pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0085863**
Facility Type	**Industrial**	APS ID	**519237**
Major / Minor	**Minor**	Authorization ID	**1301686**

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

Applicant and Facility Information

Applicant Name	**SC Holdings Inc.**	Facility Name	**Harmony Grove Landfill**
Applicant Address	100 Brandywine Boulevard Suite 300	Facility Address	6390 Harmony Grove Road
	Newtown, PA 18940-4002		Dover, PA 17315-2972
Applicant Contact	Chad Moose	Facility Contact	Chad Moose
Applicant Phone	(215) 269-2114	Facility Phone	(215) 269-2114
Client ID	228006	Site ID	449373
SIC Code	4953	Municipality	Dover Township
SIC Description	Trans. & Utilities - Refuse Systems	County	York
Date Application Received	January 2, 2020	EPA Waived?	Yes
Date Application Accepted	November 28, 2021	If No, Reason	

Purpose of Application: This is an application for NPDES renewal.

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the SC Holdings- Harmony Grove Landfill located at 6390 Harmony Grove Road, Dover, PA 17315 in York County, municipality of Dover. The existing permit became effective on July 1, 2015 and expired on June 30, 2020. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on January 2, 2020.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.04 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as an Industrial Waste Facility due to the type of wastewater and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to York County Commissioners and Dover Township Municipal Clerk and the notice was received by the parties on December 30, 2019.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be UNT 8745 to Davidson Run. The sequence of receiving streams that the UNT 8745 to Davidson Run discharges into are Davidson Run, Conewago Creek, and the Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	December 21, 2021
X		Daniel W. Martin, P.E. / Environmental Engineer Manager /s/	December 30, 2021

Summary of Review

to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for warm water fishes (WWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The UNT 8745 to Davidson Run is a Category 4c stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an impaired stream for aquatic life due to impacts from hydrostructure flow regime and modification due to flow regime modification. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Monitoring shall be required 1x/month for total nitrogen**
- **Monitoring has been reduced to 1x/quarter for TDS, total iron, and trichloroethylene**
- **Monitoring is required 1x/quarter for arsenic, barium, hexavalent chromium, total selenium, cadmium, and toxaphene**

Sludge use and disposal description and location(s): The facility is not suspected of biosolids/sludge disposal.

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Harmony Grove Landfill
NPDES Permit #	PA0085863
Physical Address:	6390 Harmony Grove Road Dover, PA 17315
Mailing Address:	100 Brandywine Blvd Newtown, PA 18940
Contact:	Chad Moose District Manager cmoose@wm.com
Consultant:	Jon Byk Project Scientist Tetra Tech, Inc. (908) 534-2303 Jon.byk@tetratech.com

1.2 Permit History

Description of Facility

Harmony Grove Landfill is owned and operated by SC Holdings Inc., a subsidiary of Waste Management of PA (WMPA) for the discharge of treated groundwater and landfill leachate. Harmony Grove Landfill is a closed, capped sanitary landfill with active groundwater and passive leachate collection.

Harmony Grove Landfill was a municipal/industrial waste landfill, originally permitted in 1970 with operations concluding approximately five years later. During this time, the landfill was not lined as regulatory requirements for landfill lining were not yet in place. The site consists of 140 acres of which 35 were permitted for landfill use. However, only 18 acres were ultimately utilized for waste disposal operations. Between 1985 and 1988, a leachate collection and spray disposal system, originally installed in 1979 (WQM Permit No. 6778204), was removed and the landfill was properly capped. A toe drain was installed around two-thirds of the landfill to collect leachate and deliver it to a 10,000 gallon aboveground storage tank, which is situated in a HDPE-lined containment dike. During this time, leachate was hauled off-site for treatment and disposal.

WMPA entered into a Consent Order and Agreement (COA) with the Department in June 1992, in which they agreed to mitigate groundwater contaminated with volatile organic compounds (VOCs) that were impacting private water supplies. During that same year, WMPA installed six extraction wells with submersible pumps and eight monitoring wells for recovery of groundwater. In 1994, as part of WMPA's COA, a groundwater treatment facility was constructed consisting of a 1,100-gallon equalization tank, a shallow-tray air stripping system, and two vapor phase granular activated carbon (GAC) filters, with a maximum treatment capacity of 50,400 GPD (35 GPM). Originally there was no WQM permit issued for this treatment plant. WMPA sought to treat leachate through their groundwater treatment system in the late 1990's and was issued a WQM permit (WQM Permit No. 6799201). The WQM permit allowed WMPA to replace the GAC filters with two high pressure sand filters with a 10 GPM capacity.

The groundwater treatment system has an outfall pipe located off of a 150 ft x 300 ft stormwater retention pond in the southwest corner of the landfill property. The pond has an estimated volume of 1.3 million gallons and has a riprap-lined spillway that discharges to an unnamed tributary to Davidsburg Run approximately 1,300 feet downstream of the pond overflow. Originally, the riprap-lined spillway discharged over land to an undefined stream channel; however, a site visit in April of 2009 revealed that since the last permit renewal a defined stream channel has developed between the spillway and UNT to Davidsburg Run. Site visits prior to the last permit renewal phase in 2009 determined that aquatic life (sunfish,

aquatic insects, and aquatic plant species) are present in the retention pond and 2,200 feet downstream of the confluence of the pond discharge and UNT to Davidsburg Run.

On January 19, 2000, EPA promulgated a Final Rule on the effluent limitations for wastewater generated at hazardous and non-hazardous waste landfills, codified in 40 CFR, Part 445. Harmony Grove Landfill is a non-hazardous waste landfill, regulated under Subtitle D of the Resource Recovery and Conservation Act (RCRA). According to the Final Rule, the "Compliance deadline for BPT, BCT, and BAT for a facility is immediately upon issuance or re-issuance of the National Pollution Discharge Elimination System (NPDES) permit." However, the Rule also indicates in the discussion that "…the rule applies to wastewater generated at active landfills subject to Subtitle D of RCRA and Subtitle D landfills that closed after October 15, 1979, the effective date of 40 CFR Part 257." Since Harmony Grove Landfill ceased operation prior to this date, the ELGs do not apply to this landfill. (Description of Facility abstracted from February 19, 2015 Fact Sheet)

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data
- Preparedness, Prevention, and Contingency (PCC) Plan

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 6390 Harmony Grove Road, Dover, PA 17315. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

