



**ENVIRONMENTAL
INFORMATION
LOGISTICS, LLC**

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June 30, 2023

Ms. Amy Tempus-Doom
Division for Air Quality - Permit Review Branch
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Submitted Electronically – Kentucky Business One Stop Portal

RE: Ohio County Balefill – Ohio County, KY
Source I.D. No. 21-183-00086
Title V Operating Permit V-18-042 – Renewal Application

Dear Ms. Tempus-Doom:

The Ohio County Balefill (OCB) located in Beaver Dam, Kentucky was issued a Title V Operating Permit Renewal on January 13, 2019. 401 KAR 52:020 Section 12 and Condition G.2.a require submittal of a timely and complete renewal application six months before permit expiration. For OCB, that date corresponds to July 13, 2023.

Enclosed is a pdf of the application with the Responsible Official signature. The application consists of the following:

- Emissions Calculation Updates for significant activities and an updated list of insignificant activities.
- Application forms.
- New applicable federal requirements: 40 CFR Part 62 (Federal Plan), Subpart OOO and 40 CFR 63, Subpart AAAA (Revised Landfill NESHAP); and
- List of non-applicable state and federal requirements for permit shield coverage.

Environmental Information Logistics is submitting the application on behalf of the landfill owner, Republic Services of Kentucky, LLC, d/b/a Ohio County Balefill. If you have any questions or comments, please call me at (630) 209-3931 or Branham Lafferty of Ohio County at (618) 936-4379.

Sincerely,
Environmental Information Logistics, LLC

Emily M. Nelson
Senior Project Manager

cc: Branham Lafferty, Ohio County Balefill

**Ohio County Balefill
SOURCE I.D. #21-183-00086**

Application for Renewal of a Title V Permit

**Beaver Dam
Ohio County, Kentucky**

June 2023

Prepared by:

**Environmental Information Logistics, LLC
130 E. Main Street
Caledonia, MI 49316**

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INTRODUCTION

Republic Services of Kentucky, LLC (Republic) owns and operates Ohio County Balefill (OCB), a municipal solid waste landfill located in Beaver Dam, Ohio County, Kentucky. Ohio County has been designated as attainment for all criteria pollutants.

On January 13, 2019, the Kentucky Department for Environmental Protection issued a Title 5 Operating Permit (Air Quality General Permit) for the facility. The permit expires on January 13, 2024, and per General Condition G.2.a, a renewal application is due six months prior to the expiration date of the permit (i.e., by July 13, 2023). OCB is requesting a renewal of the Title 5 Air Quality General Permit, with appropriate updates, clarifications, and modifications, in accordance with 401 KAR 52:020 Section 12.

The current permit includes the following significant emission units:

<u>Emissions Unit No.</u>	<u>Emissions Unit Description</u>
004	Municipal Solid Waste (MSW) Landfill
001a	Landfill Flare
003	Paved and Unpaved Haul Roads
005	Site Construction/Operation
006	Industrial Waste Solidification Process
007	1200 Gallon Gasoline Storage Tank & Dispensing

There are no new significant emissions units to add for this renewal application.

The following insignificant emissions units were identified in the current permit:

- Leachate Tank (30,000 gallons)
- Leachate Tank (30,000 gallons)
- Leachate Tank (250,000 gallons)
- Diesel Storage Tank (800 gallons)
- Diesel Storage Tank (4,000 gallons)
- Diesel Storage Tank (10,000 gallons)
- Propane tank (100 gallon)
- Propane tank (100 gallon)
- Propane tank (100 gallon)
- Propane tank (500 gallon)
- Propane tank (500 gallon)
- One parts washer
- Petroleum Contaminated Soils for ADC

All of the above-listed insignificant emissions units are still present at the facility; none have been removed.

One additional insignificant emissions unit has been added for this renewal application:

- Diesel Storage Tank (4,000 gallons)

A summary of additional requested updates to the current permit are provided in this application. These include:

- Emissions calculation updates for the landfill, site construction/operations and haul roads (Appendix A);
- New applicable regulations (40 CFR 62 Subpart OOO and revised 40 CFR 63 Subpart AAAA); and
- List of non-applicable state and federal requirements for permit shield coverage.

Application forms are provided in Section 2. A site map is included in Appendix B, and a process flow diagram is provided in Appendix C.

Newly Applicable/Revised Federal Regulations

40 CFR 62, Subpart OOO (Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014): On May 21, 2021, the Federal Register published the federal plan requirements for municipal solid waste (MSW) landfills that commenced construction before July 17, 2014, such as OCB, and are in states where a state plan has not been approved, such as Kentucky. The rule, 40 CFR 62, Subpart OOO (Federal Plan), went into effect on June 21, 2021. This closes the loop to allow landfills in Kentucky to smoothly transition into the requirements of the revised NESHAP. OCB is considered a Legacy Controlled Landfill (as defined in §62.16730), and as such, was not required to submit several reports or comply with the “Increments of Progress” in §62.16712 of the Federal Plan.

The Landfill NESHAP (40 CFR 63 Subpart AAAA) revisions were promulgated on March 26, 2020, and became effective September 27, 2021. All of the operational standards, compliance and monitoring requirements of the Federal Plan (§62.16717, §62.16720 & §62.16722, respectively) are now superseded by their equivalent NESHAP counterpart (§63.1958, §63.1960 & §63.1961, respectively). Additionally, selective recordkeeping and reporting requirements of the Federal Plan (§62.16724(h), (k) & (q) and §62.16726(e)) are also now superseded by their equivalent provisions of the revised Landfill NESHAP (§63.1981(h), (j) & (k) and §63.1983(e), respectively).

Only the relevant provisions of the Federal Plan which have not been superseded by the Landfill NESHAP should be incorporated. These include the following regulatory citations:

- §62.16710(a) – Scope
- §62.16711(a), (d) – (f) & (h) – Designated Facilities
- §62.16714(a), (b), (c)(2) – (4) & (f) – Standards for MSW Landfill Emissions
- §62.16718(b) – (e) – Test Methods
- §62.16724(d)(6) & (7), (e) – (g), (j) & (l) - Reporting
- §62.16726(a) – (d), (e)(6) & (h) – (j) – Recordkeeping
- §62.16728 – Specifications for Active Systems
- §62.16730 – Definitions

40 CFR 63, Subpart AAAA (Revised – National Emissions Standards for Hazardous Air Pollutants – Municipal Solid Waste Landfills): As stated previously, on March 26, 2020, the EPA promulgated substantial revisions to the Landfill NESHAP (40 CFR 63 Subpart AAAA). The intent was to incorporate the monitoring, recordkeeping, reporting and compliance provisions of the Landfill NSPS (40 CFR 60 Subparts WWW and XXX) into the revised Landfill NESHAP and make the NESHAP the primary air compliance regulation for landfill compliance. These provisions become effective after September 27, 2021. Also on March 26, 2020, the EPA revised the Landfill NSPS to provide a sunset date for 40 CFR 60 Subpart WWW once the MSW landfill “*Becomes subject to the more stringent requirements in an approved and effective state or federal plan that implements subpart Cf of this part*” (see §60.750(d)(1)). On May 21, 2021, the Federal Register published the federal plan requirements for municipal solid waste (MSW) landfills that commenced construction before July 17, 2014. OCB is subject to the Federal Plan as stated above. Since the NESHAP is now primarily the governing federal air regulation for landfills, the renewal permit issued for OCB should incorporate the revised NESHAP provisions and remove all prior references to 40 CFR 60 Subpart WWW.

APPLICATION FORMS

The following application forms are included in this section:

- DEP Form 7007AI – Administrative Information
- DEP Form 7007B – Manufacturing or Processing Operations
- DEP Form 7007J – Volatile Liquid Storage
- DEP Form 7007N – Emissions, Stacks and Controls Information
- DEP Form 7007V – Applicable Requirements & Compliance Activities
- DEP Form 7007CC – Compliance Certification
- DEP Form 7007DD – Insignificant Activities
- DEP Form 7007GG – Control Equipment
- DEP Form 7007HH – Haul Roads

DEP FORM 7007AI

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007AI

Administrative Information

- ___ Section AI.1: Source Information
___ Section AI.2: Applicant Information
___ Section AI.3: Owner Information
___ Section AI.4: Type of Application
___ Section AI.5: Other Required Information
___ Section AI.6: Signature Block
___ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

___ Additional Documentation attached

Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023

Section AI.1: Source Information

Physical Location	Street:	<u>100 Landfill Lane</u>		
Address:	City:	<u>Beaver Dam</u>	County:	<u>Ohio</u>
			Zip Code:	<u>42320</u>
Mailing Address:	Street or P.O. Box:	<u>P.O. Box 87</u>		
	City:	<u>Hartford</u>	State:	<u>KY</u>
			Zip Code:	<u>42347</u>

Standard Coordinates for Source Physical Location

Longitude: 86.56 (decimal degrees) **Latitude:** 37.24 (decimal degrees)

Primary (NAICS) Category: Solid Waste Landfill **Primary NAICS #:** 562212

Classification (SIC) Category:

Refuse Systems

Primary SIC #:

4953

Briefly discuss the type of business conducted at this site:

This site is a permitted municipal solid waste landfill.

Description of Area Surrounding Source:☒ Rural Area☐ Industrial Park☐ Residential Area**Is any part of the source located on federal land?**☐ Yes☒ No**Number of Employees:**

8

☐ Urban Area☐ Industrial Area☐ Commercial Area**Approximate distance to nearest residence or commercial property:**

160

Property Area:

921

Is this source portable?☐ Yes☒ No**What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?****NPDES/KPDES:**☒ Currently Hold☐ Need☐ N/A**Solid Waste:**☒ Currently Hold☐ Need☐ N/A**RCRA:**☐ Currently Hold☐ Need☐ N/A**UST:**☐ Currently Hold☐ Need☐ N/A**Type of Regulated Waste Activity:**☐ Mixed Waste Generator☐ Generator☐ Recycler☐ Other: _____☐ U.S. Importer of Hazardous Waste☐ Transporter☒ Treatment/Storage/Disposal Facility☐ N/A

Section AI.2: Applicant Information

Applicant Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

Title: (if individual)

Mailing Address: **Street or P.O. Box:** P.O. Box 87
City: Hartford **State:** KY **Zip Code:** 42347

Email: (if individual)

Phone: (270) 298-7501

Technical Contact

Name: Branham Lafferty

Title: Environmental Manager

Mailing Address: **Street or P.O. Box:** 2121 Wimberg Road
City: Evansville **State:** IN **Zip Code:** 47720

Email: blafferty@republicservices.com

Phone: 618-936-4379

Air Permit Contact for Source

Name: Emily Nelson

Title: Senior Project Manager

Mailing Address: **Street or P.O. Box:** 4463 Hilltop Dr.
City: New Franklin **State:** OH **Zip Code:** 44203

Email: enelson@eilllc.com

Phone: 630-209-3931

Section AI.3: Owner Information☒ **Owner same as applicant****Name:** _____**Title:** _____**Mailing Address:** **Street or P.O. Box:** _____
City: _____ **State:** _____ **Zip Code:** _____**Email:** _____**Phone:** _____**List names of owners and officers of the company who have an interest in the company of 5% or more.****Name****Position**

Section AI.4: Type of Application

Current Status:	☒ Title V	☐ Conditional Major	☐ State-Origin	☐ General Permit	☐ Registration	☐ None
	☐ Name Change	☐ Initial Registration	☐ Significant Revision	☐ Administrative Permit Amendment		
Requested Action: (check all that apply)	☒ Renewal Permit	☐ Revised Registration	☐ Minor Revision	☐ Initial Source-wide Operating Permit		
	☐ 502(b)(10) Change	☐ Extension Request	☐ Addition of New Facility	☐ Portable Plant Relocation Notice		
	☐ Revision	☐ Off Permit Change	☐ Landfill Alternate Compliance Submittal	☐ Modification of Existing Facilities		
	☐ Ownership Change	☐ Closure				
Requested Status:	☒ Title V	☐ Conditional Major	☐ State-Origin	☐ PSD	☐ NSR	☐ Other: _____

Is the source requesting a limitation of potential emissions?

☐ Yes☒ No

Pollutant:	Requested Limit:	Pollutant:	Requested Limit:
☐ Particulate Matter	_____	☐ Single HAP	_____
☐ Volatile Organic Compounds (VOC)	_____	☐ Combined HAPs	_____
☐ Carbon Monoxide	_____	☐ Air Toxics (40 CFR 68, Subpart F)	_____
☐ Nitrogen Oxides	_____	☐ Carbon Dioxide	_____
☐ Sulfur Dioxide	_____	☐ Greenhouse Gases (GHG)	_____
☐ Lead	_____	☐ Other	_____

For New Construction:

Proposed Start Date of Construction:
(MM/YYYY)

Proposed Operation Start-Up Date: (MM/YYYY)

For Modifications:

Proposed Start Date of Modification:
(MM/YYYY)

Proposed Operation Start-Up Date: (MM/YYYY)

Applicant is seeking coverage under a permit shield.

☒ Yes☐ No

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

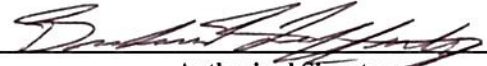
Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- | | |
|--|--|
| ☐ DEP7007A Indirect Heat Exchangers and Turbines | ☒ DEP7007CC Compliance Certification |
| ☒ DEP7007B Manufacturing or Processing Operations | ☒ DEP7007DD Insignificant Activities |
| ☐ DEP7007C Incinerators and Waste Burners | ☐ DEP7007EE Internal Combustion Engines |
| ☐ DEP7007F Episode Standby Plan | ☐ DEP7007FF Secondary Aluminum Processing |
| ☒ DEP7007J Volatile Liquid Storage | ☒ DEP7007GG Control Equipment |
| ☐ DEP7007K Surface Coating or Printing Operations | ☒ DEP7007HH Haul Roads |
| ☐ DEP7007L Mineral Processes | ☐ Confidentiality Claim |
| ☐ DEP7007M Metal Cleaning Degreasers | ☐ Ownership Change Form |
| ☒ DEP7007N Source Emissions Profile | ☐ Secretary of State Certificate |
| ☐ DEP7007P Perchloroethylene Dry Cleaning Systems | ☒ Flowcharts or diagrams depicting process |
| ☐ DEP7007R Emission Offset Credit | ☐ Digital Line Graphs (DLG) files of buildings, roads, etc. |
| ☐ DEP7007S Service Stations | ☒ Site Map |
| ☐ DEP7007T Metal Plating and Surface Treatment Operations | ☐ Map or drawing depicting location of facility |
| ☒ DEP7007V Applicable Requirements and Compliance Activities | ☐ Safety Data Sheet (SDS) |
| ☐ DEP7007Y Good Engineering Practice and Stack Height Determination | ☐ Emergency Response Plan |
| ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units | ☐ Other: _____ |
| ☐ DEP7007BB Certified Progress Report | |

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.



