

January 18, 2022



ENVIRONMENTAL
INFORMATION
LOGISTICS, LLC

130 E. Main Street
Caledonia, MI 49316
www.eilllc.com

Ms. Amy Tempus-Doom
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
200 Fair Oaks Lane, 1st Floor
Frankfort, KY 40601

RE: Boyd County Sanitary Landfill
Ashland, Boyd County, Kentucky
Title V Permit No. V-16-053
Agency Interest No. 40319
Title V Renewal Application

Dear Ms. Tempus-Doom:

On behalf of Boyd County Sanitary Landfill, Environmental Information Logistics, LLC, is pleased to provide you with the Title V renewal application for Boyd County Sanitary Landfill (Agency Interest Number 40319). If you have any questions regarding this application, please contact me at 248-421-0499.

Sincerely,

ENVIRONEMTNAL INFORMATION LOGISTICS, LLC.

Dana A. Oleniacz
Senior Project Manager

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: Boyd County Sanitary Landfill

KY EIS (AFS) #: 21- 019-00113

Permit #: V-16-053

Agency Interest (AI) ID: 40319

Date: 1/15/2021

Section AI.1: Source Information

Physical Location Address:	Street:	1837 River Cities Drive		
	City:	Ashland	County:	Boyd
Mailing Address:	Street or P.O. Box:	1837 River Cities Drive		
	City:	Ashland	State:	Kentucky
			Zip Code:	41102

Standard Coordinates for Source Physical Location

Longitude: 38.32724916 (decimal degrees) Latitude: -82.75629878 (decimal degrees)

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

Classification (SIC) Category:		<u>Refuse System</u>		Primary SIC #:	<u>4953</u>
Briefly discuss the type of business conducted at this site:		<u>Municipal Solid Waste Landfill</u>			
Description of Area Surrounding Source:	☒ Rural Area	☐ Industrial Park	☐ Residential Area	Is any part of the source located on federal land?	☐ Yes
	☐ Urban Area	☐ Industrial Area	☐ Commercial Area		☒ No
Approximate distance to nearest residence or commercial property:		<u>200</u>	Property Area:	<u>1,515 Acres</u>	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: Boyd County Sanitary Landfill, Inc.

Title: (if individual) _____

Mailing Address: **Street or P.O. Box:** 3990 Generation Drive
City: Cincinnati **State:** OH **Zip Code:** 45251

Email: (if individual) _____

Phone: 513-851-0122

Technical Contact

Name: Dana Oleniacz

Title: Senior Project Manager

Mailing Address: **Street or P.O. Box:** 8758 Rogers Road
City: East Jordan **State:** Michigan **Zip Code:** 49727

Email: doleniacz@eilllc.com

Phone: 248-421-0499

Air Permit Contact for Source

Name: James Westerfield II

Title: _____

Mailing Address: **Street or P.O. Box:** 3990 Generation Drive
City: Cincinnati **State:** OH **Zip Code:** 45251

Email: james.westerfield@rumpke.com

Phone: 513-616-6758

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**_____
Rumpke Consolidated Companies, Inc._____
N/A

Section AI.4: Type of Application

Current Status:	☒ Title V	☐ Conditional Major	☐ State-Origin	☐ General Permit	☐ Registration	☐ None
Requested Action: (check all that apply)	☐ Name Change	☐ Initial Registration	☒ Significant Revision	☐ Administrative Permit Amendment		
	☒ 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.

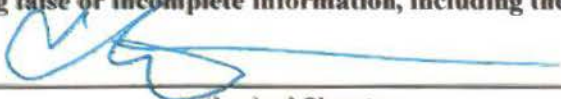
Section AI.5 Other Required Information

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

Chris Jaquet

Type or Printed Name of Signatory

1/18/22

Date

Dir. of Eng and Env Affairs

Title of Signatory

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

Section AI.7: Notes, Comments, and Explanations

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

Source Name: Boyd County Sanitary Landfill

KY EIS (AFS) #: 21- 019-00113

Permit #: V-16-053

Agency Interest (AI) ID: 40319

Date: 1/15/2021

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)
1	Solid Waste Landfill	Municipal Solid Waste Landfill	Landfill	Landfill	N/A	N/A	01/2004	Continuous	N/A	N/A
FL-02	4,000 scfm Landfill Gas Utility Flare	Utility Flare to control landfill gas	4000 scfm Utility Flare	4,000 scfm	LFG Specialties, Inc.	PCFT124110	01/2015	Continuous	N/A	N/A
RD-01	Unpaved Haul Roads	Paved and Unpaved Haul Roads	Roads	Roads	N/A	N/A	01/2004	Continuous	N/A	N/A
EU-4	Handling and Storage	including stockpiles, blasting, waste and dry mediums	Handling	Handling	N/A	N/A	01/2004	Continuous	N/A	N/A
SA-01	Waste Solidification	waste and dry mediums	Solidification	Solidification	N/A	N/A	01/2004	Batch	N/A	N/A

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)

Section B.2: Materials and Fuel Information

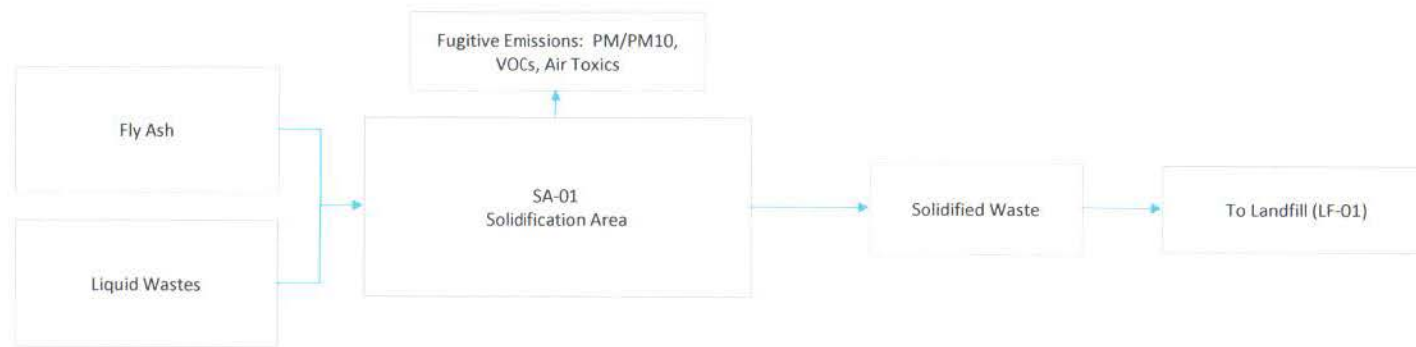
**Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

