Title V Operating Permit

Initial Application for Permit

Lea County Landfill

Eunice, New Mexico

Submitted To:

NMED Air Quality Bureau
Permitting Section
525 Camino De Los Marquez
Santa Fe, New Mexico 87505
505.476.4300

Prepared For:

Lea County Solid Waste Authority
100 North Main St., Suite 4
Lovington, New Mexico 88260
575.391.2983

Lea County Landfill
3219 E. State Rd 176
Eunice, NM 88231
575.394.9104

Prepared By:

Parkhill
333 Rio Rancho Blvd., Suite 400
Rio Rancho, New Mexico 87124
505.867.6990

September 16, 2020

Parkhill Project # 01041720

Parkhill

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		AIRS No.:

Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

This application is submitted as (check all that apply)**:** ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☑ Title V (new) ☐ Title V renewal ☐ TV minor mod. ☐ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

Acknowledgements:
☑ I acknowledge that a pre-application meeting is available to me upon request. ☑ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
☐ Check No.: in the amount of
☑ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance program (SBEAP) and qualifies for 50% of the normal application and permit fees. Enclosed is a check for 50% of the normal application fee which will be verified with the Small Business Certification Form for your company.
☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance Program (SBEAP) but does not qualify for 50% of the normal application and permit fees. To see if you qualify for SBEAP assistance and for the small business certification form go to https://www.env.nm.gov/aqb/sbap/small_business_criteria.html).

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.B.(1) NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **3947**	Updating Permit/NOI #:
1	Facility Name: **Lea County Landfill**	Plant primary SIC Code (4 digits): **4953**	
		Plant NAIC code (6 digits): **562212**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **3219 East State Road 176, Eunice, NM, 88231**		
2	Plant Operator Company Name: **Waste Connections, Inc.**	Phone/Fax: **832.442.2200**	
a	Plant Operator Address: **3 Waterway Square Place, The Woodlands, TX 77380**		
b	Plant Operator's New Mexico Corporate ID or Tax ID: **85-6000226**		

3	Plant Owner(s) name(s): **Lea County Solid Waste Authority**	Phone/Fax: **575.391.2961**
a	Plant Owner(s) Mailing Address(s): **100 North Main Street, Suite 4, Lovington, NM, 88260**	
4	Bill To (Company): **Lea County Solid Waste Authority**	Phone/Fax: **575.391.2961**
a	Mailing Address: **100 North Main Street, Suite 4, Lovington, NM, 88260**	E-mail: **LVelasquez@leacounty.net**
5	☐ Preparer: ☑ Consultant: **Parkhill**	Phone/Fax: **505.867.6990/505.867.6991**
a	Mailing Address: **333 Rio Rancho Blvd, Suite 400, Rio Rancho NM, 87124**	E-mail: **Mcrepeau@Parkhilll.com**
6	Plant Operator Contact: **Israel Galindo, Landfill Manager**	Phone/Fax: **575.394.9109/575.394.4210**
a	Address: **3219 E. State Road 176, Eunice, NM**	E-mail: **Israelg@r360es.com**
7	Air Permit Contact: **Lorenzo Velsquez**	Title: **Director, Lea County Environmental Services**
a	E-mail: **lvelasquez@leacounty.net**	Phone/Fax: **575.391.2983**
b	Mailing Address: **100 North Main Street, Suite 4, Lovington, NM, 88260**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☐ Yes ☑ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☑ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐Yes ☐No ☑N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☑No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☐ Yes ☑ No	If yes, the permit No. is:
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
b	Proposed	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
b	Proposed	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**

Section 1-D: Facility Location Information

1	Section: **4**	Range: **38 E**	Township: **22 S**	County: **Lea**	Elevation (ft): **3435**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☑ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **681,540**			UTM N (in meters, to nearest 10 meters): **3,588,940**	
b	**AND** Latitude (deg., min., sec.): **32° 25.367' N**			Longitude (deg., min., sec.): **103° 4.158' W**	
3	Name and zip code of nearest New Mexico town: **Eunice, NM 88231**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From the intersection of NM-176 (Texas Ave) and NM-207 (Main St), Drive east on NM 176 for 5 miles to facility entrance, turn right into the facility.**				
5	The facility is: **5 miles East of Eunice, New Mexico.**				
6	Status of land at facility (check one): ☑ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **Eunice, NM** **Lea County, New Mexico** **Andrews County, Texas** **Gaines County, Texas**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **NA-Not a Part 72 Permit Application.**				
9	Name nearest Class I area: **Carlsbad Caverns National Park**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **131.910 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **Urenco Uranium Enrichment Plant is 692 meters from the AO, the nearest residence is 4,788 m**				
12	Method(s) used to delineate the Restricted Area: **The facility property is completely enclosed by a chain link or barbed-wire fence equipped with locking gate.** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☑ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **11.5 hours/day** **Monday through Saturday, 313 days per year.**	($\frac{\text{days}}{\text{week}}$): **6**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **3599.5**		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **6:30**		☑AM ☐PM	End: **6:00**	☐AM ☑PM	
3	Month and year of anticipated start of construction: **N/A**					
4	Month and year of anticipated construction completion: **N/A**					

5	Month and year of anticipated startup of new or modified facility: **N/A**
6	Will this facility operate at this site for more than one year? ☑Yes ☐No

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☑ No If yes, specify:		
a	If yes, NOV date or description of issue: **N/A**		NOV Tracking No: **N/A**
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☑ No If Yes, provide the 1c & 1d info below:		
c	Document Title: **N/A**	Date: **N/A**	Requirement # (or page # and paragraph #): **N/A**
d	Provide the required text to be inserted in this permit: **N/A**		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☑ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☑ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☑Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☑ **Minor** (☐ <10 tpy of any single HAP **AND** ☑ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☑ No		
a	If yes, include the name of company providing commercial electric power to the facility: **NA** Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user. **NA**		

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." ☑ N/A (This is not a Streamline application.)

Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): **Mr. Lorenzo Velasquez**	Phone: **575.391.2983**
a	R.O. Title: **Director of Environmental Services**	R.O. e-mail: **LVelasquez@leacounty.net**
b	R. O. Address: **1019 East Bender Blvd, Hobbs, NM 88240**	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **Mr. Israel Galindo**	Phone: **575.394.9104**
a	A. R.O. Title: **Facility Manager**	A. R.O. e-mail: **IsraelG@r360es.com**
b	A. R. O. Address: **3219 E. State Rd 176, Eunice, NM 88231**	
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**	
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **Lea County Solid Waste Authority**	
a	Address of Parent Company: **1019 East Bender Blvd, Hobbs, NM 88240**	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): **N/A**	

6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: **N/A**
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: **Yes; The eastern boundary of LCLF is located concurrent with the TX/NM state boundary (0 km)**

Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

Hard Copy Submittal Requirements:

1) One hard copy **original signed and notarized application package** **printed double sided** **'head-to-toe'** **2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be head-to-head. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. Please include a copy of the check on a separate page.

2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This copy should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.

3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two** CD copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a single CD submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☑ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.

5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.

6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
   a. one additional CD copy for US EPA,
   b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

   If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

Electronic Submittal Requirements [in addition to the required hard copy(ies)]:

1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

3) It is preferred that this application form be submitted as 4 electronic files (3 MSWord docs: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and 1 Excel file of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.

4) The electronic file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the core permit number (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the section # (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the header information throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

Application for Title V Operating Permit
Lea County Landfill

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Section 7: Information Used to Determine Emissions

Attachment 7.1: Equipment Manufacturer's Specification Sheets

Attachment 7.2: AP-42 Sections

Attachment 7.3: NMED AQB Lists of Insignificant and Trivial Activities

Attachment 7.4: Motor Oil and Vehicle Maintenance Fluid MSDS data

Section 8: Map(s)

Figure 8.1: Site Location Map

Section 9: Proof of Public Notice

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Section 12: PSD Applicability Determination for All Sources & Special Requirements for a PSD Application

Section 13: Discussion Demonstrating Compliance with Each Applicable State & Federal Regulation

Section 14: Operational Plan to Mitigate Emissions

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Section 16: Air Dispersion Modeling

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Section 18: Addendum for Streamline Applications (streamline applications only)

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Section 20: Other Relevant Information

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Section 22: Certification Page

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Landfill Roads	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	30502504	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
2	General Landfill Operations	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	30502504	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
3	Landfill Gas	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	50410310	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
4	Petroleum Contaminated Soils Landfarm	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	50410310	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
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										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at http://www.env.nm.gov/aqb/forms/InsignificantListTitleV.pdf . TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
2.a	Portable Gasoline-Powered Air Compressor	Ingersol Rand	2475F14G	14	20.2.72.202.A.2	2017	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	HP	Item 6; Portable gas engine < 500 HP	2017	
2.b	Portable Light Plant/Generator	Allmand	ML8	8	20.2.72.202.B.5	2014	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	KW	Item 6; Portable diesel engine < 200 HP	2014	
2.c	Used Oil Tank	N/A	N/A	250	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gallon	Item #5. Vapor pressure <10 mm Hg	N/A	
2.d	Diesel Fuel Tank (1,000-Gallon)	N/A	N/A	1,000	N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gallon	Item #8, < 25,000 gallons	N/A	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	Water Truck	N/A	Fugitive Dust Emissions	1,2	60%	AQB Guidance
2	Application of Pavement	N/A	Fugitive Dust Emissions	1	95%	AQB Guidance

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (under normal operating conditions)

☐ **This Table was intentionally left blank because it would be identical to Table 2-E.**

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1,2]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	0	0	0	0	0	0	0	0	195.00	264.30	52.60	71.40	5.30	7.10	0	0	0	0
2	0	0	0	0	0	0	0	0	73.00	33.70	19.90	9.30	1.99	0.94	0	0	0	0
3	0	0	0	0	0.90	3.96	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	4.99	21.88	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	5.89	25.84	0	0	268.00	298.00	72.50	80.70	7.29	8.04	0	0	0	0

[1]**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] **Total Suspended Particulate Matter (TSP), also referred to as "PM"** is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). TSP emissions are included in Sections 2 and 6 of this application in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM[1,2]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	0	0	0	0	0	0	0	0	69.60	94.40	18.80	25.50	1.88	2.50	0	0	0	0
2	0	0	0	0	0	0	0	0	31.80	16.40	8.70	4.60	0.88	0.47	0	0	0	0
3	0	0	0	0	0.90	3.96	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	4.99	21.88	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	5.89	25.84	0	0	101.40	110.80	27.50	30.1	2.76	2.97	0	0	0	0

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] **Total Suspended Particulate Matter (TSP), also referred to as "PM"** is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). TSP emissions are included in Sections 2 and 6 of this application in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

☐ This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scehduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine our predictable startup, shutdown or scheduled maintenance (SSM)[1], including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/aqb/permit/aqb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		$PM^{2,3}$		$PM10^{2}$		$PM2.5^{2}$		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals																		

[1] **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in this table. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

[2] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[3] **Total Suspended Particulate Matter (TSP), also referred to as "PM"** is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). TSP emissions are included in Sections 2 and 6 of this application in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

☑ I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of the "-" symbol and on significant figures.

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		□ H_2S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:																	

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year. For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Total HAPs		Benzene ☑HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylenes ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
N/A	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	3	0.6	2.62	0.01	0.04	0.20	0.90	0.03	0.12	0.07	0.32	-	-	-	-	-	-	-	-
N/A	4	4.99	21.88	2.16	9.46	1.97	8.60	2.14	9.38	2.10	9.18	-	-	-	-	-	-	-	-
Totals:		5.59	24.5	2.17	9.5	2.17	9.5	2.17	9.5	2.17	9.5	-	-	-	-	-	-	-	-

Table 2-J: Fuel

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-K: Liquid Data for Tanks Listed in Table 2-L

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-L2: Liquid Storage Tank Data Codes Reference Table

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	**Mechanical Shoe Seal**	**Liquid-mounted resilient seal**	**Vapor-mounted resilient seal**	**Seal Type**	**WH**: White	Good
IF: Internal Floating Roof	**A**: Primary only	**A**: Primary only	**A**: Primary only	**A**: Mechanical shoe, primary only	**AS**: Aluminum (specular)	Poor
EF: External Floating Roof	**B**: Shoe-mounted secondary	**B**: Weather shield	**B**: Weather shield	**B**: Shoe-mounted secondary	**AD**: Aluminum (diffuse)	
P: Pressure	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**LG**: Light Gray	
					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: 1.00 bbl = 0.159 M^3 = 42.0 gal

Table 2-M: Materials Processed and Produced (Use additional sheets as necessary.)

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-N: CEM Equipment

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-O: Parametric Emissions Measurement Equipment

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-P: Greenhouse Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr										Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	1	298	25	22,800											
3	mass GHG	0	0	1,445.78	0										1,445.78	
	CO_2e	0	0	36,144.50	0											36,144.50
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
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	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO2e															
	mass GHG															
	CO_2e															
Total	mass GHG	0	0	1445.78	0										1445.78	
	CO_2e	0	0	36144.5	0											36144.5

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[4] Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

[5] **CO_2e** means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

The Lea County Landfill (LCLF) is an existing solid waste facility operating in compliance with its current Solid Waste Permits SWM-130402 and SWM-130402(SP), and the New Mexico Environment Department Solid Waste Rules (20.9.2-20.9.10 NMAC). LCLF is publicly owned by the Lea County Solid Waste Authority (LCSWA) and operated under contract by Waste Connections, Inc. (WCI). LCLF is currently permitted to accept municipal solid waste (MSW), including construction and demolition debris (C&D) and tires, and the following eight special wastes:

- Treated formally characteristic hazardous wastes
- Packing house and killing plant offal
- Sludge
- Industrial solid waste
- Spill of a chemical substance or commercial product
- Petroleum contaminated soils
- Asbestos
- Special waste not otherwise specified

Following is a description of measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies for landfill operations that have the potential to emit pollutants of concern (e.g., particulates, NMOCs, HAPs, VOCs).

Landfill operations associated with the emission of particulate matter (e.g., PM_{10} and $PM_{2.5}$) consist of vehicle travel on paved and unpaved landfill roads, and general landfill operations (e.g., heavy equipment operations, wind erosion). The measures taken to mitigate fugitive particulate emissions during startups, shutdowns, and emergencies include a Kenworth Water Truck (2,000-gallon capacity), which is used on a daily basis when the landfill is operational. Fugitive dust emissions are also minimized by controlling the speed of waste delivery vehicles and landfill equipment. Signs are posted within the Landfill Operations Area and along the disposal route and landfill access roads limiting vehicle speed to 20 mph.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

Four process flow sheets are included in this Section. These flow sheets correspond to the following Emission Units:

- **Emission Unit No. 1: Landfill Roads**

  Emission Unit 1 is comprised of potential particulate emissions from vehicle travel on paved and unpaved landfill roads. **Figure 4.1** presents a process flow diagram for potential emissions from these operations.

- **Emission Unit No. 2: General Landfill Operations**

  General landfill operations include activities associated with heavy equipment operations, as well as potential fugitive emissions from wind erosion on actively disturbed areas. **Figure 4.2** presents a process flow diagram for potential emissions from landfill operations.

- **Emission Unit No. 3: Landfill Gas**

  Uncontrolled emissions of methane and non-methane organic compounds (NMOCs) can be generated as a result of anaerobic decomposition of MSW. **Figure 4.3** presents a process flow diagram for potential emissions of NMOCs and other fugitive landfill gases.

- **Emission Unit No. 4: PCS Landfarm Treatment**

  During landfarm treatment of petroleum contaminated soils (PCS), hazardous air pollutants (HAPs) may be emitted. **Figure 4.4** presents a process flow diagram for potential HAP emissions resulting from PCS landfarm treatment.