Authorized Signature

Branham Lafferty
Type or Printed Name of Signatory

6/28/23

Date

Environmental Manager
Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations

DEP FORM 7007B

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	DEP7007B Manufacturing or Processing Operations ___ Section B.1: Process Information ___ Section B.2: Materials and Fuel Information ___ Section B.3: Notes, Comments, and Explanations	Additional Documentation ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ___ Attach a flow diagram ___ Attach SDS
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Source Name:	Republic Services of Kentucky, LLC d/b/a Ohio County Balefill
KY EIS (AFS) #:	21- 183-00086
Permit #:	V-18-042
Agency Interest (AI) ID:	3306
Date:	6/30/2023

Section B.1: Process Information										
Emission Unit #	Emission Unit Name	Describe Emission Unit	Process ID	Process Name	Manufacturer	Model No.	Proposed/Actual Date of Construction Commencement (MM/YYYY)	Is the Process Continuous or Batch?	Number of Batches per 24 Hours (if applicable)	Hours per Batch (if applicable)
004	MSW Landfill	Sanitary Landfilling of Municipal Solid Waste (MSW)	N/A	N/A	N/A	N/A	1982	Continuous	N/A	N/A

[illegible]

Section B.3: Notes, Comments, and Explanations

DEP FORM 7007J

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	DEP7007J Volatile Liquid Storage ☐ Section J.1: General Information ☐ Section J.2: Tank Description ☐ Section J.3: Gasoline Plants and Terminals ☐ Section J.4: Loading Rack(s) ☐ Section J.5: Equipment Leaks ☐ Section J.6: Notes, Comments, and Explanations	Additional Documentation ☐ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG. ☐ SDS attached
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Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023

Section J.1: General Information						
Emission Unit #	Emission Unit Name	Emission Unit Description	Proposed/Actual Date of Construction Commencement (MM/YYYY)	Date of modification/reconstruction	Control Device ID	Stack ID
007	1200 Gallon Gasoline Storage Tank	1200 Gallon Gasoline Storage Tank	1982	N/A	007	N/A

Section J.2: Tank Description

Emission Point #: 007

Emission Point Name: 1200 Gallon Gasoline Storage Tank

Tank ID#: GAS1

Date Installed: 1982

List Applicable Regulations: 40 CFR 63 Subpart CCCCCC

J.2A: Stored Liquid Data:

Single or Multi-Component Liquid Name(s)	Maximum Annual Throughput (gal/yr)	Liquid Density (lb/gal)	Molecular Weight of Single or Multi-Component Liquid	Percent Composition of Multi-Component Liquid(s)	Temperature (°F)		Vapor Pressure (psia)	
					Minimum	Maximum	Minimum	Maximum
Gasoline	10,000	6.2	92.0	N/A	51.5	61.0	4.4	5.3

J.2B: Tank Data:

Tank Capacity: (gallons)	<u>1200</u>	Shell Height/ Length: (ft)	<u>12</u>	Shell Diameter: (ft)	<u>4</u>	Tank Turnovers per Year:	<u> </u>
Tank Orientation:	☒ Horizontal	☐ Vertical	If Vertical, provide Maximum Liquid Height: (ft) <u> </u>			Average Liquid Height: (ft) <u> </u>	
Shell Color/Shade:	☒ Red	☐ White	☐ Light Gray	☐ Medium Gray	☐ Aluminum Specular	☐ Aluminum Diffuse	☐ Other: <u> </u>
Roof Color:	☐ Slack	☐ White	☐ Light Gray	☐ Medium Gray	☐ Aluminum Specular	☐ Aluminum Diffuse	☒ Other: <u> </u> Silver
Tank Type:	☒ Fixed Roof	☐ Internal Floating Roof	☐ External Floating Roof			☐ Pressure Tank	

J.2C: For Fixed Roof Tanks:

Roof Type:	☐ Dome	☒ Flat	☐ Cone	Dome/Cone Height:	<u>12</u> ft	Average Vapor Space Height:	<u>Variable</u> ft
Is Tank Underground?:	☐ Yes	☒ No	Roof Condition:	☒ Good	☐ Poor	Vacuum Setting:	<u> </u> psig
Is Tank Heated?:	☐ Yes	☒ No	Shell Condition:	☒ Good	☐ Poor	Pressure Setting:	<u> </u> psig

J.2D: For All Internal Floating Roof Tanks:

Rim Seal Description:	☐ Vapor Mounted Primary	☐ Vapor Mounted Primary plus Secondary Seal	☐ Shoe Mounted
	☐ Liquid Mounted Primary	☐ Liquid Mounted Primary plus Secondary Seal	☐ Shoe Mounted plus Secondary Seal
Secondary Seal:	☐ Rim Mounted	☐ Shoe Mounted	☐ None
Internal Shell Condition:	☐ Light Rust	☐ Dense Rust	☐ Gunite-lined
	External Shell Condition: ☐ Good ☐ Poor		
Roof Paint Condition:	☐ Good	☐ Poor	Self Supporting Roof? ☐ Yes ☐ No
Number of Support Columns:	<u> </u>	Effective Column Diameter: <u> </u> ft	

J.2E: Deck Data for Internal Floating Roofs:

Length of Deck Seam: _____ ft

Deck Type: ☐ Bolted ☐ Welded

Type of Deck Fitting: ☐ Access Hatch ☐ Ladder Well ☐ Sample Pipe ☐ Sample Well ☐ Vacuum Breaker
☐ Column Well ☐ Roof Leg ☐ Hanger Well ☐ Stub Drain ☐ Automatic Gauge Float Well

Design of each deck fitting:

(diameter sizes, bolted or gasket covers, sliding cover or fabric seal,
adjustable or fixed roof leg/hanger well and number)

J.2F: For All External Floating Roof Tanks:

Rim Seal Description: ☐ Vapor Mounted Primary ☐ Vapor Mounted Primary Rim Secondary Seal ☐ Vapor Mounted Primary with Weather Shield
☐ Liquid Mounted Primary ☐ Liquid Mounted Primary Rim Secondary Seal ☐ Liquid Mounted Primary with Weather Shield
☐ Shoe Mounted Primary ☐ Shoe Mounted Primary Rim Secondary Seal ☐ Shoe Mounted Primary Shoe Secondary

Internal Shell Condition: ☐ Light Rust ☐ Dense Rust ☐ Gunite-linedTank Type: ☐ Riveted ☐ WeldedRoof Type: ☐ Pontoon Roof ☐ Double Deck Roof**J.2G: Deck Data for External Floating Roof Tanks:**

Type of Deck Fitting: ☐ Access Hatch ☐ Gauge Hatch ☐ Sample Well ☐ Roof Leg ☐ Vacuum Breaker
☐ Guide Pole ☐ Gauge Float ☐ Roof Drain ☐ Rim Vent ☐ Other

Design of each deck fitting:

(diameter sizes, bolted or gasket covers, sliding cover, unslotted or slotted
guide pole well, adjusted or fixed roof leg and number of each design)

J.2H: Emissions Data:					
Attach SDS/Composition Analysis for Each Component Listed					
Process ID	Component Name	Process Name (e.g. Breathing, Working, Cleaning, Flashing Loss(es))	Lost Emissions (lb/1000 gal)	Frequency of Occurrence	Determination Methodology for Each Type of Loss*

Section J.3: Gasoline Plants and Terminals

Indicate the percentage of one or more of the following modes of transportation for incoming liquid and outgoing liquid:

	Tank Truck	Trailer	Railcar	Pipeline	Marine Tank	Barge	Other (Specify)
Incoming Liquid Material:	100	N/A	N/A	N/A	N/A	N/A	
Outgoing Liquid Material:	N/A	N/A	N/A	N/A	N/A	N/A	

For Gasoline Dispensing Facilities (GDF) only:

Is the loading of gasoline storage tanks at a GDF located at an area source of hazardous air pollutants as defined in 40 CFR 63.2? ☒ Yes ☐ No

Is there the dispensing of gasoline from a fixed storage tank at a GDF into a portable tank for the on-site delivery and subsequent dispensing into gasoline-fueled equipment? ☒ Yes ☐ No

Maximum monthly throughput in gallons: Less than 10,000 gallons

For Bulk Gasoline Plants Only:

Is the maximum calculated design throughput less than 20,000 gallons (75,700 liters) per day? ☐ Yes ☐ No

Is gasoline loaded into cargo tanks for transport to gasoline dispensing facilities? ☐ Yes ☐ No

For Bulk Gasoline Terminals Only:

Is the maximum calculated design throughput equal to or greater than 20,000 gallons (75,700 liters) per day? ☐ Yes ☐ No

Is the terminal located at an area source of hazardous air pollutants as defined in 40 CFR 63.2?

☐ Yes

☐ No

Does the facility load from marine tank vessel loading operations at all loading berths less than 1.6 billion liters (10 M barrels) of gasoline annually and of less than 32 billion liters (200 M barrels) of crude oil annually?

☐ Yes

☐ No

Does the terminal handle any reformatting or oxygenated gasoline containing methyl tertbutyl ether (MTBE), CF?

☐ Yes

☐ No

Indicate the type of vapor control device utilized: ☐ Incinerator

☐ Adsorber

☐ Other

Section J.4: Loading Rack(s)

Emission Point #:

Emission Point Name:

Loading Rack ID#:

Product Type	Number of Lanes/Rack	Number of risers/loading arms per rack	Does the petroleum storage capacity exceed 300,000 barrels? (Y/N)	Time required to load standard size tanker (minutes)	Barge/Pipeline Unloading Rate (barrels/hr)	Barge/Pipeline Unloading Rate (barrels/yr)	Maximum Loaded (gal/hr)	Maximum Loaded (gal/yr)	Stack ID	Control Device ID

Section J.5: Equipment Leaks

Emission Point #: _____

Emission Point Name: _____

This section is to be completed for all components of Volatile Liquid Storage Systems that may have leaks.

Equipment Type	Indicate the number of each type of equipment for this emission point		Emission Factor (lb/SCC units)		Source of Emission Factor	Total Emissions (lb/yr)
	Gasoline	Other (diesel, kerosene, etc.)	Gasoline	Other		
Valves						
Pumps						
Connectors						
Risers/Loading-Arm Valves						
Open-ended Lines						
Other						

Section J.6: Notes, Comments, and Explanations

DEP FORM 7007N

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999	DEP7007N Source Emissions Profile ___ Section N.1: Emission Summary ___ Section N.2: Stack Information ___ Section N.3: Fugitive Information ___ Section N.4: Notes, Comments, and Explanations	Additional Documentation ___ Complete DEP7007AI
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Source Name:	Republic Services of Kentucky, LLC d/b/a Ohio County Balefill
KY EIS (AFS) #:	21- 183-00086
Permit #:	V-18-042
Agency Interest (AI) ID:	3306
Date:	6/30/2023

N.1: Emission Summary

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
See	Attachment	for	N1													

Attachment for KDEP Form 7007 N1

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
001a	Open Flare	1	LFG Combustion	N/A - flare IS a control device	N/A	None	3,000 cfm	NOx	37.4 lbs/mmscf	KDEP EIS	N/A	N/A	6.73	6.73	29.49	29.49
								CO	203.5 lbs/mmscf				36.63	36.63	160.44	160.44
								VOC	52.778 lbs/mmscf				9.50	0.19	41.61	0.83
								PM	4.99 lbs/mmscf				0.90	0.90	3.93	3.93
								SO ₂	31.72 lbs/mmscf ¹				5.71	5.71	25.01	25.01
004	MSW Landfill	1	Landfilling of MSW Waste	Open Flare	001a	None	20,562,042 bcy	VOC	133.98 lbs/mmscf LFG produced	Mass Balance - see calculations ²	75.00%	98.00%	23.92	5.98	52.38	26.19
003	Unpaved and Paved Haul Roads (MSW LF)	1	Unpaved Roads	Dust Suppression (Water Truck)	WT- Water Truck	N/A - Fugitive	21,739 VMT ³	PM2.5	0.143 lb/VMT	KDEP EIS	N/A	40.00%	N/A	N/A	1.55	0.93
								PM10	1.43 lb/VMT			75.00%			15.54	3.89
								PM	5.3 lb/VMT			57.61			14.40	
		2	Paved Roads				12,174 VMT ³	PM2.5	0.075 lb/VMT			40.00%			0.46	0.27
								PM10	0.306 lb/VMT			90.00%			1.86	0.19
								PM	1.528 lb/VMT			9.30			0.93	
007	Gasoline Storage Tank	1	Breathing Loss	None	N/A	None - tank vent	10,000 gallons/year through a 1200 gallon tank	VOC	70 lbs/1000 gallons	KDEP EIS	N/A	N/A	0.08	0.08	0.35	0.35
		2	Working Loss						35.65 lbs/1000 gallons				0.04	0.04	0.18	0.18
006	Solidification	1	Liquid Waste	None	N/A	N/A - Fugitive	10,000 tons/year liquid waste	VOC	2.865 lbs/ton material processed	KDEP EIS	N/A	N/A	N/A	N/A	14.33	14.33
005	Site Construction and Operation	1	Waste Covering	None	N/A	N/A - Fugitive	250,000 tons/year of waste processed ⁴	PM10	0.183 lb/ton material processed	KDEP EIS	N/A	N/A	N/A	N/A	22.88	22.88
								PM2.5							22.88	22.88
								PM							22.88	22.88

¹SO₂ emissions factor updated based on highest site-specific sulfur value measured over the last five years.²LFG emissions are based on closure of site in 2087 with future projected waste volumes of 250,000 tons/year. Calculations are provided in the application.³Values for paved/unpaved road VMT based on projected road conditions over the next five years (construction of new disposal cell further away than current area). See attached calculations.⁴Updated waste throughput requested for next renewal period to match new future projections.

Section N.2: Stack Information

UTM Zone:

[illegible]

Section N.3: Fugitive Information**UTM Zone:**

Emission Unit #	Emission Unit Name	Process ID	Area Physical Data		Area UTM Coordinates		Area Release Data	
			Length of the X Side (ft)	Length of the Y Side (ft)	Northing (m)	Easting (m)	Release Temperature (°F)	Release Height (ft)
001a	Open Flare	1						
004	MSW Landfill	1						
003	Paved haul roads	2						
003	Unpaved haul roads	1						
005	Site Construction/Operation	1						
006	Industrial Waste Solidification Process	1						
007	1200 Gallon Gasoline Storage Tank	1						
007	1200 Gallon Gasoline Storage Tank	2						

Section N.4: Notes, Comments, and Explanations

DEP FORM 7007V

DEP7007V

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

Applicable Requirements and Compliance Activities

- ☐ Section V.1: Emission and Operating Limitation(s)
☐ Section V.2: Monitoring Requirements
☐ Section V.3: Recordkeeping Requirements
☐ Section V.4: Reporting Requirements
☐ Section V.5: Testing Requirements
☐ Section V.6: Notes, Comments, and Explanations

Additional Documentation
☐ Complete DEP7007AI

Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023
Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
001a	Open Flare	401 KAR 63:015	Opacity	Visible emissions shall not exceed 20% opacity for >3 minutes during any one day			Visual observations
001a	Open Flare	40 CFR Part 62 Subpart OOO & 40 CFR 60.18; 40 CFR 63 Subpart AAAAA & 40 CFR 63.11	Visible Emissions	VE <5 minutes in 2 hours			Visual observations
004	Landfill	40 CFR Part 63 Subpart AAAAA	NMOC	Multiple Requirements			Wellhead readings and surface monitoring
Insignificant	Leachate Tanks	40 CFR 60 Subpart Kb	VOC	Vapor pressure <3.5kPA			Leachate is mostly water; negligible vapor pressure
003	Haul Roads	401 KAR 63:010	Fugitive Dust	No fugitive VE Past Property Line			Daily visual observations when site is open
005	Site Construction	401 KAR 63:010	Fugitive Dust	Prevent airborne PM			Daily visual observations when site is open
006	Industrial Waste Solidification Process	401 KAR 63:010	Fugitive emissions	Liquid waste <10,000 tons/yr			Monthly gallons/tons of each industrial waste added, HAPs emissions based on rolling 12-month basis
007	1200 Gallon Gasoline Storage Tank & Dispensing	40 CFR 63 Subpart CCCCC	HAPs	<10,000 gallons per year dispensed			Monitor annual gasoline throughput in gallons

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
001a	Open Flare	Visible Emissions	401 KAR 63:015	Visual Emissions	Weekly VE observations
001a	Open Flare	N/A	40 CFR 63 Subpart AAAAA	Flow and Flame Presence	Measure flow and flame presence continuously
004	MSW Landfill	NMOC	40 CFR 63 Subpart AAAAA	NMOC	Well head readings monthly, cover integrity monitoring monthly, and quarterly surface emissions monitoring
003 & 005	Paved & Unpaved Haul Roads, Construction	Fugitive PM	401 KAR 63:010	Fugitive Dust	Daily visual observations when site is open
006	Industrial Waste Solidification Process	Fugitive emissions	401 KAR 63:010	Waste Volumes	Monthly gallons/tons of each industrial waste added, HAPs emissions based on rolling 12-month basis
007	1200 Gallon Gasoline Storage Tank & Dispensing	HAPs	40 CFR 63 Subpart CCCCCC	Gasoline Volumes	Monitor annual gasoline throughput in gallons