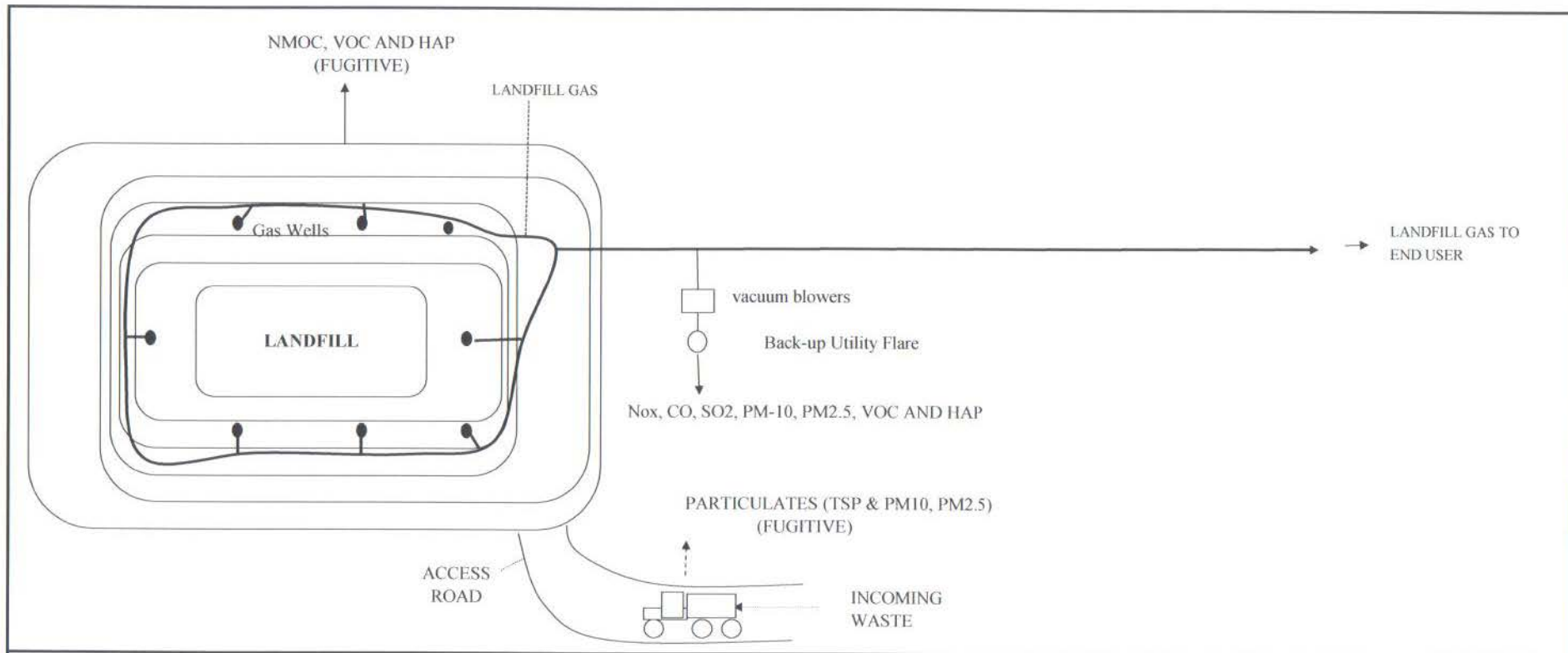
Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit (tons/hr)	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content (%)	Ash Content (%)
				(Specify Units/hr)				(Specify Units/hr)			(Specify Units)		(Specify Units)		
FL-02	4,000 scfm Landfill Gas Utility Flare	Landfill Gas	120	MMBTU/hr	N/A	N/A		N/A	Landfill gas	240,000	scf/hr	2,102.r	MMcf	0.18	N/A

Emission Unit #	Emission Unit Name	Name of Raw Materials Input	Maximum Quantity of Each Raw Material Input		Total Process Weight Rate for Emission Unit <i>(tons/hr)</i>	Name of Finished Materials	Maximum Quantity of Each Finished Material Output		Fuel Type	Maximum Hourly Fuel Usage Rate		Maximum Yearly Fuel Usage Rate		Sulfur Content (%)	Ash Content (%)
				<i>(Specify Units/hr)</i>				<i>(Specify Units/hr)</i>			<i>(Specify Units)</i>		<i>(Specify Units)</i>		