Figure 4.1
Landfill Roads Process Flow Diagram
(Emission Unit 1)

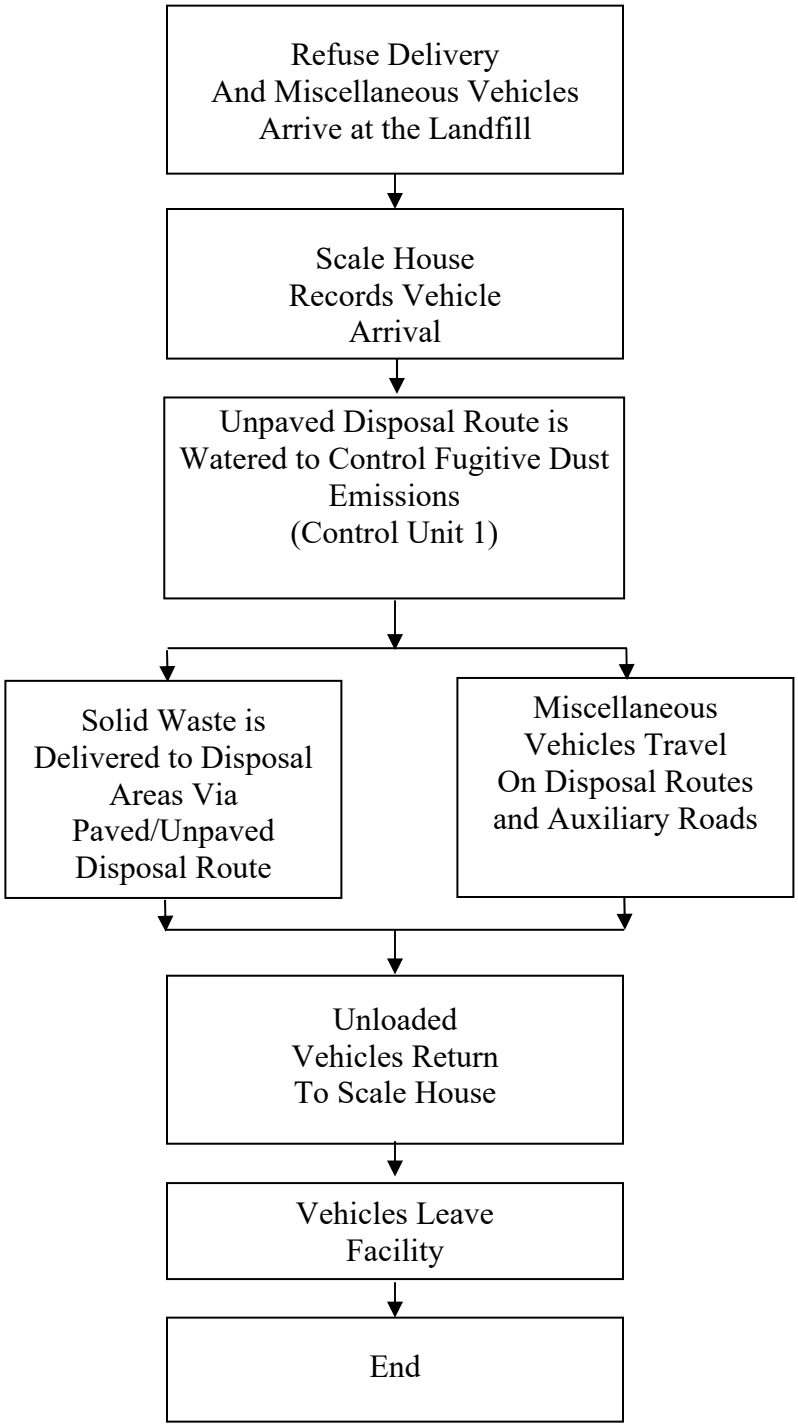


Figure 4.2
General Landfill Operations Process Flow Diagram
(Emission Unit 2)

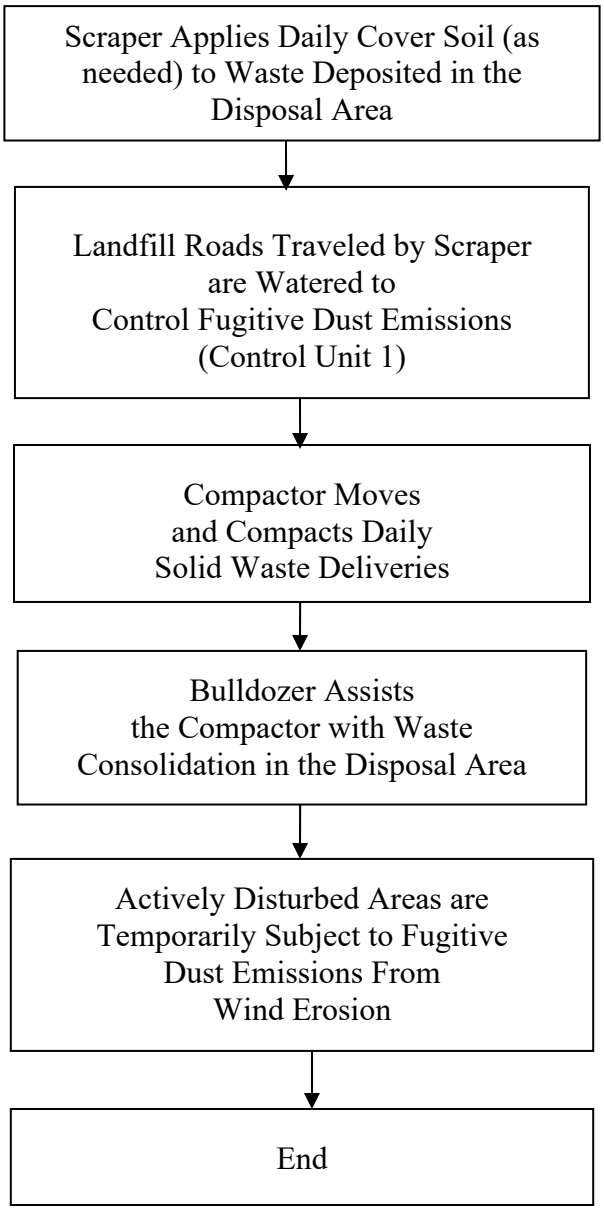


Figure 4.3
Landfill Gas Process Flow Diagram
(Emission Unit 3)

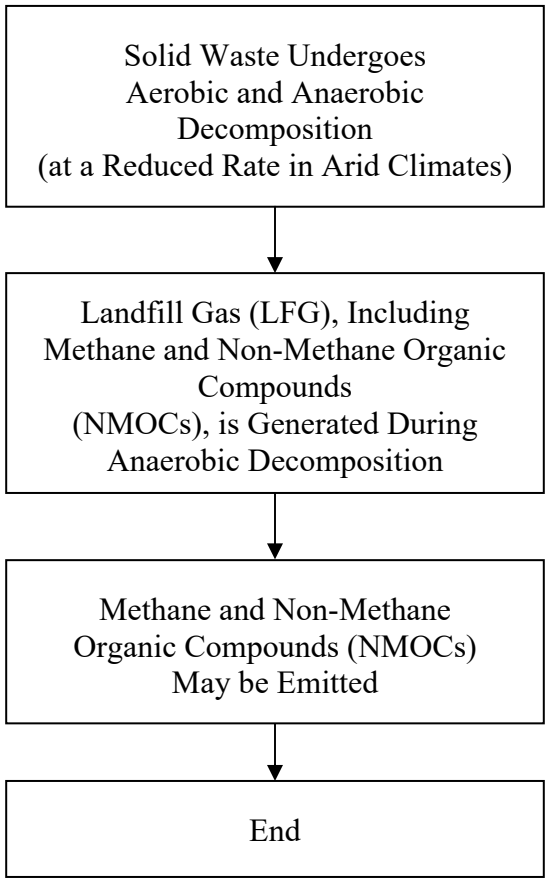
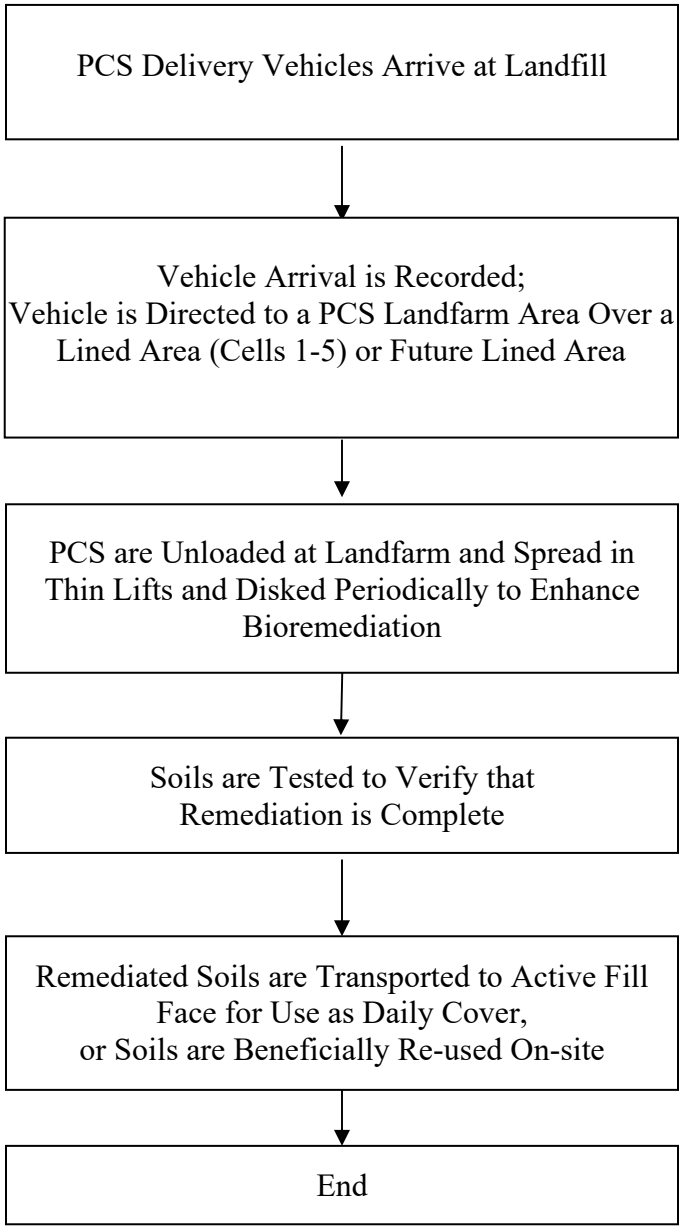


Figure 4.4
Petroleum Contaminated Soils (PCS)
Landfarm Treatment
Process Flow Diagram
(Emission Unit 4)



Section 5

Plot Plan Drawn To Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

A scaled map (Plot Plan) of LCLF showing emission points, structures, tanks, and fences is included in this section. Designated as **Figure 5.1**, the Plot Plan shows the items listed above.

TEXAS
NEW MEXICO

TEXAS
NEW MEXICO

CELL 1
(ACTIVE)
(14.92 Acres)

CELL 2
(ACTIVE)
(11.48 Acres)

CELL 3
(ACTIVE)
(11.94 Acres)

CELL 4
(ACTIVE)
(9.18 Acres)

CELL 5
(ACTIVE)
(11.94 Acres)

CELL 6
(FUTURE)
(9.18 Acres)

CELL 7
(FUTURE)
(11.94 Acres)

CELL 8
(FUTURE)
(9.18 Acres)

CELL 9
(FUTURE)
(11.94 Acres)

CELL 10
(FUTURE)
(9.18 Acres)

FUTURE MSW DISPOSAL AREA (1 ACRE)

MSW DISPOSAL AREA (1 ACRE)

COVER SOIL BORROW AREA (3 ACRES)

FUTURE MSW DISPOSAL AREA (1 ACRE)

FUTURE MSW DISPOSAL AREA (1 ACRE)

DIESEL FUEL TANK (1,000-GALLON)

SITE ENTRANCE ROAD

ADMINISTRATION CENTER

MAINTENANCE FACILITY

NORTHWEST STORMWATER BASIN

N 521500 N 521000 N 520500 N 520000 N 519500 N 519000 N 518500 N 518000 N 517500 N 517000 N 516500 N 516000

E 933000 E 932500 E 932000 E 931500 E 931000 E 930500 E 930000 E 929500

LEGEND

- FACILITY BOUNDARY (350 ACRES ±)
- SOLID WASTE BOUNDARY
- EXISTING INDEX CONTOUR 10' (12-19-2019)
- EXISTING INTERMEDIATE CONTOUR 2' (12-19-2019)
- CELL BOUNDARY
- 4-STRAND BARBED WIRE FENCE (4'-6")
- CHAIN LINK FENCE
- 30' LITTER CONTROL FENCE
- ON-SITE ACCESS ROADS
- MSW DISPOSAL ROUTE
- PAVED ROADWAY
- AUXILIARY ROADS
- ADDITIONAL AREAS SUBJECT TO WIND EROSION
- 3 EMISSION UNIT
- E 930000 / N 517500 SITE GRID

EMISSION UNITS

1. DISPOSAL ROUTE, PAVED ROADS, AND ACCESS ROADS
2. GENERAL LANDFILL OPERATIONS; CELL CONSTRUCTION, FILL FACE OPERATIONS, WIND EROSION ON DISTURBED AREAS
3. LANDFILL GAS EMISSIONS FROM WASTE
4. PETROLEUM HYDROCARBON LANDFARM

NORTH

0 200' 400'

PLOT PLAN

LEA COUNTY LANDFILL
EUNICE, NEW MEXICO

Parkhill

PROJECT #: 0417.20	DATE: 09/10/2020
DRAWN BY: DMI	REVIEWED BY: MJC
CAD: PLOT PLAN.DWG	
ISSUING OFFICE: RIO RANCHO	
WWW.PARKHILL.COM	FIGURE 5.1

Drawing:A:\2020\0417.20\03_DSGN\01_DWG\050_CIVIL\PLOT_PLAN_TV_2020 04-01-2020 6-12-20 REVISION.dwg
SIZE: ANSI-D Date/Time:Sep. 10, 2020-12:24:24 ; LAYOUT: D (LS)

Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

B. At least 5 significant figures shall be retained in all intermediate calculations.

C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

(4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

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6.0 Introduction

This Section describes the methods used to estimate potential fugitive emissions of particulate matter (PM_{10} and $PM_{2.5}$); non-methane organic compounds (NMOCs); hazardous air pollutants (HAPs); and volatile organic compounds (VOCs) from each of the following area and point sources (i.e., Emission Units:

- Emission Unit 1 – Landfill Roads
- Emission Unit 2 – General Landfill Operations
- Emission Unit 3 – Landfill Gas
- Emission Unit 4 – Petroleum Contaminated Soils Landfarm

Total Suspended Particulate Matter (TSP), also referred to as "PM" in **Tables 2-D** through **2-F** is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in **Sections 2** and **6** of this application in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Sections 6.1 and **6.2** provide discussion of the landfill activities associated with potential fugitive dust emissions. Landfill processes related to potential NMOC and VOC emissions are discussed in **Sections 6.3** and **6.4**. HAP emissions estimates are discussed in **Section 6.5.** The requirements for start-up, shutdown, and maintenance (SSM) is discussed in **Section 6.6.**; and discussion of greenhouse gas (GHG) is provided in **Section 6a.**

6.1 Landfill Roads – Emission Unit 1

Landfill roads consist of the disposal route and auxiliary roads constructed of paved and unpaved surfaces, as well as temporary graded roadways. Vehicles traveling on the unpaved portions of the disposal route and auxiliary roads (**Figure 5.1, Section 5**) have the potential to generate fugitive dust emissions. Cumulatively, potential fugitive dust emissions from vehicular traffic have been designated as Emission Unit 1. The unpaved portion of the disposal route is currently watered on a routine basis for dust control. For the purposes of this Application for Permit, approximately 3,990 feet of the total length of the disposal route is characterized as being treated with water, and auxiliary roads are characterized as not being watered due to limited vehicle travel. This Section provides emission rate estimates for the following vehicle categories:

1. Refuse Delivery Vehicles - Delivery of solid waste along the disposal route (site entrance to disposal areas), which typically occurs in one of three vehicle types:
    - Small vehicles (residential and small commercial haulers)
    - Medium vehicles (roll-off/packer trucks, dump trucks, front/side/rear loaders, front loaders, etc.)
    - Large vehicles (tractor trailers, transfer trucks, etc.)

2. Miscellaneous Vehicles - Employee vehicles (company trucks, personal vehicles) which travel on the paved and unpaved disposal route and auxiliary roads until one of three destinations is reached:
    - The Administration Center
    - The Maintenance Facility
    - Areas near the active disposal area

Detailed emissions calculations for Emission Unit 1 activities are provided in **Attachment 6.1**. To account for anticipated increases in waste receipts, a conservative escalator of 5% per annum was applied to total vehicle miles traveled (VMT) for MSW and PCS delivery vehicles. It is assumed that the VMT for miscellaneous vehicles remains constant for the Permit period.

6.1.1 Emissions from Refuse Delivery Vehicles

Potential fugitive dust emissions from solid waste delivery vehicles can occur along the disposal route (**Figure 5.1, Section 5**). Vehicles that travel on the disposal route include the three classes of refuse delivery vehicles.

Two separate equations, published in AP-42, Section 13.2.2, "Unpaved Roads (November, 2006)", were used for estimating long-term emissions (tons/yr) and short-term emissions (lbs/hr) for vehicle travel on landfill roads. The mathematical equations for both emissions estimates are similar; however, the equation used for estimating long-term emissions includes precipitation as a factor when estimating the annual emission rate. Input variables for both equations include:

- AP-42 default empirical constants.
- AP-42 default average surface material silt content.
- Average vehicle weight.
- The number of days with at least 0.01 inches of precipitation per year (long-term emissions equation only).

According to the guidance presented in AP-42, Section 13.2.2, the equations are not intended to be used to calculate separate emission factors for multiple vehicle types simultaneously. Therefore, an "average" refuse delivery vehicle was determined based on the different types of refuse delivery vehicles and their frequency of travel. The information below presents data that were provided by LCLF, as well as conservative assumptions that were made in order to perform representative calculations:

- The number of days per year with at least 0.01 inches of precipitation is 51 for the Midland/Odessa, TX area (AP-42, Figure 13.2.2-1).
- The length of the disposal route is 1.6 miles (round trip).
- The disposal route is comprised of approximately 3,990 feet (0.76 miles) of unpaved road (worst case scenario) and, approximately 585 feet (0.11 miles) of pavement.
- There is a current average of 132 round trips/day.
- The average operating year consists of 313 days/yr (6 days/week, 52 weeks/yr).
- The average refuse delivery vehicle weighs 13.51 tons (**Table 6.1**).

TABLE 6.1
Refuse Delivery Vehicle Specifications
Lea County Landfill

Vehicle Specification	Small	Medium	Large	Average
Trips/day	58	71	3	132*
Weight (tons)	7.5	17.8	29.0	13.51**

* Average number of vehicle trips per day.
** Weighted average mean vehicle weight.