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
001a	Open Flare	Visual Emissions	401 KAR 63:015	Visible Emissions	Keep records of weekly VE observations
001a	Open Flare	N/A	40 CFR 63 Subpart AAAAA	Flow and Flame Presence	Record flow and flame presence every 15 minutes
004	MSW Landfill	NMOC	40 CFR 63 Subpart AAAAA	NMOC	Wellhead readings and surface monitoring (electronic)
003 & 005	Paved & Unpaved Haul Roads, Site Construction	Fugitive PM	401 KAR 63:010	Fugitive Dust	Keep records of daily fugitive dust observations
006	Industrial Waste Solidification Process	Fugitive emissions	401 KAR 63:010	Waste Volumes	Maintain records of monthly gallons/tons of each industrial waste added, HAPs emissions based on rolling 12-month basis
007	1200 Gallon Gasoline Storage Tank & Dispensing	HAPs	401 KAR 63:002, 40 CFR 63.11110 to 63.11132 Subpart CCCCCC	Gasoline Volumes	Maintain records of gasoline throughput, provide to Administrator within 24 hours of request

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
001a	Open Flare	Visible Emissions	401 KAR 63:015	Visible Emissions	Semiannual Title 5 Operating Report
001a	Open Flare	N/A	40 CFR 63 Subpart AAAA	Flow and Flame Presence	Semiannual Title 5 Operating Report & Semiannual NESHAP Report
004	MSW Landfill	NMOC	40 CFR 63 Subpart AAAA	NMOC	Semiannual Title 5 Operating Report & Semiannual NESHAP Report
003 & 005	Paved & Unpaved Haul Roads, Site Construction	Fugitive PM	401 KAR 63:010	Fugitive Dust	Semiannual Title 5 Operating Report
006	Industrial Waste Solidification Process	Fugitive emissions	401 KAR 63:010	Monthly Rolling HAPs emissions	Semiannual Title 5 Operating Report
007	1200 Gallon Gasoline Storage Tank & Dispensing	HAPs	40 CFR 63 Subpart CCCCCC	None	Semiannual Title 5 Operating Report
ALL	ALL	ALL	401 KAR 52:020	ALL	Annual Emissions Report
004	MSW Landfill	N/A	40 CFR 62 Subpart 000	Liquid volumes recirculated	Annual Liquid Additions Report

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
001a	Open Flare	NMOC	40 CFR 60.18 & 40 CFR 63.11	VE, Exit Velocity, Net Heating Value	One-time initial performance test using EPA Method 22, a calibrated flow meter, and, EPA Method 3
004	MSW Landfill	Sulfur	401 KAR 50:045	Sulfur	Collect annual sulfur sample for lab analysis. Conduct stain tube analysis quarterly for sulfur content.
003 & 005	Paved & Unpaved Haul Roads, Site Construction	Fugitive PM	401 KAR 63:010	None	
006	Industrial Waste Solidification Process	Fugitive emissions	401 KAR 63:010	None	
007	1200 Gallon Gasoline Storage Tank & Dispensing	HAPs	40 CFR 63 Subpart CCCCCC	None	

Section V.6: Notes, Comments, and Explanations

DEP FORM 7007CC

Division for Air
Quality

Submit to the
Regional Office
identified in your
permit

DEP7007CC

Compliance Certification

- ☐ Section CC.1: Source Information
☐ Section CC.2: Signature Block
☐ Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit
☐ Section CC.4: Notes, Comments, and Explanations

Section CC.1: Source Information

1) Source Name Ohio County Balefill		2) Agency Interest (AI) ID 3306
3) Source Location Address (street, city, state, zip) 100 Landfill Lane Road, Beaver Dam, KY		
4) Technical Contact (name, e-mail, phone #) Branham Lafferty, BLafferty@republicservices.com, (618) 936-4379		
5) Permit Number(s) V-18-042	6) County Ohio	7) KY EIS (AFS) # 21- 183-00086
8) Submittal Information Are you certifying any requirement(s) as "not in continuous compliance?" ☐ Yes ☒ No What is the reporting period? <u>mm/</u> <u>N/A</u> <u>dd/</u> <u>yy</u> TO <u>mm/</u> <u>N/A</u> <u>dd/</u> <u>yy</u>		

Section CC.2: Signature Block

9) CERTIFICATION SIGNATURE

I, THE UNDERSIGNED, HEREBY CERTIFY UNDER PENALTY OF LAW, THAT I AM A RESPONSIBLE OFFICIAL, AND THAT I HAVE PERSONALLY EXAMINED, AND AM FAMILIAR WITH, THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ITS ATTACHMENTS. BASED ON MY INQUIRY OF THOSE INDIVIDUALS WITH PRIMARY RESPONSIBILITY FOR OBTAINING THE INFORMATION, I CERTIFY THAT THE STATEMENTS AND INFORMATION IS ON KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE OR INCOMPLETE INFORMATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT.

BY:


AUTHORIZED SIGNATURE

Branham R. Lafferty
TYPED OR PRINTED NAME OF SIGNATORY

6/28/23

DATE

Environmental Manager
TITLE OF SIGNATORY

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
004	Section B, Condition 1.a.A. - B., 1.d, 1.h-j (Operating Limitations/Compliance Demonstration), 40 CFR 60.752(b), 60.755(b) & 60.759(a) & (b)	Municipal Solid Waste (MSW) Landfill	Design gas system to meet NSPS criteria; install wells in areas requiring control; calculate max gas flow rate	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 1.a.C & D, 1.e, 1.f, 3.a & b., 4.a & c .i - iii, 5.e (Op Limit/Comp Demon., Testing, Monitoring Reqmts, Records), 40 CFR 60.753, 60.755 & 60.758	Landfill Gas Collection System	Monitor all wells monthly for pressure, O2 or N2, temp. w/allowable methods. Correct exceedances. Keep records.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 1.b.i & c (Operating Limitations), 40 CFR 60.752(b), 60.753, 60.755 & 60.756	Landfill Gas Open Flare and Gas Collection System	Control collected gas w/ open flare, encl. comb. or treat. syst. Operate in accordance w/NSPS	Reported annually in emissions report	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, 1.g, 7.a, b, e & h (Operating Limits/Control Equipment), 40 CFR 60.753(e) & (f) & 60.755(e)	Landfill Gas Open Flare	NSPS applies at all times except during SSM events. Operate with flame present; close valves within 1 hour if flare inoperable	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 1.k (Operating Limitations), 40 CFR 61.154	Municipal Solid Waste (MSW) Landfill	Cover asbestos waste w/6 in. non-asbestos material by end of working day	None	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 1.l & 5.j (Operating Limitations, recordkeeping), 40 CFR 63.6, 63.1960	Municipal Solid Waste (MSW) Landfill	Develop a written Startup, Shutdown and Malfunction Plan; maintain on site.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
004	Section B, Condition 1.m (Operating Limitations), 40 CFR 60 Subpart XXX	Municipal Solid Waste (MSW) Landfill	Obtain air permit incorporating Subpart XXX requirements if site expands landfill	N/A	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 2.a, 3.e & f, 4.d (Emissions Limits, Testing, Monitoring Reqmts), 40 CFR 60.753(d), 60.755(c)	Municipal Solid Waste (MSW) Landfill	Surface CH ₄ ems < 500 ppm except during SSM events. Monitor quarterly, follow Method 21 procedures	<500 ppm	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 2.b & 3.g (Emissions Limits, Testing), 40 CFR 60 Subpart WWW, 40 CFR 60.18	Landfill Gas Open Flare	No VE except for 5 minutes in 2 hours	None observed during Initial NSPS Performance Test	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 2.c, 4.f & 5.l (Emissions Limits, Monitoring & Recordkeeping), 401 KAR 63:015 Section 3	Landfill Gas Open Flare	Flare PM < 20% opacity except for 3 minutes/day; Weekly VE Survey; Method 9 if VE detected > limits	None observed	N/A - Title 5 Air Operating Permit Renewal Application
N/A	Section B, Condition 1.b.ii-iii, 3.c, 7.d (Operational Limits, Testing, Control Equipment), 40 CFR 60.752(b)(2)(iii)(b) & (c)	LFG Enclosed Combustor & Treatment Systems or Other Control Equipment	Control System D.E. 98% or NMOC Outlet Concentration < 20 ppm as hexane, 3% O ₂ , or Other	N/A	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 3.d, h & 7.f (Testing, Control Equip.), 40 CFR 60 Subpart WWW, 40 CFR 60.18	Landfill Gas Open Flare	Calculate net heating value of gas using Method 3C, three samples over 1/2 hour	N/A - net heating value was greater than required minimum value	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
001a	Section B, Condition 3.i, j & 7.f (Testing, Control Equip.), 40 CFR 60 Subpart WWW, 40 CFR 60.18	Landfill Gas Open Flare	Calculate exit velocity; maximum cannot exceed limits of 40 CFR 60.18	N/A - exit velocity met 60.18 requirements	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 3.k, 6.k & 6.l (Testing & Reporting), 401 KAR 50:045	Municipal Solid Waste (MSW) Landfill	Sample for H ₂ S quarterly with stain tubes & annual with analytical samples (3) - Submit results	N/A	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 3.l (Testing)	Municipal Solid Waste (MSW) Landfill	Notify appropriate field agency 5 days prior to performing a surface scan.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
All	Section B, Condition 3.m (Testing)	All	Conduct Performance Testing required by Division using reference methods in 401 KAR 50:015.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 4.b (Monitoring), 40 CFR 60.755(c)(5)	Municipal Solid Waste (MSW) Landfill	Conduct monthly cover integrity monitoring & implement repairs as needed	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 4.e & 5.k (Monitoring & Recordkeeping)	Municipal Solid Waste (MSW) Landfill	Measure liquid levels quarterly in all gas wells; maintain records & calculations as specified in permit	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit

Emission Units in Continuous Compliance

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
004	Section B, Condition 5.a. & b.i (Specific Recordkeeping Requirements), 40 CFR 60.758(a) & (b)	Municipal Solid Waste (MSW) Landfill	Maintain design capacity, solid waste, well density, performance test, control specifications	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Conditions 5.b.ii, c.ii, 7.c.i, 7.i (Recordkeeping, Control Equip), 40 CFR 60.758(b)(4), 60.756(b) & (c)	Landfill Gas Open Flare	Use heat sensing device to detect flame, keep records of flame presence	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 5.b.ii, c.i, 7.c.ii (Recordkeeping, Control Equip), 40 CFR 60.758(b)(4), 60.756(b) & (c)	Landfill Gas Open Flare	Install & maintain gas flow device recording flow to control device every 15 minutes; keep records of flow	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 5.d (Recordkeeping), 40 CFR 60.758(d)	Municipal Solid Waste (MSW) Landfill	Keep as-built map of existing and future gas system.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 5.f - h (Recordkeeping), 40 CFR 61.154 & 61.151	Municipal Solid Waste (MSW) Landfill	Maintain WSR for asbestos receipts & map of disposal areas. Comply w/61.151 upon site closure.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 6.a - c (Reporting), 40 CFR 60.756(e), 60.757(a), (b) & (c)	Municipal Solid Waste (MSW) Landfill	Submit Initial Design Capacity, NMOC Reports, alt. op. procedures for systems not meeting 60.759	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
004	Section B, Condition 6.e & j (Reporting), 40 CFR 60.757(f), 40 CFR 63.1980 & 63.10(d)	Municipal Solid Waste (MSW) Landfill	Submit semiannual NSPS, SSM reports & SSM non-procedures	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 6.j.i.2 & 3 (Specific Recordkeeping Requirements), 40 CFR 63.10(d) & 63.1965	Municipal Solid Waste (MSW) Landfill	Deviation if more than one 15 minute data point is missing per hour, or if SSM plan not followed.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 6.f (Reporting), 40 CFR 60.8 & 60.757(g)	Landfill Gas Open Flare	Within 180 days of startup conduct/submit performance test. Include items in test report.	Within required 60.18 limits	N/A - Title 5 Air Operating Permit Renewal Application
004	Section B, Condition 6.g & i (Reporting), 40 CFR 61.154	Municipal Solid Waste (MSW) Landfill	Notify agency of improperly enclosed asbestos, discrepancies; 45 day disturbance.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
001a	Section B, Condition 7.g (Control Equipment), 40 CFR 60.18(d)	Landfill Gas Open Flare	Monitor flare in accordance with 40 CFR 60 Subpart WWW	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
003 & 005	Section B, Condition 1.a & b (Operating Limitations), 401 KAR 63:010	Paved and Unpaved Haul Roads & Site Construction/Operation	Take reasonable precautions to prevent fugitive PM from becoming airborne.	None	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit*Emission Units in Continuous Compliance*

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
003 & 005	Section B, Conditions 2 & 4 (Emissions Limitations, Testing Requirements), 401 KAR 63:010	Paved and Unpaved Haul Roads & Site Construction/Operation	No VE leaving property. Perform VE for dust daily when site is operating	None	N/A - Title 5 Air Operating Permit Renewal Application
003 & 005	Section B, Condition 3 (Testing Requirements), 401 KAR 50:045	Paved and Unpaved Haul Roads & Site Construction/Operation	Conduct performance testing as required by KDEP	None	N/A - Title 5 Air Operating Permit Renewal Application
003 & 005	Section B, Condition 5 (Specific Recordkeeping Requirements), 401 KAR 52:020	Paved and Unpaved Haul Roads & Site Construction/Operation	Maintain log when dust suppression equipment is used; maintain records of VE inspections of lot line.	None	N/A - Title 5 Air Operating Permit Renewal Application
003 & 005	Section B, Condition 7 (Specific Recordkeeping Requirements), 401 KAR 52:020	Paved and Unpaved Haul Roads & Site Construction/Operation	Keep appropriate equipment for dust suppression on site and in working order.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
006	Section B, (Operating Limitations, Specific Monitoring Requirements, Specific Reporting Requirements Conditions 1.a, 4.a.b, 5 and 6) 401 KAR 63:010	Solidification Process	Keep monthly records showing gallons of liquid industrial wastes processed and the pounds of each HAP per gallon	Kept on file - calculated monthly	N/A - Title 5 Air Operating Permit Renewal Application
007	Section B, Conditions 1 - 6, 40 CFR 63.11124	Gasoline Storage Tank	Comply with 40 CFR 63 Subpart CCCCCC	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
ALL	Section D, Source Emission Limitations and Testing Requirements	ALL	Compliance is based on emissions and processing rates for 12 consecutive months	Emissions will be submitted in the annual inventory.	N/A - Title 5 Air Operating Permit Renewal Application
All	Section E - Source Control Equipment Requirements	All emission units	Maintain affected facility & pollution control equipment to minimize emissions	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
General	Section F, Conditions 1-4, 7 & 8, KAR 52:020	All emission units	Recordkeeping, agency inspection requirements & emissions exceedance notifications	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
General	Section F, Conditions 5 & 6, KAR 52:020	All emission units	Submission of semi-annual and annual reports	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
General	Section F, Condition 9, KAR 52:020	All emission units	Submission of Annual Compliance Certification	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
General	Section F, Condition 10, 401 KAR 52:020	All emission units	Submit annual emission report	As indicated on the annual report	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units in Continuous Compliance***

10a) Emission Units in Continuous Compliance. *The following emission units were in continuous compliance with each permit term or condition(s) and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or requirement	Actual Emissions or status of requirement	The method used for determining compliance over the reporting period, and whether the method provided continuous or intermittent data. (such as test methods, monitoring procedures, recordkeeping and reporting)
General	Section G, Multiple requirements	All emission units	General Reqmnt's for permit modification, reopening, renewal, source testing, ozone & risk management regs	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Section H, Multiple requirements	Municipal Solid Waste (MSW) Landfill	Alternate Operating Scenarios	None	N/A - Title 5 Air Operating Permit Renewal Application
004	Updates to Landfill NESHAP (40 CFR 63 Subpart AAAA) effective 9/27/21	Municipal Solid Waste (MSW) Landfill	Multiple - permit will be updated during next renewal cycle.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application
004	Landfill Federal Plan (40 CFR 62 Subpart OOO) effective 6/21/21	Municipal Solid Waste (MSW) Landfill	Multiple - permit will be updated during next renewal cycle.	Not Applicable	N/A - Title 5 Air Operating Permit Renewal Application

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units Subject to Future Compliance Dates***

10b) Emission Units Subject to Future Compliance Dates. *The following emission units will achieve compliance on a timely basis and maintain compliance with future compliance dates as they become applicable during the permit term. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Future Compliance Schedule	Emission Unit Description	Reason for Future Compliance Date
004	Section B, Condition 6.d (Reporting), 40 CFR 60.757: Submit closure report within 30 days of waste cessation	Municipal Solid Waste (MSW) Landfill	This condition only becomes applicable upon closure of the landfill, which did not occur during the reporting time frame. Note that closure report requirements are now found under both the revised Landfill NESHAP and the Federal Plan.
004	Section B, Condition 6.h (Reporting), 40 CFR 61.154: submit copy of records of asbestos disposal location to Agency upon closure of landfill	Municipal Solid Waste (MSW) Landfill	This condition only becomes applicable upon closure of the landfill, which did not occur during the reporting time frame.
004	Section H, Alternate Operating Scenario 1, 40 CFR 60.757: Submit equipment removal report once NMOC < 50 Mg/year	Municipal Solid Waste (MSW) Landfill	This condition only becomes applicable upon closure of the landfill, and demonstration that NMOC emissions have been reduced to less than 50 Mg/year through specified testing. Note: The Federal Plan (40 CFR 62 Subpart OOO) which became applicable to the facility on 6/21/2021 has a lower threshold of 34 mg/year NMOC to remove controls permanently.