Section B.3: Notes, Comments, and Explanations

Process Flow Diagram - Solidification Area



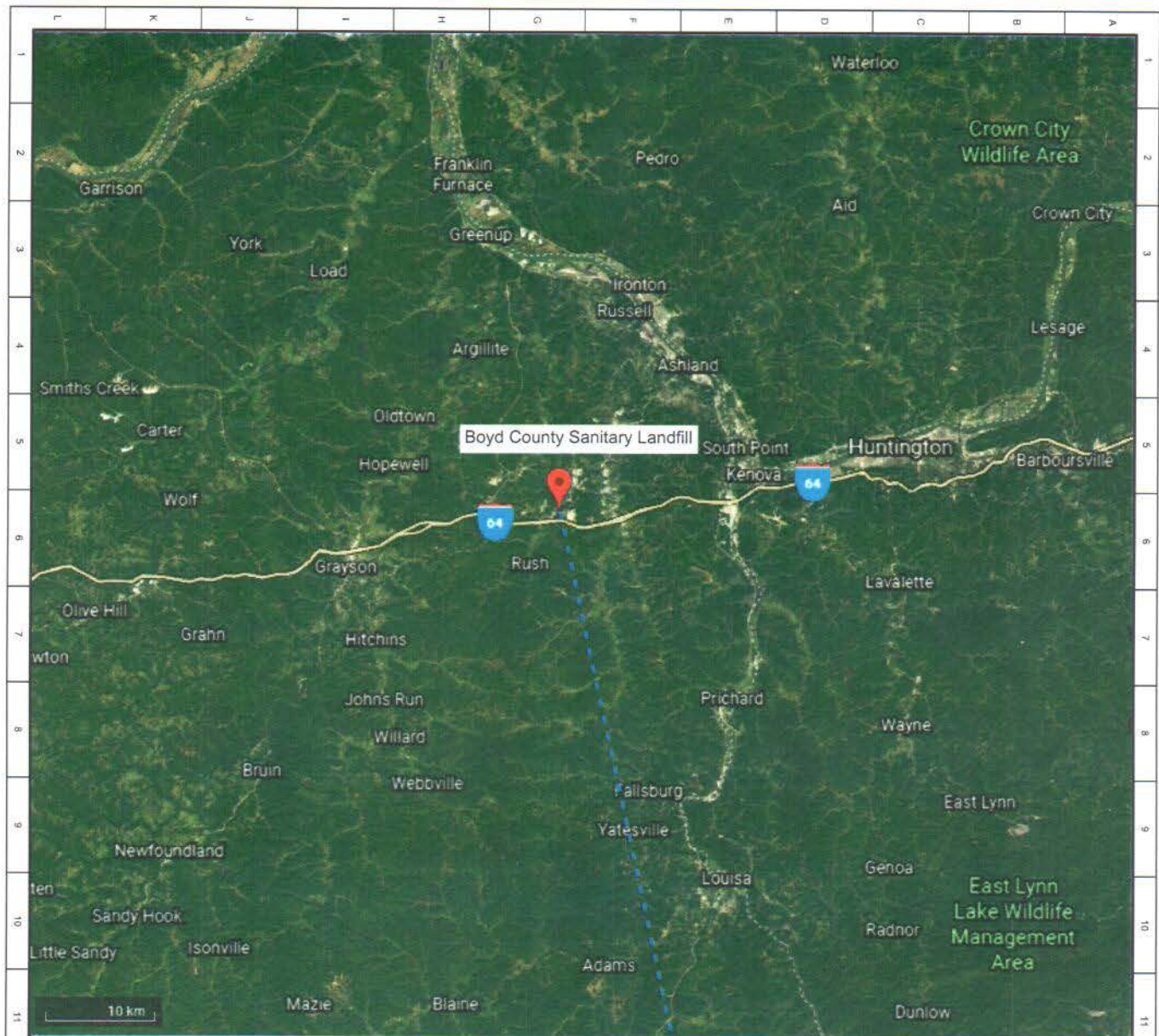


DES BY: DAO

DATE: January 2022

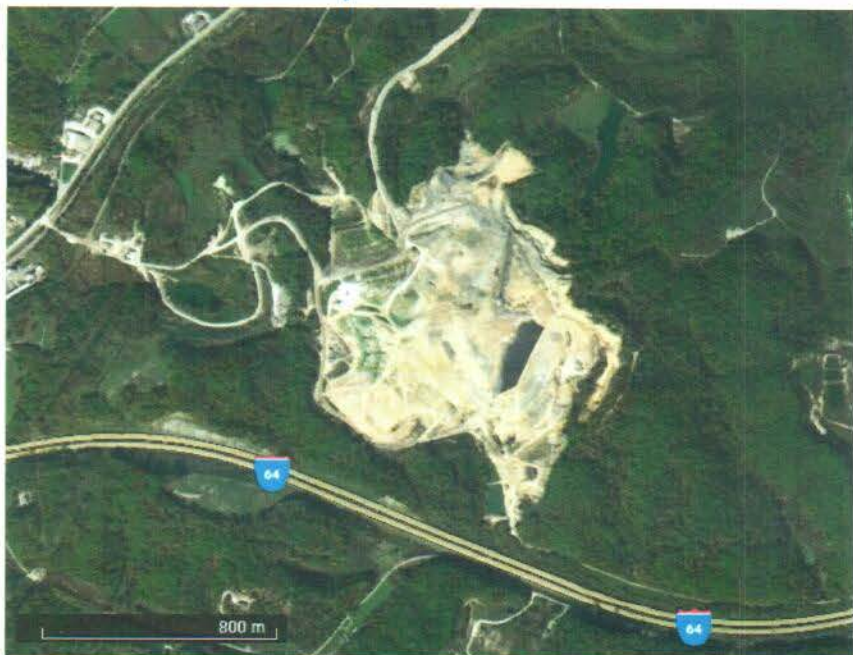
BOYD COUNTY SANITARY LANDFILL

PROCESS FLOW DIAGRAM LANDFILL AND MISCELLANEOUS SOURCES



Site Address:
1837 River Cities Drive,
Ashland, KY 41102

Note:
1. AERIAL IMAGERY TAKEN
FROM GOOGLE EARTH



Boyd County Sanitary Landfill Location Map		PREPARED FOR: 	PREPARED BY: 	DATE: DESIGNED BY: DRAWN BY: CHECKED BY: APPROVED BY:	PROJECT NO.: SHEET NO.: DATE:	Copyright © Environmental Information Systems, LLC	REVISIONS:	DATE:
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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: Boyd County Sanitary Landfill