6.1.2 Emissions from Miscellaneous Vehicles

Additional vehicles that travel on the disposal route and auxiliary roads include miscellaneous vehicles such as company trucks and the facility water truck (2,000-gallon-capacity). The water truck currently applies over 3.7 million gallons of water annually to the disposal route and daily fill face. The equations used for estimating potential fugitive dust emissions from these vehicles are the same equations used for refuse delivery vehicles. As with refuse delivery vehicles, an "average" miscellaneous vehicle was determined based on the different types of miscellaneous vehicles that travel on landfill roads and their frequency of travel. The information listed below was used to calculate the emissions for miscellaneous vehicle travel on the unpaved portion of the disposal route. The information below presents data that were provided by LCLF, as well as conservative assumptions that were made in order to perform representative calculations:

- The number of days per year with at least 0.01 inches of precipitation is 51 for the Midland/Odessa, TX area (AP-42, Figure 13.2.2-1).
- The length of the unpaved disposal route which is watered regularly is 2.28 miles (round trip).
- There is an average of 8 round trips/day.
- The average operating year consists of 313 days.
- The average miscellaneous vehicle weight (including the water truck) is 7.9 tons (**Table 6.2**).

TABLE 6.2
Miscellaneous Vehicle Specifications
Lea County Landfill

Vehicle Specification	Company Trucks	Water Truck	Average
Trips/day	2	6	8*
Weight (tons)	1.2	10.15	7.9**

* Average number of vehicle trips per day.
** Weighted average mean vehicle weight.

The same methodology was used to estimate the emissions from vehicle travel on the paved and unpaved portions of the disposal route, access roads, and auxiliary roads and the results are presented in **Attachment 6.1**.

6.1.3 Fugitive Dust Control Measures

Dust control measures are regularly employed during routine landfill operations in order to reduce potential fugitive dust emissions produced by landfill activities. LCLF typically applies over 3.7 million gallons of water per year to the disposal route and active fill face. A Kenworth water truck (2,000-gallon capacity) makes approximately 6 trips per day along the disposal route and daily fill face applying over 12,000 gallons of water per day to these areas. Consistent with existing New Mexico Environment Department (NMED) Air Quality Bureau (AQB) policy, an overall control efficiency of 95% was applied to the paved portion of the disposal route; and 60% was applied to unpaved roads as a dust control measure. Detailed calculations for fugitive dust control efficiencies for the disposal route and access roads are provided in **Attachment 6.3**, and fugitive dust emissions from wind activity are summarized in **Attachment 6.4**.

6.2 General Landfill Operations – Emission Unit 2

General landfill operations include solid waste disposal at the disposal area, daily soil borrow/cell construction activities, and wind erosion on actively disturbed areas; and have been designated as Emission Unit 2. Detailed emissions calculations for general landfill operations are provided in **Attachment 6.2**.

6.2.1 Disposal Area Operations and Soil Borrow/Cell Construction

Fugitive dust emissions from disposal area operations and soil borrow/cell construction result primarily from the daily operations of heavy equipment such as scrapers, bulldozers, and compactors. Scrapers are used to excavate soil in the borrow area in order to prepare for new landfill disposal cell construction and to deliver soil to the disposal area for daily cover. Compactors consolidate waste at the disposal area, and bulldozers assist the compactors at the disposal area by positioning waste so it can be easily consolidated.

Potential fugitive dust emissions from the heavy equipment associated with disposal area and soil borrow/cell construction operations were calculated using data and estimates from LCLF. Where applicable, running time hours (operating hours plus idle time) were converted to actual operating hours (hours that the vehicle has the potential to create fugitive emissions) by applying an operating efficiency to the running time of each piece of equipment. Emission factors were calculated using the most recent edition of AP-42 (USEPA, 1995, updated 1998, 2006, and 2008). Average equipment weights, capacities, and typical operating speeds for heavy equipment were obtained from the Caterpillar® Performance Handbook, Edition 48 (Caterpillar® June 2018).

A. Scraper Operations

Scraper operations involve scraper travel (on MSW Disposal routes) to and from the loading location (daily cover soil borrow area) and unloading location (disposal area), as well as the loading and unloading processes themselves. Each of these three processes is a potential source of fugitive dust emissions. Guidance for estimating emission rates for these processes was obtained from AP-42, Section 13.2.2, Section 11.9, and Section 13.2.4.

A.1 Scraper Travel

The scraper travels primarily between the daily cover soil borrow area and disposal area (see **Figure 5.1, Section 5**) and makes approximately 8 round trips per day. Emissions from scraper travel were estimated

using the same equations and control efficiencies for vehicle travel on the unpaved disposal route (**Section 6.1.1**) and utilized the following information:

- The number of days per year with at least 0.01 inches of precipitation is 51 for the Midland/Odessa, TX area (AP-42, Figure 13.2.2-1).
- The average scraper round trip is 1.8 miles on the disposal route traveling between the daily cover soil borrow area and the disposal area.
- There is an average of 8 round trips/day.
- The average operating year consists of 313 days/yr.
- The average scraper weight (loaded and unloaded) is 54.6 tons.

A.2 Scraper Loading

Emissions from scraper loading at the daily cover soil borrow area were estimated using guidance provided in AP-42, Section 11.9 "Western Surface Coal Mining (October 1998)". The emission factor for TSP emissions is listed in Table 11.9-4 as 0.058 lbs/ton. To calculate the PM_{10} and $PM_{2.5}$ emission factor for scraper loading, a ratio of the values of the empirical constant (k) for $PM_{2.5}$, PM_{10} and TSP (AP-42, Section 13.2.2) was applied to the TSP emission factor (E_{TSP}) of 0.058 lbs/ton as follows:

- PM_{10} Emission Factor (E_{PM10}) = (k_{PM10}/k_{TSP}) x (E_{TSP}) = (1.5/4.9) x (0.058 lbs/ton)
- PM_{10} Emission Factor (E_{PM10}) = (0.31) x (0.058 lbs/ton) = 0.018 lbs/ton
- $PM_{2.5}$ Emission Factor ($E_{PM2.5}$) = ($k_{PM2.5}/k_{TSP}$) x (E_{TSP}) = (0.15/4.9) x (0.058 lbs/ton)
- $PM_{2.5}$ Emission Factor ($E_{PM2.5}$) = (0.031) x (0.058 lbs/ton) = 0.0018 lbs/ton

The PM_{10} and $PM_{2.5}$ emission factors were then applied to the total calculated mass of soil moved per year. These calculations were performed using information provided by LCLF, including an estimate of 8 scraper trips/day (i.e., loads/day), a scraper capacity of 19 yd^3, and an operating year of 313 days. The total mass of soil loaded per year is estimated to be 57,091 tons.

A.3. Scraper Unloading

Emissions from scraper unloading at the disposal areas were estimated using guidance provided by AP-42, Section 13.2.4, Aggregate Handling and Storage Piles (November, 2006). These calculations were performed using the same information provided by LCLF for scraper loading and an operating year of 313 days. The total mass of soil unloaded per year is equivalent to the mass of soil loaded (57,091 tons). Detailed emissions calculations for scraper loading and unloading, as well as the cumulative uncontrolled emissions from all scraper operations, are provided in **Attachment 6.2**.

C. Compactor and Bulldozer Operations

Compactor and bulldozer operations primarily involve consolidation of in-place waste at the disposal area. From guidance provided in AP-42, Section 13.2.3, Heavy Construction Operations (January 1995), Table 13.2.3-1, potential fugitive dust emissions from compactor and bulldozer operations were calculated by using the bulldozer emission equation in AP-42, Table 11.9-1. Calculated emission factors were then applied to the total annual operating hours for the compactor and bulldozer. It was conservatively assumed that the compactor and bulldozer make contact with all of the waste at the disposal area. Calculations were performed using the following information:

- The average operating year consists of 313 days.
- On average the compactor operates approximately 2,520 hours/year (based on an 70% operating efficiency).
- On average the bulldozer operates approximately 626 hours/year (based on a 17% operating efficiency).

6.2.2 Fugitive Dust Control Measures

Fugitive dust control measures are employed during the operating day in order to reduce potential fugitive dust emissions during normal operations. A control efficiency of 60% was applied to scraper travel on watered landfill roads. The bulldozer and compactor operate nearly 100% of the time within the watered disposal area, but to be conservative, no control efficiency (0%) was applied to bulldozer and compactor operations within the disposal area.

6.2.3 Dust Emissions from Wind Erosion on Disturbed Areas

Based on guidance provided in AP-42, Section 13.2.5, Industrial Wind Erosion (November, 2006), only those areas of the landfill actively disturbed by facility operations were included in the acreage for which potential fugitive dust emissions attributable to wind erosion were calculated:

- Disposal route and auxiliary roads
- Disposal area operations
- Daily cover soil borrow area

Using the AP-42 guidance, wind erosion emissions from approximately 11.36± acres of actively disturbed areas were estimated. A control efficiency of 60% for fugitive dust emissions due to wind erosion was applied to watered dirt landfill roads (unpaved disposal route). For the purposes of wind erosion estimates, disposal area operations and the daily cover soil borrow area were conservatively assumed to

have a control efficiency of zero. Detailed calculations for fugitive dust emissions due to wind erosion are provided in **Attachment 6.4**.

Wind erosion emissions were estimated by use of emission factors provided in AP-42, Section 11.9. The emission factor for TSP emissions is listed in Table 11.9-4 as 0.38 tons/acre/yr. To calculate the PM_{10} and $PM_{2.5}$ emission factors for wind erosion, a ratio of the values of the empirical constant (k) for PM_{10}, $PM_{2.5}$ and TSP (AP-42, Section 13.2.2) was applied to the TSP emission factor (E_{TSP}) of 0.38 tons/acre/yr as follows:

- PM_{10} Emission Factor (E_{PM10}) = (k_{PM10}/k_{TSP}) x (E_{TSP}) = (1.5/4.9) x (0.38 tons/acre/yr)
- PM_{10} Emission Factor (E_{PM10}) = (0.31) x (0.38 tons/acre/yr) = 0.12 tons/acre/yr
- $PM_{2.5}$ Emission Factor ($E_{PM2.5}$) = ($k_{PM2.5}/k_{TSP}$) x (E_{TSP}) = (0.15/4.9) x (0.38 tons/acre/yr)
- $PM_{2.5}$ Emission Factor ($E_{PM2.5}$) = (0.031) x (0.38 tons/acre/yr) = 0.012 tons/acre/yr

6.3 Landfill Gas Generation – Emission Unit 3

Solid waste is subject to aerobic and anaerobic decomposition that results in the generation of landfill gas (LFG). The rate of LFG generation is a function of the composition, moisture content, age, temperature, pH, alkalinity of the refuse, nutrient supply, etc. Methane (CH_4) and carbon dioxide (CO_2) are the primary constituents of LFG, generated in approximately equal proportions. In addition, LFG also contains a very small proportion (<0.04%) of non-methane organic compounds (NMOCs), of which Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) are subsets. The uncontrolled emissions of NMOCs from the landfill are designated Emission Unit 3.

The EPA model LandGEM (Landfill Gas Emissions Model), Version 3.02 (USEPA, May 2005) was used to calculate total LFG and NMOC emission rates for the landfill. The Model estimates emissions resulting from the biodegradation of refuse in landfills and is recommended by EPA for use in developing estimates for state inventories. The Model uses a first-order decay rate equation, and estimates annual emissions over any time period specified by the user. This model over-estimates LFG production and emission rates for arid landfills.

The time period specified for LCLF was 1999 (the first year of waste acceptance) through 2025. The following values were input into LandGEM to estimate total LFG generation rates from LCLF:

- The potential methane generation capacity of refuse, L_o = 170 m^3/Mg refuse (LandGEM CAA default for arid areas).
- A methane generation rate constant, k = 0.02 yr^{-1} (LandGEM CAA default for arid areas).
- A site-specific NMOC concentration (C_{NMOC}) value of 370.5 ppm_v (April 2020 Tier 2 Test Report for the Lea County Landfill, Parkhill, 2020).
- The landfill type selected was no co-disposal (i.e., no landfilling of hazardous waste along with municipal solid waste).
- The site is treated as active (i.e., accepting waste) for the years 1999 – 2025.
- The composition of LFG is modeled as 50.0% methane (LandGEM CAA default for arid areas)

LFG emissions for the years 2020 through 2026 for LCLF were estimated by LandGEM based upon a 5% per year escalator applied to projected waste receipts starting in 2020. Waste receipts were obtained from documented gate receipts obtained from LCLF for 1999 through 2019. **Table 6.3** summarizes the documented annual waste receipt amounts for 1999 through 2019.

6.3.1 Estimated Landfill Gas, NMOC, and VOC Emissions

LandGEM calculated an NMOC emission rate of approximately 7.96 tons/year (7.24 Mg/yr) in 2026 for wastes disposed of in the Landfill through 2025 (**Attachment 6.6**). **Table 6.4** provides a summary of the LandGEM results for NMOC emissions from LCLF.

Volatile organic compounds (VOCs) are a subset of NMOCs, and comprise approximately 39% (by weight) of NMOCs (AP-42, Table 2.4-2, Draft, October 2008). **Table 6.5** provides a summary of VOC emissions contained in LFG as calculated by LandGEM.

Total potential cumulative VOC emissions from LCLF are:

- Landfill Gas (Unit 3) **3.96** tons/year
- Remediation of PCS (Unit 4) up to **21.88** tons/year (See **Section 6.4**)
- **Total potential VOC emissions estimate** **25.84** **tons/year**

These VOC emissions estimates are also included in **Tables 2-D** and **2-E**

TABLE 6.3
Documented Annual Waste Acceptance Rates
Lea County Landfill

Summary of Documented Waste Acceptance (1999 – 2019)			
Year	**Putrescible Waste Receipts (short tons/year)***	**Non-Putrescible Waste Receipts (short tons/year)****	**Putrescible Waste Receipts (Mg/year)**
1999	9,244	13,670	8,386
2000	20,239	31,140	18,361
2001	24,102	45,406	21,865
2002	24,295	41,236	22,040
2003	25,660	43,086	23,278
2004	29,025	44,134	26,331
2005	29,279	54,730	26,561
2006	44,097	33,838	40,739
2007	47,266	35,219	42,879
2008	46,806	35,642	42,462
2009	42,119	38,437	38,210
2010	43,409	32,256	39,380
2011	43,335	34,936	39,331
2012	38,370	38,474	35,190
2013	48,857	37,780	44,322
2014	53,602	44,917	48,627
2015	58,563	47,515	53,127
2016	36,116	58,386	32,764
2017	37,279	58,208	33,819
2018	40,120	63,944	36,396
2019	44,048	72,945	39,960

NOTES:
*Waste Receipt Data obtained from LCLF
**Available non-degradable receipt data obtained from LCLF 2019 NMOC Emissions Rate Estimate Report (Parkhill, 2019)

TABLE 6.4

Projected Annual Landfill Gas and NMOC Generation Rates
Emission Unit 3
Lea County Landfill

Year	Estimated Total LFG Emissions (scfm)	Estimated NMOC Emissions (Mg/yr)	Estimated NMOC Emissions (tons/yr)	Estimated NMOC Emissions (lbs/hr)
2020	273.7	5.41	5.96	1.36
2021	287.3	5.68	6.26	1.43
2022	301.5	5.96	6.57	1.50
2023	316.5	6.26	6.90	1.57
2024	332.2	6.57	7.24	1.65
2025	348.8	6.89	7.60	1.73
2026*	**366.1**	**7.24**	**7.98**	**1.82**
2027	358.8	7.09	7.82	1.79
2028	351.7	6.95	7.66	1.75
2029	344.8	6.81	7.51	1.72
2030	337.9	6.68	7.36	1.68
2031	331.3	6.55	7.22	1.65

* Peak landfill gas generation year for waste deposited through 2025

TABLE 6.5
Estimated Landfill Gas VOC Emissions for 2026
Emission Unit 3
Lea County Landfill

VOC	Uncontrolled Emissions (tons/yr) (LandGEM Output)*
1,1,2,2-Tetrachloroethane	4.603E-02
1,1-Dichloroethane (ethylidene dichloride)	5.921E-02
1,1-Dichloroethene (vinylidene chloride)	4.833E-03
1,2-Dichloroethane (ethylene dichloride)	1.011E-02
1,2-Dichloropropane (propylene dichloride)	5.070E-03
2-Propanol (isopropyl alcohol)	7.492E-01
Acrylonitrile	8.333E-02
Benzene - No or Unknown Co-disposal -	3.700E-02
Bromodichloromethane	1.266E-01
Butane	7.244E-02
Carbon disulfide	1.101E-02
Carbon tetrachloride	1.534E-04
Carbonyl sulfide	7.338E-03
Chlorobenzene	7.015E-03
Chloroethane (ethyl chloride)	2.091E-02
Chloroform	8.929E-04
Chloromethane	1.510E-02
Dichlorobenzene	7.695E-03
Dichlorofluoromethane	6.671E-02
Dimethyl sulfide (methyl sulfide)	1.208E-01
Ethanol	3.102E-01
Ethyl mercaptan (ethanethiol)	3.562E-02
Ethylbenzene	1.217E-01
Ethylene dibromide	4.684E-05
Fluorotrichloromethane	2.603E-02
Hexane	1.418E-01
Methyl ethyl ketone	1.276E-01
Methyl isobutyl ketone	4.744E-02
Methyl mercaptan	2.998E-02
Pentane	5.935E-02
Propane	1.209E-01
t-1,2-Dichloroethene	6.766E-02
Toluene - No or Unknown Co-disposal	8.957E-01
Trichloroethylene (trichloroethene)	9.172E-02
Vinyl chloride	1.137E-01
Xylenes	3.176E-01
Total Potential VOC Emissions	**3.96 tons/yr**

Notes:
***** Adapted from LandGEM output provided in **Attachment 6.6**
VOC emissions are likely overestimates for New Mexico (arid) landfills

6.4 Petroleum Contaminated Soils Landfarm – Emission Unit 4

LCLF is permitted by NMED to accept petroleum contaminated soils (PCS) for remediation via landfarming; for beneficial use as daily cover soil; or for direct disposal. The PCS landfarm areas (**Figure 5.1, Section 5**) have been designated as Emission Unit 4. When accepted for treatment, PCS will be transported to a designated area over a lined, or future lined area at the facility and applied as a thin layer and disked periodically to enhance bioremediation. Consistent with the requirements of 20.9.8.15 NMAC of the New Mexico Solid Waste Rules, PCS requiring bio-remediation prior to disposal or beneficial use as daily cover, and are considered remediated for the purpose of disposal or beneficial use when soil sample analyses meet the following conditions:

1. the sum of benzene, toluene, ethylbenzene, and xylene isomer concentrations (i.e., BTEX) is less than 500 mg/Kg, with benzene individually less than 10 mg/Kg
2. the total petroleum hydrocarbon (TPH) concentration is less than 1,000 mg/Kg

Prior to acceptance by LCLF, incoming shipments of PCS will be required to be analyzed for TPH using EPA Method 418.1 and BTEX via EPA Method 8260B (or approved equivalents). PCS shipments are recorded on a "non-hazardous waste manifest form" with the approved profile number identifying the remediation project. In the event LCLF begins to accept PCS for remediation, the landfill will periodically collect samples from the in-situ PCS within the landfarm, and the samples will be analyzed for TPH and BTEX in order to track the remediation process and verify its success.