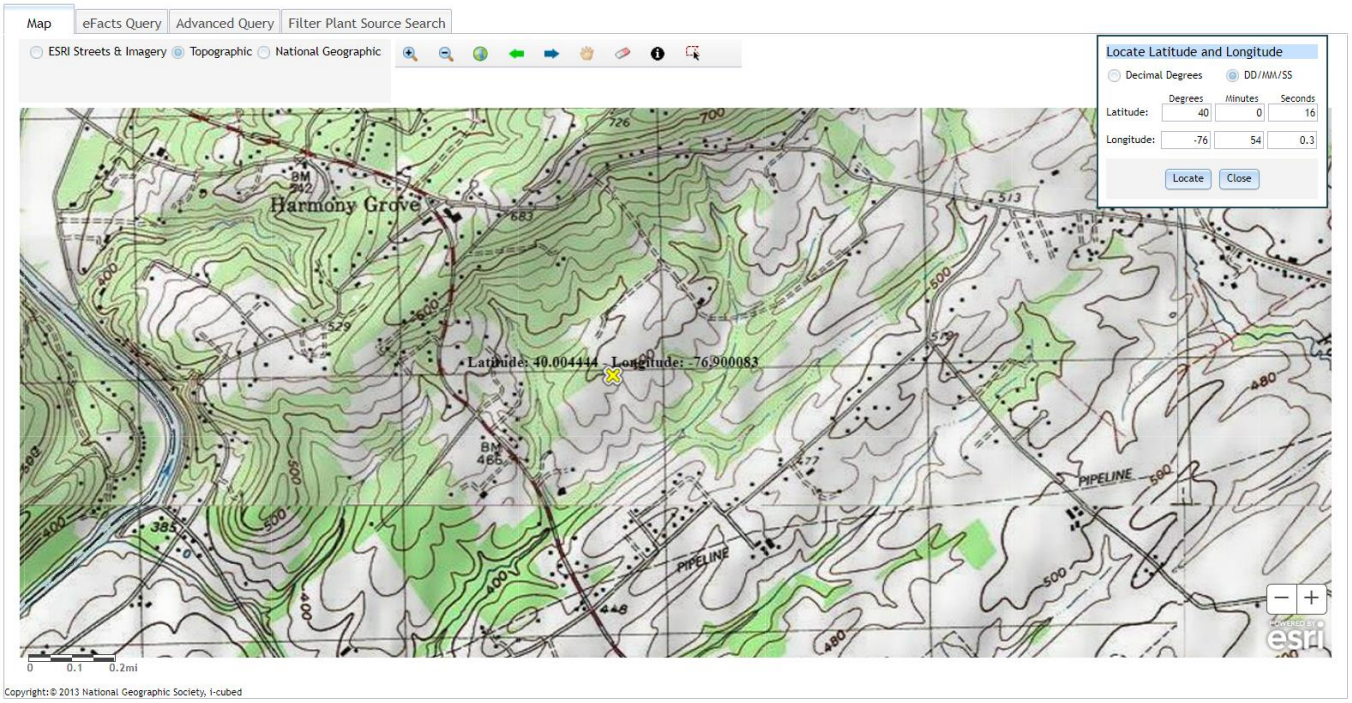
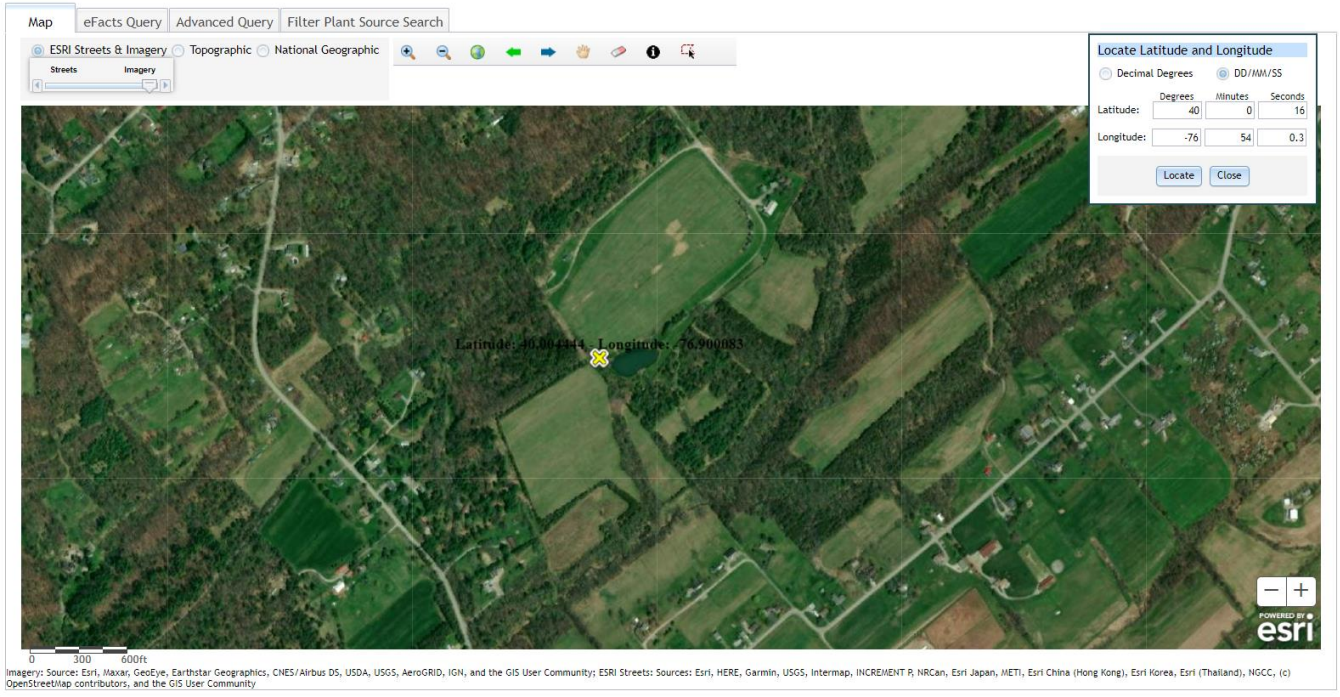
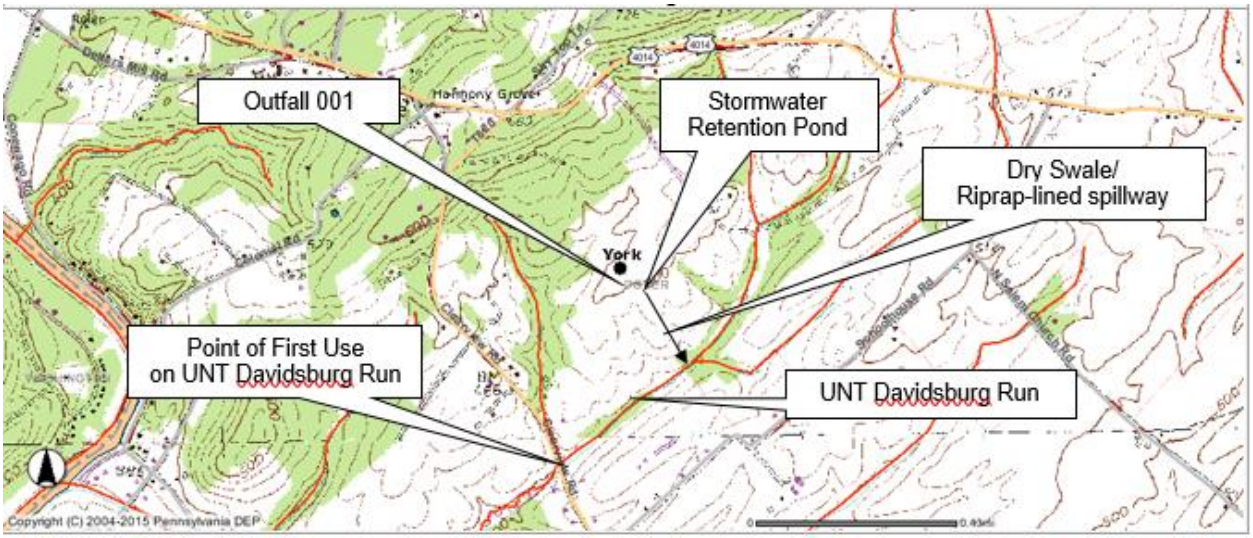


Figure 2: Aerial Photograph of the subject facility

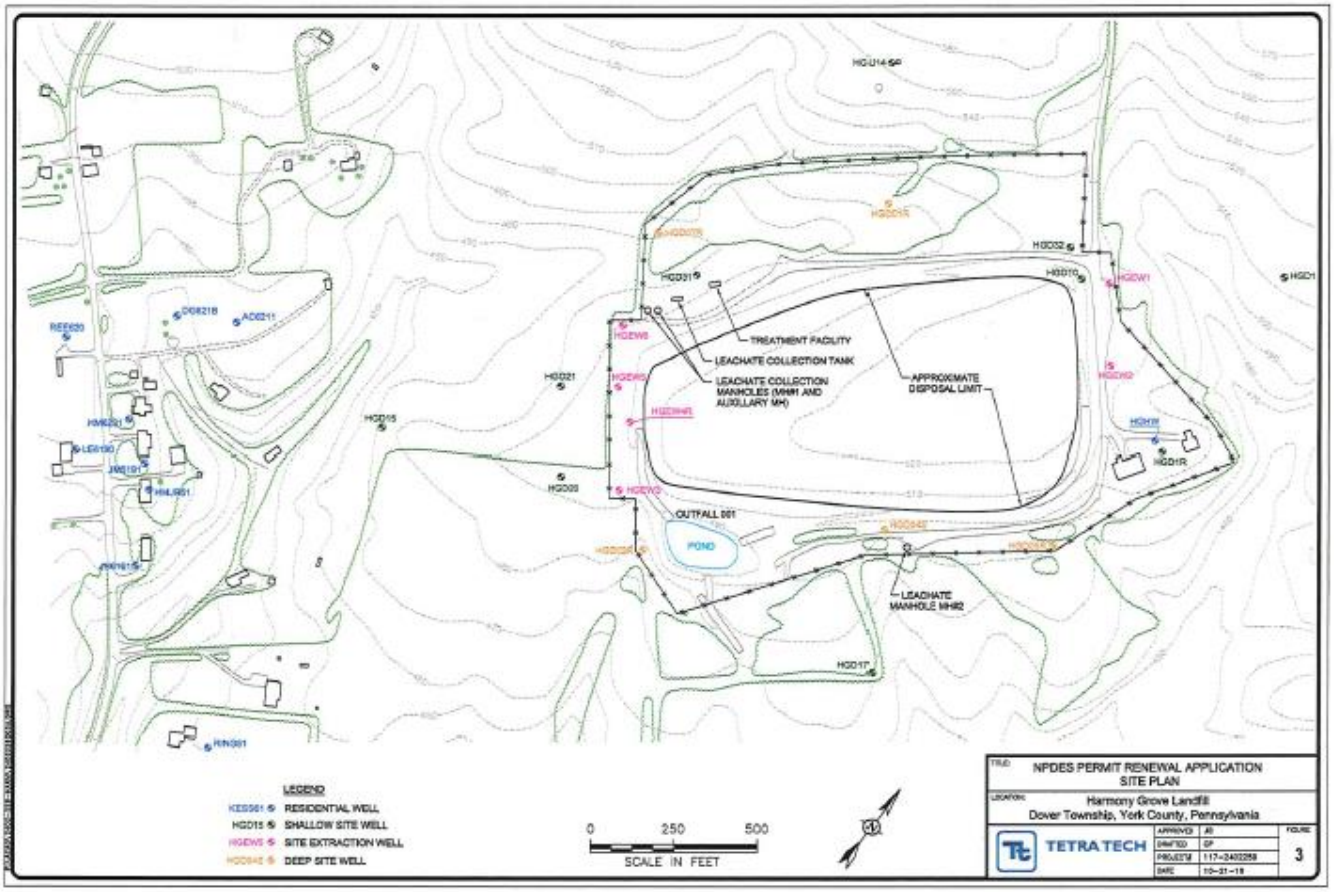


2.2 Description of Wastewater Treatment Process

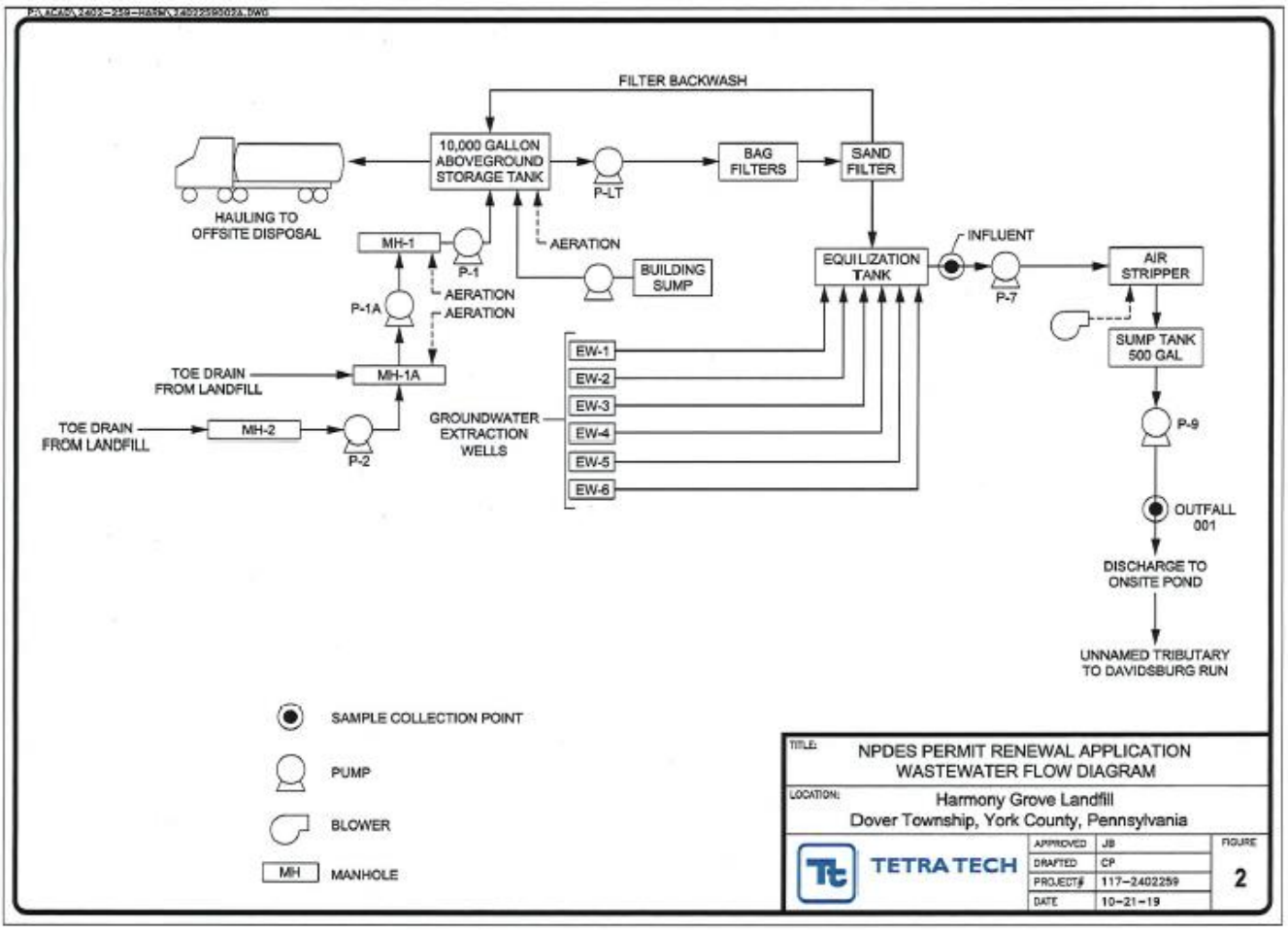
The subject facility is a 0.04 MGD design flow facility. The treatment system treats groundwater from six extraction wells and leachate from a passive toe-drain system. Collected leachate passes through two bag filters and is then mixed in an equalization tank with extracted groundwater prior to air stripping to remove VOCs present in the groundwater. The treated effluent is piped from the treatment building to a lined rip-rap swale on the southeastern corner of the landfill at Outfall 001. The swale drains approximately 100 feet into a sedimentation pond. The swale transitions to surface drainage and ultimately to UNT of Davidson Run. See the figure below for the direction of overland flow.