KY EIS (AFS) #: 21- 019-00113

Permit #: V-16-053

Agency Interest (AI) ID: 40319

Date: 1/15/2021

Section DD.1: Table of Insignificant Activities

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

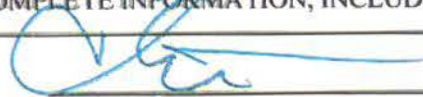
Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
1	109,000 gallon	Leachate Tank	None	<5 Tons per Year
2	130,000 gallon	Leachate Tank	None	<5 Tons per Year
3	10,000 gallon	Diesel Tank	None	<5 Tons per Year
4	1,000 gallon	Diesel Tank	None	<5 Tons per Year
5	15 hp	non-road engine - mobile	None	NOx - 0.000017 TPY, CO -0.00029 TPY, PM - 0.000007 TPY

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
6	20 hp	non-road engine - mobile	None	NOx - 0.001041 TPY, CO - 0.000039 TPY, PM - 0.000009 TPY
7	500 gallon	15/40 oil	None	<5 Tons per Year
8	500 gallon	SAE 30 oil	None	<5 Tons per Year
9	500 gallon	10W Hydraulic oil	None	<5 Tons per Year
10	500 gallon	antifreeze	None	<5 Tons per Year
11	157,917 gallon	Leachate	None	<5 Tons per Year

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

Chris Jaquet

Type/Print Name of Signatory

1/18/22

Date

Dir of Eng and Environmental Affairs

Title of Signatory

Section DD.3: Notes, Comments, and Explanations

Additional insignificant activities see list

Insignificant Activity #	Description of Activity Including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
12	330 gallon	Diesel Exhaust Fluid (DEF)	None	<5 Tons per Year
13	3000 gallon	Used Oil	None	<5 Tons per Year
14	330 gallon	15/40 oil	None	<5 Tons per Year
15	330 gallon	SAE 30	None	<5 Tons per Year
16	330 gallon	SAE 50	None	<5 Tons per Year
17	330 gallon	10 W Hydraulic fluid	None	<5 Tons per Year
18	330 gallon	Antifreeze	None	<5 Tons per Year
19	50 tons/hr	Cement Batch Plant	None	PM10 - <3 Tons per Year, PM - <5 Tons per Year (see attached calculations)

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: Boyd County Sanitary LandfillKY EIS (AFS) #: 21- 019-00113Permit #: V-16-053Agency Interest (AI) ID: 40319Date: 1/15/2022

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 (°F)	Flowrate (scfm @ 68°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 (%)
FI-02	4,000 scfm Landfill Gas Utility Flare		LFG Specialties, LLC	PCFT124110	5/15/2015	1834	65.62									

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 (acfm)	Net Heating Value of Stream(s) (Btu/scf)	Removal Efficiency (%)	Flare Rated Capacity (MMBtu/hr)
FI-02	Landfill and Plant	nonassisted	4,000 cfm at 50% methane	500	98	120

Division for Air Quality

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(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

Source Name: Boyd County Sanitary Landfill

KY EIS (AFS) #: 21- 019-00113

Permit #: V-16-053

Agency Interest (AI) ID: 40319

Date: 1/15/2022

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)
1	Municipal Solid Waste Landfill	1	MSW Landfill	4,000 cfm Utility Flare	FI-02	Fugitive		NMOC		Ap-42	75.00%	98.00%	See attached	See attached	See attached	See attached
FL-02	4,000 CFM Utility Flare	1	MSW Landfill	N/A	N/A	FI-02	240,000 scf/hr	NMOC	N/A	Ap-42	100.00%	98.00%	See attached	See attached	See attached	See attached
RD-01	Paved and unpaved roads	1	MSW Landfill	Water truck	Water Truck	N/a		PM10		Ap-42	Fugitive		See attached	See attached	See attached	See attached
4	Material Handling and Storage	1	MSW Landfill	Water truck	Water Truck	N/a		PM10		Ap-42	Fugitive		See attached	See attached	See attached	See attached
FL-03	Passive Landfill Flares	1	MSW Landfill	N/a	N/a	FL-03	21,600	NMOC	N/A	Ap-42	75	98	See attached	See attached	See attached	See attached

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)
1	MSW Landfill	MSW landfill					Ambient	Ground
RD-01	Paved and unpaved haul roads	MSW landfill					Ambient	Ground
4	Material Handling	MSW landfill					Ambient	Ground

Section N.4: Notes, Comments, and Explanations

Division for Air Quality

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

DEP7007V

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: Boyd County Sanitary Landfill

KY EIS (AFS) #: 21- 019-001133

Permit #: V-16-053

Agency Interest (AI) II 40319

Date: 1/15/2022

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)
1, FL-02, FL-03	Municipal Solid Waste Landfill	40 CFR 62, Subpart OOOO	NMOC	N/A	N/A	N/A	Well field and Surface Emission Monitoring
1, FL-02, FL-03	Municipal Solid Waste Landfill	40 CFR 63, Subpart AAAA	NMOC	N/A	N/A	N/A	Well field and Surface Emission Monitoring
1, FL-02, FL-03	Municipal Solid Waste Landfill	40 CFR 61, subpart M	Asbestos	N/A	N/A	N/A	Recordkeeping
1, FL-02, FL-03	Municipal Solid Waste Landfill	401 KAR 53:010	Ambient air	N/A	N/A	N/A	Well field and Surface Emission Monitoring
FL-02, FL-03	Municipal Solid Waste Landfill	401 KAR 63:015	NMOC	N/A	N/A	4,000 cfm and 360 cfm	Testing in accordance with 60.18
RD-01	Paved and unpaved haul roads	401 KAR 63:010	PM	N/a	N/A	N/A	Recordkeeping
4	Material Handling and Storage	401 KAR 63:010	PM	N/A	N/A	N/A	Recordkeeping