To-date, LCLF has not accepted any shipments of PCS, and speciated laboratory analytical data are not available to estimate BTEX emissions. Therefore, for the purpose of estimating emissions from the PCS landfarm, it is conservatively assumed that 100% of the potential emissions from remediation of PCS are emitted as HAPs according to the following NMED AQB-approved methodologies:

For Total HAPs

$$M_{HAPs} = [(C_{TOT})(M_{PCS})(V_{LF})]/(1 \times 10^6)$$

where:

M_{HAPs} = mass of HAPs emitted from each PCS shipment
C_{TOT} = sum of highest individual BTEX concentrations in remediation project
M_{PCS} = mass of PCS in each shipment
V_{LF} = % of HAPs volatilized during landfarm treatment = 100% = 1
1×10^6 = conversion factor

For Individual HAPs

$M_{HAPs} = [(C_s)(M_{PCS})(V_{LF})]/(1 \times 10^6)$

where:

M_{HAPs} = mass of HAPs emitted from each PCS shipment
C_s = the highest individual BTEX concentration for the remediation project from the laboratory samples provided
M_{PCS} = mass of PCS in each shipment
V_{LF} = % of HAPs volatilized during landfarm treatment = 100% = 1
1×10^6 = conversion factor

An example for both of these calculations is presented below:

$$M_{HAPs} = \frac{(30 \text{ ppm})(10{,}000 \text{ tons})(1)}{1 \times 10^6}$$

M_{HAPs} = 0.30 tons

LCLF will electronically track the highest individual BTEX parameter concentrations from each remediation project and mass of each inbound PCS shipment using the above methodology. This AQB-approved approach provides a very conservative indicator of HAP emissions; and LCLF will track the accumulated daily volume of PCS accepted, by approved profile number, by using a spreadsheet similar to the one provided as **Table 6.6**. These potential emissions are not included in Table 2-I, as they do not have the potential to exceed their individual threshold values identified in Section 112(g) of the Act. LCLF will track total HAP emissions from PCS such that, on an annual basis, emissions do not exceed 10 tons/year for any individual HAP; or 25 tons/year of aggregate HAPs on a site-wide basis. This includes HAP emissions from landfill gas (Unit 3), which are considered constant, and account for 2.62 tons/year of HAP emissions (**Table 6.7**). A maximum cumulative HAP emission rate of 21.88 tons/year has been conservatively estimated for emissions from remediation of PCS, bringing the maximum estimated site-wide HAP emission rate to 24.5 tons/year.

6.5 Hazardous Air Pollutant (HAP) Sources

The purpose of the information provided in this Section is to demonstrate that the LCLF is not a major source for hazardous air pollutants (HAPs) subject to Section 112(r) of the Clean Air Act (CAA).

6.5.1 Regulatory Applicability

On March 26, 2020, the EPA published a maximum achievable control technology (MACT) standard for municipal solid waste landfills that applies to both major HAP sources and HAP area sources. Section 112(a) of the CAA defines a major source as "*any stationary source or group of stationary sources that emits or has the potential to emit, considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants*." Section 112(a) of the CAA also defines an area source as "*any stationary source of hazardous air pollutants that is not a major source*."

The MACT standard for landfills is published in 40 CFR 63 Subpart AAAA, [National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills]. NESHAP applies to area source landfills if they meet the following criteria:

1. have a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3),
2. have accepted waste since November 8, 1987 (or have additional capacity for waste deposition), and have estimated uncontrolled emissions of 50 Mg/yr NMOC or more
3. are operated as a bioreactor

Because LCLF operations do not include a bioreactor, and NMOC emissions are less than 50Mg per year, 40 CFR 63 Subpart AAAA does not apply.

However, because the design capacity of LCLF is greater than 2.5 million megagrams, and the facility was modified after July 17, 2014, the Landfill is subject to the current NSPS provisions of 40 CFR 60, Subpart XXX.

TABLE 6.6
Lea County Landfill
PCS HAPs Emissions Calculation Sheet

Reporting Period 1/1/20 **To** 12/30/20

										Emissions				
Date	Profile #	Description	TPH ppm	Benzene (ppm)	Toluene (ppm)	Ethyl benzene (ppm)	Xylene (ppm)	Total BTEX (ppm)	Soil Tons	Total Benzene (tons)	Total Toluene (tons)	Total Ethyl-benzene (tons)	Total Xylene (tons)	Total BTEX Emissions (tons)
			0.00	0.00	0.00	0.00	0.00	0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
								0.000		0.000	0.000	0.000	0.000	0.000
	Totals*								0.00	0.000	0.000	0.000	0.000	0.000

TOTAL HAP EMISSIONS (tons/year)

Total HAP Emissions from Unit 3 (Table 6.6) = constant =	**2.62**	tons
Total HAP Emissions from PCS Remediation (Unit 4) = Variable =	**0.00**	tons
Total Site-Wide HAP Emissions =	**2.62**	tons
Maximum Target Total HAP =	**24.5**	tons

INDIVIDUAL HAP EMISSIONS

Benzene from Unit 3 (Table 6.6) = constant =	**3.70E-02**	tons
Benzene from PCS = variable =	**0.00E+00**	tons
Total Benzene =	**3.70E-02**	tons
Toluene from Unit 3 (Table 6.6) = constant =	**8.96E-01**	tons
Toluene from PCS = variable =	**0.00E+00**	tons
Total Toluene =	**8.96E-01**	tons
Ethylbenzene from Unit 3 (Table 6.6) = constant =	**1.22E-01**	tons
Ethylbenzene from PCS = variable =	**0.00E+00**	tons
Total Ethylbenzene =	**1.22E-01**	tons
Xylene from Unit 3 (Table 6.6) = constant =	**3.18E-01**	tons
Xylene from PCS = variable =	**0.00E+00**	tons
Total Xylene =	**3.18E-01**	tons
Target Total Per HAP =	**9.5**	tons/yr

6.5.2 Potential HAP Emissions from Landfill Gas

The LandGEM Model estimates emissions of 27 HAPs, which are a subset of NMOCs, and are potentially present in landfill gas. The user-defined data input into the Model generates a concentration output for each individual HAP (**Attachment 6.6**). **Table 6.7** presents a summary of the projected uncontrolled emissions of HAPs in year 2026 from LFG as calculated by LandGEM. As shown in **Table 6.7**, total (cumulative) uncontrolled HAP emissions of 2.62 tons/year from landfill gas are considerably less than the MACT standard of 25 tons/year for combined HAPs; and there are no HAPs within landfill gas that exceed their *de minimus* emission rate established by 112(g) of the CAA. Total potential cumulative HAP emissions from LCLF are summarized as follows:

- Landfill Gas (Unit 3) **2.62** tons/year (**Table 6.7**)
- Remediation of PCS (Unit 4) up to **21.88** tons/year (**Section 6.4**)
- **Target Total potential HAP emissions estimate** **24.5** tons/year (**Table 2-I**)

These HAP emissions estimates are included in **Table 2-I**. Based on the data provided in **Table 6.7,** and the above discussion, LCLF is not a major source for HAP (either individually or in the aggregate), as defined in Section 112(r) of the Clean Air Act.

6.6 Additional Emissions During Startup, Shutdown, and Routine Maintenance

Table 2-F, **Section 2**, which is reserved for requesting additional allowances for potential emissions during startup, shutdown, and routine maintenance (SSM), has deliberately been left blank for this Application for Permit. Additional emissions allowances for SSM emissions are not being requested for this facility, as none of the processes which take place at LCLF produces an excess amount of emissions during SSM. Following is a description of measures to be taken to mitigate source emissions during SSM for landfill operations that have the potential to emit pollutants of concern (e.g., particulates, NMOCs, HAPs, VOCs).

6.6.1 Particulates

Landfill operations associated with the emission of particulate matter (e.g., PM_{10} and $PM_{2.5}$) consist of vehicle travel on paved and unpaved landfill roads, and general landfill operations (e.g., heavy equipment operations, wind erosion). The measures taken to mitigate excessive fugitive particulate emissions during startups, shutdowns, and emergencies consist of a backup water wagon that can be rented from a local vendor on short notice. A Kenworth water truck (2,000-gallon capacity) serves as the site's primary dust suppression mode and is used on a routine basis when the landfill is operational.

TABLE 6.7
Estimated Landfill Gas HAP Emissions for 2026
Emission Unit 3
Lea County Landfill

HAP	Uncontrolled Emissions (tons/yr) (LandGEM Output) *
1,1,1-Trichloroethane (methyl chloroform)	1.596E-02
1,1,2,2-Tetrachloroethane	4.603E-02
1,1-Dichloroethane (ethylidene dichloride)	5.921E-02
1,1-Dichloroethene (vinylidene chloride)	4.833E-03
1,2-Dichloroethane (ethylene dichloride)	1.011E-02
1,2-Dichloropropane (propylene dichloride)	5.070E-03
Acrylonitrile – HAP/VOC	8.333E-02
Benzene – No or Unknown Co-disposal	3.700E-02
Carbon disulfide	1.101E-02
Carbon tetrachloride	1.534E-04
Carbonyl sulfide	7.338E-03
Chlorobenzene	7.015E-03
Chloroethane (ethyl chloride)	2.091E-02
Chloroform	8.929E-04
Dichlorobenzene	7.695E-03
Dichloromethane (methylene chloride)	2.964E-01
Ethylbenzene	1.217E-01
Ethylene dibromide	4.684E-05
Hexane	1.418E-01
Mercury (total)	1.450E-05
Methyl ethyl ketone	1.276E-01
Methyl isobutyl ketone	4.744E-02
Perchloroethylene (tetrachloroethylene)	1.530E-01
Toluene – No or Unknown Co-disposal	8.957E-01
Trichloroethylene (trichloroethene)	9.172E-02
Vinyl chloride	1.137E-01
Xylenes	3.176E-01
Total Potential HAP Emissions	**2.62 tons/year****

Notes:
* Adapted from LandGEM output provided in **Attachment 6.6**
** Estimates included in **Tables 2-I** and **6.6**
HAP emissions are likely substantial overestimates for New Mexico (arid) landfills

6.6.2 NMOCs

MSW decomposition produces LFG, which typically contains a small amount (i.e. <0.04%) of NMOCs. At this time, there is no provision to mitigate NMOC emissions during startup, shutdown, or emergencies. NMOC generation from MSW decomposition is a continual process that is not subject to "malfunction", and is not "started up" or "shut down" at will.

6.6.3 VOC/HAP Emissions

Emissions of VOCs and HAPs could potentially occur from the landfarming of PCS or the decomposition of MSW. At this time, there is no provision to mitigate VOC/HAP emissions from PCS remediation during startup, shutdown, or emergencies, as remediation is a continual process that is not subject to "malfunction", and is not "started up" or "shut down" at will.

6.7 References

AP-42: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, Office of Air Quality Planning and Standards/Office of Air and Radiation, US Environmental Protection Agency, Research Triangle Park, NC 27711, October 2008 (Draft), November 2006; September, October, and November 1998; January 1995; and September 1991.

Caterpillar® Performance Handbook, Edition 48, Caterpillar®, Inc., Peoria, Illinois, 2018

LandGEM (Landfill Gas Emissions Model), Version 3.02, Control Technology Center, US Environmental Protection Agency, Research Triangle Park, NC, 27711, and Office of Research and Development, Washington, DC 20460, May 2005.

ATTACHMENT 6.1
UNCONTROLLED EMISSIONS
EMISSION UNIT 1

- **Refuse Delivery Vehicles**
- **Miscellaneous Vehicles**

OPERATING HOURS

Observed Holidays

The Lea County Landfill is open Monday through Saturday, except Thanksgiving Day, Christmas Day, New Year's Day, Memorial Day, Labor Day, and Independence Day. For consrvative estimates, these holidays are not removed from total facility operating hours and calculated emissions

Operational Hours (Open to the Public)

7:30 a.m. to 5:30 p.m. Monday through Saturday

Operational Hours (Maximum Operational Hours)

6:30 a.m. to 6:00 p.m. Monday through Saturday

Currently Permitted Landfill Operating Hours (open to the public): **3,130.0** hrs/yr

Projected Maximum Landfill Operational Hours: **3,599.5** hrs/yr

REFUSE DELIVERY VEHICLE OPERATIONS (DISPOSAL ROUTE - PAVED)
(Uncontrolled Long-Term Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Refuse Delivery Vehicle travel on the paved portion of the Disposal Route. The paved portion extends from the Landfill Entrance to south of the scales. Inbound, the Refuse Delivery Vehicles pass to the west of the scale house. Outbound, these vehicles pass to the east of the scale house.

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

Long-Term Emissions Equation:

$E_{ext} = (k)(s/12)^a(W/3)^b [(365-p)/365]$ (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.9	k = 1.5	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.4	s = 6.4	s = 6.4
a = empirical constant (dimensionless)	a = 0.7	a = 0.9	a = 0.9
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons); see calculation below	W = 13.5	W = 13.5	W = 13.5
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 51	p = 51	p = 51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45} [(365-p)/365]$ = **5.34** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45} [(365-p)/365]$ = **1.44** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45} [(365-p)/365]$ = **0.14** lbs/VMT

Total Vehicle Miles Traveled (VMT):

A Baseline refuse delivery vehicles per year = **40,407** vehicles/yr (based on Landfill data)
B Annual Escalator = **5%** per year
C Number of years for which escalator is applied = N = **6** years
Total number of refuse delivery vehicles per year = (Baseline Vehicle Count)[1+ (escalator %)]^N
D Esclalated number of refuse delivery vehicles per year **54,149** vehicles/yr
E Round-trip paved distance from Landfill Entrance to edge of pavement = **0.22** mi
F Total VMT = (**D**)(**E**) = **11,999** mi/yr

Weighted Average Mean Vehicle Weight (W):

A Average empty weight of large disposal tucks = **17.50** tons (based on Landfill estimates)
B Average weight of waste disposed of by large disposal trucks = **23** tons (based on Landfill estimates)
C Percentage of large disposal trucks = **2%** (based on Landfill estimates)
D Average empty weight of medium disposal tucks = **15.50** tons (based on Landfill estimates)
E Average weight of waste disposed of by medium disposal trucks = **4.63** tons (based on Landfill estimates)
F Percentage of medium disposal trucks = **54%** (based on Landfill estimates)
G Average empty weight of small disposal tucks = **6.97** tons (based on Landfill estimates)
H Average weight of waste disposed of by small disposal trucks = **1.13** tons (based on Landfill estimates)
I Percentage of small disposal trucks = **44%** (based on Landfill estimates)
J All trucks are empty for 1/2 the round-trip to the Disposal Area = **0.5**
K Weighted average mean vehicle weight (W) = [(**A**)+(**B**)(**J**)](**C**) + [(**D**)+(**E**)(**J**)](**F**) + [(**G**)+(**H**)(**J**)](**I**)
L Weighted average mean vehicle weight (W) = **13.51** tons

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions

A TSP = (E_{TSP})(Total VMT) = **64,126** lbs/yr
B TSP = (**A**)/(2,000 lbs/ton) = **32.1 tons/yr uncontrolled**
C PM_{10} = (E_{PM10})(Total VMT) = **17,311** lbs/yr
D PM_{10} = (**C**)/(2,000 lbs/ton) = **8.7 tons/yr uncontrolled**
E $PM_{2.5}$ = $(E_{PM2.5})$(Total VMT) = **1,731** lbs/yr
F $PM_{2.5}$ = (**E**)/(2,000 lbs/ton) = **0.9 tons/yr uncontrolled**

REFUSE DELIVERY VEHICLE OPERATIONS (DISPOSAL ROUTE - PAVED)
(Uncontrolled Short-Term Emissions)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

	TSP		PM_{10}		$PM_{2.5}$	
E = size-specific emission factor (lbs/VMT)						
k = particle size multiplier (dimensionless)	k =	4.9	k =	1.5	k =	0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s =	6.4	s =	6.4	s =	6.4
a = empirical constant (dimensionless)	a =	0.7	a =	0.9	a =	0.9
b = empirical constant (dimensionless)	b =	0.45	b =	0.45	b =	0.45
W = mean vehicle weight (tons)	W =	13.5	W =	13.5	W =	13.5

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **6.21** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **1.68** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.17** lbs/VMT

Operating Hours:

Operating efficiency = **100%** (based on Landfill estimates)

7:30 a.m. to 5:30 p.m. Monday through Saturday

Currently Permitted Landfill Operating hours = **3,130** hrs/yr

Total Vehicle Miles Traveled (VMT):

Total VMT = **11,999** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**74,542** lbs/yr	
B TSP =	(**A**)/(Operating Hours) =	**23.8**	**lbs/hr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**20,123** lbs/yr	
D PM_{10} =	(**C**)/(Operating Hours) =	**6.4**	**lbs/hr uncontrolled**
E $PM_{2.5}$ =	$(E_{PM2.5})$(Total VMT) =	**2,012** lbs/yr	
F $PM_{2.5}$ =	(**E**)/(Operating Hours) =	**0.6**	**lbs/hr uncontrolled**

REFUSE DELIVERY VEHICLE OPERATIONS (DISPOSAL ROUTE - UNPAVED)
(Uncontrolled Long-Term Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Refuse Delivery Vehicle travel on the unpaved portion of the Disposal Route that is watered on a regular basis. This portion of the Disposal Route extends from the edge of pavement just south of the scale house, and proceeds to the active Disposal Area.