A plan view map of the facility is depicted.



A schematic of the process flow diagram is shown below.



The facility is being evaluated for flow, pH, TRC, ammonia-nitrogen, BOD5, TDS, nitrate-nitrite, TKN, total iron, and trichlorethylene. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary				
Treatment Facility Name: Harmony Grove Landfill				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Physical (Industrial Waste)	Filtration	No Disinfection	0.04
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.04				

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.04
Latitude	40º 0' 21.19"	**Longitude**	-76º 54' 4.57"
Wastewater Description:	IW Process Effluent without ELG		

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- The facility does not utilize any chemical additions.

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 00' 19" , **Longitude** 76° 54' 01" , **River Mile Index** 0.98 , **Stream Code** 08745

Receiving Waters: Unnamed Tributary of Davidsburg Run (from stormwater retention pond)

Type of Effluent: Effluent from the landfill leachate and groundwater treatment system.

1. The permittee is authorized to discharge during the period from July 1, 2015 through June 30, 2020.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.20	XXX	0.65	[3]	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	3.0	6.0	7.5	1/month	Grab
BOD5	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Total Iron	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab
Trichloroethylene	XXX	XXX	XXX	Report	Report	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001.

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

04/24/2018: There was nothing significant to report.

More recent inspections reports were not available in DEP files.

DEP Operations Staff has been contacted to conduct an inspection.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.037 MGD in April 2021. The design capacity of the treatment system is 0.04 MGD.

The off-site laboratory used for the analysis of the parameters was Geochemical Testing located at 2005 North Center Avenue, Somerset, PA 15501.

DMR Data for Outfall 001 (from October 1, 2020 to September 30, 2021)

Parameter	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20
Flow (MGD) Average Monthly	0.0297	0.03058	0.03537	0.03469	0.035666	0.037	0.03677	0.03383	0.03362	0.03138	0.0282	0.02777
Flow (MGD) Daily Maximum	0.0370	0.03518	0.03764	0.03853	0.039314	0.038	0.0379	0.03773	0.03706	0.03648	0.0396	0.03222
pH (S.U.) Minimum	7.42	7.42	7.73	7.38	7.44	7.75	7.64	8.08	8.01	7.70	7.94	7.72
pH (S.U.) Instantaneous Maximum	8.27	8.36	8.27	8.27	8.31	8.24	8.22	8.25	8.22	8.24	8.21	8.27
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
BOD5 (mg/L) Average Monthly	5	< 2	< 2	4	15	10	6	5	5	< 2	< 2	< 2
BOD5 (mg/L) Daily Maximum	5	< 2	< 2	4	15	10	6	5	5	< 2	< 2	< 2
Total Dissolved Solids (mg/L) Average Monthly	330	264	288	310	344	282	340	344	306	274	282	264
Total Dissolved Solids (mg/L) Daily Maximum	330	264	288	310	344	282	340	344	306	274	282	264
Nitrate-Nitrite (mg/L) Average Monthly	3.87	2.3	2.55	2.98	4.08	2.7	3.32	3.50	3.57	2.37	2.30	2.41
Nitrate-Nitrite (mg/L) Daily Maximum	3.87	2.3	2.55	2.98	4.08	2.7	3.32	3.50	3.57	2.37	2.30	2.41
Ammonia (mg/L) Average Monthly	0.24	< 0.10	< 0.10	1.21	2.7	< 0.10	0.82	1.79	1.27	< 0.10	< 0.10	< 0.10
Ammonia (mg/L) Daily Maximum	0.24	< 0.10	< 0.10	1.21	2.7	< 0.10	0.82	1.79	1.27	< 0.10	< 0.10	< 0.10
TKN (mg/L) Average Monthly	< 1.0	< 1.0	< 1.0	1.5	6.3	< 1.0	1.6	2.4	2.9	< 1.0	< 1.0	< 1.0
TKN (mg/L) Daily Maximum	< 1.0	< 1.0	< 1.0	1.5	6.3	< 1.0	1.6	2.4	2.9	< 1.0	< 1.0	< 1.0
Total Iron (mg/L) Average Monthly	0.49	0.09	0.35	0.37	1.24	0.76	1.22	0.59	0.66	< 0.05	< 0.05	< 0.05
Total Iron (mg/L) Daily Maximum	0.49	0.09	0.35	0.37	1.24	0.76	1.22	0.59	0.66	< 0.05	< 0.05	< 0.05

Trichloroethylene (mg/L) Average Monthly	2.1	0.0013	0.0013	1.2	1.2	1.1	1.9	1.6	1.3	1.7	< 0.5	0.7
Trichloroethylene (mg/L) Daily Maximum	2.1	0.0013	0.0013	1.2	1.2	1.1	1.9	1.6	1.3	1.7	< 0.5	0.7

Using DMR reporting data beginning Oct 2020 and ending September 2021, the table summarizes maximum results over a 12-month time frame.

Parameter	Max
BOD5 (mg/L) Average Monthly	15
Total Dissolved Solids (mg/L) Average Monthly	344
Nitrate-Nitrite (mg/L) Average Monthly	4.08
Ammonia (mg/L) Average Monthly	2.7
TKN (mg/L) Average Monthly	6.3
Total Iron (mg/L) Average Monthly	1.24
Trichloroethylene (ug/L) Average Monthly	2.1
Notes:	
-Maximum result from DMR beginning on Oct 2020 to Sept 2021	
- Data for trichloroethylene was entered into DMR as mg/l but lab results are in ug/l	

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

The facility did not have any non-compliance with NPDES effluent limits in the last 12 months.

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in July 1, 2015 to November 27, 2021, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning July 1, 2015 and Ending November 27, 2021

ENF ID	ENF TYPE	VIOLATIONS	DATE
397043	NOV	92A.62	09/08/2021

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

The facility did not have any biosolids disposal from January 2021 to September 2021.

3.5 Open Violations

No open violations existed as of December 2021.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be UNT 8745 to Davidson Run. The sequence of receiving streams that the UNT 8745 to Davidson Run discharges into are Davidson Run, Conewago Creek, and the Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is PP&L Brunner Island (PWS ID #7670802) located approximately 31 miles downstream of the subject facility on the Susquehanna River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2020 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 4c waterbody. The surface waters is an impaired stream for aquatic life due to impacts from hydrostructure flow regulation/medication due to flow regime. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest gauge station to the subject facility is the West Conewago Creek station near Manchester, PA (USGS station number 1574000). This gauge station is located approximately 27 miles downstream of the subject facility.

For WQM modeling, default values for pH and stream water temperature were used for modeling. pH was estimated to be 7 and the stream water temperature was estimated to be 20 C.

The default hardness was used for the stream as 100 mg/l $CaCO_3$.

The low flow yield and the Q710 for the subject facility was estimated using StreamStats.

The low flow yield is 0.0563 ft^3/s and the Q710 is 0.045 $ft^3/s/mi^2$.

These estimates were based on the point of first use which is located where the unnamed tributary meets Clearview Road.

The February 2015 fact sheet notes that the pond has been in existence since the late 1980s. It is not believed that spring flows or groundwater would sustain the pond. Some exfiltration from the pond occurs as wetland plant species exist downgradient of the pond.

Only during significant storm events does the pond overflow. During normal conditions water moves beneath the surface of the riprap lined spillway emerging into a defined stream channel (no longer a marsh-like area).

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.04
Latitude	40º 0' 16.58"	Longitude	-76º 54' 0.3"
Quad Name		Quad Code	
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Unnamed Tributary of Davidsburg Run (WWF)	Stream Code	8745
NHD Com ID	57468063	RMI	0.82
Drainage Area	1.25	Yield (cfs/mi^2)	0.045
Q_{7-10} Flow (cfs)	0.0563	Q_{7-10} Basis	StreamStats
Elevation (ft)	400.67	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	WWF, MF
Existing Use	Same as Chapter 93 class.	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	FLOW REGIME MODIFICATION		
Source(s) of Impairment	IMPACTS FROM HYDROSTRUCTURE FLOW REGULATION/MODIFICATION		
TMDL Status	Not applicable	Name	

Background/Ambient Data		Data Source
pH (SU)	7	Default
Temperature (°C)	20	Default
Hardness (mg/L)	100	Default
Other:		

Nearest Downstream Public Water Supply Intake	PP&L Brunner Island		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	54	Distance from Outfall (mi)	31

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Industrial facilities are commonly restricted to effluent limitations established by federal effluent limitation guidelines (ELG).