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
1	Municipal Solid Waste Landfill	NMOC	40 CFR 62 Subpart OOO, 40 CFR 63 Subpart AAAA, 401 KAR 53:010, 401 KAR 63:015	Varies	Well head monitoring for temperature and pressure monthly, quarterly surface emission monitoring, monitoring of flow to flares (once ever 15 minutes)

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
1	Municipal Solid Waste Landfill	NMOC	40 CFR 62 Subpart OOO, 40 CFR 63 Subpart AAAAA, 401 KAR 53:010, 401 KAR 63:015	Varies	Records of well head monitoring for temperature and pressure monthly, quarterly surface emission monitoring, and flow to flares (once ever 15 minutes). Other assorted records as required by 40 CFR 63, Subpart AAAAA
RD-01	Paved and unpaved haul roads	PM	401 KAR 63:010	Number of trucks	Number of trucks and weight of trucks entering the facility. Distance traveled on paved and unpaved roads
4	Material Handling	PM	401 KAR 63:010	Material hauled	Amount of material handled during blasting and soil cover operations
1	Municipal Solid Waste Landfill	Asbestos	40 CFR 61, Subpart M	Asbestos containing loads	Retention of receipt tickets for asbestos containing loads, Documentation of rejected loads, location of asbestos disposal
SA-01	Solidification	HAP	401 KAR 63:020	Amount and type of material processed	Maintain records of the amount and types of waste processed

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
All	All	varies	40 CFR 62, Subpart OOO, 40 CFR 63, Subpart AAAA, 40 CFR 61, Subpart M, 401 DAR 63:010, 401 KAR 63:015, 401 KAR 63:010	Varies	Semi-annual deviation report, Emission Inventory Report, Annual Report under 40 CFR 63, Subpart AAAA

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
FL-02	4,000 cfm Utility Flare	NMOC	40 CFR 62, Subpart OOO, 40 CFR 63, Subpart AAAA, 401 KAR 63:010, 401 KAR 63:015,	Visible emission, exit velocity	Visible emissions and exit velocity testing as required by 40 CFR 60.18
1	Municipal Solid Waste Landfill	NMOC	40 CFR 62 Subpart OOO, 40 CFR 63 Subpart AAAA, 401 KAR 53:010, 401 KAR 63:015	Methane	quarterly surface emission monitoring

Section V.6: Notes, Comments, and Explanations

PTE Particulate Matter (PM₁₀/PM_{2.5}) from Cement Batch Process Silo and Material Handling Operations

Assumptions:

Silo Design Capacity	50	tons/hr	
Mix Truck Capacity	25	tons/hr	
Operating Hours	8760	hr/yr	
Cartridge Vent Control Efficiency	99.9	%	Silo Carriage Vent and Bag Filter Vent
Bag Filter Vent Control Efficiency	99.6	%	integral to silo/weigh hopper unit design

Operation Description	Emission Factors ¹		Processing Rate		Total Hourly Emissions ²		Total Annual Emissions ²	
	PM	PM ₁₀	(tons/hr)	(tons/yr)	PM	PM ₁₀	PM	PM ₁₀
	(lb/ton)	(lb/ton)			(lb/hr)	(lb/hr)	(ton/yr)	(ton/yr)
Silo Loading	0.73	0.47	50	438,000	0.04	0.02	0.16	0.10
Silo Unloading - weigh hopper	0.0048	0.0028	50	438,000	0.24	0.14	1.05	0.61

1: U.S. E.P.A., *Compilation of Air Pollutant Emission Factors, Volume I. Stationary Point and Area Sources* ("AP-42") 5th Ed., June, 2006. Section 11.12-2, Emission Factors for Concrete Batching - Uncontrolled (Cement unloading to elevated storage silo, silo unloading to weigh hopper)

2: Based upon manufacturer design specifications, control is integral to the design of the silo. Therefore, a control efficiency of 99.9%, as provided by the manufacturer, is applied to the emission factors for silo loading PM/PM₁₀ emissions.

Operation Description	Emission Factors ¹		Processing Rate		Total Hourly Emissions ²		Total Annual Emissions ²	
	PM	PM ₁₀	(tons/hr)	(tons/yr)	PM	PM ₁₀	PM	PM ₁₀
	(lb/ton)	(lb/ton)			(lb/hr)	(lb/hr)	(ton/yr)	(ton/yr)
Sand Transfer to elevated bin ³	0.0021	0.00099	25	219,000	0.05	0.02	0.23	0.11
Aggregate Transfer to elevated bin ³	0.0069	0.0033	25	219,000	0.17	0.08	0.76	0.36
Sand /Aggregate -weigh hopper ³	0.0048	0.0028	25	219,000	0.12	0.07	0.53	0.31
Mix Truck Loading	1.118	0.31	25	219,000	0.11	0.03	0.49	0.14

1: U.S. E.P.A., *Compilation of Air Pollutant Emission Factors, Volume I. Stationary Point and Area Sources* ("AP-42") 5th Ed., June, 2006. Section 11.12-2, Emission Factors for Concrete Batching - Uncontrolled (Sand and aggregate transfer to elevated bin, sand/aggregate loading to weigh hopper, mix truck loading).

2: Based upon manufacturer design specifications, control is integral to the design of the weigh hopper unloading system to mix trucks. A control efficiency of 99.6%, as provided by the manufacturer, is applied to the emission factors for the mix truck loading PM/PM₁₀ emissions.

3: Processing rate for sand/aggregate transfer to elevated bins and weigh hopper are limited by the processing rate of the mix truck loading.

Total Process PM₁₀/PM_{2.5} Emissions (tpy) =
PM₁₀/PM_{2.5} = Regulated Pollutants

1.63

(Assumes PM₁₀=PM_{2.5})

INPUT REVIEW

Landfill Name or Identifier: Boyd County Landfill

LANDFILL CHARACTERISTICS

Landfill Open Year **2004**

Landfill Closure Year (with 80-year limit) **2083**

Actual Closure Year (without limit)

Have Model Calculate Closure Year?