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

Long-Term Emissions Equation:

E_{ext} = $(k)(s/12)^a(W/3)^b$ $[(365-p)/365]$ (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP		PM_{10}		$PM_{2.5}$	
k = particle size multiplier (dimensionless)	k =	4.9	k =	1.5	k =	0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s =	6.4	s =	6.4	s =	6.4
a = empirical constant (dimensionless)	a =	0.7	a =	0.9	a =	0.9
b = empirical constant (dimensionless)	b =	0.45	b =	0.45	b =	0.45
W = mean vehicle weight (tons); see calculation below	W =	13.5	W =	13.5	W =	13.5
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p =	51	p =	51	p =	51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} = $(4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ $[(365-p)/365]$ = **5.34** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **1.44** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **0.14** lbs/VMT

Total Vehicle Miles Traveled (VMT):

A Baseline Refuse Delivery Vehicles per year = **40,407** vehicles/yr (based on Landfill data)
B Annual Escalator **5%** percent
C Number of years for which escalator was applied =N = **6** years
Total number of refuse delivery vehicles per year = (Baseline Vehicle Count)[1+ (escalator %)]^N
D Escalated number of refuse delivery vehicles per year **54,149** vehicles/yr
E Round-trip distance from edge of pavement to Disposal Area = **1.51** mi
F Total VMT = (**D**)(**E**)= **81,839** mi/yr

Weighted Average Mean Vehicle Weight (W):

A Average empty weight of large disposal tucks = **17.50** tons (based on Landfill estimates)
B Average weight of waste disposed of by large disposal trucks = **23** tons (based on Landfill estimates)
C Percentage of large disposal trucks = **2%** (based on Landfill estimates)
D Average empty weight of medium disposal tucks = **15.50** tons (based on Landfill estimates)
E Average weight of waste disposed of by medium disposal trucks = **4.63** tons (based on Landfill estimates)
F Percentage of medium disposal trucks = **54%** (based on Landfill estimates)
G Average empty weight of small disposal tucks = **6.97** tons (based on Landfill estimates)
H Average weight of waste disposed of by small disposal trucks = **1.13** tons (based on Landfill estimates)
I Percentage of small disposal trucks = **44%** (based on Landfill estimates)
J All trucks are empty for 1/2 the round-trip to the disposal area = **0.50**
K Weighted average mean vehicle weight (W) = [(**A**)+(**B**)(**J**)](**C**) + [(**D**)+(**E**)(**J**)](**F**) + [(**G**)+(**H**)(**J**)](**I**)
L Weighted average mean vehicle weight (W) = **13.51** tons

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions

A TSP = (E_{TSP})(Total VMT) = **437,374** lbs/yr
B TSP = (**A**)/(2,000 lbs/ton) = **218.7 tons/yr uncontrolled**
C PM_{10} = (E_{PM10})(Total VMT) = **118,072** lbs/yr
D PM_{10} = (**C**)/(2,000 lbs/ton) = **59.0 tons/yr uncontrolled**
E $PM_{2.5}$ = $(E_{PM2.5})$(Total VMT) = **11,807** lbs/yr
F $PM_{2.5}$ = (**E**)/(2,000 lbs/ton) = **5.9 tons/yr uncontrolled**

REFUSE DELIVERY VEHICLE OPERATIONS (DISPOSAL ROUTE - UNPAVED)
(Uncontrolled Short-Term Emissions)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

	TSP	PM_{10}	$PM_{2.5}$
E = size-specific emission factor (lbs/VMT)			
k = particle size multiplier (dimensionless)	k = 4.9	k = 1.5	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.4	s = 6.4	s = 6.4
a = empirical constant (dimensionless)	a = 0.7	a = 0.9	a = 0.9
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 13.5	W = 13.5	W = 13.5

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **6.21** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **1.68** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.17** lbs/VMT

Operating Hours:

Operating efficiency = **100%** (based on Landfill estimates)

7:30 a.m. to 5:30 p.m. Monday through Saturday

Currently Permitted Landfill Operating hours = **3,130** hrs/yr

Total Vehicle Miles Traveled (VMT):

Total VMT = **81,839** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**508,413** lbs/yr
B TSP =	(**A**)/(Operating Hours) =	**162.4 lbs/hr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**137,250** lbs/yr
D PM_{10} =	(**C**)/(Operating Hours) =	**43.8 lbs/hr uncontrolled**
E $PM_{2.5}$ =	($E_{PM2.5}$)(Total VMT) =	**13,725** lbs/yr
F $PM_{2.5}$ =	(**E**)/(Operating Hours) =	**4.4 lbs/hr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (PAVED)

(Uncontrolled Long-Term Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Miscellaneous Vehicle travel on paved portions of landfill roads.

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

Long-Term Emissions Equation:

E_{ext} = $(k)(s/12)^a(W/3)^b$ [(365-p)/365] (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.9	k = 1.5	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.4	s = 6.4	s = 6.4
a = empirical constant (dimensionless)	a = 0.7	a = 0.9	a = 0.9
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 7.9	W = 7.9	W = 7.9
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 51	p = 51	p = 51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} = $(4.9)(6.4/12)^{0.7}(W /3)^{0.45}$ [(365-p)/365] = **4.20** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ [(365-p)/365] = **1.13** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ [(365-p)/365] = **0.11** lbs/VMT

Weighted Average Mean Vehicle Weight (W):

Company Truck

A Number of vehicles (1)	1
B Round-trips/day (1)	2
C Miles/round-trip (1)	0.22
D Operating days/year (1)	313
E Mean vehicle weight (1) (tons)	1.2

Water Truck

F Number of vehicles (1)	1
G Round-trips/week (1)	36
H Days/week =	6
I Round-trips/day = (**G**)/(**H**) =	6
J Weeks/yr =	52
K Miles/round-trip (1)	0.22
L Round Trips/year = (**G**)(**J**) =	1872
M Empty vehicle weight (1) (tons)	6.0
N Water Capacity (1) (gallons)	2,000
O Mean vehicle weight (2) (tons)	10.15

Notes:

(1) Data based on Landfill estimates.

(2) Average water truck (Freightliner) weight = empty weight of vehicle + 1/2 weight of water (density = 8.3 lbs/gal).

Average water truck weight = **M** + (0.5)(**N**)(8.3 lbs/gallon)(1 ton/2,000 lbs) = **10.15** tons

Weighted average vehicle weight = [(**B**)/(**B**+**I**)](**E**) + [(**I**)/(**I**+**B**)](O) = **7.9** tons

Total Vehicle Miles Traveled (VMT):

VMT = (no. of vehicles)(round trips/day)(mi/round trip)(operating days/yr)

P VMT (Company Truck) = (**A**)(**B**)(**C**)(**D**) = **139** mi/yr

Q VMT (Water Truck) = (**F**)(**I**)(**K**)(**L**) = **415** mi/yr

R Total VMT = **P** + **Q** = **554** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**2,325** lbs/yr
B TSP =	(**A**)/(2,000 lbs/ton) =	**1.2 tons/yr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**628** lbs/yr
D PM_{10} =	(**C**)/(2,000 lbs/ton) =	**0.31 tons/yr uncontrolled**
E $PM_{2.5}$ =	($E_{PM2.5}$)(Total VMT) =	**63** lbs/yr
F $PM_{2.5}$ =	(**E**)/(2,000 lbs/ton) =	**0.031 tons/yr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (PAVED)
(Uncontrolled Short-Term Emissions)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

E = size-specific emission factor (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.9	k =	1.5	k =	0.15
s =	6.4	s =	6.4	s =	6.4
a =	0.7	a =	0.9	a =	0.9
b =	0.45	b =	0.45	b =	0.45
W =	7.9	W =	7.9	W =	7.9

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **4.88** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **1.32** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.13** lbs/VMT

Operating Hours:

Operating efficiency = **100%** (based on Landfill estimates)
Working Days (313 days/yr) - 6 days/wk, 11.5 hr/day = **3,599.5**
Operating Hours= **3,599.5**
Operating hours = (Operating Hours)(Operating Efficiency) = **3,599.5** hrs/yr

Total Vehicle Miles Traveled (VMT):

Total VMT = **554** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**2,703** lbs/yr	
B TSP =	(**A**)/(Operating Hours) =		**0.8 lbs/hr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**730** lbs/yr	
D PM_{10} =	(**C**)/(Operating Hours) =		**0.20 lbs/hr uncontrolled**
E $PM_{2.5}$ =	$(E_{PM2.5})$(Total VMT) =	**73** lbs/yr	
F $PM_{2.5}$ =	(**E**)/(Operating Hours) =		**0.020 lbs/hr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (UNPAVED)

(Uncontrolled Long-Term Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Miscellaneous Vehicle travel on unpaved landfill roads (i.e., Unpaved Disposal Route and Unpaved Access Road).

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

Long-Term Emissions Equation:

E_{ext} = $(k)(s/12)^a(W/3)^b$ [(365-p)/365] (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.9	k = 1.5	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.4	s = 6.4	s = 6.4
a = empirical constant (dimensionless)	a = 0.7	a = 0.9	a = 0.9
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 7.9	W = 7.9	W = 7.9
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 51	p = 51	p = 51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} = $(4.9)(6.4/12)^{0.7}(W /3)^{0.45}$ [(365-p)/365] = **4.20** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ [(365-p)/365] = **1.13** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ [(365-p)/365] = **0.11** lbs/VMT

Weighted Average Mean Vehicle Weight (W):

Company Truck

A Number of vehicles (1)	1
B Round-trips/day (1)	2
C Miles/round-trip (1)	2.28
D Operating days/year (1)	313
E Mean vehicle weight (1) (tons)	1.2

Water Truck

F Number of vehicles (1)	1
G Round-trips/week (1)	36
H Days/week =	6
I Round-trips/day = (**G**)/(**H**) =	6
J Weeks/yr =	52
K Miles/round-trip (1)	2.28
L Round Trips/year = (**G**)(**J**) =	1872
M Empty vehicle weight (1) (tons)	6.0
N Water Capacity (1) (gallons)	2,000
O Mean vehicle weight (2) (tons)	10.15

Notes:

(1) Data based on Landfill estimates.

(2) Average water truck (Kenworth) weight = empty weight of vehicle + 1/2 weight of water (density = 8.3 lbs/gal).

Average water truck weight = **M** + (0.5)(**N**)(8.3 lbs/gallon)(1 ton/2,000 lbs) = **10.15** tons

Weighted average vehicle weight = [(**B**)/(**B**+**I**)](**E**) + [(**I**)/(**I**+**B**)](O) = **7.9** tons

Total Vehicle Miles Traveled (VMT):

VMT = (no. of vehicles)(round trips/day)(mi/round trip)(operating days/yr)

P VMT (Company Truck) = (**A**)(**B**)(**C**)(**D**) = **1,427** mi/yr

Q VMT (Water Truck) = (**F**)(**I**)(**K**)(**L**) = **4,266** mi/yr

R Total VMT = **P** + **Q** = **5,693** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions:

A TSP = (E_{TSP})(Total VMT) = **23,911** lbs/yr

B TSP = (**A**)/(2,000 lbs/ton) = **12.0 tons/yr uncontrolled**

C PM_{10} = (E_{PM10})(Total VMT) = **6,455** lbs/yr

D PM_{10} = (**C**)/(2,000 lbs/ton) = **3.2 tons/yr uncontrolled**

E $PM_{2.5}$ = ($E_{PM2.5}$)(Total VMT) = **645** lbs/yr

F $PM_{2.5}$ = (**E**)/(2,000 lbs/ton) = **0.32 tons/yr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (UNPAVED)
(Uncontrolled Short-Term Emissions)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

E = size-specific emission factor (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.9	k =	1.5	k =	0.15
s =	6.4	s =	6.4	s =	6.4
a =	0.7	a =	0.9	a =	0.9
b =	0.45	b =	0.45	b =	0.45
W =	7.9	W =	7.9	W =	7.9

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **4.88** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **1.32** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.13** lbs/VMT

Operating Hours:

Operating efficiency = **100%** (based on Landfill estimates)
Working Days (313 days/yr) - 6 days/wk, 11.5 hr/day = **3,599.5**
Operating Hours= **3,599.5**
Operating hours = (Operating Hours)(Operating Efficiency) = **3,599.5** hrs/yr

Total Vehicle Miles Traveled (VMT):

Total VMT = **5,693** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP = (E_{TSP})(Total VMT) = **27,795** lbs/yr
B TSP = (**A**)/(Operating Hours) = **7.7 lbs/hr uncontrolled**
C PM_{10} = (E_{PM10})(Total VMT) = **7,503** lbs/yr
D PM_{10} = (**C**)/(Operating Hours) = **2.1 lbs/hr uncontrolled**
E $PM_{2.5}$ = $(E_{PM2.5})$(Total VMT) = **750** lbs/yr
F $PM_{2.5}$ = (**E**)/(Operating Hours) = **0.21 lbs/hr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (AUXILIARY ROADS - UNPAVED)

(Uncontrolled Long-Term Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Miscellaneous Vehicle travel on unpaved and unwatered Landfill roads (i.e., Unpaved Auxiliary Road).

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

Long-Term Emissions Equation:

E_{ext} = $(k)(s/12)^{a}(W/3)^{b}$ $[(365-p)/365]$ (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.9	k = 1.5	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.4	s = 6.4	s = 6.4
a = empirical constant (dimensionless)	a = 0.7	a = 0.9	a = 0.9
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 1.2	W = 1.2	W = 1.2
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 51	p = 51	p = 51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} = $(4.9)(6.4/12)^{0.7}(W /3)^{0.45}$ $[(365-p)/365]$ = **1.80** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **0.49** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **0.05** lbs/VMT

Weighted Average Mean Vehicle Weight (W):

	Company Truck
A Number of vehicles (1)	1
B Round-trips/day (1)	1
C Miles/round-trip (1)	1.61
D Operating days/year (1)	313

E Weighted average mean vehicle weight (W)(1) = **1.2** tons

Notes:

(1) Data based on Landfill estimates.

Total Vehicle Miles Traveled (VMT):

VMT = (no. of vehicles)(round trips/day)(mi/round trip)(operating days/yr)

F Total VMT (Company Truck) = (**A**)(**B**)(**C**)(**D**) = **503** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**904** lbs/yr	
B TSP =	(**A**)/(2,000 lbs/ton) =		**0.5 tons/yr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**244** lbs/yr	
D PM_{10} =	(**C**)/(2,000 lbs/ton) =		**0.1 tons/yr uncontrolled**
E $PM_{2.5}$ =	$(E_{PM2.5})$(Total VMT) =	**24** lbs/yr	
F $PM_{2.5}$ =	(**E**)/(2,000 lbs/ton) =		**0.01 tons/yr uncontrolled**

MISCELLANEOUS VEHICLE OPERATIONS (AUXILIARY ROADS - UNPAVED)
(Uncontrolled Short-Term Emissions)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

E = size-specific emission factor (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.9	k =	1.5	k =	0.15
s =	6.4	s =	6.4	s =	6.4
a =	0.7	a =	0.9	a =	0.9
b =	0.45	b =	0.45	b =	0.45
W =	1.2	W =	1.2	W =	1.2

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **2.09** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.56** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.06** lbs/VMT

Operating Hours:

Operating efficiency = **100%** (based on Landfill estimates)
Working Days (313 days/yr) - 6 days/wk, 11.5 hr/day = **3,599.5**
Operating Hours= **3,599.5**
Operating hours = (Operating Hours)(Operating Efficiency) = **3,599.5** hrs/yr

Total Vehicle Miles Traveled (VMT):

Total VMT = **503** mi/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP =	(E_{TSP})(Total VMT) =	**1,050** lbs/yr	
B TSP =	(**A**)/(Operating Hours) =		**0.3 lbs/hr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**284** lbs/yr	
D PM_{10} =	(**C**)/(Operating Hours) =		**0.1 lbs/hr uncontrolled**
E $PM_{2.5}$ =	$(E_{PM2.5})$(Total VMT) =	**28** lbs/yr	
F $PM_{2.5}$ =	(**E**)/(Operating Hours) =		**0.01 lbs/hr uncontrolled**

ATTACHMENT 6.2
UNCONTROLLED EMISSIONS
EMISSION UNIT 2

- **Scraper**
- **Compactor/Bulldozer**

COMPACTOR/BULLDOZER OPERATIONS

(Uncontrolled Emissions)

Methodology: According to AP-42, Section 13.2.3, Heavy Construction Operations (January 1995), Table 13.2.3-1, emissions for TSP, PM10, and PM2.5 for the compactor are to be estimated by use of the bulldozer emission factor equations provided in AP-42, Section 11.9, Western Surface Coal Mining (October 1998), Table 11.9-1. Therefore, a single equation was used to estimate emissions from both equipment types, which operate within the same area of the landfill (i.e., the disposal area).