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units Not in Continuous Compliance***

10c)(1) Emission Units Not in Continuous Compliance. *The following emission units were not in continuous compliance with each permit term or condition and applicable requirements listed here, such as emission standards, emission control requirements, emission testing, court requirements, work practices, or enhanced monitoring, based on the compliance methods specified below. If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Permit Term, Condition, or Applicable Regulation	Emission Unit Description	Permit Limit or Requirement	Actual Emissions or Status of Requirement	The method used for determining compliance over the reporting period, and whether compliance was continuous or intermittent. (such as test methods, monitoring procedures, recordkeeping and reporting)
N/A					This form is being submitted to complete the facility's air operating permit renewal application (Title 5)

Section CC.3: Identification of Emission Units & Each Term or Condition of the Permit***Emission Units Not in Continuous Compliance (continued)***

10c)(2) Emission Units Not in Continuous Compliance. *For the emission units and requirements listed in 10c)(1) that were not in continuous compliance since the last reporting period, state the duration, magnitude, and reason or reasons for non-compliance. Each row of 10c)(2) must relate to the corresponding row of 10c)(1). If additional space is required, reproduce this page as needed.*

Emission Unit/Permit ID#	Description of duration, magnitude, and reason(s) for non-compliance and corrective steps taken or planned.
N/A	This form is being submitted to complete the facility's air operating permit renewal application (Title 5)

Section CC.4: Notes, Comments, and Explanations

DEP FORM 7007DD

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007DD**Insignificant Activities**

___ Section DD.1: Table of Insignificant Activities

___ Section DD.2: Signature Block

___ Section DD.3: Notes, Comments, and Explanations

Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023

Section DD.1: Table of Insignificant Activities

*Identify each activity with a unique Insignificant Activity number (IA #); for example: 1, 2, 3... etc.

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
1 & 2	Two (2) Leachate tanks (30,000 gallons each)		None	
3	Leachate tank (250,000 gallons)		None	
4	Diesel storage tank (800 gallons)		None	
5	Diesel storage tank (4,000 gallons)		None	
6	Diesel storage tank (10,000 gallons)		None	

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
7, 8 & 9	Three (3) Propane tanks (100 gallons each)		None	
10 & 11	Two (2) Propane tanks (500 gallons each)		None	
12	Parts washer		None	
13	Petroleum Contaminated Soils for ADC		None	
14	Diesel storage tank (4,000 gallons)		None	
	Two Pressure Washers		None	
	Spray Painting		None	
	Water Pump (4")		None	
	Three (3) torpedo heaters (kerosene)		None	
	Oil tanks: No./Size (gallons)	Used oil (1/250), Hydraulic oil (2/275), Motor oil (2/275), Transmission fluid (2/275), Various 55 gallon drum storage - oils, antifreeze and leachate defoamer	None	
	Propane heaters	Two (2) - 0.077 mmbtu/hr, Two (2) - 0.025 mmbtu/hr	None	

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
Section DD.2: Signature Block				
I, THE UNDERSIGNED, HEREBY CERTIFY UNDER PENALTY OF LAW, THAT I AM A RESPONSIBLE OFFICIAL, AND THAT I HAVE PERSONALLY EXAMINED, AND AM FAMILIAR WITH, THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ITS ATTACHMENTS. BASED ON MY INQUIRY OF THOSE INDIVIDUALS WITH PRIMARY RESPONSIBILITY FOR OBTAINING THE INFORMATION, I CERTIFY THAT THE INFORMATION IS ON KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE OR INCOMPLETE INFORMATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT.				
By:		 Authorized Signature	<u>6/28/23</u> Date	
		<u>Branham Lafferty</u> Type/Print Name of Signatory	<u>Environmental Manager</u> Title of Signatory	

Section DD.3: Notes, Comments, and Explanations

DEP FORM 7007GG

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007GG

Control Equipment

Additional Documentation

- ___ Complete Sections GG.1 through GG.12, as applicable
- ___ Attach manufacturer's specifications for each control device
- ___ Complete DEP7007AI

Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023

Section GG.1: General Information - Control Equipment

Control Device ID #	Control Device Name	Cost	Manufacturer	Model Name/ Serial #	Date Installed	Inlet Gas Stream Data For <u>All</u> Control Devices					Inlet Gas Stream Data For Condensers, Adsorbers, Afterburners, Incinerators, Oxidizers <u>Only</u>			Equipment Operational Data For <u>All</u> Control Devices		
						Temperature ($^{\circ}F$)	Flowrate (scfm @ 68 $^{\circ}F$)	Average Particle Diameter (μm)	Particle Density (lb/ft ³) or Specific Gravity	Gas Density (lb/ft ³)	Gas Moisture Content (%)	Gas Composition	Fan Type	Pressure Drop Range (in. H ₂ O)	Pollutants Collected/ Controlled	Pollutant Removal (%)
001a	Open Flare		John Zink		2014	1200	3000	N/A	N/A	0.0744				1 - 10 in. H ₂ O	NMOC, CH ₄	98%

Section GG.2: Flare Source Information

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Flare	Type of Flare (e.g. steam-assisted, air- assisted, nonassisted)	Process Gas Flowrate (<i>acfm</i>)	Net Heating Value of Stream(s) (Btu/scf)	Removal Efficiency (%)	Flare Rated Capacity (<i>MMBtu/hr</i>)
004	Emissions Unit 004 - MSW Landfill	Non-assisted	3000	480.5 BTU/scf	98% (Methane, NMOC)	81.8

Section GG.3: Cyclone

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Cyclone	Identify Number of Cyclones: Single <u>or</u> Multiple	Identify Type: High-Efficiency, Conventional, <u>or</u> High-Throughput	Inlet Height (ft)	Inlet Width (ft)	Bottom Cone Height (ft)	Body Height (ft)	Body Diameter (ft)	Dust Outlet Tube Diameter (ft)	Gas Outlet Tube Diameter (ft)	Vortex Finder Height (ft)

Section GG.4: Electrostatic Precipitator (ESP)

[illegible]

Section GG.5: Scrubber																		
Control Device ID #	Identify all Emission Units and Control Devices that Feed to Scrubber	Identify Type of Scrubber: Venturi, Packed Bed, Spray Tower, or Other (specify)	For Venturi Scrubbers:	For Packed Bed Scrubbers:		For Spray Towers:		Identify Type of Flow: Concurrent, Countercurrent, or Crossflow	Length in Direction of Gas Flow (ft)	Cross-Sectional Area (ft ²)	Venturi Throat Velocity (ft/s)	Mist Eliminator			Scrubbing Liquid			
			Identify Throat Type: Fixed or Adjustable	Identify Packing Type	Packing Height (in)	Number of Nozzles	Nozzle Pressure (psig)					Identify Type: Mesh or Vane	Cross-Sectional Area (ft ²)	Pressure Drop (in. H ₂ O)	Chemical Composition	Flowrate (gal/min)	Fresh Liquid Makeup Rate (gal/min)	Describe Disposal Method of Scrubber Effluent

Section GG.6: Filter

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Filter	Identify Type of Filter Unit: Baghouse, Cartridge Collector, or Other (specify)	Identify Type of Filtering Material: Fabric, Paper, Synthetic, or Other (specify)	Total Filter Area (ft ²)	Effective Air-to-Filter Ratio (acfm/ft ²)	Continuous Monitoring Instrumentation (e.g. COMS, BLDS, none)	Additional Materials Introduced into the Control System (e.g. lime, carbon)		Identify Cleaning Method: Shaker, Pulse Air, Reverse Air, Pulse Jet, or Other (specify)	Identify Gas Cooling Method: Ductwork, Heat Exchanger, Bleed-in Air, Water Spray, or Other (specify)	For Ductwork:		For Bleed-in Air:	For Water Spray:
							Material	Injection Rate (lb/hr)			Length (ft)	Diameter (ft)	Flowrate (scfm @ 68°F)	Flowrate (gal/min)

Section GG.7: Afterburner/Incinerator/Oxidizer

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Afterburner/Incinerator/Oxidizer	Identify Type: Afterburner, Incinerator, Oxidizer, or Other (specify)	Number of Burners	Burner Rating (BTU/hr)	Dimensions of Combustion Chamber (specify units)	Residence Time (sec)	Combustion Chamber Temperature (°F)	Type of Catalyst (if applicable)	Type of Heat Exchanger (if applicable)	Auxiliary Fuel							Composition and Quantities of Combusted Waste
										Identify Fuel Type	Higher Heating Value (MMBtu/scf)	Hourly Fuel Usage (scf/hr)	% Sulfur (Maximum)	% Sulfur (Average)	% Ash (Maximum)	% Ash (Average)	

Section GG.8: Adsorber

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Adsorber	Identify Adsorbate	Identify Adsorbent: Activated carbon, Activated alumina, Silica Gel, Synthetic Polymers, Zeolite, or Other (specify)	Dimensions of Each Bed				Type of Regeneration: Replacement, Steam, or Other (specify)	Regeneration Time (minutes)	Method of Regeneration: Alternate Use of Beds, Source Shutdown, or Other (specify)	Time On-line Before Regeneration (minutes)
				Thickness in Direction of Gas Flow (in)	Cross-Sectional Area (in ²)	Weight of Adsorbent per Bed (lb)	Number of Beds				

Section GG.9: Condenser

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Condenser	Identify Type of Condenser: Spray Tower, Jet Ejector, Barometric, Single-Pass Shell-and-Tube, or Multi-Pass Shell-and-Tube (if multi-pass, indicate number of passes)	Identify Type of Coolant: Water, Brine, Liquid Nitrogen, CFC/HFC, or Other (specify)	Coolant Temperature		Coolant Liquid Flowrate (gpm)	Coolant Gas Flowrate (scfm @ 68 °F)	Condensing Surface Area (specify units)	Outlet Gas Temperature (°F)	Outlet Gas Composition
				Inlet (°F)	Outlet (°F)					

Section GG.10: Selective Catalytic Reduction (SCR) / Selective Non-catalytic Reduction (SNCR)

Control Device ID #	Identify all Emission Units and Control Devices that Feed to SCR/SNCR	Type (SCR/SNCR)	Gas Composition	Injection Grid Design (e.g. honeycomb)	Design Temperature Range		Reagent			Maximum Design Ammonia Slip (ppm)	SCR <u>Only</u>			
					Min (°F)	Max (°F)	Type	Injection Rate			Catalyst			
								Min (lb/hr)	Max (lb/hr)		Composition	Volume (ft ³)	Weight (lb)	Replacement Schedule

Section GG.11: Other Control Equipment

Control Device ID #	Identify all Emission Units and Control Devices that Feed to Control Equipment	Type of Control Equipment (provide description and a diagram with dimensions)

Section GG.12: Notes, Comments, and Explanations

DEP FORM 7007HH

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007HH

Haul Roads

_____ Section HH.1: Haul Roads
_____ Section HH.2: Yard Area
_____ Section HH.3: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI, DEP7007N
and DEP7007V

___ SDS for dust suppressant

Source Name: Republic Services of Kentucky, LLC d/b/a Ohio County Balefill

KY EIS (AFS) #: 21- 183-00086

Permit #: V-18-042

Agency Interest (AI) ID: 3306

Date: 6/30/2023

Section HH.1: Haul Roads**HH.1A Unpaved Haul Roads:**

Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 Days

Mean Vehicle Weight (W): 23 Tons

Surface Material Silt Content (s): 6.4 %

Haul Road Length: 2 Miles

Maximum Vehicle Miles Traveled in a Year: 21,739 Miles

Describe the dust control method for unpaved haul road(s):

(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

The site uses a water truck to control emissions on haul roads.

Emission factor:

See Attachment for Form 7007N for emissions factors
used by KDEP for this facility's emissions inventories

HH.1B Paved Haul Roads:

DEP7007HH

Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 DaysMean Vehicle Weight (W): 23 TonsRoad Surface Silt Loading (sL): 7.4 (G/M²)Haul Road Length: 1.12 MilesMaximum Vehicle Miles Traveled in a Year: 12,174 Miles

Describe the dust control method for paved haul road(s):
(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

The site uses a water truck to control emissions on haul roads.

Section HH.2: Yard Area (Aggregate Handling And Storage Piles):Average Number of Days in a Year with 0.01 inches of Precipitation (P): 120 DaysMean Wind Speed (U): 8.0 MPHMaterial Moisture Content (M): 12 %

Describe the dust control method for yard area:
(If dust control suppressants will be utilized, attach the approved Safety Data Sheet(s), as applicable.)

None

Section HH.3: Notes, Comments, and Explanations

LIST OF NON-APPLICABLE REQUIREMENTS

In Section 4 of DEP Form AI (Other Required Information), a space is provided for the applicant to provide the KDEP with a list of non-applicable requirements on a separate attachment, for which the applicant is requesting permit shield coverage. The list below summarizes the requirements which the applicant has identified as non-applicable:

State Regulations Not Applicable to Ohio County Balefill

Per a review of the Kentucky Administrative Regulations for Air Quality, the following state regulations were deemed to be not applicable:

Emission Unit ID No., or activity to which requirement does <u>not</u> apply	Citation	Brief description of requirement	Why the requirement does not apply
All Activities	401 KAR 50:020	Air Quality Control Regions	Not Applicable
All Activities	401 KAR 50:066	Conformity of transportation plans, programs and projects	Not Applicable
All Activities	401 KAR 51:052	Review of new sources in nonattainment areas	Ohio County is in attainment for all criteria pollutants
All Activities	401 KAR 51:150	NOx requirements for stationary internal combustion engines	No emissions unit of this type are at the facility
All Activities	401 KAR 51:160	NOx requirements for large utility and industrial boilers	No emissions unit of this type are at the facility
All Activities	401 KAR 51:170	NOx requirements for cement kilns	No emissions unit of this type are at the facility
All Activities	401 KAR 51:180	NOx credits for early reduction and emergency	Source not subject to NOx SIP Call
All Activities	401 KAR 51:190	Banking and trading NOx Allowances	Source not subject to NOx SIP Call
All Activities	401 KAR 51:195	NOx Opt-In Provisions	Source not subject to NOx Trading Budget program
All Activities	401 KAR 51:210	CAIR NOx Annual Trading Program	No emissions unit of this type are at the facility
All Activities	401 KAR 51:220	CAIR NOx Ozone Season Trading Program	No emissions unit of this type are at the facility
All Activities	401 KAR 51:230	CAIR SO2 Ozone Season Trading Program	No emissions unit of this type are at the facility
All Activities	401 KAR 52:030	Federally enforceable permits for non-major	Source is not eligible for this permit since it is