Waste Design Capacity **30,138,406** *short tons*

MODEL PARAMETERS

Methane Generation Rate, k **0.040** *year-1*

Potential Methane Generation Capacity, Lo **100** *m3/Mg*

NMOC Concentration **595** *ppmv as hexane*

Methane Content **50** *% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **Total landfill gas**

Gas / Pollutant #2: **Methane**

Gas / Pollutant #3: **Carbon dioxide**

Gas / Pollutant #4: **NMOC**

Description/Comments:

WASTE ACCEPTANCE RATES

Year	(Mg/year)	(short tons/year)
2004	102,367	112,604
2005	196,655	216,320
2006	277,255	304,980
2007	504,401	554,841
2008	635,560	699,116
2009	576,281	633,909
2010	610,455	671,501
2011	702,830	773,113
2012	688,244	757,068
2013	810,193	891,212
2014	1,349,611	1,484,572
2015	1,351,725	1,486,898
2016	551,716	606,888
2017	344,590	379,049
2018	90,956	100,052
2019	88,971	97,868
2020	100,325	110,357
2021	111,611	122,772
2022	159,091	175,000
2023	159,091	175,000
2024	159,091	175,000
2025	159,091	175,000
2026	159,091	175,000

RESULTS

Landfill Name or Identifier: Boyd County Landfill

Closure Year (with 80-year limit) = 2083

Please choose a third unit of measure to the emission rates below.

Methane = 50 % by volume

User-specified Unit:

Year	Waste Accepted		Waste-In-Place		NMOC	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)	(Mg/year)	(av ft ³ /min)
2004	102,367	112,604	0	0	0	0
2005	196,655	216,320	102,367	112,604	1.716E+00	3.216E-02
2006	277,255	304,980	299,022	328,924	4.944E+00	9.267E-02
2007	504,401	554,841	576,276	633,904	9.397E+00	1.761E-01
2008	635,560	699,116	1,080,677	1,188,745	1.748E+01	3.277E-01
2009	576,281	633,909	1,716,237	1,887,861	2.745E+01	5.145E-01
2010	610,455	671,501	2,292,518	2,521,770	3.603E+01	6.753E-01
2011	702,830	773,113	2,902,974	3,193,271	4.485E+01	8.406E-01
2012	688,244	757,068	3,605,804	3,966,384	5.487E+01	1.028E+00
2013	810,193	891,212	4,294,047	4,723,452	6.425E+01	1.204E+00
2014	1,349,611	1,484,572	5,104,240	5,614,664	7.531E+01	1.412E+00
2015	1,351,725	1,486,898	6,453,851	7,099,236	9.497E+01	1.780E+00
2016	551,716	606,888	7,805,576	8,586,134	1.139E+02	2.135E+00
2017	344,590	379,049	8,357,293	9,193,022	1.187E+02	2.225E+00
2018	90,956	100,052	8,701,883	9,572,071	1.198E+02	2.246E+00
2019	88,971	97,868	8,792,839	9,672,123	1.166E+02	2.186E+00
2020	100,325	110,357	8,881,810	9,769,991	1.135E+02	2.128E+00
2021	111,611	122,772	8,982,135	9,880,348	1.108E+02	2.076E+00
2022	159,091	175,000	9,093,745	10,003,120	1.083E+02	2.030E+00
2023	159,091	175,000	9,252,836	10,178,120	1.067E+02	2.001E+00
2024	159,091	175,000	9,411,927	10,353,120	1.052E+02	1.972E+00
2025	159,091	175,000	9,571,018	10,528,120	1.037E+02	1.945E+00
2026	159,091	175,000	9,730,109	10,703,120	1.023E+02	1.918E+00

**Boyd County Sanitary Landfill
Fugitive NMOC Emissions**

Fugitive NMOC Emissions were calculated using the following equation(a):

$$CM_p = \left[UM_p * \left(1 - \frac{n_{col}}{100} \right) \right]$$

where: CM_p = Controlled mass emissions of NMOC.
 UM_p = Uncontrolled mass emissions of NMOC, calculated by the EPA Landfill Gas
 n_{col} = Collection efficiency of the landfill gas collection system

Uncontrolled Mass Emissions of NMOC:	102.30 MG/yr
Conversion to Tons	1.10 tons/Mg
Uncontrolled Mass Emissions of NMOC:	112.77 Ton/yr
Collection Efficiency:	75.00%

Using the above referenced values, the controlled mass emissions of NMOC for 2026 is as follows:

$$CM_p = \left[112.77 * \left(1 - \frac{75}{100} \right) \right]$$

Total fugitive emissions of NMOC for 2026 = 28.19 tons

Boyd County Sanitary Landfill Potential to Emit Calculation

Calculate Potential to Emit using maximum flow rate and operating hours.

Maximum Flow:	4000.00 cfm
Hours:	8760 hours
Typical Gas Quality:	500.00 btu/ft ³ (LHV)

Calculate maximum throughput in mmbtu/hr:

4000 cfm	x	500 btu/ft ³	x	1 mmbtu/1,000,000 btu	=	2.00 mmbtu/min
						120.00 mmbtu/hr

Emission Rates:

SO ₂	231.742 lbs/mmcf	(1,400 ppm H ₂ S)
NO _x	0.068 lbs/mmbtu	AP-42
NMOC	0.003 lbs/mmbtu	material balance
CO	0.310 lbs/mmbtu	AP-42
PM-10	17.000 lbs/mmcf-ch ₄	AP-42
PM-2.5	17.000	
	lbs/mmcf-ch ₄	Per AP-42 - the same emissions factor can be used for PM10 and PM2.5