Regulations state that "…the rule applies to wastewater generated at active landfills subject to Subtitle D of RCRA and Subtitle D landfills that closed after October 15, 1979, the effective date of 40 CFR Part 257." Since Harmony Grove Landfill ceased operation prior to this date, the ELGs do not apply to this landfill.

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1 (Modeling Point #1)	***Input Value***
Stream Code	8745
River Mile Index	0.6
Elevation	400.67
Latitude	39.999365
Longitude	-76.902658
Drainage Area	1.25
Reach Slope	Default
Low Flow Yield	0.0450
Potable Water Supply Withdrawal	Default
General Data 2 (Modeling Point #2)	***Input Value***
Stream Code	8745
River Mile Index	0
Elevation	375.78
Latitude	39.993447
Longitude	-76.910726
Drainage Area	5.69
Reach Slope	Default
Low Flow Yield	0.0450
Potable Water Supply Withdrawal	Default

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) *a 30-day average concentration for CBOD5 in the discharge;*
(c) *a 30-day average concentration for the NH_3-N in the discharge;*
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

Consistent with the Fact Sheet from 2009, since water entering the retention pond is assumed to infiltrate the ground, water quality modeling has not been conducted. For extended dry weather conditions this assumption is valid. Water quality considerations have not been taken into account to date for the aquatic life within the pond.

The pond is considered water of the Commonwealth and one applicable designated use is aquatic life; therefore, this report will approach the establishment of effluent limits for this permit renewal by addressing the protection of aquatic life primarily with consideration given to protection of groundwater.

The fact sheet will continue to incorporate water quality modeling at the point of first use using the conservative assumption of insignificant degradation of pollutants in situations where the retention pond overflows. The Fact Sheet is intended to consider the protection of aquatic life in the pond as well as groundwater (Fact Sheet February 2015).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the pollutants in Groups 1 through 6.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Toxics modeling was conducted with Toxics Management Spreadsheet (TMS) for two separate runs.

Run #1 used sampling results directly from the NPDES application. A revised pollutant group table was submitted from the facility on December 7, 2021. TMS recommended reasonable potential for (A) many of the pollutants in Group 6 and (B) the following pollutants: cadmium and toxaphene. No reasonable potential was observed for arsenic, barium, hexavalent chromium, iron, selenium, and trichloroethylene.

Via best professional judgment, Run #2 adjusted the sampling results in Item A to 0.05 ug/l. This is equivalent to the recommended DEP target QL of 0.05 ug/l. The sampling results were reported as <0.051 ug/l. This is 0.001 ug/l larger than the DEP target QL. The adjustment eliminates many of the pollutants in Group 6 from reasonable potential.

Run #2 also utilized 12 months of DMR data beginning on October 2020 and ending on September 2021. The maximum result from the 12 months for total iron and trichlorethylene was input into Toxics Management Spreadsheet.

Applicable monitoring or permit limits for toxics are summarized in Section 6.

The Toxics Management Spreadsheet output has been included in Attachment B.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. In general, facilities that discharge groundwater and cooling water with no addition of chemicals containing N or P do not require monitoring. Monitoring for facilities with other discharges will generally conform to the following minimum sampling frequencies, with the permit writer having final discretion.

Non-significant IW facilities that propose expansion or production increases and as a result will discharge at least 75 lbs/day TN or 25 lbs/day TP (on an annual average basis), will be classified as Significant IW dischargers and receive Cap Loads in their permits based on existing performance (existing TN/TP concentrations at current average annual flow).

In general, for new non-significant IW discharges (including existing facilities discharging without a permit), DEP will issue permits containing Cap Loads of "0" and these facilities will be expected to purchase credits and/or apply offsets to achieve compliance.

This facility is not subject to Sector C monitoring requirements. The facility is not expected to expected to contribute significant amounts of TN or TP.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

6.1.1 Conventional Pollutants and Disinfection

The application engineer notes the following rationale for monitoring and limits for conventional parameters.

- While no limits are included in the permit for BOD, monitoring shall be required since the pond is known to contain aquatic life and the surface waters is considered waters of the Commonwealth. DMR data reports that the maximum BOD over 12 months of recent data as 15 mg/l. The remaining 11 months reported BOD not exceeding 10 mg/l. The monitoring requirement shall continue in the proposed permit.
- Consistent with the 2009 Fact Sheet, TSS has been excluded. While prior permits included TSS based on discharge to ditches and drainage swales, the guidance was developed targeting sewage discharge or other organic wastes. This facility is outside the target wastewater category and will not be subject to monitoring for TSS.
- Chlorine tablets are used intermittently to control solids inside the tanks and the effluent line. TRC modeling resulted in an average monthly limit of 0.155 mg/l at the point of first use. The current permit limit rounded the permit limit from 0.155 mg/l to 0.20 mg/l. TRC degradation has been assumed to occur between the 100-foot channel from the outfall to the pond. The assumption is that a relatively slow and presence of a relatively large amount organic matter will support significant amounts of TRC decay in the effluent before arriving at the pond (Fact Sheet February 2015). The TRC modeling completed for this renewal yielded and an average monthly limit of 0.142 mg/l and an instantaneous maximum of 0.464 mg/l. Likewise from the current permit, the proposed permit limit will continue the rounding to 0.20 mg/l. The use of chlorine tablets is not expected on a regular use schedule.

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection Harmony Grove Landfill; PA0085863			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by Chapter 95.2(1).
BOD	Not Applicable	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	No effluent requirements.
		Rationale:	While no limits are included in the permit for BOD, monitoring shall be required since the pond is known to contain aquatic life and the surface waters is considered waters of the Commonwealth. DMR data reports that the maximum BOD over 12 months of recent data as 15 mg/l. The remaining 11 months reported BOD not exceeding 10 mg/l. The monitoring requirement shall continue in the proposed permit.
TRC	TBEL	Monitoring:	Total residual chlorine concentrations should be reported daily whenever chlorine addition is being incorporated in the treatment system.
		Effluent Limit:	The average monthly limit should not exceed 0.2 mg/l and/or 0.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the WQBL is more stringent than the TBEL. The effluent limits were assigned by WQBEL. The TRC modeling completed for this renewal yielded and an average monthly limit of 0.142 mg/l and an instantaneous maximum of 0.464 mg/l. Likewise from the current permit, the proposed permit limit will continue the rounding to 0.20 mg/l. The use of chlorine tablets is not expected on a regular use schedule.	
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.04 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.2 Nitrogen Species and Phosphorus

The ammonia-nitrogen limit of 3.0 mg/l was based on discharge to ditches and drainage swales (Chapter 93.7) (Fact Sheet 2009). The concentration was arrived using Table 3 of the Implementation Guidance of Section 93.7 Ammonia Criteria (Document # 391-2000-013). Using the assumed temperature of the groundwater of 15 C and the pH from previous study of 7.4, the 30-day total ammonia nitrogen is 2.2 mg/l and the maximum total ammonia nitrogen is 9.62 mg/l. The average monthly limit of 3.0 mg/l was deemed sufficient for protecting aquatic life considering the following:

- Vegetation near the pond inlet assimilates some of the ammonia from the water column as it enters the main pond (i.e. discharge travels through a 100-foot vegetated swale prior to entering the pond)
- Under typical summer conditions, there should generally be dilution of the discharge to levels below Chapter 93 criterion.

Water quality modeling recommended limits of 3.69 mg/l. Due to antibacksliding, the current limit is more stringent than the water quality modeling. Thus, the current permit limit shall remain at 3.0 mg/l.

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Harmony Grove Landfill; PA0085863

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	Chapter 93.7/Antibacksliding	Monitoring:	The monitoring frequency shall be 1x/mo as a grab sample
		Effluent Limit:	The effluent limit shall not exceed 3.0 mg/l as an average monthly.
		Rationale:	Due to anti-backsliding, the current permit limit shall continue to the proposed limit. The permit limit was implemented from the DEP Ammonia Criteria guidance document.
Nitrate-Nitrite as N	Chapter 93.7	Monitoring:	The monitoring frequency shall be 1x/mo as a grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	This parameter is monitored for complete nitrogen species.
Total Nitrogen	Dry Swales/Ditches Guidance	Monitoring:	The monitoring frequency shall be 1x/mo as a grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Based upon the DEP Policy and Procedure for Evaluating Wastewater Dischages to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, monitoring shall be required.
TKN	Chapter 93.7	Monitoring:	The monitoring frequency shall be 1x/mo as a grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	This parameter is monitored for complete nitrogen species.
Notes:			

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.04 MGD.

3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3 Toxics

The facility erroneously input data into DMR as mg/l. The lab data reports as ug/l. A sample copy of the lab report is included as an attachment.

Summary of Proposed NPDES Parameter Details for Toxics

Harmony Grove Landfill; PA0085863

Parameter	Permit Limitation Required by[1]:	Recommendation	
TDS	TBEL	Monitoring:	Monitoring shall be 1x/quarter
		Effluent Limit:	No effluent requirement
		Rationale:	Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.
Arsenic, Barium, Hexavalent Chromium, Total Iron, Total Selenium, and Trichloroethylene.	WQBEL	Monitoring:	Monitoring shall be 1x/quarter
		Effluent Limit:	No effluent requirement
		Rationale:	Based upon Toxics Management Spreadsheet, monitoring is recommended. DEP recommends monitoring to collect additional samples to confirm the presence of the parameter. Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.
Total Cadmium and Toxaphene	WQBEL	Monitoring:	Monitoring shall be 1x/quarter
		Effluent Limit:	No effluent requirement
		Rationale:	Based upon Toxics Management Spreadsheet, permit limits are recommended. DEP recommends monitoring to collect additional samples to confirm the presence of the parameter. Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.04 MGD.