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Emissions Equations:

$E_{TSP} = \frac{(5.7)(s)^{1.2}}{(M)^{1.3}}$ (AP-42, Table 11.9-1)

$E_{PM15} = \frac{(1.0)(s)^{1.5}}{(M)^{1.4}}$ (AP-42, Table 11.9-1)

$E_{PM10} = (0.75)(E_{PM15})$ (AP-42, Table 11.9-1)

$E_{PM2.5} = (0.105)(E_{TSP})$ (AP-42, Table 11.9-1)

E = size-specific emission factor (lbs/ton of compacted waste)

s = material silt content (%) = **0.5** (assumed for silt content of MSW)

M = material moisture content (%) = **15** (assumed for MSW)

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} =	$[(5.7)(s)^{1.2}]/[(M)^{1.3}]$ =	**0.073** lbs/hr of operation
E_{PM10} =	$[(0.75)(s)^{1.5}]/[(M)^{1.4}]$ =	**0.006** lbs/hr of operation
$E_{PM2.5}$ =	$[0.105][(5.7)(s)^{1.2}]/[(M)^{1.3}]$ =	**0.008** lbs/hr of operation

Operating Hours:

Pieces of equipment operating at the disposal area: **1** CAT 826H Compactor

1 CAT D6T Bulldozer

Equipment type: one compactor (CAT 826H) & one bulldozer (CAT D6T)

Operating efficiency (CAT 826H) = **70%** (based on Landfill estimates)

Operating efficiency (CAT D6T) = **17%** (based on Landfill estimates)

Operating days - 11.5 hr/day = **3,599.5**

Operating Hours= **3,599.5**

Operating hours:

Compactor = (Operating Hours)(Operating Efficiency) = **2,520** hrs/yr

Bulldozer = (Operating Hours)(Operating Efficiency) = **626** hrs/yr

Total = **3,146** hrs/yr

TSP, PM_{10} and $PM_{2.5}$ Emissions

A TSP =	(E_{TSP})(Operating Hours) =	**231** lbs/yr	
B TSP =	(**A**)/(2,000 lbs/ton) =	**0.12**	**tons/yr uncontrolled**
C TSP =	(**A**)/(Operating Hours) =	**0.073**	**lbs/hr uncontrolled**
D PM_{10} =	(E_{PM10})(Operating Hours) =	**19** lbs/yr	
E PM_{10} =	(**D**)/(2,000 lbs/ton) =	**0.009**	**tons/yr uncontrolled**
F PM_{10} =	(**D**)/(Operating Hours) =	**0.0060**	**lbs/hr uncontrolled**
G $PM_{2.5}$ =	$(E_{PM2.5})$(Operating Hours) =	**24** lbs/yr	
H $PM_{2.5}$ =	(**G**)/(2,000 lbs/ton) =	**0.012**	**tons/yr uncontrolled**
I $PM_{2.5}$ =	(**G**)/(Operating Hours) =	**0.0077**	**lbs/hr uncontrolled**

SCRAPER OPERATIONS

(Uncontrolled Long-Term Emissions - Scraper Travel Over Unpaved Access Road)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from three different scraper processes:

- Scraper Travel along the Access Road between the Daily Cover Soil Borrow Area and the Disposal Area.
- Scraper Loading at the Daily Cover Soil Borrow Area.
- Scraper Unloading at the Working Face.

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: Emissions estimates for each process involve the application of guidance from three (3) separate sections of EPA AP-42:

- Scraper Travel -- Section 13.2.2 (Unpaved Roads, November 2006)
- Scraper Loading -- Section 11.9 (Western Surface Coal Mining, October 1998)
- Scraper Unloading -- Section 13.2.4 (Aggregate Handling and Storage Piles, November 2006)

Long-Term Emissions Equation:

E_{ext} = $(k)(s/12)^a(W/3)^b$ $[(365-p)/365]$ (AP-42,13.2.2.2, equation (2))

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	4.9	1.5	0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	6.4	6.4	6.4
a = empirical constant (dimensionless)	0.7	0.9	0.9
b = empirical constant (dimensionless)	0.45	0.45	0.45
W = mean vehicle weight (tons)	54.6	54.6	54.6
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	51	51	51

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} = $(4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ $[(365-p)/365]$ = **10.02** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **2.70** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ $[(365-p)/365]$ = **0.27** lbs/VMT

Total Vehicle Miles Traveled (VMT):

A Number of Daily Cover round trips per day = **8** round trips/day (based on Landfill estimates)

B Round-trip distance from Soil Stockpile Area to Disposal Area (Daily Cover) = **2.2** mi/round-trip

C Total VMT = (**A**)(**B**)(days/year) = **5,516** mi/yr

Mean Vehicle Weight (W):

Mean vehicle weight = (vehicle empty weight) + (1/2 soil weight)

A Vehicle empty weight (CAT 627G) = **43.2** tons (Caterpillar Handbook, 2018)

B Scraper capacity = **19** yd^3/load (based on Landfill estimates)

C Soil density ($tons/yd^3$) = **1.2** $tons/yd^3$ (Caterpillar Handbook, 2012)

D Soil weight = (**B**)(**C**) = **22.8** tons

E Assume Scraper is empty for 1/2 of its round-trip = **0.5**

F 1/2 soil weight = (**D**)(**E**) = **11.4** tons

G Mean vehicle weight (W) = (**A**) + (**F**) = **54.6** tons

TSP, PM_{10} and $PM_{2.5}$ Long-Term Emissions

A TSP =	(E_{TSP})(Total VMT) =	**55,259** lbs/yr	
B TSP =	(**A**)/(2,000 lbs/ton) =	**27.6**	**tons/yr uncontrolled**
C PM_{10} =	(E_{PM10})(Total VMT) =	**14,917** lbs/yr	
D PM_{10} =	(**C**)/(2,000 lbs/ton) =	**7.5**	**tons/yr uncontrolled**
E $PM_{2.5}$ =	$(E_{PM2.5})$(Total VMT) =	**1,492** lbs/yr	
F $PM_{2.5}$ =	(**E**)/(2,000 lbs/ton) =	**0.75**	**tons/yr uncontrolled**

SCRAPER OPERATIONS

(Uncontrolled Short-Term Emissions - Scraper Travel Over Unpaved Access Road)

Short-Term Emissions Equation:

$E = (k)(s/12)^a(W/3)^b$ (AP-42,13.2.2.2, equation (1a))

E = size-specific emission factor (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)

TSP	
k =	4.9
s =	6.4
a =	0.7
b =	0.45
W =	54.6

PM_{10}	
k =	1.5
s =	6.4
a =	0.9
b =	0.45
W =	54.6

$PM_{2.5}$	
k =	0.15
s =	6.4
a =	0.9
b =	0.45
W =	54.6

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$E_{TSP} = (4.9)(6.4/12)^{0.7}(W/3)^{0.45}$ = **11.64** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(W/3)^{0.45}$ = **3.14** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(W/3)^{0.45}$ = **0.31** lbs/VMT

Total Vehicle Miles Traveled (VMT):

Total VMT = **5,516** mi/yr

Mean Vehicle Weight (W):

Mean vehicle weight (W) = **54.6** tons

Operating Hours:

Operating efficiency = **100%** based on Landfill estimates
Working days - 313 days/yr, 3 hr/(**939**
Operating Hours= **939**
Operating hours = (Operating Hours)(Operating Efficiency) = **939** hrs/yr

TSP, PM_{10} and $PM_{2.5}$ Short-Term Emissions:

A TSP = (E_{TSP})(Total VMT) = **64,234** lbs/yr
B TSP = (**A**)/(Operating Hours) = **68.4 lbs/hr uncontrolled**
C PM_{10} = (E_{PM10})(Total VMT) = **17,340** lbs/yr
D PM_{10} = (**C**)/(Operating Hours) = **18.5 lbs/hr uncontrolled**
E $PM_{2.5}$ = ($E_{PM2.5}$)(Total VMT) = **1,734** lbs/yr
F $PM_{2.5}$ = (**E**)/(Operating Hours) = **1.85 lbs/hr uncontrolled**

SCRAPER OPERATIONS
(Uncontrolled Emissions - Scraper Loading)

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

TSP, $PM_{10,}$ and $PM_{2.5}$ uncontrolled emissions for scraper loading are estimated through application of emission factors presented in AP-42, Section 11.9, Table 11.9-4 and Section 13.2.2.2.

A E_{TSP} = **0.058** lbs/ton of material loaded (Table 11.9-4)

The emission factors for PM_{10} and $PM_{2.5}$ are calculated by applying the ratio of the PM_{10}, $PM_{2.5}$, and TSP particle size multiplier (k) values, obtained from AP-42, Section 13.2.2.2, to the TSP emission factor of 0.058 lbs/ton of material loaded.

B E_{PM10} = $(1.5/4.9)(E_{TSP}) = (0.31)(\mathbf{A})$ = **0.02** lbs/ton of material loaded

C $E_{PM2.5}$ = $(0.15/4.9)(E_{TSP}) = (.031)(\mathbf{A})$ = **0.002** lbs/ton of material loaded

Mass of Soil Loaded Per Year:

A	Number of scraper loads per day=	**8** loads/day (based on Landfill estimates)
B	Scraper capacity=	**19** yd^3/load (based on Landfill data)
C	Soil density=	**1.2** tons/yd^3 (Caterpillar© Handbook, 2018
D	Mass of soil loaded per day = (**A**)(**B**)(**C**) =	**182** tons/day
E	Operating days per year =	**313** days/yr
F	Mass of soil loaded per year = (**D**)(**E**) =	**57,091** tons/yr

Operating Hours:

Operating hours = **939** hrs/yr

TSP, PM_{10} and $PM_{2.5}$ Emissions:

A	TSP =	(E_{TSP})(Mass of soil loaded per year) =	**3,311** lbs/yr
B	TSP =	(**A**)/(2,000 lbs/ton) =	**1.7 tons/yr uncontrolled**
C	TSP =	(**A**)/(Operating Hours) =	**3.5 lbs/hr uncontrolled**
D	PM_{10} =	(E_{PM10})(Mass of soil loaded per year) =	**1,014** lbs/yr
E	PM_{10} =	(**D**)/(2,000 lbs/ton) =	**0.5 tons/yr uncontrolled**
F	PM_{10} =	(**D**)/(Operating Hours) =	**1.1 lbs/hr uncontrolled**
G	$PM_{2.5}$ =	$(E_{PM2.5})$(Mass of soil loaded per year) =	**101** lbs/yr
H	$PM_{2.5}$ =	(**G**)/(2,000 lbs/ton) =	**0.05 tons/yr uncontrolled**
I	$PM_{2.5}$ =	(**G**)/(Operating Hours) =	**0.11 lbs/hr uncontrolled**

SCRAPER OPERATIONS
(Uncontrolled Emissions - Scraper Unloading)

Emissions Equation:

$$E = \frac{(k)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}}$$ (AP-42,13.2.4, equation (1))

E = size-specific emission factor (lbs/ton of material unloaded)

k = particle size multiplier (dimensionless) =

0.74	k_{TSP}	(AP-42, 13.2.4)
0.35	k_{PM10}	(AP-42, 13.2.4)
0.053	$k_{PM2.5}$	(AP-42, 13.2.4)

U* = mean wind speed (mph) = **8.5**

* Meteorological data obtained from Farmington Airport

M = soil moisture content (%) = **12** (AP-42, Table 13.2.4-1)

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

$$E_{TSP} = \frac{(0.74)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}} =$$ **0.00038** lbs/ton of material unloaded

$$E_{PM10} = \frac{(0.35)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}} =$$ **0.00018** lbs/ton of material unloaded

$$E_{PM2.5} = \frac{(0.053)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}} =$$ **0.00003** lbs/ton of material unloaded

Mass of Soil Unloaded Per Year:

Mass of soil unloaded per year = Mass of soil loaded per year = **57,091** tons/yr

Operating Hours:

Operating hours = **939** hrs/yr

TSP, PM_{10} and $PM_{2.5}$ Emissions:

A TSP =	(E_{TSP})(Mass of soil unloaded per year) =	**22**	lbs/yr
B TSP =	(**A**)/(2,000 lbs/ton) =	**0.01**	**tons/yr uncontrolled**
C TSP =	(**A**)/(Operating Hours) =	**0.02**	**lbs/hr uncontrolled**
D PM_{10} =	(E_{PM10})(Mass of soil unloaded per year) =	**10**	lbs/yr
E PM_{10} =	(**D**)/(2,000 lbs/ton) =	**0.01**	**tons/yr uncontrolled**
F PM_{10} =	(**D**)/(Operating Hours) =	**0.01**	**lbs/hr uncontrolled**
G $PM_{2.5}$ =	($E_{PM2.5}$)(Mass of soil unloaded per year) =	**2**	lbs/yr
H $PM_{2.5}$ =	(**G**)/(2,000 lbs/ton) =	**0.001**	**tons/yr uncontrolled**
I $PM_{2.5}$ =	(**G**)/(Operating Hours) =	**0.002**	**lbs/hr uncontrolled**

SCRAPER OPERATIONS - SUMMARY OF EMISSIONS
(Total Uncontrolled TSP, PM_{10}, and $PM_{2.5}$ Emissions)

Scraper Travel + Loading + Unloading

TSP Long-Term Emissions	**29.3**	**tons/yr uncontrolled**
TSP Short-Term Emissions	**72.0**	**lbs/hr uncontrolled**
PM_{10} Long-Term Emissions	**8.0**	**tons/yr uncontrolled**
PM_{10} Short-Term Emissions	**19.6**	**lbs/hr uncontrolled**
$PM_{2.5}$ Long-Term Emissions	**0.80**	**tons/yr uncontrolled**
$PM_{2.5}$ Short-Term Emissions	**1.96**	**lbs/hr uncontrolled**

ATTACHMENT 6.3
CONTROLLED EMISSIONS
EMISSION UNITS 1 AND 2

ATTACHMENT 6.3

ITEMIZED SUMMARY OF CONTROLLED VEHICLE EMISSIONS

Lea County Landfill

Controlled fugitive dust emissions are estimated by using the following equation:

Controlled emissions = (uncontrolled emissions)(1 - control efficiency)

Control efficiencies = **95%, 60%, and 0%**

Emissions	Uncontrolled		Control Efficiency (%)	Controlled	
	tons/yr	lbs/hr		tons/yr	lbs/hr
Refuse Delivery Vehicle Operations (Paved)					
TSP Long-Term Emissions	32.1		95	1.6	
TSP Short-Term Emissions		23.8	95		1.2
PM_{10} Long-Term Emissions	8.7		95	0.4	
PM_{10} Short-Term Emissions		6.4	95		0.32
$PM_{2.5}$ Long-Term Emissions	0.9		95	0.04	
$PM_{2.5}$ Short-Term Emissions		0.6	95		0.032
Refuse Delivery Vehicle Operations (Unpaved)					
TSP Long-Term Emissions	218.7		60	87.5	
TSP Short-Term Emissions		162.4	60		65.0
PM_{10} Long-Term Emissions	59.0		60	23.6	
PM_{10} Short-Term Emissions		43.8	60		17.5
$PM_{2.5}$ Long-Term Emissions	5.9		60	2.36	
$PM_{2.5}$ Short-Term Emissions		4.4	60		1.75
Miscellaneous Vehicle Operations (Paved)					
TSP Long-Term Emissions	1.2		95	0.058	
TSP Short-Term Emissions		0.8	95		0.038
PM_{10} Long-Term Emissions	0.31		95	0.016	
PM_{10} Short-Term Emissions		0.20	95		0.010
$PM_{2.5}$ Long-Term Emissions	0.031		95	0.0016	
$PM_{2.5}$ Short-Term Emissions		0.020	95		0.0010
Miscellaneous Vehicle Operations (Unpaved)					
TSP Long-Term Emissions	12.0		60	4.8	
TSP Short-Term Emissions		7.7	60		3.1
PM_{10} Long-Term Emissions	3.2		60	1.29	
PM_{10} Short-Term Emissions		2.1	60		0.83
$PM_{2.5}$ Long-Term Emissions	0.32		60	0.129	
$PM_{2.5}$ Short-Term Emissions		0.21	60		0.083
Miscellaneous Vehicle Operations (Auxiliary Roads - Unpaved)					
TSP Long-Term Emissions	0.5		0	0.5	
TSP Short-Term Emissions		0.3	0		0.3
PM_{10} Long-Term Emissions	0.1		0	0.12	
PM_{10} Short-Term Emissions		0.1	0		0.08
$PM_{2.5}$ Long-Term Emissions	0.01		0	0.012	
$PM_{2.5}$ Short-Term Emissions		0.01	0		0.008
Compactor/Bulldozer Operations					
TSP Long-Term Emissions	0.12		0	0.12	
TSP Short-Term Emissions		0.073	0		0.073
PM_{10} Long-Term Emissions	0.009		0	0.01	
PM_{10} Short-Term Emissions		0.0060	0		0.0060
$PM_{2.5}$ Long-Term Emissions	0.012		0	0.01	
$PM_{2.5}$ Short-Term Emissions		0.0077	0		0.0077

Scraper Operations					
Scraper Travel (Unpaved)					
TSP Long-Term Emissions	27.63		60	11.05	
TSP Short-Term Emissions		68.41	60		27.36
PM_{10} Long-Term Emissions	7.46		60	2.98	
PM_{10} Short-Term Emissions		18.47	60		7.39
$PM_{2.5}$ Long-Term Emissions	0.75		60	0.30	
$PM_{2.5}$ Short-Term Emissions		1.85	60		0.74
Scraper Loading					
TSP Long-Term Emissions	1.66		0	1.66	
TSP Short-Term Emissions		3.53	0		3.53
PM_{10} Long-Term Emissions	0.51		0	0.51	
PM_{10} Short-Term Emissions		1.08	0		1.08
$PM_{2.5}$ Long-Term Emissions	0.05		0	0.051	
$PM_{2.5}$ Short-Term Emissions		0.11	0		0.11
Scraper Unloading					
TSP Long-Term Emissions	0.011		0	0.011	
TSP Short-Term Emissions		0.02	0		0.023
PM_{10} Long-Term Emissions	0.01		0	0.0052	
PM_{10} Short-Term Emissions		0.01	0		0.011
$PM_{2.5}$ Long-Term Emissions	0.001		0	0.0008	
$PM_{2.5}$ Short-Term Emissions		0.002	0		0.0017

ATTACHMENT 6.4
WIND EROSION EMISSIONS CALCULATIONS
EMISSION UNIT 2

WIND EROSION EMISSIONS CALCULATIONS

Purpose: The purpose of this calculation is to estimate the potential uncontrolled and controlled fugitive dust emissions due to wind erosion from actively disturbed areas at the landfill.