Emission Unit ID No., or activity to which requirement does <u>not</u> apply	Citation	Brief description of requirement	Why the requirement does not apply
		sources	required to obtain a Title 5 operating permit.
All Activities	401 KAR 52:040	State-origin permits	Source is not eligible for this permit since it is required to obtain a Title 5 operating permit.
All Activities	401 KAR 52:060	Acid Rain Permits	Source is not subject to acid rain permitting.
All Activities	401 KAR 52:070	Registration of designated sources	Source is not eligible for a registration since it is required to obtain a Title 5 operating permit.
All Activities	401 KAR 52:090	Prohibitory rule for hot mix asphalt plants	No emissions unit of this type are at the facility
All Activities	401 KAR 58:005	Accreditation of Asbestos Professionals	Facility does not conduct asbestos abatement operations.
All Activities	401 KAR 58:010	Local Education Agencies	Regulation only applies to local education agencies
All Activities	401 KAR 58:040	Requirements for Asbestos Abatement Entities	Facility does not conduct asbestos abatement operations.
All Activities	401 KAR 59:001 – 760	New Source Standards	Different source category
All Activities	401 KAR 61:001 – 175	Existing Source Standards	Different source category
All Activities	401 KAR 63:025	Asphalt Paving Operations	No emissions unit of this type are at the facility
All Activities	401 KAR 63:031	Leaks from Gasoline Tank Trucks	No emissions unit of this type are at the facility
All Activities	401 KAR 65	Mobile Source Related Emissions	Stationary Source
All Activities	401 KAR 68	Chemical Accident Prevention	Source does not store chemicals in quantities which trigger the applicability of 40 CFR Part 68

Federal Regulations Not Applicable to Ohio County Balefill

Per a review of the Code of Federal Regulations, the following federal regulations were deemed to be not applicable:

Unit Ref. No., or activity to which requirement does not apply	Citation	Brief description of requirement	Why the requirement does not apply
All Activities	40 CFR 53	Ambient Air Reference & Equivalent Methods	Part 53 imposes no emissions limits
All Activities	40 CFR 54	Prior notice of citizen suits	Part 54 imposes no emissions limits
All Activities	40 CFR 55	Outer Continental Shelf Regulations	Not subject to OCS regulations
All Activities	40 CFR 56	Regional Consistency	Part 56 imposes no emissions limits
All Activities	40 CFR 57	Primary Nonferrous Smelters	Not a nonferrous smelter
All Activities	40 CFR 58	Ambient Air Quality Surveillance	Part 58 imposes no emissions limits
All Activities	40 CFR 59	National Volatile Organic Compound Emission Standards for Consumer and Commercial Products	No applicable source categories or processes
All Activities	40 CFR 60 – New Source Performance Standards, Subparts Cb – Ce & D – VVV, Subparts AAAA – UUUUa	New Source Performance Standards for multiple source categories	Different source category. For NSPS Subpart Kb, the vapor pressure of leachate (which is mostly comprised of water) in the storage tanks are expected to be below the applicable control threshold.
004 – MSW Landfill	40 CFR 60 Subpart XXX	NSPS for MSW Landfills That Commenced Construction, Reconstruction, or Modification after July 17, 2014	The MSW landfill did not commence construction on a modification after July 17, 2014.
All Activities	40 CFR 61 Subparts B – L, Subparts N – Z, and Subparts AA – FF	National Air Emissions Standards for multiple source categories	Different source category
All Activities	40 CFR 62 Subparts A - LLL	State Plans for Designated Facilities	No applicable Part 62 regulations with the exception of Subpart OOO – Federal Plan (MSW Landfills)
All Activities	40 CFR 63 Subparts B – Z, AA – YY, CCC – XXX, CCCC - YYYY, AAAAA – ZZZZ,	MACT standard for multiple source categories.	Different source category

Unit Ref. No., or activity to which requirement does not apply	Citation	Brief description of requirement	Why the requirement does not apply
	AAAAAA – BBBB, DDDDD – ZZZZZ, and AAAAAA – HHHHHH		
LFG Gas Emissions	40 CFR Part 64	Compliance Assurance Monitoring (CAM)	Compliance Assurance Monitoring (CAM) is not applicable since the source is subject to an NSPS promulgated after November 15, 1990 (Landfill NSPS – 40 CFR 60 Subpart Cf)
All Activities	40 CFR Part 65	Consolidated Federal Air Rule	Not Applicable
All Activities	40 CFR Part 66	Assessment and Collection of Noncompliance Penalties by EPA	Not Applicable
All Activities	40 CFR Part 67	EPA Approval of State Noncompliance Penalty Program	Not Applicable
All Activities	40 CFR Parts 68	Chemical Accident Prevention Provisions	Source does not store chemicals in quantities which trigger the applicability of this regulation.
All Activities	40 CFR Part 69	Special Exemptions from Requirements of the Clean Air Act	No Claimed Exemptions
All Activities	40 CFR Part 71	Federal Operating Permit Program	Source is located in a state delegated to administer the Part 70 permitting program
All Activities	40 CFR Part 72 – 78	Acid Rain Regulations	No emissions unit of this type are at the facility
All Activities	40 CFR Parts 79 – 80, 85 - 88	Fuels Regulations, Vehicular Standards	Not Applicable
All Activities	40 CFR Part 81	Area Designations	Part 81 imposes no emissions limits
All Activities	40 CFR Part 91	Control of emissions from Marine Spark Ignition Engines	Source does not operate marine vessels.
All Activities	40 CFR Part 92	Control of Air Pollution from Locomotives and Locomotive Engines	Source does not operate locomotives or locomotive engines.
All Activities	40 CFR Part 93	Transportation and General Conformity	Not Applicable

Unit Ref. No., or activity to which requirement does not apply	Citation	Brief description of requirement	Why the requirement does not apply
All Activities	40 CFR Part 94	Control of emissions from Marine Compression Ignition Engines	Source does not operate marine vessels.
All Activities	40 CFR Part 95	Mandatory Patent Licenses	Not Applicable
All Activities	40 CFR Part 96 & 97	Federal and State NOX Budget Trading Programs and CAIR Programs	No emissions unit of this type are at the facility

APPENDIX A

Updated Emissions Calculations – Significant Activities

Input Review: Ohio County LF Curve 1

LANDFILL CHARACTERISTICS

Landfill Open Year **1982**
 Landfill Closure Year (with 80-year limit) **2061**

MODEL PARAMETERS

Methane Generation Rate, k **0.040** *year-1*
 Potential Methane Generation Capacity, L0 **100** *m3/Mg*
 NMOC Concentration **600** *ppmv as hexane*
 Methane Content **50** *% by volume*

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
1982	78,173	85,990	0	0
1983	78,153	85,968	78,173	85,990
1984	78,163	85,979	156,326	171,959
1985	78,163	85,979	234,489	257,938
1986	78,263	86,090	312,652	343,918
1987	78,163	85,979	390,916	430,007
1988	78,163	85,979	469,079	515,987
1989	68,343	75,177	547,242	601,966
1990	68,443	75,287	615,584	677,143
1991	68,343	75,177	684,027	752,430
1992	273,771	301,148	752,370	827,607
1993	263,550	289,905	1,026,141	1,128,755
1994	222,239	244,463	1,289,691	1,418,660
1995	258,300	284,130	1,511,930	1,663,123
1996	272,312	299,543	1,770,230	1,947,253
1997	256,850	282,535	2,042,542	2,246,796
1998	286,242	314,866	2,299,392	2,529,331
1999	307,962	338,759	2,585,633	2,844,197
2000	304,527	334,980	2,893,596	3,182,955
2001	240,098	264,107	3,198,122	3,517,935
2002	271,425	298,567	3,438,220	3,782,042
2003	357,260	392,986	3,709,644	4,080,609
2004	346,096	380,706	4,066,905	4,473,595
2005	324,874	357,361	4,413,001	4,854,301
2006	282,909	311,199	4,737,875	5,211,663
2007	291,330	320,463	5,020,784	5,522,862
2008	242,810	267,091	5,312,114	5,843,325
2009	128,635	141,498	5,554,924	6,110,416
2010	229,886	252,875	5,683,559	6,251,914
2011	190,404	209,445	5,913,445	6,504,789
2012	142,247	156,472	6,103,849	6,714,234
2013	122,296	134,526	6,246,096	6,870,706
2014	145,105	159,616	6,368,393	7,005,232
2015	152,096	167,306	6,513,498	7,164,848
2016	173,083	190,391	6,665,595	7,332,154
2017	100,055	110,061	6,838,677	7,522,545

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2018	102,115	112,326	6,938,733	7,632,606
2019	98,241	108,065	7,040,847	7,744,932
2020	86,141	94,756	7,139,088	7,852,997
2021	92,537	101,791	7,225,230	7,947,753
2022	105,868	116,455	7,317,767	8,049,544
2023	227,273	250,000	7,423,635	8,165,998
2024	227,273	250,000	7,650,907	8,415,998
2025	227,273	250,000	7,878,180	8,665,998
2026	227,273	250,000	8,105,453	8,915,998
2027	227,273	250,000	8,332,726	9,165,998
2028	227,273	250,000	8,559,998	9,415,998
2029	227,273	250,000	8,787,271	9,665,998
2030	227,273	250,000	9,014,544	9,915,998
2031	227,273	250,000	9,241,816	10,165,998
2032	227,273	250,000	9,469,089	10,415,998
2033	227,273	250,000	9,696,362	10,665,998
2034	227,273	250,000	9,923,635	10,915,998
2035	227,273	250,000	10,150,907	11,165,998
2036	227,273	250,000	10,378,180	11,415,998
2037	227,273	250,000	10,605,453	11,665,998
2038	227,273	250,000	10,832,726	11,915,998
2039	227,273	250,000	11,059,998	12,165,998
2040	227,273	250,000	11,287,271	12,415,998
2041	227,273	250,000	11,514,544	12,665,998
2042	227,273	250,000	11,741,816	12,915,998
2043	227,273	250,000	11,969,089	13,165,998
2044	227,273	250,000	12,196,362	13,415,998
2045	227,273	250,000	12,423,635	13,665,998
2046	227,273	250,000	12,650,907	13,915,998
2047	227,273	250,000	12,878,180	14,165,998
2048	227,273	250,000	13,105,453	14,415,998
2049	227,273	250,000	13,332,726	14,665,998
2050	227,273	250,000	13,559,998	14,915,998
2051	227,273	250,000	13,787,271	15,165,998
2052	227,273	250,000	14,014,544	15,415,998
2053	227,273	250,000	14,241,816	15,665,998
2054	227,273	250,000	14,469,089	15,915,998
2055	227,273	250,000	14,696,362	16,165,998
2056	227,273	250,000	14,923,635	16,415,998
2057	227,273	250,000	15,150,907	16,665,998
2058	227,273	250,000	15,378,180	16,915,998
2059	227,273	250,000	15,605,453	17,165,998
2060	227,273	250,000	15,832,726	17,415,998
2061	227,273	250,000	16,059,998	17,665,998

Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	7.671E+02	6.143E+05	4.127E+01	2.049E+02	3.071E+05	2.064E+01
1984	1.504E+03	1.204E+06	8.092E+01	4.017E+02	6.021E+05	4.046E+01
1985	2.212E+03	1.771E+06	1.190E+02	5.908E+02	8.856E+05	5.951E+01
1986	2.892E+03	2.316E+06	1.556E+02	7.726E+02	1.158E+06	7.781E+01
1987	3.547E+03	2.840E+06	1.908E+02	9.474E+02	1.420E+06	9.542E+01
1988	4.175E+03	3.343E+06	2.246E+02	1.115E+03	1.671E+06	1.123E+02
1989	4.778E+03	3.826E+06	2.571E+02	1.276E+03	1.913E+06	1.285E+02
1990	5.261E+03	4.213E+06	2.831E+02	1.405E+03	2.107E+06	1.415E+02
1991	5.727E+03	4.586E+06	3.081E+02	1.530E+03	2.293E+06	1.541E+02
1992	6.173E+03	4.943E+06	3.321E+02	1.649E+03	2.471E+06	1.661E+02
1993	8.617E+03	6.900E+06	4.636E+02	2.302E+03	3.450E+06	2.318E+02
1994	1.087E+04	8.701E+06	5.846E+02	2.902E+03	4.350E+06	2.923E+02
1995	1.262E+04	1.011E+07	6.790E+02	3.371E+03	5.053E+06	3.395E+02
1996	1.466E+04	1.174E+07	7.888E+02	3.916E+03	5.870E+06	3.944E+02
1997	1.676E+04	1.342E+07	9.016E+02	4.476E+03	6.709E+06	4.508E+02
1998	1.862E+04	1.491E+07	1.002E+03	4.974E+03	7.455E+06	5.009E+02
1999	2.070E+04	1.658E+07	1.114E+03	5.529E+03	8.288E+06	5.569E+02
2000	2.291E+04	1.835E+07	1.233E+03	6.120E+03	9.173E+06	6.163E+02
2001	2.500E+04	2.002E+07	1.345E+03	6.678E+03	1.001E+07	6.725E+02
2002	2.638E+04	2.112E+07	1.419E+03	7.045E+03	1.056E+07	7.095E+02
2003	2.801E+04	2.243E+07	1.507E+03	7.481E+03	1.121E+07	7.534E+02
2004	3.041E+04	2.435E+07	1.636E+03	8.124E+03	1.218E+07	8.181E+02
2005	3.262E+04	2.612E+07	1.755E+03	8.712E+03	1.306E+07	8.774E+02
2006	3.453E+04	2.765E+07	1.858E+03	9.222E+03	1.382E+07	9.288E+02
2007	3.595E+04	2.879E+07	1.934E+03	9.602E+03	1.439E+07	9.671E+02
2008	3.740E+04	2.995E+07	2.012E+03	9.989E+03	1.497E+07	1.006E+03
2009	3.831E+04	3.068E+07	2.061E+03	1.023E+04	1.534E+07	1.031E+03
2010	3.807E+04	3.049E+07	2.048E+03	1.017E+04	1.524E+07	1.024E+03
2011	3.884E+04	3.110E+07	2.090E+03	1.037E+04	1.555E+07	1.045E+03
2012	3.918E+04	3.138E+07	2.108E+03	1.047E+04	1.569E+07	1.054E+03
2013	3.904E+04	3.126E+07	2.101E+03	1.043E+04	1.563E+07	1.050E+03
2014	3.871E+04	3.100E+07	2.083E+03	1.034E+04	1.550E+07	1.041E+03
2015	3.862E+04	3.092E+07	2.078E+03	1.032E+04	1.546E+07	1.039E+03
2016	3.860E+04	3.091E+07	2.077E+03	1.031E+04	1.545E+07	1.038E+03
2017	3.878E+04	3.105E+07	2.086E+03	1.036E+04	1.553E+07	1.043E+03
2018	3.824E+04	3.062E+07	2.058E+03	1.021E+04	1.531E+07	1.029E+03
2019	3.774E+04	3.022E+07	2.031E+03	1.008E+04	1.511E+07	1.015E+03
2020	3.723E+04	2.981E+07	2.003E+03	9.944E+03	1.491E+07	1.001E+03
2021	3.661E+04	2.932E+07	1.970E+03	9.780E+03	1.466E+07	9.850E+02
2022	3.609E+04	2.890E+07	1.942E+03	9.639E+03	1.445E+07	9.708E+02
2023	3.571E+04	2.860E+07	1.921E+03	9.539E+03	1.430E+07	9.607E+02
2024	3.654E+04	2.926E+07	1.966E+03	9.760E+03	1.463E+07	9.830E+02
2025	3.734E+04	2.990E+07	2.009E+03	9.973E+03	1.495E+07	1.004E+03
2026	3.810E+04	3.051E+07	2.050E+03	1.018E+04	1.526E+07	1.025E+03
2027	3.884E+04	3.110E+07	2.090E+03	1.037E+04	1.555E+07	1.045E+03
2028	3.955E+04	3.167E+07	2.128E+03	1.056E+04	1.583E+07	1.064E+03
2029	4.023E+04	3.221E+07	2.164E+03	1.075E+04	1.611E+07	1.082E+03
2030	4.088E+04	3.273E+07	2.199E+03	1.092E+04	1.637E+07	1.100E+03
2031	4.151E+04	3.324E+07	2.233E+03	1.109E+04	1.662E+07	1.117E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2032	4.211E+04	3.372E+07	2.266E+03	1.125E+04	1.686E+07	1.133E+03
2033	4.269E+04	3.418E+07	2.297E+03	1.140E+04	1.709E+07	1.148E+03
2034	4.325E+04	3.463E+07	2.327E+03	1.155E+04	1.731E+07	1.163E+03
2035	4.378E+04	3.506E+07	2.355E+03	1.169E+04	1.753E+07	1.178E+03
2036	4.429E+04	3.547E+07	2.383E+03	1.183E+04	1.773E+07	1.192E+03
2037	4.479E+04	3.586E+07	2.410E+03	1.196E+04	1.793E+07	1.205E+03
2038	4.526E+04	3.624E+07	2.435E+03	1.209E+04	1.812E+07	1.218E+03
2039	4.572E+04	3.661E+07	2.460E+03	1.221E+04	1.830E+07	1.230E+03
2040	4.615E+04	3.696E+07	2.483E+03	1.233E+04	1.848E+07	1.242E+03
2041	4.657E+04	3.729E+07	2.506E+03	1.244E+04	1.865E+07	1.253E+03
2042	4.698E+04	3.762E+07	2.528E+03	1.255E+04	1.881E+07	1.264E+03
2043	4.737E+04	3.793E+07	2.548E+03	1.265E+04	1.896E+07	1.274E+03
2044	4.774E+04	3.823E+07	2.569E+03	1.275E+04	1.911E+07	1.284E+03
2045	4.810E+04	3.851E+07	2.588E+03	1.285E+04	1.926E+07	1.294E+03
2046	4.844E+04	3.879E+07	2.606E+03	1.294E+04	1.940E+07	1.303E+03
2047	4.877E+04	3.906E+07	2.624E+03	1.303E+04	1.953E+07	1.312E+03
2048	4.909E+04	3.931E+07	2.641E+03	1.311E+04	1.965E+07	1.321E+03
2049	4.940E+04	3.955E+07	2.658E+03	1.319E+04	1.978E+07	1.329E+03
2050	4.969E+04	3.979E+07	2.673E+03	1.327E+04	1.989E+07	1.337E+03
2051	4.997E+04	4.001E+07	2.689E+03	1.335E+04	2.001E+07	1.344E+03
2052	5.024E+04	4.023E+07	2.703E+03	1.342E+04	2.012E+07	1.352E+03
2053	5.050E+04	4.044E+07	2.717E+03	1.349E+04	2.022E+07	1.359E+03
2054	5.075E+04	4.064E+07	2.731E+03	1.356E+04	2.032E+07	1.365E+03
2055	5.099E+04	4.083E+07	2.744E+03	1.362E+04	2.042E+07	1.372E+03
2056	5.122E+04	4.102E+07	2.756E+03	1.368E+04	2.051E+07	1.378E+03
2057	5.145E+04	4.120E+07	2.768E+03	1.374E+04	2.060E+07	1.384E+03
2058	5.166E+04	4.137E+07	2.779E+03	1.380E+04	2.068E+07	1.390E+03
2059	5.186E+04	4.153E+07	2.790E+03	1.385E+04	2.076E+07	1.395E+03
2060	5.206E+04	4.169E+07	2.801E+03	1.391E+04	2.084E+07	1.400E+03
2061	5.225E+04	4.184E+07	2.811E+03	1.396E+04	2.092E+07	1.406E+03
2062	5.243E+04	4.198E+07	2.821E+03	1.400E+04	2.099E+07	1.410E+03
2063	5.037E+04	4.034E+07	2.710E+03	1.346E+04	2.017E+07	1.355E+03
2064	4.840E+04	3.876E+07	2.604E+03	1.293E+04	1.938E+07	1.302E+03
2065	4.650E+04	3.724E+07	2.502E+03	1.242E+04	1.862E+07	1.251E+03
2066	4.468E+04	3.578E+07	2.404E+03	1.193E+04	1.789E+07	1.202E+03
2067	4.293E+04	3.437E+07	2.310E+03	1.147E+04	1.719E+07	1.155E+03
2068	4.124E+04	3.303E+07	2.219E+03	1.102E+04	1.651E+07	1.109E+03
2069	3.963E+04	3.173E+07	2.132E+03	1.058E+04	1.587E+07	1.066E+03
2070	3.807E+04	3.049E+07	2.048E+03	1.017E+04	1.524E+07	1.024E+03
2071	3.658E+04	2.929E+07	1.968E+03	9.771E+03	1.465E+07	9.840E+02
2072	3.514E+04	2.814E+07	1.891E+03	9.388E+03	1.407E+07	9.454E+02
2073	3.377E+04	2.704E+07	1.817E+03	9.020E+03	1.352E+07	9.084E+02
2074	3.244E+04	2.598E+07	1.746E+03	8.666E+03	1.299E+07	8.728E+02
2075	3.117E+04	2.496E+07	1.677E+03	8.326E+03	1.248E+07	8.385E+02
2076	2.995E+04	2.398E+07	1.611E+03	8.000E+03	1.199E+07	8.057E+02
2077	2.877E+04	2.304E+07	1.548E+03	7.686E+03	1.152E+07	7.741E+02
2078	2.765E+04	2.214E+07	1.487E+03	7.385E+03	1.107E+07	7.437E+02
2079	2.656E+04	2.127E+07	1.429E+03	7.095E+03	1.063E+07	7.146E+02
2080	2.552E+04	2.044E+07	1.373E+03	6.817E+03	1.022E+07	6.865E+02
2081	2.452E+04	1.963E+07	1.319E+03	6.550E+03	9.817E+06	6.596E+02
2082	2.356E+04	1.886E+07	1.268E+03	6.293E+03	9.432E+06	6.338E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2083	2.263E+04	1.812E+07	1.218E+03	6.046E+03	9.062E+06	6.089E+02
2084	2.175E+04	1.741E+07	1.170E+03	5.809E+03	8.707E+06	5.850E+02
2085	2.089E+04	1.673E+07	1.124E+03	5.581E+03	8.366E+06	5.621E+02
2086	2.008E+04	1.608E+07	1.080E+03	5.362E+03	8.038E+06	5.400E+02
2087	1.929E+04	1.544E+07	1.038E+03	5.152E+03	7.722E+06	5.189E+02
2088	1.853E+04	1.484E+07	9.971E+02	4.950E+03	7.420E+06	4.985E+02
2089	1.781E+04	1.426E+07	9.580E+02	4.756E+03	7.129E+06	4.790E+02
2090	1.711E+04	1.370E+07	9.204E+02	4.569E+03	6.849E+06	4.602E+02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
1982	0	0	0	0	0	0
1983	5.622E+02	3.071E+05	2.064E+01	1.321E+00	3.686E+02	2.476E-02
1984	1.102E+03	6.021E+05	4.046E+01	2.590E+00	7.226E+02	4.855E-02
1985	1.621E+03	8.856E+05	5.951E+01	3.809E+00	1.063E+03	7.141E-02
1986	2.120E+03	1.158E+06	7.781E+01	4.981E+00	1.390E+03	9.337E-02
1987	2.599E+03	1.420E+06	9.542E+01	6.108E+00	1.704E+03	1.145E-01
1988	3.060E+03	1.671E+06	1.123E+02	7.190E+00	2.006E+03	1.348E-01
1989	3.502E+03	1.913E+06	1.285E+02	8.229E+00	2.296E+03	1.542E-01
1990	3.856E+03	2.107E+06	1.415E+02	9.061E+00	2.528E+03	1.698E-01
1991	4.197E+03	2.293E+06	1.541E+02	9.862E+00	2.751E+03	1.849E-01
1992	4.524E+03	2.471E+06	1.661E+02	1.063E+01	2.966E+03	1.993E-01
1993	6.316E+03	3.450E+06	2.318E+02	1.484E+01	4.140E+03	2.782E-01
1994	7.963E+03	4.350E+06	2.923E+02	1.871E+01	5.220E+03	3.508E-01
1995	9.249E+03	5.053E+06	3.395E+02	2.173E+01	6.064E+03	4.074E-01
1996	1.074E+04	5.870E+06	3.944E+02	2.525E+01	7.044E+03	4.733E-01
1997	1.228E+04	6.709E+06	4.508E+02	2.886E+01	8.051E+03	5.410E-01
1998	1.365E+04	7.455E+06	5.009E+02	3.207E+01	8.947E+03	6.011E-01
1999	1.517E+04	8.288E+06	5.569E+02	3.565E+01	9.945E+03	6.682E-01
2000	1.679E+04	9.173E+06	6.163E+02	3.946E+01	1.101E+04	7.396E-01
2001	1.832E+04	1.001E+07	6.725E+02	4.305E+01	1.201E+04	8.070E-01
2002	1.933E+04	1.056E+07	7.095E+02	4.542E+01	1.267E+04	8.515E-01
2003	2.052E+04	1.121E+07	7.534E+02	4.823E+01	1.346E+04	9.041E-01
2004	2.229E+04	1.218E+07	8.181E+02	5.238E+01	1.461E+04	9.818E-01
2005	2.390E+04	1.306E+07	8.774E+02	5.617E+01	1.567E+04	1.053E+00
2006	2.530E+04	1.382E+07	9.288E+02	5.946E+01	1.659E+04	1.115E+00
2007	2.635E+04	1.439E+07	9.671E+02	6.191E+01	1.727E+04	1.160E+00
2008	2.741E+04	1.497E+07	1.006E+03	6.440E+01	1.797E+04	1.207E+00
2009	2.808E+04	1.534E+07	1.031E+03	6.598E+01	1.841E+04	1.237E+00
2010	2.790E+04	1.524E+07	1.024E+03	6.557E+01	1.829E+04	1.229E+00
2011	2.846E+04	1.555E+07	1.045E+03	6.688E+01	1.866E+04	1.254E+00
2012	2.872E+04	1.569E+07	1.054E+03	6.748E+01	1.883E+04	1.265E+00
2013	2.861E+04	1.563E+07	1.050E+03	6.724E+01	1.876E+04	1.260E+00
2014	2.837E+04	1.550E+07	1.041E+03	6.667E+01	1.860E+04	1.250E+00
2015	2.830E+04	1.546E+07	1.039E+03	6.651E+01	1.855E+04	1.247E+00
2016	2.829E+04	1.545E+07	1.038E+03	6.647E+01	1.854E+04	1.246E+00
2017	2.842E+04	1.553E+07	1.043E+03	6.679E+01	1.863E+04	1.252E+00
2018	2.803E+04	1.531E+07	1.029E+03	6.586E+01	1.837E+04	1.235E+00
2019	2.766E+04	1.511E+07	1.015E+03	6.500E+01	1.813E+04	1.218E+00
2020	2.728E+04	1.491E+07	1.001E+03	6.411E+01	1.789E+04	1.202E+00
2021	2.683E+04	1.466E+07	9.850E+02	6.306E+01	1.759E+04	1.182E+00
2022	2.645E+04	1.445E+07	9.708E+02	6.215E+01	1.734E+04	1.165E+00
2023	2.617E+04	1.430E+07	9.607E+02	6.150E+01	1.716E+04	1.153E+00
2024	2.678E+04	1.463E+07	9.830E+02	6.293E+01	1.756E+04	1.180E+00
2025	2.736E+04	1.495E+07	1.004E+03	6.430E+01	1.794E+04	1.205E+00
2026	2.793E+04	1.526E+07	1.025E+03	6.562E+01	1.831E+04	1.230E+00
2027	2.847E+04	1.555E+07	1.045E+03	6.689E+01	1.866E+04	1.254E+00
2028	2.898E+04	1.583E+07	1.064E+03	6.811E+01	1.900E+04	1.277E+00
2029	2.948E+04	1.611E+07	1.082E+03	6.928E+01	1.933E+04	1.299E+00
2030	2.996E+04	1.637E+07	1.100E+03	7.040E+01	1.964E+04	1.320E+00
2031	3.042E+04	1.662E+07	1.117E+03	7.148E+01	1.994E+04	1.340E+00

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2032	3.086E+04	1.686E+07	1.133E+03	7.252E+01	2.023E+04	1.359E+00
2033	3.129E+04	1.709E+07	1.148E+03	7.352E+01	2.051E+04	1.378E+00
2034	3.169E+04	1.731E+07	1.163E+03	7.448E+01	2.078E+04	1.396E+00
2035	3.209E+04	1.753E+07	1.178E+03	7.540E+01	2.103E+04	1.413E+00
2036	3.246E+04	1.773E+07	1.192E+03	7.628E+01	2.128E+04	1.430E+00
2037	3.282E+04	1.793E+07	1.205E+03	7.713E+01	2.152E+04	1.446E+00
2038	3.317E+04	1.812E+07	1.218E+03	7.795E+01	2.175E+04	1.461E+00
2039	3.351E+04	1.830E+07	1.230E+03	7.873E+01	2.196E+04	1.476E+00
2040	3.383E+04	1.848E+07	1.242E+03	7.949E+01	2.217E+04	1.490E+00
2041	3.413E+04	1.865E+07	1.253E+03	8.021E+01	2.238E+04	1.504E+00
2042	3.443E+04	1.881E+07	1.264E+03	8.091E+01	2.257E+04	1.517E+00
2043	3.471E+04	1.896E+07	1.274E+03	8.157E+01	2.276E+04	1.529E+00
2044	3.499E+04	1.911E+07	1.284E+03	8.222E+01	2.294E+04	1.541E+00
2045	3.525E+04	1.926E+07	1.294E+03	8.283E+01	2.311E+04	1.553E+00
2046	3.550E+04	1.940E+07	1.303E+03	8.343E+01	2.327E+04	1.564E+00
2047	3.575E+04	1.953E+07	1.312E+03	8.400E+01	2.343E+04	1.574E+00
2048	3.598E+04	1.965E+07	1.321E+03	8.454E+01	2.359E+04	1.585E+00
2049	3.620E+04	1.978E+07	1.329E+03	8.507E+01	2.373E+04	1.595E+00
2050	3.642E+04	1.989E+07	1.337E+03	8.557E+01	2.387E+04	1.604E+00
2051	3.662E+04	2.001E+07	1.344E+03	8.606E+01	2.401E+04	1.613E+00
2052	3.682E+04	2.012E+07	1.352E+03	8.653E+01	2.414E+04	1.622E+00
2053	3.701E+04	2.022E+07	1.359E+03	8.697E+01	2.426E+04	1.630E+00
2054	3.720E+04	2.032E+07	1.365E+03	8.740E+01	2.438E+04	1.638E+00
2055	3.737E+04	2.042E+07	1.372E+03	8.782E+01	2.450E+04	1.646E+00
2056	3.754E+04	2.051E+07	1.378E+03	8.822E+01	2.461E+04	1.654E+00
2057	3.770E+04	2.060E+07	1.384E+03	8.860E+01	2.472E+04	1.661E+00
2058	3.786E+04	2.068E+07	1.390E+03	8.896E+01	2.482E+04	1.668E+00
2059	3.801E+04	2.076E+07	1.395E+03	8.932E+01	2.492E+04	1.674E+00
2060	3.815E+04	2.084E+07	1.400E+03	8.966E+01	2.501E+04	1.681E+00
2061	3.829E+04	2.092E+07	1.406E+03	8.998E+01	2.510E+04	1.687E+00
2062	3.843E+04	2.099E+07	1.410E+03	9.029E+01	2.519E+04	1.693E+00
2063	3.692E+04	2.017E+07	1.355E+03	8.675E+01	2.420E+04	1.626E+00
2064	3.547E+04	1.938E+07	1.302E+03	8.335E+01	2.325E+04	1.562E+00
2065	3.408E+04	1.862E+07	1.251E+03	8.008E+01	2.234E+04	1.501E+00
2066	3.274E+04	1.789E+07	1.202E+03	7.694E+01	2.147E+04	1.442E+00
2067	3.146E+04	1.719E+07	1.155E+03	7.393E+01	2.062E+04	1.386E+00
2068	3.023E+04	1.651E+07	1.109E+03	7.103E+01	1.982E+04	1.331E+00
2069	2.904E+04	1.587E+07	1.066E+03	6.824E+01	1.904E+04	1.279E+00
2070	2.790E+04	1.524E+07	1.024E+03	6.557E+01	1.829E+04	1.229E+00
2071	2.681E+04	1.465E+07	9.840E+02	6.300E+01	1.757E+04	1.181E+00
2072	2.576E+04	1.407E+07	9.454E+02	6.053E+01	1.689E+04	1.135E+00
2073	2.475E+04	1.352E+07	9.084E+02	5.815E+01	1.622E+04	1.090E+00
2074	2.378E+04	1.299E+07	8.728E+02	5.587E+01	1.559E+04	1.047E+00
2075	2.284E+04	1.248E+07	8.385E+02	5.368E+01	1.498E+04	1.006E+00
2076	2.195E+04	1.199E+07	8.057E+02	5.158E+01	1.439E+04	9.668E-01
2077	2.109E+04	1.152E+07	7.741E+02	4.955E+01	1.382E+04	9.289E-01
2078	2.026E+04	1.107E+07	7.437E+02	4.761E+01	1.328E+04	8.925E-01
2079	1.947E+04	1.063E+07	7.146E+02	4.574E+01	1.276E+04	8.575E-01
2080	1.870E+04	1.022E+07	6.865E+02	4.395E+01	1.226E+04	8.238E-01
2081	1.797E+04	9.817E+06	6.596E+02	4.223E+01	1.178E+04	7.915E-01
2082	1.727E+04	9.432E+06	6.338E+02	4.057E+01	1.132E+04	7.605E-01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2083	1.659E+04	9.062E+06	6.089E+02	3.898E+01	1.087E+04	7.307E-01
2084	1.594E+04	8.707E+06	5.850E+02	3.745E+01	1.045E+04	7.020E-01
2085	1.531E+04	8.366E+06	5.621E+02	3.598E+01	1.004E+04	6.745E-01
2086	1.471E+04	8.038E+06	5.400E+02	3.457E+01	9.645E+03	6.481E-01
2087	1.414E+04	7.722E+06	5.189E+02	3.322E+01	9.267E+03	6.226E-01
2088	1.358E+04	7.420E+06	4.985E+02	3.191E+01	8.904E+03	5.982E-01
2089	1.305E+04	7.129E+06	4.790E+02	3.066E+01	8.554E+03	5.748E-01
2090	1.254E+04	6.849E+06	4.602E+02	2.946E+01	8.219E+03	5.522E-01