3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

Changes in Permit Monitoring or Effluent Quality

Parameter	Existing Permit	Draft Permit
Total Nitrogen	No monitoring or effluent limit.	Based upon the DEP Policy and Procedure for Evaluating Wastewater Dischages to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, monitoring shall be required on a 1x/month basis
TDS, Total Iron, and Trichloroethylene.	Monitoring is required 1x/month	Based upon Toxics Management Spreasheet, monitoring is recommended. DEP recommends monitoring to collect additional samples to confirm the presence of the parameter. Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.
Arsenic, Barium, Hexavalent Chromium, and Total Selenium.	No monitoring or effluent limit.	Based upon Toxics Management Spreasheet, monitoring is recommended. DEP recommends monitoring to collect additional samples to confirm the presence of the parameter. Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.
Cadmium and Toxaphene	No monitoring or effluent limit.	Based upon Toxics Management Spreasheet, permit limits are recommended. DEP recommends monitoring to collect additional samples to confirm the presence of the parameter. Future renewals may eliminate this parameter or reduce the frequency of sampling pending favorable results. Monitoring shall be required 1x/quarter.

6.3.1 Summary of Proposed NPDES Effluent Limits

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 0' 21.19" , **Longitude** 76° 54' 4.57" , **River Mile Index** 0.6 , **Stream Code** 8745

Receiving Waters: Unnamed Tributary of Davidsburg Run (WWF)

Type of Effluent: IW Process Effluent without ELG

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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 Quarterly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)[3]	XXX	XXX	XXX	0.2 Avg Mo	XXX	0.6	See Permit	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	3.0 Avg Mo	6.0	7.5	1/month	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Avg Mo	Report	XXX	1/month	Grab
Arsenic, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Barium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Cadmium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab

Outfall001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Quarterly	Daily Maximum	Instant. Maximum		
Chromium, Hexavalent	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Iron, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Selenium, Total	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Toxaphene	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab
Trichloroethylene	XXX	XXX	XXX	Report	Report	XXX	1/quarter	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Site specific conditions (See Permit Part C- Items F, G, and H)

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☒	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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater, rev October 11, 2013
☐	Other:

Attachment A

Stream Stats/Gauge Data

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01561000	Brush Creek at Gapsville, Pa.	39.956	-78.254	36.8	N
01562000	Raystown Branch Juniata River at Saxton, Pa.	40.216	-78.265	756	N
01562500	Great Trough Creek near Marklesburg, Pa.	40.350	-78.130	84.6	N
01563200	Raystown Branch Juniata River below Rays Dam nr Huntingdon, Pa.	40.429	-77.991	960	Y
01563500	Juniata River at Mapleton Depot, Pa.	40.392	-77.935	2,030	Y
01564500	Aughwick Creek near Three Springs, Pa.	40.213	-77.925	205	N
01565000	Kishacoquillas Creek at Reedsville, Pa.	40.655	-77.583	164	N
01565700	Little Lost Creek at Oakland Mills, Pa.	40.605	-77.311	6.52	N
01566000	Tuscarora Creek near Port Royal, Pa.	40.515	-77.419	214	N
01566500	Cocolamus Creek near Millerstown, Pa.	40.566	-77.118	57.2	N
01567000	Juniata River at Newport, Pa.	40.478	-77.129	3,354	Y
01567500	Bixler Run near Loysville, Pa.	40.371	-77.402	15.0	N
01568000	Sherman Creek at Shermans Dale, Pa.	40.323	-77.169	207	N
01568500	Clark Creek near Carsonville, Pa.	40.460	-76.751	22.5	LF
01569000	Stony Creek nr Dauphin, Pa.	40.380	-76.907	33.2	N
01569800	Letort Spring Run near Carlisle, Pa.	40.235	-77.139	21.6	N
01570000	Conodoguinet Creek near Hogestown, Pa.	40.252	-77.021	470	LF
01570500	Susquehanna River at Harrisburg, Pa.	40.255	-76.886	24,100	Y
01571000	Paxton Creek near Penbrook, Pa.	40.308	-76.850	11.2	N
01571500	Yellow Breeches Creek near Camp Hill, Pa.	40.225	-76.898	213	N
01572000	Lower Little Swatara Creek at Pine Grove, Pa.	40.538	-76.377	34.3	N
01572025	Swatara Creek near Pine Grove, Pa.	40.533	-76.402	116	N
01572190	Swatara Creek near Inwood, Pa.	40.479	-76.531	167	N
01573000	Swatara Creek at Harper Tavern, Pa.	40.403	-76.577	337	N
01573086	Beck Creek near Cleona, Pa.	40.323	-76.483	7.87	N
01573160	Quittapahilla Creek near Bellegrove, Pa.	40.343	-76.562	74.2	N
01573500	Manada Creek at Manada Gap, Pa.	40.397	-76.709	13.5	N
01573560	Swatara Creek near Hershey, Pa.	40.298	-76.668	483	N
01574000	West Conewago Creek near Manchester, Pa.	40.082	-76.720	510	N
01574500	Codorus Creek at Spring Grove, Pa.	39.879	-76.853	75.5	Y
01575000	South Branch Codorus Creek near York, Pa.	39.921	-76.749	117	Y
01575500	Codorus Creek near York, Pa.	39.946	-76.755	222	Y
01576000	Susquehanna River at Marietta, Pa.	40.055	-76.531	25,990	Y
01576085	Little Conestoga Creek near Churchtown, Pa.	40.145	-75.989	5.82	N
01576500	Conestoga River at Lancaster, Pa.	40.050	-76.277	324	N
01576754	Conestoga River at Conestoga, Pa.	39.946	-76.368	470	N
01578310	Susquehanna River at Conowingo, Md.	39.658	-76.174	27,100	Y
01578400	Bowery Run near Quarryville, Pa.	39.895	-76.114	5.98	N
01580000	Deer Creek at Rocks, Md.	39.630	-76.403	94.4	N
01581500	Bynum Run at Bel Air, Md.	39.541	-76.330	8.52	N
01581700	Winters Run near Benson, Md.	39.520	-76.373	34.8	N
01582000	Little Falls at Blue Mount, Md.	39.604	-76.620	52.9	N
01582500	Gunpowder Falls at Glencoe, Md.	39.550	-76.636	160	Y
01583000	Slade Run near Glyndon, Md.	39.495	-76.795	2.09	N
01583100	Piney Run at Dover, Md.	39.521	-76.767	12.3	N

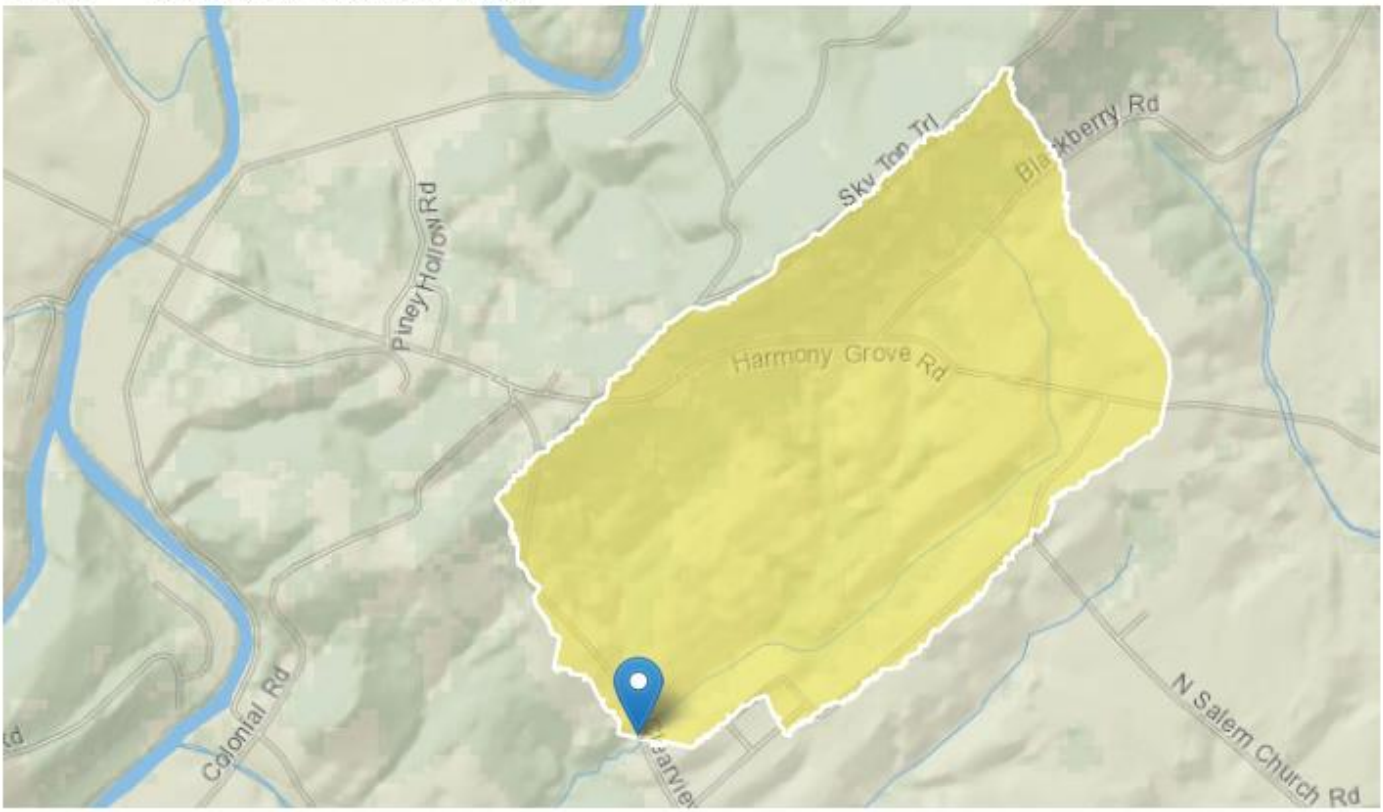
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01565000	1941–2008	37	17.6	18.6	28.6	20.3	32.4	24.4
01565700	1965–1981	17	.4	.4	.9	.5	1.1	.8
01566000	1913–2008	52	4.3	7.9	18.8	12.4	25.6	19.2
01566500	1932–1958	27	1.7	2.4	4.0	3.2	5.7	4.9
01567000	[2]1974–2008	35	504	534	725	589	857	727
01567000	[3]1901–1972	72	311	367	571	439	704	547
01567500	1955–2008	54	2.0	2.2	3.3	2.6	3.8	3.1
01568000	1931–2008	78	12.7	15.5	25.5	19.2	32.0	26.0
01568500	[2]1943–1997	55	1.8	2.3	4.3	2.7	5.0	3.1
01569000	1939–1974	14	2.6	4.0	7.4	5.1	9.4	7.8
01569800	1978–2008	31	15.9	17.0	24.4	18.4	26.1	20.3
01570000	[3]1913–1969	35	—	63.1	110	76.1	124	95.3
01570000	[2]1971–2008	38	63.1	69.3	109	78.3	125	97.8
01570500	[3]1901–1972	72	2,310	2,440	4,000	2,830	4,950	3,850
01570500	[2]1974–2008	35	3,020	3,200	5,180	3,690	6,490	4,960
01571000	1941–1995	16	.1	.2	.6	.3	1.2	.8
01571500	1911–2008	62	81.6	86.8	115	94.0	124	105
01572000	1921–1984	14	2.1	2.3	4.8	3.0	6.5	4.5
01572025	1990–2008	17	15.2	16.4	26.7	18.5	34.6	27.7
01572190	1990–2008	17	19.1	20.5	36.2	23.9	45.8	35.3
01573000	1920–2008	89	18.0	22.0	52.0	30.8	69.2	50.9
01573086	1965–1981	17	.5	.6	2.6	.8	3.3	1.1
01573160	1977–1994	18	26.9	29.6	46.4	33.6	51.9	39.5
01573500	1939–1958	20	1.3	1.4	2.5	1.8	3.2	2.6
01573560	1977–2008	30	50.3	62.0	104	76.9	131	108
01574000	1930–2008	79	8.0	11.1	32.0	17.7	47.0	33.9
01574500	[2]1968–2008	41	14.2	24.0	35.9	29.4	42.0	33.3
01574500	[3]1930–1966	34	2.3	7.1	11.5	9.3	14.8	12.7
01575000	[2]1973–1995	23	.7	1.4	6.7	3.2	12.0	9.3
01575000	[3]1929–1971	43	.1	.6	10.3	2.3	15.0	6.1
01575500	[2]1948–1996	49	12.1	18.7	41.3	23.9	50.0	33.8
01576000	[3]1933–1972	40	2,100	2,420	4,160	2,960	5,130	4,100
01576000	[2]1974–2008	35	2,990	3,270	5,680	3,980	7,180	5,540
01576085	1984–1995	12	.4	.5	.8	.7	1.2	1.2
01576500	1931–2008	78	27.2	38.6	79.4	49.1	97.3	66.1
01576754	1986–2008	23	74.2	84.9	151	106	189	147
[4]01578310	1969–2008	40	549	2,820	5,650	4,190	7,380	6,140
01578400	1964–1981	18	1.4	1.5	2.7	1.9	3.2	2.5
[4]01580000	1928–2008	81	19.7	22.8	48.1	28.1	51.8	35.4
[4]01581500	1946–2008	28	.2	.3	1.2	.8	1.7	1.5
[4]01581700	1969–2008	40	4.7	5.5	17.5	8.1	18.3	12.0
[4]01582000	1946–2008	63	11.3	12.5	25.0	15.5	28.0	20.3
[4]01582500	1979–2008	27	41.2	43.9	78.8	53.8	90.6	74.1
[4]01583000	1949–1981	33	.3	.3	.7	.3	1.0	.6
[4]01583100	1984–2008	15	2.1	2.4	5.5	3.2	6.0	4.2