Notes: Total Suspended Particulate Matter (TSP), also referred to as "PM" in Tables 2-D through 2-F is no longer a regulated criteria pollutant under the New Mexico Ambient Air Quality Standards (NMAAQS) or North American Ambient Air Quality Standards (NAAQS). Calculations of TSP emissions are included in This attachment in order to more fully characterize facility emissions and support the non-applicability of PSD and Title V Major classification.

Methodology: TSP, PM_{10}, and $PM_{2.5}$ emissions due to wind erosion are estimated through application of emission factors presented in AP-42, Section 11.9 (Table 11.9-4) and Section 13.2.2.2:

TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

TSP, PM_{10} and $PM_{2.5}$ emissions due to wind erosion are estimated through application of emission factors presented in AP-42, Section 11.9, Table 11.9-4 and Section 13.2.2, Table 13.2.2-2. Emissions from wind erosion were calculated as occurring 24 hours/day, 365 days/yr (i.e., 8,760 hrs/yr).

Hours/yr =	**8,760**	hours/yr
E_{TSP} =	**0.38**	tons/acre/yr (Table 11.9-4)

The emission factors for PM_{10} and $PM_{2.5}$ are calculated by applying ratios of the PM_{10}, $PM_{2.5}$ and TSP particle size multiplier (k) values (obtained from AP-42, Section 13.2.2, Table 13.2.2-2) to the TSP emission factor (E_{TSP}) of 0.38 tons/acre/yr:

A k_{TSP} =	4.9
B k_{PM10} =	1.5
C $k_{PM2.5}$ =	0.15

E_{PM10} =	(**B**/**A**)(E_{TSP}) =	**0.12**	tons/acre/yr
$E_{PM2.5}$ =	(**C**/**A**)(E_{TSP}) =	**0.012**	tons/acre/yr

EXAMPLE CALCULATIONS:

Potential fugitive dust emissions from actively disturbed areas are estimated utilizing the acreage of the disturbed area and the TSP, PM_{10} and $PM_{2.5}$ emission factors, as illustrated in the following example calculations:

▶ Example disturbed area = Disposal Route (unpaved):

The acreage for the Disposal Coute is calculated by multiplying the total unpaved road length by the average road width of 30.0 ft, and then dividing by 43,560 ft^2/acre. The acreage for landfill roads was determined using AutoCAD software.

A Estimated Disposal Route unpaved length =	**5,036**	feet
B Average road width =	**30.0**	feet
C ft^2/acre	**43,560**	ft^2/acre
D Disposal Route acreage = [(**A**)(**B**)]/(**C**) =	**3.47**	acres

▶ Example: Access Road (unpaved) uncontrolled TSP, $PM_{10,}$ and PM $_{2.5}$ Emissions:

D TSP =	(E_{TSP})(Road Acreage) =	**1.32**	tons/yr (uncontrolled)
E TSP =	(**D**)(2,000 lbs/ton)/(8,760 hrs/yr) =	**0.30**	lbs/hr (uncontrolled)
F PM_{10} =	(E_{PM10})(Road Acreage) =	**0.40**	tons/yr (uncontrolled)
G PM_{10} =	(**F**)(2,000 lbs/ton)/(8,760 hrs/yr) =	**0.09**	lbs/hr (uncontrolled)
H $PM_{2.5}$ =	($E_{PM2.5}$)(Road Acreage) =	**0.04**	tons/yr (uncontrolled)
I $PM_{2.5}$ =	(**H**)(2,000 lbs/ton)/(8,760 hrs/yr) =	**0.009**	lbs/hr (uncontrolled)

Based on guidance provided in AP-42, Section 13.2.5, Industrial Wind Erosion (November 2006), only those areas of the Landfill that are actively disturbed by facility operations were included in the acreage for which potential fugitive dust emissions attributable to wind erosion were calculated. Fugitive dust emissions due to wind erosion on disturbed areas are based on wind erosion potentially occurring 24 hrs/day, 365 days/yr (i.e., 8,760 hrs/yr), and are summarized in **Table 1**.

Controlled Emissions

Based on AQB guidance, a control efficiency of 60% (water only) was applied to the following disturbed areas:

- **Disposal Route (60% control)** **3.47** ac

Example Controlled Emissions Calculations:

Controlled fugitive dust emissions are estimated by using the following equation:

Controlled emissions = (uncontrolled emissions)(1 - control efficiency)

Control Efficiency = **60%**

- Example: Access Road (Unpaved) controlled TSP, $PM_{10,}$ and $PM_{2.5}$ Emissions:

J	TSP =	(**D**)(1-Control Efficiency) =	**0.53** tons/yr (controlled)
K	TSP =	(**E**)(1-Control Efficiency) =	**0.12** lbs/hr (controlled)
L	PM_{10} =	(**F**)(1-Control Efficiency) =	**0.16** tons/yr (controlled)
M	PM_{10} =	(**G**)(1-Control Efficiency) =	**0.037** lbs/hr (controlled)
N	$PM_{2.5}$ =	(**H**)(1-Control Efficiency) =	**0.016** tons/yr (controlled)
O	$PM_{2.5}$	(**I**)(1-Control Efficiency) =	**0.004** lbs/hr (controlled)

The controlled fugitive dust emissions due to wind erosion on actively disturbed areas are summarized in **Table 1**.

Uncontrolled Emissions

Water may be applied to the following areas for fugitive dust control on an as-needed basis. However, for emissions calculations, a conservative control efficiency of zero was applied to these areas:

- **Disturbed Areas (Disposal Area)** **1.00** ac
- **Disturbed Areas (Daily Cover Soil Borrow Area)** **3.00** ac
- **Auxiliary Roads** **3.89** ac
- **Total Disturbed Areas** **7.89** ac

Uncontrolled fugitive dust emissions due to wind erosion on actively disturbed areas are also summarized in **Table 1**.

TABLE 1
SUMMARY OF WIND EROSION EMISSIONS
Lea County Landfill

					Uncontrolled Emissions						Controlled Emissions						
Disturbed Area [1]	**Area (acres)**	**Emission Factor (E_{TSP})**	**Emission Factor (E_{PM10})**	**Emission Factor ($E_{PM2.5}$)**	**TSP Emissions (tons/yr)**	**TSP Emissions (lbs/hr)**	**PM_{10} Emissions (tons/yr)**	**PM_{10} Emissions (lbs/hr)**	**$PM_{2.5}$ Emissions (tons/yr)**	**$PM_{2.5}$ Emissions (lbs/hr)**	**Control Efficiency (%)**	**TSP Emissions (tons/yr)**	**TSP Emissions (lbs/hr)**	**PM_{10} Emissions (tons/yr)**	**PM_{10} Emissions (lbs/hr)**	**$PM_{2.5}$ Emissions (tons/yr)**	**$PM_{2.5}$ Emissions (lbs/hr)**
Disposal Route (Unpaved)	3.47	0.38	0.12	0.012	1.32	0.30	0.40	0.092	0.040	0.0092	60	0.53	0.120	0.161	0.037	0.0161	0.0037
Auxiliary Roads (Unpaved)	3.89	0.38	0.12	0.012	1.5	0.34	0.5	0.10	0.045	0.010	0	1.48	0.34	0.45	0.103	0.045	0.0103
Disposal Area	1.00	0.38	0.12	0.012	0.4	0.09	0.12	0.027	0.0116	0.0027	0	0.38	0.087	0.116	0.027	0.012	0.0027
Daily Cover Soil Borrow Area	3.00	0.38	0.12	0.012	1.1	0.26	0.35	0.08	0.035	0.008	0	1.1	0.26	0.35	0.08	0.035	0.008
TOTALS	**11.36**				**4.3**	**1.0**	**1.3**	**0.30**	**0.13**	**0.030**		**3.5**	**0.81**	**1.1**	**0.25**	**0.11**	**0.025**

Note:

[1] See **Figure 5.1**, Section 5 for locations of actively disturbed areas subject to wind erosion

ATTACHMENT 6.5
LandGEM NMOC EMISSIONS ESTIMATE
EMISSION UNIT 3

(Modeling Outputs)

Summary Report

Landfill Name or Identifier: Lea County Landfill

Date: Wednesday, June 10, 2020

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} kL_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation ($m^3/year$)

i = 1-year time increment

n = (year of the calculation) - (initial year of waste acceptance)

j = 0.1-year time increment

k = methane generation rate ($year^{-1}$)

L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the i^{th} year (Mg)

t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1999**	
Landfill Closure Year (with 80-year limit)	**2025**	
Actual Closure Year (without limit)	***2025***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity		*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	$year^{-1}$
Potential Methane Generation Capacity, L_o	**170**	m^3/Mg
NMOC Concentration	**371**	*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**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1999	8,386	9,225	0	0
2000	18,361	20,197	8,386	9,225
2001	21,865	24,052	26,747	29,422
2002	22,040	24,244	48,612	53,473
2003	23,278	25,606	70,652	77,717
2004	26,331	28,964	93,930	103,323
2005	26,561	29,217	120,261	132,287
2006	40,739	44,813	146,822	161,504
2007	42,879	47,167	187,561	206,317
2008	42,462	46,708	230,440	253,484
2009	38,210	42,031	272,902	300,192
2010	39,380	43,318	311,112	342,223
2011	39,331	43,264	350,492	385,541
2012	35,190	38,709	389,823	428,805
2013	44,322	48,754	425,013	467,514
2014	48,627	53,490	469,335	516,269
2015	53,127	58,440	517,962	569,758
2016	32,764	36,040	571,089	628,198
2017	33,819	37,201	603,853	664,238
2018	36,396	40,036	637,672	701,439
2019	39,960	43,956	674,068	741,475
2020	41,958	46,154	714,028	785,431
2021	44,056	48,461	755,986	831,585
2022	46,259	50,885	800,042	880,046
2023	48,572	53,429	846,301	930,931
2024	51,000	56,100	894,872	984,359
2025	53,550	58,905	945,872	1,040,460
2026	0	0	999,422	1,099,365
2027	0	0	999,422	1,099,365
2028	0	0	999,422	1,099,365
2029	0	0	999,422	1,099,365
2030	0	0	999,422	1,099,365
2031	0	0	999,422	1,099,365
2032	0	0	999,422	1,099,365
2033	0	0	999,422	1,099,365
2034	0	0	999,422	1,099,365
2035	0	0	999,422	1,099,365
2036	0	0	999,422	1,099,365
2037	0	0	999,422	1,099,365
2038	0	0	999,422	1,099,365

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2039	0	0	999,422	1,099,365
2040	0	0	999,422	1,099,365
2041	0	0	999,422	1,099,365
2042	0	0	999,422	1,099,365
2043	0	0	999,422	1,099,365
2044	0	0	999,422	1,099,365
2045	0	0	999,422	1,099,365
2046	0	0	999,422	1,099,365
2047	0	0	999,422	1,099,365
2048	0	0	999,422	1,099,365
2049	0	0	999,422	1,099,365
2050	0	0	999,422	1,099,365
2051	0	0	999,422	1,099,365
2052	0	0	999,422	1,099,365
2053	0	0	999,422	1,099,365
2054	0	0	999,422	1,099,365
2055	0	0	999,422	1,099,365
2056	0	0	999,422	1,099,365
2057	0	0	999,422	1,099,365
2058	0	0	999,422	1,099,365
2059	0	0	999,422	1,099,365
2060	0	0	999,422	1,099,365
2061	0	0	999,422	1,099,365
2062	0	0	999,422	1,099,365
2063	0	0	999,422	1,099,365
2064	0	0	999,422	1,099,365
2065	0	0	999,422	1,099,365
2066	0	0	999,422	1,099,365
2067	0	0	999,422	1,099,365
2068	0	0	999,422	1,099,365
2069	0	0	999,422	1,099,365
2070	0	0	999,422	1,099,365
2071	0	0	999,422	1,099,365
2072	0	0	999,422	1,099,365
2073	0	0	999,422	1,099,365
2074	0	0	999,422	1,099,365
2075	0	0	999,422	1,099,365
2076	0	0	999,422	1,099,365
2077	0	0	999,422	1,099,365
2078	0	0	999,422	1,099,365