Input Review: Ohio County LF Curve 2

LANDFILL CHARACTERISTICS

Landfill Open Year **2062**
 Landfill Closure Year (with 80-year limit) **2087**

MODEL PARAMETERS

Methane Generation Rate, k **0.040** *year-1*
 Potential Methane Generation Capacity, L0 **100** *m3/Mg*
 NMOC Concentration **600** *ppmv as hexane*
 Methane Content **50** *% by volume*

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2062	227,273	250,000	0	0
2063	227,273	250,000	227,273	250,000
2064	227,273	250,000	454,545	500,000
2065	227,273	250,000	681,818	750,000
2066	227,273	250,000	909,091	1,000,000
2067	227,273	250,000	1,136,364	1,250,000
2068	227,273	250,000	1,363,636	1,500,000
2069	227,273	250,000	1,590,909	1,750,000
2070	227,273	250,000	1,818,182	2,000,000
2071	227,273	250,000	2,045,455	2,250,000
2072	227,273	250,000	2,272,727	2,500,000
2073	227,273	250,000	2,500,000	2,750,000
2074	227,273	250,000	2,727,273	3,000,000
2075	227,273	250,000	2,954,545	3,250,000
2076	227,273	250,000	3,181,818	3,500,000
2077	227,273	250,000	3,409,091	3,750,000
2078	227,273	250,000	3,636,364	4,000,000
2079	227,273	250,000	3,863,636	4,250,000
2080	227,273	250,000	4,090,909	4,500,000
2081	227,273	250,000	4,318,182	4,750,000
2082	227,273	250,000	4,545,455	5,000,000
2083	227,273	250,000	4,772,727	5,250,000
2084	227,273	250,000	5,000,000	5,500,000
2085	227,273	250,000	5,227,273	5,750,000
2086	227,273	250,000	5,454,545	6,000,000
2087	227,273	250,000	5,681,818	6,250,000
2088	0	0	5,909,091	6,500,000

Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2062	0	0	0	0	0	0
2063	2.230E+03	1.786E+06	1.200E+02	5.957E+02	8.929E+05	6.000E+01
2064	4.373E+03	3.502E+06	2.353E+02	1.168E+03	1.751E+06	1.176E+02
2065	6.432E+03	5.150E+06	3.460E+02	1.718E+03	2.575E+06	1.730E+02
2066	8.410E+03	6.734E+06	4.525E+02	2.246E+03	3.367E+06	2.262E+02
2067	1.031E+04	8.256E+06	5.547E+02	2.754E+03	4.128E+06	2.774E+02
2068	1.214E+04	9.718E+06	6.530E+02	3.242E+03	4.859E+06	3.265E+02
2069	1.389E+04	1.112E+07	7.474E+02	3.710E+03	5.561E+06	3.737E+02
2070	1.558E+04	1.247E+07	8.380E+02	4.161E+03	6.236E+06	4.190E+02
2071	1.720E+04	1.377E+07	9.252E+02	4.593E+03	6.885E+06	4.626E+02
2072	1.875E+04	1.502E+07	1.009E+03	5.009E+03	7.508E+06	5.044E+02
2073	2.025E+04	1.621E+07	1.089E+03	5.408E+03	8.106E+06	5.447E+02
2074	2.168E+04	1.736E+07	1.167E+03	5.792E+03	8.681E+06	5.833E+02
2075	2.306E+04	1.847E+07	1.241E+03	6.160E+03	9.234E+06	6.204E+02
2076	2.439E+04	1.953E+07	1.312E+03	6.515E+03	9.765E+06	6.561E+02
2077	2.566E+04	2.055E+07	1.381E+03	6.855E+03	1.027E+07	6.904E+02
2078	2.689E+04	2.153E+07	1.447E+03	7.182E+03	1.076E+07	7.233E+02
2079	2.806E+04	2.247E+07	1.510E+03	7.496E+03	1.124E+07	7.549E+02
2080	2.919E+04	2.338E+07	1.571E+03	7.798E+03	1.169E+07	7.853E+02
2081	3.028E+04	2.425E+07	1.629E+03	8.088E+03	1.212E+07	8.145E+02
2082	3.132E+04	2.508E+07	1.685E+03	8.366E+03	1.254E+07	8.426E+02
2083	3.232E+04	2.588E+07	1.739E+03	8.634E+03	1.294E+07	8.695E+02
2084	3.329E+04	2.665E+07	1.791E+03	8.891E+03	1.333E+07	8.954E+02
2085	3.421E+04	2.739E+07	1.841E+03	9.138E+03	1.370E+07	9.203E+02
2086	3.510E+04	2.811E+07	1.888E+03	9.376E+03	1.405E+07	9.442E+02
2087	3.595E+04	2.879E+07	1.934E+03	9.604E+03	1.440E+07	9.672E+02
2088	3.677E+04	2.945E+07	1.979E+03	9.823E+03	1.472E+07	9.893E+02
2089	3.533E+04	2.829E+07	1.901E+03	9.438E+03	1.415E+07	9.505E+02
2090	3.395E+04	2.718E+07	1.826E+03	9.068E+03	1.359E+07	9.132E+02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m3/year)	(av ft ³ /min)	(Mg/year)	(m3/year)	(av ft ³ /min)
2062	0	0	0	0	0	0
2063	1.635E+03	8.929E+05	6.000E+01	3.841E+00	1.072E+03	7.200E-02
2064	3.205E+03	1.751E+06	1.176E+02	7.531E+00	2.101E+03	1.412E-01
2065	4.714E+03	2.575E+06	1.730E+02	1.108E+01	3.090E+03	2.076E-01
2066	6.163E+03	3.367E+06	2.262E+02	1.448E+01	4.041E+03	2.715E-01
2067	7.556E+03	4.128E+06	2.774E+02	1.776E+01	4.954E+03	3.328E-01
2068	8.895E+03	4.859E+06	3.265E+02	2.090E+01	5.831E+03	3.918E-01
2069	1.018E+04	5.561E+06	3.737E+02	2.392E+01	6.674E+03	4.484E-01
2070	1.142E+04	6.236E+06	4.190E+02	2.682E+01	7.484E+03	5.028E-01
2071	1.260E+04	6.885E+06	4.626E+02	2.961E+01	8.262E+03	5.551E-01
2072	1.374E+04	7.508E+06	5.044E+02	3.229E+01	9.009E+03	6.053E-01
2073	1.484E+04	8.106E+06	5.447E+02	3.487E+01	9.728E+03	6.536E-01
2074	1.589E+04	8.681E+06	5.833E+02	3.734E+01	1.042E+04	7.000E-01
2075	1.690E+04	9.234E+06	6.204E+02	3.972E+01	1.108E+04	7.445E-01
2076	1.787E+04	9.765E+06	6.561E+02	4.200E+01	1.172E+04	7.873E-01
2077	1.881E+04	1.027E+07	6.904E+02	4.420E+01	1.233E+04	8.284E-01
2078	1.971E+04	1.076E+07	7.233E+02	4.630E+01	1.292E+04	8.679E-01
2079	2.057E+04	1.124E+07	7.549E+02	4.833E+01	1.348E+04	9.059E-01
2080	2.139E+04	1.169E+07	7.853E+02	5.027E+01	1.403E+04	9.424E-01
2081	2.219E+04	1.212E+07	8.145E+02	5.214E+01	1.455E+04	9.774E-01
2082	2.296E+04	1.254E+07	8.426E+02	5.394E+01	1.505E+04	1.011E+00
2083	2.369E+04	1.294E+07	8.695E+02	5.567E+01	1.553E+04	1.043E+00
2084	2.440E+04	1.333E+07	8.954E+02	5.732E+01	1.599E+04	1.075E+00
2085	2.507E+04	1.370E+07	9.203E+02	5.892E+01	1.644E+04	1.104E+00
2086	2.572E+04	1.405E+07	9.442E+02	6.045E+01	1.686E+04	1.133E+00
2087	2.635E+04	1.440E+07	9.672E+02	6.192E+01	1.727E+04	1.161E+00
2088	2.695E+04	1.472E+07	9.893E+02	6.333E+01	1.767E+04	1.187E+00
2089	2.589E+04	1.415E+07	9.505E+02	6.085E+01	1.698E+04	1.141E+00
2090	2.488E+04	1.359E+07	9.132E+02	5.846E+01	1.631E+04	1.096E+00

Ohio County Balefill Landfill
Landfill Gas and NMOC Emissions Combined from Two Model Runs

Year	LFG Flow OCB 1 cfm	LFG Flow OCB 2 cfm	LFG Flow Combined cfm	NMOC Ems OCB 1 Mg/year	NMOC Ems OCB 2 Mg/year	NMOC Ems Combined Mg/year
1982	0		0	0.00		0.00
1983	41		41	1.32		1.32
1984	81		81	2.59		2.59
1985	119		119	3.81		3.81
1986	156		156	4.98		4.98
1987	191		191	6.11		6.11
1988	225		225	7.19		7.19
1989	257		257	8.23		8.23
1990	283		283	9.06		9.06
1991	308		308	9.86		9.86
1992	332		332	10.63		10.63
1993	464		464	14.84		14.84
1994	585		585	18.71		18.71
1995	679		679	21.73		21.73
1996	789		789	25.25		25.25
1997	902		902	28.86		28.86
1998	1,002		1,002	32.07		32.07
1999	1,114		1,114	35.65		35.65
2000	1,233		1,233	39.46		39.46
2001	1,345		1,345	43.05		43.05
2002	1,419		1,419	45.42		45.42
2003	1,507		1,507	48.23		48.23
2004	1,636		1,636	52.38		52.38
2005	1,755		1,755	56.17		56.17
2006	1,858		1,858	59.46		59.46
2007	1,934		1,934	61.91		61.91
2008	2,012		2,012	64.40		64.40
2009	2,061		2,061	65.98		65.98
2010	2,048		2,048	65.57		65.57
2011	2,090		2,090	66.88		66.88
2012	2,108		2,108	67.48		67.48
2013	2,101		2,101	67.24		67.24
2014	2,083		2,083	66.67		66.67
2015	2,078		2,078	66.51		66.51
2016	2,077		2,077	66.47		66.47
2017	2,086		2,086	66.79		66.79
2018	2,058		2,058	65.86		65.86
2019	2,031		2,031	65.00		65.00
2020	2,003		2,003	64.11		64.11
2021	1,970		1,970	63.06		63.06
2022	1,942		1,942	62.15		62.15
2023	1,921		1,921	61.50		61.50
2024	1,966		1,966	62.93		62.93
2025	2,009		2,009	64.30		64.30
2026	2,050		2,050	65.62		65.62
2027	2,090		2,090	66.89		66.89
2028	2,128		2,128	68.11		68.11
2029	2,164		2,164	69.28		69.28
2030	2,199		2,199	70.40		70.40
2031	2,233		2,233	71.48		71.48
2032	2,266		2,266	72.52		72.52
2033	2,297		2,297	73.52		73.52
2034	2,327		2,327	74.48		74.48
2035	2,355		2,355	75.40		75.40
2036	2,383		2,383	76.28		76.28
2037	2,410		2,410	77.13		77.13

Year	LFG Flow OCB 1 cfm	LFG Flow OCB 2 cfm	LFG Flow Combined cfm	NMOC Ems OCB 1 Mg/year	NMOC Ems OCB 2 Mg/year	NMOC Ems Combined Mg/year
2038	2,435		2,435	77.95		77.95
2039	2,460		2,460	78.73		78.73
2040	2,483		2,483	79.49		79.49
2041	2,506		2,506	80.21		80.21
2042	2,528		2,528	80.91		80.91
2043	2,548		2,548	81.57		81.57
2044	2,569		2,569	82.22		82.22
2045	2,588		2,588	82.83		82.83
2046	2,606		2,606	83.43		83.43
2047	2,624		2,624	84.00		84.00
2048	2,641		2,641	84.54		84.54
2049	2,658		2,658	85.07		85.07
2050	2,673		2,673	85.57		85.57
2051	2,689		2,689	86.06		86.06
2052	2,703		2,703	86.53		86.53
2053	2,717		2,717	86.97		86.97
2054	2,731		2,731	87.40		87.40
2055	2,744		2,744	87.82		87.82
2056	2,756		2,756	88.22		88.22
2057	2,768		2,768	88.60		88.60
2058	2,779		2,779	88.96		88.96
2059	2,790		2,790	89.32		89.32
2060	2,801		2,801	89.66		89.66
2061	2,811		2,811	89.98		89.98
2062	2,821	0	2,821	90.29	0.00	90.29
2063	2,710	120	2,830	86.75	3.84	90.59
2064	2,604	235	2,839	83.35	7.53	90.88
2065	2,502	346	2,848	80.08	11.08	91.16
2066	2,404	452	2,856	76.94	14.48	91.43
2067	2,310	555	2,864	73.93	17.76	91.68
2068	2,219	653	2,872	71.03	20.90	91.93
2069	2,132	747	2,879	68.24	23.92	92.16
2070	2,048	838	2,886	65.57	26.82	92.39
2071	1,968	925	2,893	63.00	29.61	92.61
2072	1,891	1,009	2,900	60.53	32.29	92.82
2073	1,817	1,089	2,906	58.15	34.87	93.02
2074	1,746	1,167	2,912	55.87	37.34	93.21
2075	1,677	1,241	2,918	53.68	39.72	93.40
2076	1,611	1,312	2,923	51.58	42.00	93.58
2077	1,548	1,381	2,929	49.55	44.20	93.75
2078	1,487	1,447	2,934	47.61	46.30	93.91
2079	1,429	1,510	2,939	45.74	48.33	94.07
2080	1,373	1,571	2,944	43.95	50.27	94.23
2081	1,319	1,629	2,948	42.23	52.14	94.37
2082	1,268	1,685	2,953	40.57	53.94	94.51
2083	1,218	1,739	2,957	38.98	55.67	94.65
2084	1,170	1,791	2,961	37.45	57.32	94.78
2085	1,124	1,841	2,965	35.98	58.92	94.90
2086	1,080	1,888	2,969	34.57	60.45	95.02
2087	1,038	1,934	2,972	33.22	61.92	95.14
2088	997	1,979	2,976	31.91	63.33	95.25
2089	958	1,901	2,859	30.66	60.85	91.51
2090	920	1,826	2,747	29.46	58.46	87.92

Calculate Fugitive NMOC/VOC Emissions (assuming a 75% collection efficiency):