StreamStats Report

Region ID: PA
Workspace ID: PA20211217185439229000
Clicked Point (Latitude, Longitude): 39.99902, -76.90288
Time: 2021-12-17 13:54:59 -0500



Harmony Grove Landfill PA0085863 Modeling Point #1 POFU December 2021

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.25	square miles
BSLOPD	Mean basin slope measured in degrees	5.5253	degrees
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	0.5521	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.25	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	5.5253	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	0.5521	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.147	ft^3/s
30 Day 2 Year Low Flow	0.206	ft^3/s
7 Day 10 Year Low Flow	0.0563	ft^3/s
30 Day 10 Year Low Flow	0.0843	ft^3/s
90 Day 10 Year Low Flow	0.141	ft^3/s

Low-Flow Statistics Citations

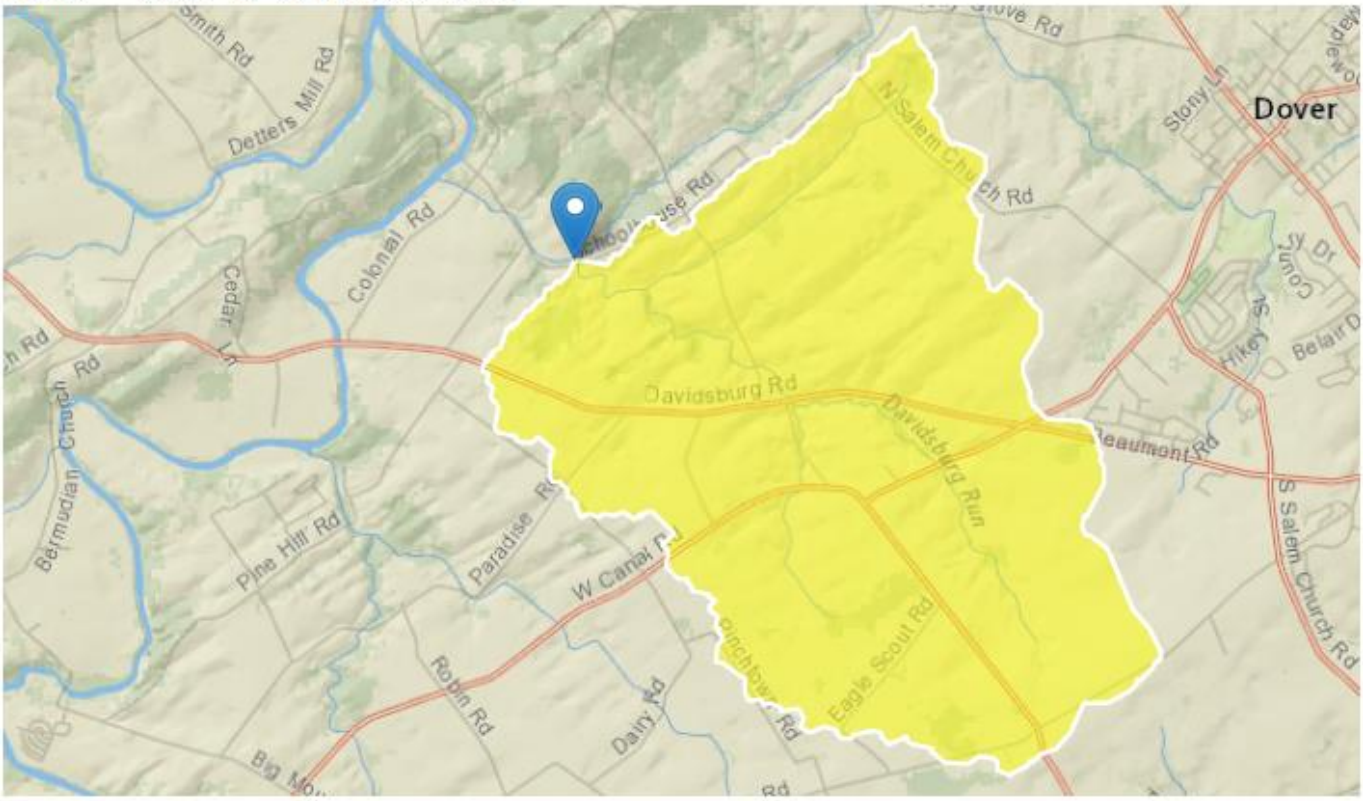
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20211214174819076000
Clicked Point (Latitude, Longitude): 39.99336, -76.91054
Time: 2021-12-14 12:48:38 -0500



Harmony Grove Landfill PA0085863 Modeling Point #2 December 2021

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5.69	square miles
BSLOPD	Mean basin slope measured in degrees	2.2494	degrees
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	1.4271	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5.69	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.2494	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	1.4271	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.221	ft^3/s
30 Day 2 Year Low Flow	0.374	ft^3/s
7 Day 10 Year Low Flow	0.066	ft^3/s
30 Day 10 Year Low Flow	0.119	ft^3/s
90 Day 10 Year Low Flow	0.3	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.6.2
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Attachment B

WQM 7.0 Modeling Output Values
Toxics Management Spreadsheet Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8745	Trib 08745 to Davidsburg Run

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)
0.600	Harmony Grove L	PA0085863	0.040	CBOD5	25		
				NH3-N	3.69	7.38	
				Dissolved Oxygen			5

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07F	8745	Trib 08745 to Davidsburg Run

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.600	0.040	22.619	7.274
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.245	0.359	14.622	0.063
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.05	1.336	1.93	0.856
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.544	24.087	Owens	5
Reach Travel Time (days)			
0.584			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.058	12.87	1.84	7.02
0.117	11.78	1.75	7.23
0.175	10.79	1.67	7.36
0.234	9.88	1.58	7.47
0.292	9.05	1.51	7.57
0.350	8.29	1.43	7.66
0.409	7.59	1.36	7.74
0.467	6.95	1.30	7.82
0.526	6.36	1.23	7.86
0.584	5.83	1.17	7.86

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
07F	8745	Trib 08745 to Davidsburg Run	0.600	400.67	1.25	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	0.045	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
Harmony Grove L	PA0085863	0.0400	0.0400	0.0400	0.000	25.00	7.97

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
07F	8745	Trib 08745 to Davidsburg Run	0.000	375.78	5.69	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	0.045	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 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07F	8745	Trib 08745 to Davidsburg Run

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												
0.600	0.06	0.00	0.06	.0619	0.00786	.359	5.24	14.62	0.06	0.584	22.62	7.27
Q1-10 Flow												
0.600	0.04	0.00	0.04	.0619	0.00786	NA	NA	NA	0.06	0.633	23.02	7.34
Q30-10 Flow												
0.600	0.09	0.00	0.09	.0619	0.00786	NA	NA	NA	0.07	0.508	22.04	7.20

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	0.72	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.59	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8745	Trib 08745 to Davidsburg Run

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
0.600	Harmony Grove L	9.04	14.95	9.04	14.95	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
0.600	Harmony Grove L	1.51	3.69	1.51	3.69	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)		
0.60	Harmony Grove L	25	25	3.69	3.69	5	5	0	0

RUN 1

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Harmony Grove Landfill** NPDES Permit No.: **PA0085863** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Landfill Leachate Effluent**