Calculate 2020 Emissions for Criteria Pollutants

	Actual
CO	
120.00 mmbtu/hr x 0.31 lbs/mmbtu x 8760.00 hrs =	325872.00 lbs/year
	162.94 tons/year
NO_x	
120.00 mmbtu/hr x 0.068 lbs/mmbtu x 8760.00 hrs =	71481.60 lbs/year
	35.74 tons/year
PM-10/2.5	
17.00 lbs/mmcf CH ₄ 2102.40 mmcf/yr x 0.5 % CH ₄ =	17870.40 lbs/year
	8.9352 tons/year
SO₂	
2102.40 mmcf/yr x 231.742 lbs/mmcf =	##### lbs/year
	243.61 tons/year
NMOC	
120.00 mmbtu/hr x 0.003 lbs/mmbtu x 8760.00 hrs =	3153.60 lbs/year
	1.58 tons/year

Influent Sulfur Compound	Concentration (ppm)*	Molecular Formula	Number of Sulfur Atoms	Resulting SO2 Emission Rate (lbs/MMcf)
Hydrogen Sulfide	1400.00	H2S	1	231.742

The sample calculation provided below demonstrates how the lbs/MMcf of landfill gas was obtained for Hydrogen Sulfide (H2S):

$$(1400 \text{ ft}^3 \text{ H}_2\text{S/MMcf LFG}) \times (1 \text{ ft}^3 \text{ SO}_2/\text{ft}^3 \text{ H}_2\text{S}) \times (64.06 \text{ lbs SO}_2/\text{mole}) / (387 \text{ ft}^3/\text{mol}) = 231.742 \text{ lbs SO}_2/\text{MMcf}$$

Boyd County Sanitary Landfill
HAP Calculations from the Utility Flare

LFG Compound	Cas Number	MW (lb/lb-mol)	Compound Conc & Mass in Inlet Gas	Flare Uncontrolled		Control Efficiency (%)	Flare Controlled Emissions (TPY)
			(ppmv) ^a	(lb/yr)	ton/yr		
Ethylbenzene	100-41-4	106.17	4.61	2.71E+03	1.36E+00	91	1.22E-01
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	147	0.21	1.73E+02	8.67E-02	99.7	2.60E-04
Ethylene dibromide (1,2 dibromoethane)	106-93-4	187.88	0.001	1.04E+00	5.20E-04	99.7	1.56E-06
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	98.96	0.41	2.23E+02	1.12E-01	99.7	3.35E-04
Acrylonitrile (Propenenitrile)	107-13-1	53.06	6.33	1.86E+03	9.30E-01	91	8.37E-02
Methyl Isobutyl Ketone (hexone)	108-10-1	100.16	1.87	1.04E+03	5.19E-01	91	4.67E-02
Toluene (methylbenzene)	108-88-3	92.14	39.3	2.00E+04	1.00E+01	91	9.02E-01
Chlorobenzene (monochlorobenzene)	108-90-7	112.56	0.25	1.58E+02	7.92E-02	99.7	2.37E-04
Hexane	110-54-3	86.18	6.57	3.14E+03	1.57E+00	91	1.41E-01
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	165.83	3.73	3.42E+03	1.71E+00	99.7	5.14E-03
Xylenes (m, o, p)	1330-20-7	106.17	12.1	7.11E+03	3.56E+00	91	3.20E-01
Carbonyl Sulfide	463-58-1	60.07	0.49	1.63E+02	8.15E-02	91	7.33E-03
Carbon Tetrachloride	56-23-5	153.84	0.004	3.41E+00	1.70E-03	99.7	5.11E-06
Chloroform (trichloromethane)	67-66-3	119.38	0.03	1.98E+01	9.92E-03	99.7	2.97E-05
Benzene	71-43-2	78.12	1.91	8.26E+02	4.13E-01	91	3.72E-02
Chloromethane (methyl chloride)	74-87-3	50.49	1.21	3.38E+02	1.69E-01	99.7	5.07E-04
Chloroethane (ethyl chloride)	75-00-3	64.52	1.25	4.47E+02	2.23E-01	99.7	6.70E-04
Vinyl Chloride (chloroethylene, VCM)	75-01-4	62.50	7.34	2.54E+03	1.27E+00	99.7	3.81E-03
Carbon Disulfide	75-15-0	76.14	0.58	2.46E+02	1.23E-01	91	1.11E-02
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	98.96	2.35	1.29E+03	6.44E-01	99.7	1.93E-03
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	96.94	0.20	1.08E+02	5.39E-02	99.7	1.62E-04
1,2 - Dichloropropane (propylene dichloride)	78-87-5	112.99	0.18	1.13E+02	5.63E-02	99.7	1.69E-04
Methyl Ethyl Ketone (2-butanone)	78-93-3	72.11	7.09	2.83E+03	1.42E+00	91	1.27E-01
1,1,2 - Trichloroethane (1,1,2 TCA)	79-00-5	133.41	0.10	7.39E+01	3.69E-02	99.7	1.11E-04
Trichloroethylene (trichloroethene)	79-01-6	131.38	2.82	2.05E+03	1.03E+00	99.7	3.08E-03
1,1,2,2 - Tetrachloroethane	79-34-5	167.85	1.11	1.03E+03	5.16E-01	99.7	1.55E-03
Total HAP				51964.19	26.0		1.82E+00
Maximum Single HAP				Toluene	10.02		0.90

Calculation Sheet for Boyd County Sanitary Landfill
Paved Roads - daily traffic PM

$$E = [k(sL)^{0.91}(W)^{1.02}] [1-(P/4N)]$$

where:

k	0.00054	base emission factor for particle size range and units of interest
sL	7.4	road surface silt loading (g/m ²)
W	25	mean vehicle weight (tons)
P	120	number of "wet" days with at least (0.01 in) of precipitation
N	365	number of days in the averaging period
C	0.00047	emission factor for 1980's vehicle fleet

Vehicles	Number of loads	Mean vehicle weight (tons)	Emission Factor (lbs/VMT)	Distance Traveled (mi)	Particulate Control (%)	Uncontrolled Emissions (tons)	Controlled Emissions (tons)
Total Gate Tickets	70000	25	0.0817	1.00	75%	2.86	0.71
Total Controlled Emissions:							0.71

Note: The emissions for vehicle exhaust, brake wear and tire wear are included in this calculation.