95.25	Mg/year *	0.25	=	23.81	Mg/year
				26.19	tons/year NMOC/VOC
				5.98	lbs/hour NMOC/VOC
	Uncontrolled Emissions Factor:			133.980	lbs VOC/mmescf LFG

**OCB Landfill Title 5 Renewal Application
Site Construction & Operation (Waste Covering) Emissions Calculations**

Assumptions:

1. Emissions are based on tons of waste processed/year: 250,000 tons waste proposed for renewal
2. Factor used is 0.0183 lbs PT/PM10/PM2.5 per ton of material processed (KDEP State Inventory Forms)

Calculate Emissions:

$$250,000 \text{ tons waste} * 0.0183 \frac{\text{lbs PT/PM10/PM2.5}}{\text{ton material}} * \frac{1 \text{ ton} = 2000 \text{ lbs}}{2000 \text{ lbs}} = 2.29 \frac{\text{tons PT/PM10/PM2.5}}{\text{year}}$$

**OCB Landfill Title 5 Renewal Application
Haul Road Fugitive Emissions**

Refuse Trucks:

Length of Haul Road, miles (paved)	1.12
Length of Haul Road, miles (unpaved)	2.00
Annual Amount Hauled (all waste), tons	250,000
Avg. Weight of Material per Load, tons	23
Annual Vehicle Miles Traveled (refuse trucks paved), VMT =	12,174
Annual Vehicle Miles Traveled (refuse trucks unpaved), VMT =	21,739

Paved Road Emissions

Emission Factor, lb./VMT	PM	=	1.5279
Emission Factor, lb./VMT	PM10	=	0.3056
Emission Factor, lb./VMT	PM2.5	=	0.075
Overall Control Efficiency % (PM/PM10)		=	90%
Overall Control Efficiency % (PM2.5)		=	40%
Actual Emissions, Tons/yr.	PM	=	0.93
Actual Emissions, Tons/yr.	PM10	=	0.19
Actual Emissions, Tons/yr.	PM2.5	=	0.27

Unpaved Road Emissions

Emission Factor, lb./VMT	PM	=	5.2971
Emission Factor, lb./VMT	PM10	=	1.43
Emission Factor, lb./VMT	PM2.5	=	0.143
Overall Control Efficiency % (PM/PM10)		=	75%
Overall Control Efficiency % (PM2.5)		=	40%
Actual Emissions, Tons/yr.	PM	=	14.39
Actual Emissions, Tons/yr.	PM10	=	3.89
Actual Emissions, Tons/yr.	PM2.5	=	0.93

Ohio County Landfill TV Renewal Application: Landfill HAPs Emissions

2088 Fugitive Gas Production Rate = 744 cfm = 11,074,664 m³/year
(assumes 75% collection efficiency)

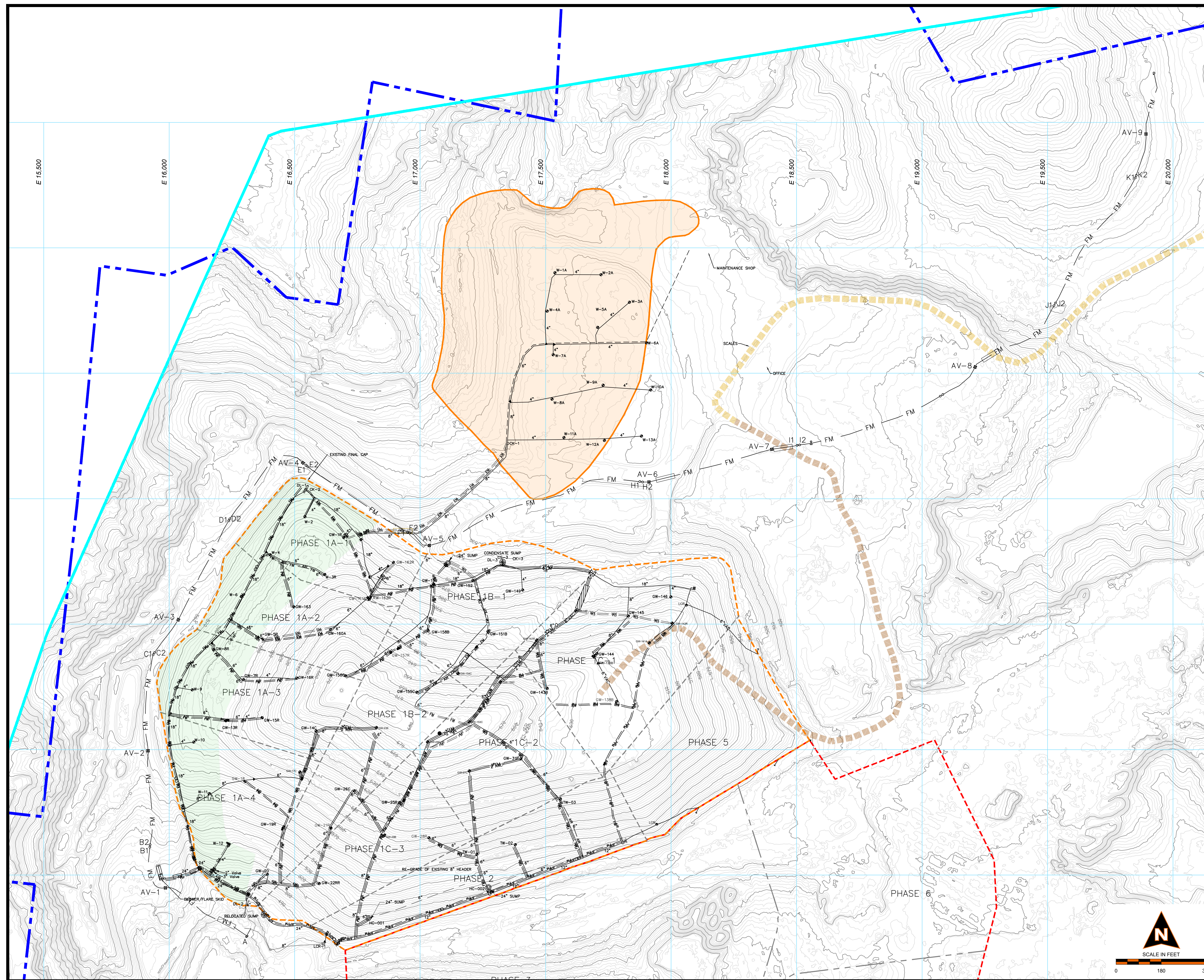
UNCONTROLLED LANDFILL GAS CONCENTRATIONS (a) - (SCC 50200602)

CAS number	COMPOUND	Concentration ppmv*	MOLECULAR WEIGHT	GRAVIMETRIC CONCENTRATION (mg/M ³)	POTENTIAL TO EMIT		
					HAPS (Mg/yr)	HAPS (lbs/hr)	HAPS (tons/yr)
71556	1,1,1-Trichloroethane (methyl chloroform)	0.48	133.42	2.62	0.0290	0.0073	0.0320
79345	1,1,2,2-Tetrachloroethane	1.11	167.86	7.62	0.0844	0.0213	0.0931
75343	1,1-Dichloroethane (ethylidene dichloride)	2.35	98.96	9.51	0.1053	0.0265	0.1162
75354	1,1-Dichloroethene (vinylidene chloride)	0.20	96.95	0.79	0.0088	0.0022	0.0097
107062	1,2-Dichloroethane (ethylene dichloride)	0.41	98.96	1.66	0.0184	0.0046	0.0203
78875	1,2-Dichloropropane (propylene dichloride)	0.18	112.99	0.83	0.0092	0.0023	0.0102
107131	Acrylonitrile	6.33	53.06	13.74	0.1521	0.0383	0.1678
75150	Carbon disulfide	0.58	76.14	1.81	0.0200	0.0050	0.0221
56235	Carbon tetrachloride	0.00	153.84	0.00	0.0000	0.0000	0.0000
463581	Carbonyl sulfide	0.49	60.07	1.20	0.0133	0.0034	0.0147
108907	Chlorobenzene	0.25	112.56	1.15	0.0127	0.0032	0.0141
75003	Chloroethane (ethyl chloride)	1.25	64.52	3.30	0.0365	0.0092	0.0403
67663	Chloroform	0.03	119.39	0.15	0.0016	0.0004	0.0018
75092	Dichloromethane (methylene chloride)	14.30	84.94	49.68	0.5502	0.1386	0.6070
100414	Ethylbenzene	4.61	106.16	20.02	0.2217	0.0558	0.2446
110543	Hexane	6.57	86.17	23.15	0.2564	0.0646	0.2829
108101	Methyl isobutyl ketone	1.87	100.07	7.65	0.0848	0.0214	0.0935
127184	Perchloroethylene (tetrachloroethene)	3.73	165.85	25.30	0.2802	0.0706	0.3092
79016	Trichloroethylene	2.82	131.39	15.15	0.1678	0.0423	0.1852
75014	Vinyl chloride	7.34	62.50	18.76	0.2078	0.0523	0.2293
71432	Benzene	1.91	78.11	6.10	0.0676	0.0170	0.0746
74873	Methyl chloride(Chloromethane)	1.21	50.49	2.50	0.0277	0.0070	0.0305
108883	Toluene	39.30	92.13	148.09	1.6400	0.4131	1.8094
1330207	Xylene (isomers and mixtures)	12.10	106.16	52.54	0.5818	0.1466	0.6419
	Mercury Compounds *	0.00	200.61	0.00	0.0000	0.0000	0.0000
Total HAPs:							5.05

*based on 11/98 AP-42 Factors for Landfill Gas

APPENDIX B

Site Plan Map



LEGEND

- | | |
|--|---|
| | LIMITS AREA MAPPED BY AERIAL CONTRACTOR |
| | FACILITY PROPERTY BOUNDARY |
| | PERMITTED LIMITS OF WASTE |
| | CONSTRUCTED LIMITS OF WASTE |
| | EXISTING CELL LIMITS |
| | PROPOSED CELL LIMITS |
| | EXISTING 10' CONTOUR |
| | EXISTING 2' CONTOUR |
| | EXISTING LFG COLLECTION PIPING |
| | EXISTING HORIZONTAL COLLECTOR |
| | EXISTING AIR SUPPLY PIPING |
| | EXISTING LEACHATE FORCE MAIN PIPING |
| | HORIZONTAL COLLECTOR WELLHEAD |
| | EXTRACTION WELL |
| | NESTED EXTRACTION WELL |
| | CAISSON EXTRACTION WELL |
| | DOWNSLOPE WELL BENEATH OVERLINER |
| | REMOTE WELLHEAD |
| | CONDENSATE SUMP |
| | LEACHATE COLLECTION RISER |
| | VERTICAL LEACHATE COLLECTION RISER |
| | FORCEMAIN CLEANOUT |
| | FORCEMAIN ISOLATION VALVE |
| | AIR SUPPLY ISOLATION VALVE |
| | HEADER ISOLATION VALVE |
| | HEADER/LATERAL REDUCER |
| | HEADER ACCESS RISER |
| | SEEP SUMP |
| | HORIZONTAL COLLECTOR SUMP |
| | EXISTING ROAD CROSSING |
| | EXISTING CLOSED POD |
| | EXISTING FINAL COVER AREA |
| | DIRT HAUL ROAD |
| | PAVED HAUL ROAD |

NOTES:

1. EXISTING TOPOGRAPHY PROVIDED BY FIRMEK DATED DECEMBER 15, 2022.
2. AS-BUILT LANDFILL GAS INFORMATION PROVIDED BY BEL ENVIRONMENTAL ENGINEERING FROM THE 2020 LANDFILL GAS SYSTEM EXPANSION RECORD DRAWING, DATED NOVEMBER 16, 2020.

OHIO COUNTY LANDFILL

2023 LFG SYSTEM

**FOR CONSTRUCTION
AS-BUILT**



PROJECT NUMBER: 2023-213			
ENG:		AERIAL SURVEY DATE:	12/15/2
CAD:	BKG	SUBMITTAL DATE:	03/01/2
CHK:	DD	PLOT DATE:	5/10/23
REV.	DATE	DESCRIPTION	

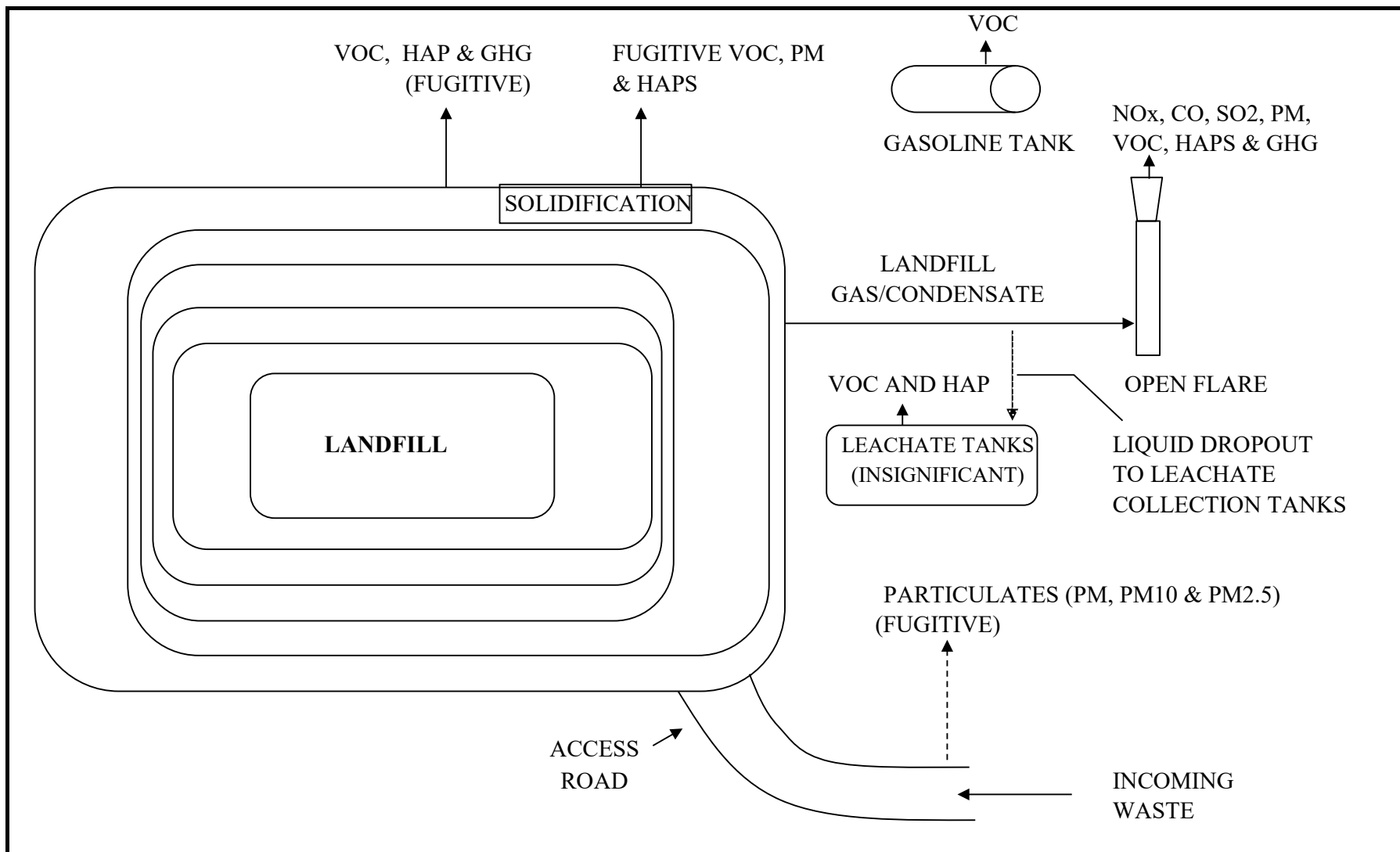
DRAWING:

01

OF 01

APPENDIX C

Process Flow Diagram



		OHIO COUNTY BALEFILL TITLE 5 RENEWAL APPLICATION BEAVER DAM, KENTUCKY
DES BY: LLN	DATE: JUNE 2023	
PREPARED BY: Environmental Information Logistics, LLC 130 E. Main Street Caledonia, MI 49316		PROCESS FLOW DIAGRAM LANDFILL AND MISCELLANEOUS SOURCES