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
0.04	263	7.97						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.5 if left blank: Daily CV	0.5 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		341									
	Chloride (PWS)	mg/L		31									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		15.4									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L		2.6									
	Total Barium	µg/L		512									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		163									
	Total Cadmium	µg/L	<	2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	5									
	Total Cobalt	µg/L	<	0.5									
	Total Copper	µg/L		1									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	20									
	Dissolved Iron	µg/L	<	50									
	Total Iron	µg/L		686									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		33.8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.9									
	Total Phenols (Phenolics) (PWS)	µg/L	<	10									
	Total Selenium	µg/L		1									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L		1.4									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L											
	Acrylonitrile	µg/L	<	1									
	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	<	1									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	1									
	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		2.4									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	1									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	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	<	1									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	1									
	Trichloroethylene	µg/L		2.1									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	0.5									
	2,4-Dichlorophenol	µg/L	<	0.5									
	2,4-Dimethylphenol	µg/L	<	0.5									
	4,6-Dinitro-o-Cresol	µg/L	<	2.1									
	2,4-Dinitrophenol	µg/L	<	1.03									
	2-Nitrophenol	µg/L	<	1									
	4-Nitrophenol	µg/L	<	1									
	p-Chloro-m-Cresol	µg/L	<	0.5									
	Pentachlorophenol	µg/L	<	1									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	0.5									
Group 5	Acenaphthene	µg/L	<	0.2									
	Acenaphthylene	µg/L	<	0.2									
	Anthracene	µg/L	<	0.2									
	Benzidine	µg/L	<	0.5									
	Benzo(a)Anthracene	µg/L	<	0.2									
	Benzo(a)Pyrene	µg/L	<	0.2									
	3,4-Benzofluoranthene	µg/L	<	0.2									
	Benzo(ghi)Perylene	µg/L	<	0.2									
	Benzo(k)Fluoranthene	µg/L	<	0.2									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.2									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.2									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.2									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.2									
	Butyl Benzyl Phthalate	µg/L	<	2.1									
	2-Chloronaphthalene	µg/L	<	0.2									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.2									
	Chrysene	µg/L	<	0.2									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.2									
	1,2-Dichlorobenzene	µg/L	<	0.2									
	1,3-Dichlorobenzene	µg/L	<	0.2									
	1,4-Dichlorobenzene	µg/L	<	0.2									
	3,3-Dichlorobenzidine	µg/L	<	0.5									
	Diethyl Phthalate	µg/L	<	2.1									
	Dimethyl Phthalate	µg/L	<	2.1									
	Di-n-Butyl Phthalate	µg/L	<	2.1									
	2,4-Dinitrotoluene	µg/L	<	0.5									

	2,6-Dinitrotoluene	µg/L	<	0.5									
	Di-n-Octyl Phthalate	µg/L	<	2.1									
	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.2									
	Fluorene	µg/L	<	0.2									
	Hexachlorobenzene	µg/L	<	0.2									
	Hexachlorobutadiene	µg/L	<	0.2									
	Hexachlorocyclopentadiene	µg/L	<	1									
	Hexachloroethane	µg/L	<	0.2									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.2									
	Isophorone	µg/L	<	0.2									
	Naphthalene	µg/L	<	0.2									
	Nitrobenzene	µg/L	<	0.2									
	n-Nitrosodimethylamine	µg/L	<	0.2									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.2									
	n-Nitrosodiphenylamine	µg/L	<	0.2									
	Phenanthrene	µg/L	<	0.2									
	Pyrene	µg/L	<	0.2									
	1,2,4-Trichlorobenzene	µg/L	<	0.2									
Group 6	Aldrin	µg/L	<	0.051									
	alpha-BHC	µg/L	<	0.051									
	beta-BHC	µg/L	<	0.051									
	gamma-BHC	µg/L	<	0.051									
	delta BHC	µg/L	<	0.051									
	Chlordane	µg/L	<	1									
	4,4-DDT	µg/L	<	0.051									
	4,4-DDE	µg/L	<	0.051									
	4,4-DDD	µg/L	<	0.051									
	Dieldrin	µg/L	<	0.051									
	alpha-Endosulfan	µg/L	<	0.051									
	beta-Endosulfan	µg/L	<	0.051									
	Endosulfan Sulfate	µg/L	<	0.051									
	Endrin	µg/L	<	0.051									
	Endrin Aldehyde	µg/L	<	0.051									
	Heptachlor	µg/L	<	0.051									
	Heptachlor Epoxide	µg/L	<	0.051									
	PCB-1016	µg/L	<	0.41									
	PCB-1221	µg/L	<	0.41									
	PCB-1232	µg/L	<	0.41									
	PCB-1242	µg/L	<	0.41									
	PCB-1248	µg/L	<	0.41									
	PCB-1254	µg/L	<	0.41									
	PCB-1260	µg/L	<	0.41									
	PCBs, Total	µg/L											
	Toxaphene	µg/L	<	2									
	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											

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Toxics Management Spreadsheet
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Stream / Surface Water Information

Harmony Grove Landfill, NPDES Permit No. PA0085863, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **UNT 8745 to Davidson Run**

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	008745	0.6	400.67	1.25			Yes
End of Reach 1	008745	0	375.78	5.69			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	0.6	0.045										100	7		
End of Reach 1	0	0.045										100	7		

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	0.6														
End of Reach 1	0														

☑ ***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 Arsenic	Report	Report	Report	Report	Report	µg/L	19.1	THH	Discharge Conc > 10% WQBEL (no RP)
Total Barium	Report	Report	Report	Report	Report	µg/L	4,582	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.0003	0.0004	0.82	1.27	2.04	µg/L	0.82	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	19.8	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	2,864	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	9.52	CFC	Discharge Conc > 10% WQBEL (no RP)
Trichloroethylene	Report	Report	Report	Report	Report	µg/L	6.42	CRL	Discharge Conc > 25% WQBEL (no RP)
Aldrin	2.86E-09	4.46E-09	0.000009	0.00001	0.00002	µg/L	0.000009	CRL	Discharge Conc ≥ 50% WQBEL (RP)
alpha-BHC	0.000001	0.000002	0.004	0.007	0.011	µg/L	0.004	CRL	Discharge Conc ≥ 50% WQBEL (RP)
beta-BHC	0.00003	0.00004	0.086	0.13	0.21	µg/L	0.086	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDT	1.07E-07	1.67E-07	0.0003	0.0005	0.0008	µg/L	0.0003	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDE	7.14E-08	1.11E-07	0.0002	0.0003	0.0005	µg/L	0.0002	CRL	Discharge Conc ≥ 50% WQBEL (RP)
4,4-DDD	3.57E-07	5.57E-07	0.001	0.002	0.003	µg/L	0.001	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Dieldrin	3.57E-09	5.57E-09	0.00001	0.00002	0.00003	µg/L	0.00001	CRL	Discharge Conc ≥ 50% WQBEL (RP)
alpha-Endosulfan	Report	Report	Report	Report	Report	µg/L	0.11	CFC	Discharge Conc > 25% WQBEL (no RP)
beta-Endosulfan	Report	Report	Report	Report	Report	µg/L	0.11	CFC	Discharge Conc > 25% WQBEL (no RP)
Endrin	0.00002	0.00003	0.057	0.089	0.14	µg/L	0.057	THH	Discharge Conc ≥ 50% WQBEL (RP)
Heptachlor	2.14E-08	3.34E-08	0.00006	0.0001	0.0002	µg/L	0.00006	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Heptachlor Epoxide	1.07E-07	1.67E-07	0.0003	0.0005	0.0008	µg/L	0.0003	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Toxaphene	1.27E-07	1.99E-07	0.0004	0.0006	0.001	µg/L	0.0004	CFC	Discharge Conc ≥ 50% WQBEL (RP)

RUN 2

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Harmony Grove Landfill NPDES Permit No.: PA0085863 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Landfill Leachate Effluent

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
0.04	263	7.97						

					0 if left blank		0.6 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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		341									
	Chloride (PWS)	mg/L		31									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		15.4									
	Fluoride (PWS)	mg/L	<	0.1									
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L	<	1									
	Total Arsenic	µg/L		2.6									
	Total Barium	µg/L		512									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		163									
	Total Cadmium	µg/L	<	2									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	5									
	Total Cobalt	µg/L	<	0.5									
	Total Copper	µg/L		1									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	20									
	Dissolved Iron	µg/L	<	50									
	Total Iron	µg/L		1240									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		33.8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.9									
	Total Phenols (Phenolics) (PWS)	µg/L	<	10									
	Total Selenium	µg/L		1									
	Total Silver	µg/L	<	0.2									
	Total Thallium	µg/L	<	0.2									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L		1.4									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L											
	Acrylonitrile	µg/L	<	1									
	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	<	1									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	1									
	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		2.4									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	1									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	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	<	1									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	1									
	Trichloroethylene	µg/L		2.1									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	0.5									
	2,4-Dichlorophenol	µg/L	<	0.5									
	2,4-Dimethylphenol	µg/L	<	0.5									
	4,6-Dinitro-o-Cresol	µg/L	<	2.1									
	2,4-Dinitrophenol	µg/L	<	1.03									
	2-Nitrophenol	µg/L	<	1									
	4-Nitrophenol	µg/L	<	1									
	p-Chloro-m-Cresol	µg/L	<	0.5									
	Pentachlorophenol	µg/L	<	1									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	0.5									
Group 5	Acenaphthene	µg/L	<	0.2									
	Acenaphthylene	µg/L	<	0.2									
	Anthracene	µg/L	<	0.2									
	Benzidine	µg/L	<	0.5									
	Benzo(a)Anthracene	µg/L	<	0.2									
	Benzo(a)Pyrene	µg/L	<	0.2									
	3,4-Benzofluoranthene	µg/L	<	0.2									
	Benzo(ghi)Perylene	µg/L	<	0.2									
	Benzo(k)Fluoranthene	µg/L	<	0.2									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.2									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.2									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.2									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	2.1									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.2									
	Butyl Benzyl Phthalate	µg/L	<	2.1									
	2-Chloronaphthalene	µg/L	<	0.2									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.2									
	Chrysene	µg/L	<	0.2									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.2									
	1,2-Dichlorobenzene	µg/L	<	0.2									
	1,3-Dichlorobenzene	µg/L	<	0.2									
	1,4-Dichlorobenzene	µg/L	<	0.2									
	3,3-Dichlorobenzidine	µg/L	<	0.5									
	Diethyl Phthalate	µg/L	<	2.1									
	Dimethyl Phthalate	µg/L	<	2.1									
	Di-n-Butyl Phthalate	µg/L	<	2.1									
	2,4-Dinitrotoluene	µg/L	<	0.5									