Paved Roads - daily traffic PM10

$$E = [k \cdot (sL)^{0.91} \cdot (W)^{1.02}] \cdot [1 - (P/4N)]$$

where:

k	0.0022	base emission factor for particle size range and units of interest
sL	7.4	road surface silt loading (g/m ²)
W	21.5	mean vehicle weight (tons)
P	140	number of "wet" days with at least (0.01 in) of precipitation
N	365	number of days in the averaging period
C	0.00047	emission factor for 1980's vehicle fleet

Vehicles	Number of loads	Mean vehicle weight (tons)	Emission Factor (lbs/VMT)	Distance Traveled (mi)	Particulate Control (%)	Uncontrolled Emissions (tons)	Controlled Emissions (tons)
Total Gate Tickets	70000	25	0.3486	1.00	75%	12.20	3.05
Total Controlled Emissions:							3.05

Note: The emissions for vehicle exhaust, brake wear and tire wear are included in this calculation.

Unpaved roads -daily traffic PM

$$E = (k(s/12))^a (W/3)^b$$

where:

s	6.4	surface material silt content (%)
W	21.5	mean vehicle weight (ton)
k	4.9	constant, AP-42 Table 13.2.2-2
a	0.7	constant, AP-42 Table 13.2.2-2
b	0.45	constant, AP-42 Table 13.2.2-2

Vehicles	Number of loads	Mean vehicle weight (tons)	Emission Factor (lbs/VMT)	Distnce Traveled (mi)	Particulate Control (%)	Uncontrolled Emissions (tons)	Controlled Emissions (tons)
Total Gate Tickets	70000	25	8.19	2.00	75%	573.54	143.38
						Total Controlled Emissions:	143.38

$$E = (k(s/12)^a(W/3)^b)$$

S

6.4

W

21.5

k

1.5

a

0.9

b

0.45

constant, AP-42 Table 13.2.2-2

Vehicles	Number of loads	Mean vehicle weight (tons)	Emission Factor (lbs/VMT)	Distnce Traveled (mi)	Particulate Control (%)	Uncontrolled Emissions (tons)	Controlled Emissions (tons)
Total Gate Tickets	70000	25	2.21	2.00	75%	154.83	38.71
Total Controlled Emissions:							38.71

$$E = (k(s/12))^a (W/3)^b$$

S

6.4

mean vehicle weight (ton) [= 23.5 ton empty, 46.5 ton loaded]

W

35

k

4.9

constant, AP-42 Table 13.2.2-2

a

0.7

constant, AP-42 Table 13.2.2-2

b

0.45

constant, AP-42 Table 13.2.2-2

Activity	Number of loads	Mean vehicle weight (tons)	Emission Rate (lbs/VMT)	Distance Traveled (mi)	Particulate Control (%)	Uncontrolled Emissions (tons/yr)	Controlled Emissions (tons/yr)
Cover / construction	7000	35	9.53	2.00	75%	66.73	16.68
Total Controlled Emissions:							16.68

Calculation Sheet for Boyd County Sanitary Landfill
Material handling - loading/unloading PM

$$E = (k(0.0032) [(U/5)^{1.3} / (M/2)^{1.4}]) \quad \text{AP-42, Section 13.2.4, Equation 1}$$

where:

k	0.74	particle size multiplier
U	11	mean wind speed, miles per hour
Ma	0.7	moisture content of aggregate
Mc	10	moisture content of liner clay
Ms	12	moisture content of cover soil

Material	Tonnage	k	U	Moisture Content (%)	Emission Factor (lb/ton)	Emission (ton/yr)
Aggregate	4000	0.74	11.00	0.70	0.0212	0.04
Liner clay	27,500	0.74	11.00	10.00	0.0005	0.01
Structural fill	350,000	0.74	11.00	12.00	0.0004	0.07
Cover soil	3,000	0.74	11.00	12.00	0.0004	0.00
Total Material Handling PM Emissions:						0.12

Material handling - loading/unloading PM10

$$E = (k(0.0032) [(U/5)^{1.3} / (M/2)^{1.4}] \quad \text{AP-42, Section 13.2.4, Equation 1}$$

where:	k	0.35	particle size multiplier
	U	11	mean wind speed, miles per hour
	Ma	0.7	moisture content of aggregate
	Mc	10	moisture content of liner clay
	Ms	12	moisture content of cover soil

Material	Tonnage	k	U	Moisture Content (%)	Emission Factor (lb/ton)	Emission (ton/yr)
Aggregate	4,000	0.35	11.00	0.70	0.0100	0.02
Liner clay	27,500	0.35	11.00	10.00	0.0002	0.00
Structural fill	350,000	0.35	11.00	10.00	0.0002	0.04
Cover soil	3,000	0.35	11.00	12.00	0.0002	0.00
Total Material Handling PM10 Emissions:						0.07

Material handling -site operations

Vehicle Type	Unit Quantity (units)	Emission Rate (lbs/VMT)	Daily Duration (hours)	Daily Emissions (tons)	Working Days (day/yr)	Uncontrolled Emissions (tons/yr)	Controlled Emissions (tons/yr)
Landfill Compactors	1	1.5	9.0	0.03	286.0	9.65	2.41
Construction Dozers	2	1.5	9.0	0.07	286.0	19.31	4.83
Road Maintenance Dozers	1	1.5	1.0	0.00	225.0	0.84	0.21
Total Controlled Emissions:							7.45

* AP-42, Section 13.2.2 (dated 11/06)

† at an average speed of 5 miles per hour (mph); includes forward, reverse, and stopped (waiting) activity.

Total PM: 7.57
Total PM10: 0.07