4,4-DDE	0	0		0	0.00002	0.00002	0.00004	
4,4-DDD	0	0		0	0.0001	0.0001	0.0002	
Dieldrin	0	0		0	0.000001	0.000001	0.000002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.00001	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.00006	
PCBs, Total	0	0		0	0.000064	0.00006	0.0001	
Toxaphene	0	0		0	0.0007	0.0007	0.002	

☑ ***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 Aluminum	Report	Report	Report	Report	Report	µg/L	750	AFC	Discharge Conc > 10% WQBEL (no RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	332	THH	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	1,661	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Manganese	Report	Report	Report	Report	Report	µg/L	1,107	THH	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

D. Process Flow Diagram