	2,6-Dinitrotoluene	µg/L	<	0.5									
	Di-n-Octyl Phthalate	µg/L	<	2.1									
	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.2									
	Fluorene	µg/L	<	0.2									
	Hexachlorobenzene	µg/L	<	0.2									
	Hexachlorobutadiene	µg/L	<	0.2									
	Hexachlorocyclopentadiene	µg/L	<	1									
	Hexachloroethane	µg/L	<	0.2									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.2									
	Isophorone	µg/L	<	0.2									
	Naphthalene	µg/L	<	0.2									
	Nitrobenzene	µg/L	<	0.2									
	n-Nitrosodimethylamine	µg/L	<	0.2									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.2									
	n-Nitrosodiphenylamine	µg/L	<	0.2									
	Phenanthrene	µg/L	<	0.2									
	Pyrene	µg/L	<	0.2									
	1,2,4-Trichlorobenzene	µg/L	<	0.2									
Group 6	Aldrin	µg/L	<	0.05									
	alpha-BHC	µg/L	<	0.05									
	beta-BHC	µg/L	<	0.05									
	gamma-BHC	µg/L	<	0.05									
	delta BHC	µg/L	<	0.05									
	Chlordane	µg/L	<	1									
	4,4-DDT	µg/L	<	0.05									
	4,4-DDE	µg/L	<	0.05									
	4,4-DDD	µg/L	<	0.05									
	Dieldrin	µg/L	<	0.05									
	alpha-Endosulfan	µg/L	<	0.05									
	beta-Endosulfan	µg/L	<	0.05									
	Endosulfan Sulfate	µg/L	<	0.05									
	Endrin	µg/L	<	0.05									
	Endrin Aldehyde	µg/L	<	0.05									
	Heptachlor	µg/L	<	0.05									
	Heptachlor Epoxide	µg/L	<	0.05									
	PCB-1016	µg/L	<	0.41									
	PCB-1221	µg/L	<	0.41									
	PCB-1232	µg/L	<	0.41									
	PCB-1242	µg/L	<	0.41									
	PCB-1248	µg/L	<	0.41									
	PCB-1254	µg/L	<	0.41									
	PCB-1260	µg/L	<	0.41									
	PCBs, Total	µg/L											
	Toxaphene	µg/L	<	2									
	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											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Harmony Grove Landfill, NPDES Permit No. PA0085863, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **UNT 8745 to Davidson Run**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	008745	0.6	400.67	1.25			Yes
End of Reach 1	008745	0	375.78	5.69			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	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	0.6	0.045										100	7		
End of Reach 1	0	0.045										100	7		

Q_h

Location	RMI	LFY (cfs/mi²)	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	0.6														
End of Reach 1	0														

☑ ***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 Arsenic	Report	Report	Report	Report	Report	µg/L	19.1	THH	Discharge Conc > 10% WQBEL (no RP)
Total Barium	Report	Report	Report	Report	Report	µg/L	4,582	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.0003	0.0004	0.82	1.27	2.04	µg/L	0.82	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	19.8	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	Report	Report	Report	Report	Report	µg/L	2,864	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	9.52	CFC	Discharge Conc > 10% WQBEL (no RP)
Trichloroethylene	Report	Report	Report	Report	Report	µg/L	6.42	CRL	Discharge Conc > 25% WQBEL (no RP)
Toxaphene	1.27E-07	1.99E-07	0.0004	0.0006	0.001	µg/L	0.0004	CFC	Discharge Conc ≥ 50% WQBEL (RP)

Attachment C

TRC Evaluation

Harmony Grove Landfill
PA0085863

December 2021

TRC EVALUATION

Input appropriate values in B4:B8 and E4:E7

0.0563	= Q stream (cfs)	0.5	= CV Daily
0.04	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.309	1.3.2.iii	WLA cfc = 0.294
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.115	5.1d	LTA_cfc = 0.171

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.142	AFC
		INST MAX LIMIT (mg/l) = 0.464	

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)

Attachment D

Lab Report

GEOCHEMICAL TESTING
Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

814/443-1671
814/445-6666
FAX: 814/445-6729

Wednesday, September 22, 2021

David Kaasa
Harmony Grove Landfill
Waste Management
100 Brandywine Blvd., Third Floo
Newtown, PA 18940

RE: Harmony Grove LF 621M Order No.: G2109814

Dear David Kaasa:

Geochemical Testing received 2 sample(s) on 9/15/2021 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services

Nate R. Bergstresser
Client Support

ACCREDITED IN ACCORDANCE WITH nelac
I.D. 56-00306PA DEP

Geochemical Testing

Date: *22-Sep-21*

CLIENT: Harmony Grove Landfill
Project: Harmony Grove LF 621M
Lab Order: G2109814

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Submitted COC documentation incomplete with the following deficiencies: corrections made without initials/date.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
Q1 - See case narrative ND - Not Detected
MCL - Contaminant Limit J - Indicates an estimated value.
Q - Qualifier QL -Quantitation Limit DF - Dilution Factor
S - Surrogate Recovery outside accepted recovery limits
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.
T1 - Sample received above required temperature
MDA - Minimum Detectable Activity.
** - Value exceeds Action Limit
TICs - Tentatively Identified Compounds.
E - Value above quantitation range

ACCREDITED IN ACCORDANCE WITH nelac
I.D. 56-00306 PA DEP

Laboratory Results

Geochemical Testing

Date: *22-Sep-21*

CLIENT:	Harmony Grove Landfill	**Client Sample ID:**	Outfall 001
Lab Order:	G2109814		
Project:	Harmony Grove LF 621M	**Sampled By:**	S&S Tech
Lab ID:	G2109814-001	**Collection Date:**	9/14/2021 7:50:00 AM
Matrix:	WASTE WATER	**Received Date:**	9/15/2021 10:15:34 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst: **MAS**				**SM 2540C**	**SM 2540 C**
Total dissolved solids	330	20		mg/L	1	09/16/21 1:30 PM	09/16/21 1:40 PM
INDICATOR ORGANIC PARAMETERS		Analyst: **TMY**				**SM 5210 B**	**SM 5210 B**
BOD 5-day	5	2		mg/L	1.5	09/15/21 11:24 AM	09/20/21 12:43 PM
INORGANIC NON-METALS		Analyst: **KRD**					**EPA 350.1**
Ammonia Nitrogen	0.24	0.10		mg/L as N	1		09/20/21 10:34 AM
INORGANIC NON-METALS		Analyst: **MJR**				**EPA 353.2**	**EPA 353.2**
Nitrate - Nitrite	3.87	0.25		mg/L as N	5	09/16/21 12:10 PM	09/17/21 11:02 AM
INORGANIC NON-METALS		Analyst: **MJR**				**HACH 10242**	**HACH 10242**
Total Kjeldahl Nitrogen	< 1.0	1.0		mg/L as N	1	09/20/21 8:07 AM	09/20/21 12:07 PM
INORGANIC METALS		Analyst: **RLR**				**EPA 200.2**	**EPA 200.7**
Iron	0.49	0.05		mg/L	1	09/17/21 12:00 PM	09/20/21 1:36 PM
VOLATILE ORGANIC COMPOUNDS		Analyst: **SJM**					**EPA 624.1**
Trichloroethene	2.1	0.5		µg/L	1		09/17/21 10:40 AM
Surr: 1,2-Dichloroethane-d4	108	78-122		%REC	1		09/17/21 10:40 AM
Surr: 4-Bromofluorobenzene	97.8	74-123		%REC	1		09/17/21 10:40 AM
Surr: Toluene-d8	99.7	79-117		%REC	1		09/17/21 10:40 AM

ACCREDITED IN ACCORDANCE WITH nelac
I.D. 56-00306 PA DEP

Laboratory Results

Geochemical Testing

Date: *22-Sep-21*

CLIENT:	Harmony Grove Landfill	**Client Sample ID:**	Trip Blank
Lab Order:	G2109814		
Project:	Harmony Grove LF 621M	**Sampled By:**	S&S Tech
Lab ID:	G2109814-002	**Collection Date:**	9/15/2021 10:14:00 AM
Matrix:	AQUEOUS	**Received Date:**	9/15/2021 10:15:34 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Analyst: **SJM**					EPA 624.1
Trichloroethene	< 0.5	0.5		µg/L	1		09/17/21 8:31 AM
Surr: 1,2-Dichloroethane-d4	106	78-122		%REC	1		09/17/21 8:31 AM
Surr: 4-Bromofluorobenzene	98.9	74-123		%REC	1		09/17/21 8:31 AM
Surr: Toluene-d8	99.1	79-117		%REC	1		09/17/21 8:31 AM

ACCREDITED IN ACCORDANCE WITH nelac
I.D. 56-00306 PA DEP

Hong, Nicholas

From: Rios, Erica <erios@wm.com>
Sent: Monday, December 20, 2021 4:20 PM
To: Hong, Nicholas
Cc: Kaasa, David; Tomtishen, Tracy; Kunkel, Summer
Subject: [External] RE: RE: RE: SC Holdings- Harmony Grove Landfill NPDES renewal questions

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

Nick,

Moving forward, I will ensure that reported trichloroethylene concentrations are entered into Green port as mg/l vs ug/l.

Thank you,

ERICA RIOS
Landfill Operations Manager
Environmental Legacy Management Group
erios@wm.com

T: 215.269.2115
C: 215.394.7129
100 Brandywine Blvd, Suite 300
Newtown, PA 18940

From: Hong, Nicholas <nhong@pa.gov>
Sent: Monday, December 20, 2021 1:46 PM
To: Rios, Erica <erios@wm.com>
Cc: Kaasa, David <dkaasa@wm.com>; Tomtishen, Tracy <ttomtishen@pa.gov>; Kunkel, Summer <sukunkel@pa.gov>
Subject: RE: [External] RE: RE: SC Holdings- Harmony Grove Landfill NPDES renewal questions

Erica.

Please review entries in DMR for trichloroethylene. We believe the entries are being made in mg/l rather than ug/l. If DMR requires mg/l then the lab data should be converted to mg/l when entered in green port.

Nick Hong, PE | Environmental Engineer
PA Department of Environmental Protection
Clean Water Programs
Southcentral Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110
Phone: 717.705.4824 | Fax: 717.705.4760
www.dep.pa.gov

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