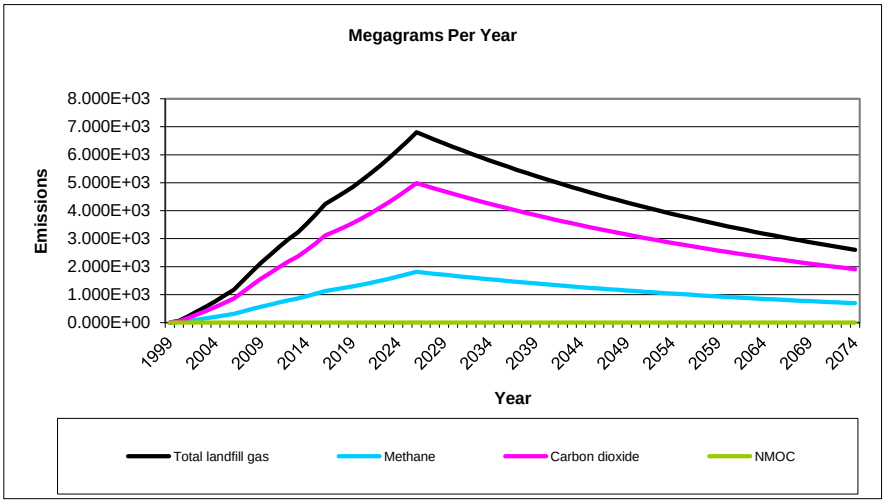
Pollutant Parameters

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
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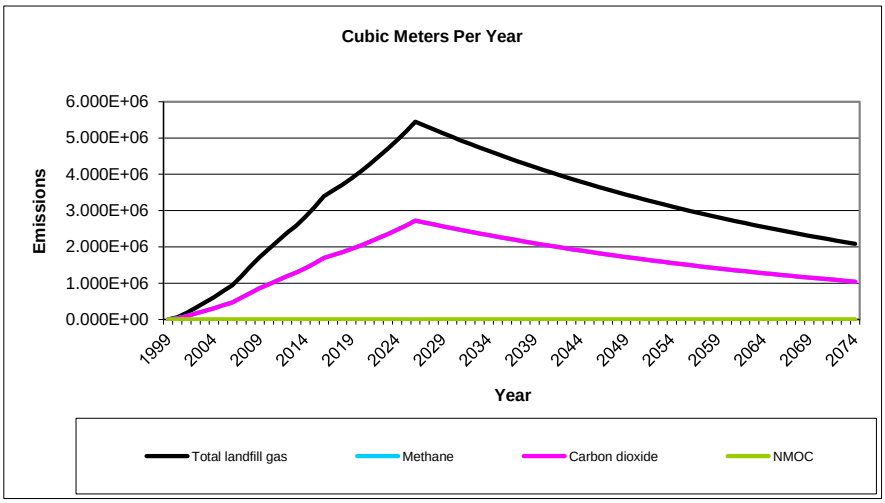
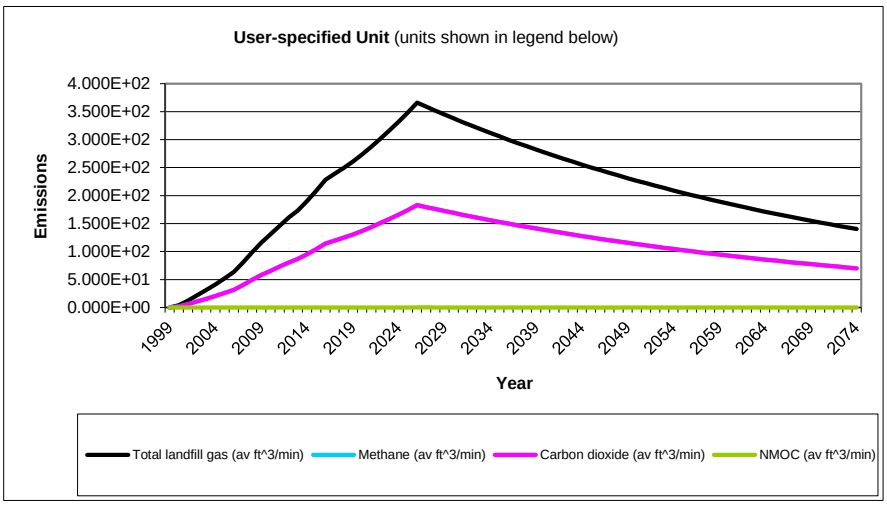
7.000E+03
6.000E+03
5.000E+03
4.000E+03
3.000E+03
2.000E+03
1.000E+03
0.000E+00
1999
2004
2009
2014
2019
2024
2029
2034
2039
2044
2049
2054
2059
2064
2069
2074
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
6.000E+06
5.000E+06
4.000E+06
3.000E+06
2.000E+06
1.000E+06
0.000E+00
1999
2004
2009
2014
2019
2024
2029
2034
2039
2044
2049
2054
2059
2064
2069
2074
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
4.000E+02
3.500E+02
3.000E+02
2.500E+02
2.000E+02
1.500E+02
1.000E+02
5.000E+01
0.000E+00
1999
2004
2009
2014
2019
2024
2029
2034
2039
2044
2049
2054
2059
2064
2069
2074
Year
Total landfill gas (av ft^3/min)
Methane (av ft^3/min)
Carbon dioxide (av ft^3/min)
NMOC (av ft^3/min)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1999	0	0	0	0	0	0
2000	7.058E+01	5.651E+04	3.797E+00	1.885E+01	2.826E+04	1.899E+00
2001	2.237E+02	1.791E+05	1.204E+01	5.975E+01	8.957E+04	6.018E+00
2002	4.033E+02	3.229E+05	2.170E+01	1.077E+02	1.615E+05	1.085E+01
2003	5.808E+02	4.651E+05	3.125E+01	1.551E+02	2.325E+05	1.562E+01
2004	7.652E+02	6.127E+05	4.117E+01	2.044E+02	3.064E+05	2.059E+01
2005	9.717E+02	7.781E+05	5.228E+01	2.595E+02	3.890E+05	2.614E+01
2006	1.176E+03	9.417E+05	6.327E+01	3.141E+02	4.708E+05	3.163E+01
2007	1.496E+03	1.198E+06	8.046E+01	3.995E+02	5.988E+05	4.023E+01
2008	1.827E+03	1.463E+06	9.829E+01	4.880E+02	7.314E+05	4.914E+01
2009	2.148E+03	1.720E+06	1.156E+02	5.737E+02	8.600E+05	5.778E+01
2010	2.427E+03	1.943E+06	1.306E+02	6.483E+02	9.717E+05	6.529E+01
2011	2.710E+03	2.170E+06	1.458E+02	7.240E+02	1.085E+06	7.291E+01
2012	2.988E+03	2.392E+06	1.607E+02	7.981E+02	1.196E+06	8.037E+01
2013	3.225E+03	2.582E+06	1.735E+02	8.614E+02	1.291E+06	8.675E+01
2014	3.534E+03	2.830E+06	1.901E+02	9.439E+02	1.415E+06	9.507E+01
2015	3.873E+03	3.101E+06	2.084E+02	1.035E+03	1.551E+06	1.042E+02
2016	4.244E+03	3.398E+06	2.283E+02	1.134E+03	1.699E+06	1.142E+02
2017	4.435E+03	3.552E+06	2.386E+02	1.185E+03	1.776E+06	1.193E+02
2018	4.632E+03	3.709E+06	2.492E+02	1.237E+03	1.855E+06	1.246E+02
2019	4.847E+03	3.881E+06	2.608E+02	1.295E+03	1.941E+06	1.304E+02
2020	5.087E+03	4.073E+06	2.737E+02	1.359E+03	2.037E+06	1.368E+02
2021	5.339E+03	4.276E+06	2.873E+02	1.426E+03	2.138E+06	1.436E+02
2022	5.604E+03	4.488E+06	3.015E+02	1.497E+03	2.244E+06	1.508E+02
2023	5.883E+03	4.711E+06	3.165E+02	1.571E+03	2.355E+06	1.583E+02
2024	6.175E+03	4.945E+06	3.322E+02	1.649E+03	2.472E+06	1.661E+02
2025	6.482E+03	5.191E+06	3.488E+02	1.731E+03	2.595E+06	1.744E+02
2026	6.804E+03	5.449E+06	3.661E+02	1.818E+03	2.724E+06	1.830E+02
2027	6.670E+03	5.341E+06	3.588E+02	1.782E+03	2.670E+06	1.794E+02
2028	6.538E+03	5.235E+06	3.517E+02	1.746E+03	2.617E+06	1.759E+02
2029	6.408E+03	5.131E+06	3.448E+02	1.712E+03	2.566E+06	1.724E+02
2030	6.281E+03	5.030E+06	3.379E+02	1.678E+03	2.515E+06	1.690E+02
2031	6.157E+03	4.930E+06	3.313E+02	1.645E+03	2.465E+06	1.656E+02
2032	6.035E+03	4.832E+06	3.247E+02	1.612E+03	2.416E+06	1.623E+02
2033	5.915E+03	4.737E+06	3.183E+02	1.580E+03	2.368E+06	1.591E+02
2034	5.798E+03	4.643E+06	3.120E+02	1.549E+03	2.322E+06	1.560E+02
2035	5.683E+03	4.551E+06	3.058E+02	1.518E+03	2.276E+06	1.529E+02
2036	5.571E+03	4.461E+06	2.997E+02	1.488E+03	2.230E+06	1.499E+02
2037	5.461E+03	4.373E+06	2.938E+02	1.459E+03	2.186E+06	1.469E+02
2038	5.353E+03	4.286E+06	2.880E+02	1.430E+03	2.143E+06	1.440E+02
2039	5.247E+03	4.201E+06	2.823E+02	1.401E+03	2.101E+06	1.411E+02
2040	5.143E+03	4.118E+06	2.767E+02	1.374E+03	2.059E+06	1.383E+02
2041	5.041E+03	4.036E+06	2.712E+02	1.346E+03	2.018E+06	1.356E+02
2042	4.941E+03	3.957E+06	2.658E+02	1.320E+03	1.978E+06	1.329E+02
2043	4.843E+03	3.878E+06	2.606E+02	1.294E+03	1.939E+06	1.303E+02
2044	4.747E+03	3.801E+06	2.554E+02	1.268E+03	1.901E+06	1.277E+02
2045	4.653E+03	3.726E+06	2.504E+02	1.243E+03	1.863E+06	1.252E+02
2046	4.561E+03	3.652E+06	2.454E+02	1.218E+03	1.826E+06	1.227E+02
2047	4.471E+03	3.580E+06	2.405E+02	1.194E+03	1.790E+06	1.203E+02
2048	4.382E+03	3.509E+06	2.358E+02	1.171E+03	1.755E+06	1.179E+02

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2049	4.295E+03	3.440E+06	2.311E+02	1.147E+03	1.720E+06	1.156E+02
2050	4.210E+03	3.372E+06	2.265E+02	1.125E+03	1.686E+06	1.133E+02
2051	4.127E+03	3.305E+06	2.220E+02	1.102E+03	1.652E+06	1.110E+02
2052	4.045E+03	3.239E+06	2.176E+02	1.081E+03	1.620E+06	1.088E+02
2053	3.965E+03	3.175E+06	2.133E+02	1.059E+03	1.588E+06	1.067E+02
2054	3.887E+03	3.112E+06	2.091E+02	1.038E+03	1.556E+06	1.046E+02
2055	3.810E+03	3.051E+06	2.050E+02	1.018E+03	1.525E+06	1.025E+02
2056	3.734E+03	2.990E+06	2.009E+02	9.975E+02	1.495E+06	1.005E+02
2057	3.660E+03	2.931E+06	1.969E+02	9.777E+02	1.466E+06	9.847E+01
2058	3.588E+03	2.873E+06	1.930E+02	9.584E+02	1.437E+06	9.652E+01
2059	3.517E+03	2.816E+06	1.892E+02	9.394E+02	1.408E+06	9.461E+01
2060	3.447E+03	2.760E+06	1.855E+02	9.208E+02	1.380E+06	9.273E+01
2061	3.379E+03	2.706E+06	1.818E+02	9.026E+02	1.353E+06	9.090E+01
2062	3.312E+03	2.652E+06	1.782E+02	8.847E+02	1.326E+06	8.910E+01
2063	3.246E+03	2.600E+06	1.747E+02	8.672E+02	1.300E+06	8.733E+01
2064	3.182E+03	2.548E+06	1.712E+02	8.500E+02	1.274E+06	8.560E+01
2065	3.119E+03	2.498E+06	1.678E+02	8.332E+02	1.249E+06	8.391E+01
2066	3.057E+03	2.448E+06	1.645E+02	8.167E+02	1.224E+06	8.225E+01
2067	2.997E+03	2.400E+06	1.612E+02	8.005E+02	1.200E+06	8.062E+01
2068	2.938E+03	2.352E+06	1.580E+02	7.846E+02	1.176E+06	7.902E+01
2069	2.879E+03	2.306E+06	1.549E+02	7.691E+02	1.153E+06	7.746E+01
2070	2.822E+03	2.260E+06	1.518E+02	7.539E+02	1.130E+06	7.592E+01
2071	2.766E+03	2.215E+06	1.488E+02	7.389E+02	1.108E+06	7.442E+01
2072	2.712E+03	2.171E+06	1.459E+02	7.243E+02	1.086E+06	7.295E+01
2073	2.658E+03	2.128E+06	1.430E+02	7.100E+02	1.064E+06	7.150E+01
2074	2.605E+03	2.086E+06	1.402E+02	6.959E+02	1.043E+06	7.009E+01
2075	2.554E+03	2.045E+06	1.374E+02	6.821E+02	1.022E+06	6.870E+01
2076	2.503E+03	2.004E+06	1.347E+02	6.686E+02	1.002E+06	6.734E+01
2077	2.454E+03	1.965E+06	1.320E+02	6.554E+02	9.824E+05	6.601E+01
2078	2.405E+03	1.926E+06	1.294E+02	6.424E+02	9.629E+05	6.470E+01
2079	2.357E+03	1.888E+06	1.268E+02	6.297E+02	9.439E+05	6.342E+01
2080	2.311E+03	1.850E+06	1.243E+02	6.172E+02	9.252E+05	6.216E+01
2081	2.265E+03	1.814E+06	1.219E+02	6.050E+02	9.068E+05	6.093E+01
2082	2.220E+03	1.778E+06	1.194E+02	5.930E+02	8.889E+05	5.972E+01
2083	2.176E+03	1.743E+06	1.171E+02	5.813E+02	8.713E+05	5.854E+01
2084	2.133E+03	1.708E+06	1.148E+02	5.698E+02	8.540E+05	5.738E+01
2085	2.091E+03	1.674E+06	1.125E+02	5.585E+02	8.371E+05	5.625E+01
2086	2.049E+03	1.641E+06	1.103E+02	5.474E+02	8.205E+05	5.513E+01
2087	2.009E+03	1.609E+06	1.081E+02	5.366E+02	8.043E+05	5.404E+01
2088	1.969E+03	1.577E+06	1.059E+02	5.260E+02	7.884E+05	5.297E+01
2089	1.930E+03	1.546E+06	1.038E+02	5.155E+02	7.728E+05	5.192E+01
2090	1.892E+03	1.515E+06	1.018E+02	5.053E+02	7.575E+05	5.089E+01
2091	1.854E+03	1.485E+06	9.977E+01	4.953E+02	7.425E+05	4.989E+01
2092	1.818E+03	1.456E+06	9.780E+01	4.855E+02	7.278E+05	4.890E+01
2093	1.782E+03	1.427E+06	9.586E+01	4.759E+02	7.133E+05	4.793E+01
2094	1.746E+03	1.398E+06	9.396E+01	4.665E+02	6.992E+05	4.698E+01
2095	1.712E+03	1.371E+06	9.210E+01	4.572E+02	6.854E+05	4.605E+01
2096	1.678E+03	1.344E+06	9.028E+01	4.482E+02	6.718E+05	4.514E+01
2097	1.645E+03	1.317E+06	8.849E+01	4.393E+02	6.585E+05	4.424E+01
2098	1.612E+03	1.291E+06	8.674E+01	4.306E+02	6.455E+05	4.337E+01
2099	1.580E+03	1.265E+06	8.502E+01	4.221E+02	6.327E+05	4.251E+01

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2100	1.549E+03	1.240E+06	8.334E+01	4.137E+02	6.202E+05	4.167E+01
2101	1.518E+03	1.216E+06	8.169E+01	4.055E+02	6.079E+05	4.084E+01
2102	1.488E+03	1.192E+06	8.007E+01	3.975E+02	5.958E+05	4.003E+01
2103	1.459E+03	1.168E+06	7.848E+01	3.896E+02	5.840E+05	3.924E+01
2104	1.430E+03	1.145E+06	7.693E+01	3.819E+02	5.725E+05	3.846E+01
2105	1.402E+03	1.122E+06	7.541E+01	3.744E+02	5.611E+05	3.770E+01
2106	1.374E+03	1.100E+06	7.391E+01	3.670E+02	5.500E+05	3.696E+01
2107	1.347E+03	1.078E+06	7.245E+01	3.597E+02	5.391E+05	3.622E+01
2108	1.320E+03	1.057E+06	7.101E+01	3.526E+02	5.285E+05	3.551E+01
2109	1.294E+03	1.036E+06	6.961E+01	3.456E+02	5.180E+05	3.480E+01
2110	1.268E+03	1.015E+06	6.823E+01	3.387E+02	5.077E+05	3.412E+01
2111	1.243E+03	9.954E+05	6.688E+01	3.320E+02	4.977E+05	3.344E+01
2112	1.218E+03	9.757E+05	6.555E+01	3.255E+02	4.878E+05	3.278E+01
2113	1.194E+03	9.563E+05	6.426E+01	3.190E+02	4.782E+05	3.213E+01
2114	1.171E+03	9.374E+05	6.298E+01	3.127E+02	4.687E+05	3.149E+01
2115	1.147E+03	9.188E+05	6.174E+01	3.065E+02	4.594E+05	3.087E+01
2116	1.125E+03	9.007E+05	6.051E+01	3.004E+02	4.503E+05	3.026E+01
2117	1.102E+03	8.828E+05	5.932E+01	2.945E+02	4.414E+05	2.966E+01
2118	1.081E+03	8.653E+05	5.814E+01	2.887E+02	4.327E+05	2.907E+01
2119	1.059E+03	8.482E+05	5.699E+01	2.829E+02	4.241E+05	2.850E+01
2120	1.038E+03	8.314E+05	5.586E+01	2.773E+02	4.157E+05	2.793E+01
2121	1.018E+03	8.149E+05	5.476E+01	2.718E+02	4.075E+05	2.738E+01
2122	9.976E+02	7.988E+05	5.367E+01	2.665E+02	3.994E+05	2.684E+01
2123	9.778E+02	7.830E+05	5.261E+01	2.612E+02	3.915E+05	2.630E+01
2124	9.585E+02	7.675E+05	5.157E+01	2.560E+02	3.837E+05	2.578E+01
2125	9.395E+02	7.523E+05	5.055E+01	2.509E+02	3.761E+05	2.527E+01
2126	9.209E+02	7.374E+05	4.955E+01	2.460E+02	3.687E+05	2.477E+01
2127	9.026E+02	7.228E+05	4.856E+01	2.411E+02	3.614E+05	2.428E+01
2128	8.848E+02	7.085E+05	4.760E+01	2.363E+02	3.542E+05	2.380E+01
2129	8.672E+02	6.944E+05	4.666E+01	2.317E+02	3.472E+05	2.333E+01
2130	8.501E+02	6.807E+05	4.574E+01	2.271E+02	3.403E+05	2.287E+01
2131	8.332E+02	6.672E+05	4.483E+01	2.226E+02	3.336E+05	2.242E+01
2132	8.167E+02	6.540E+05	4.394E+01	2.182E+02	3.270E+05	2.197E+01
2133	8.006E+02	6.411E+05	4.307E+01	2.138E+02	3.205E+05	2.154E+01
2134	7.847E+02	6.284E+05	4.222E+01	2.096E+02	3.142E+05	2.111E+01
2135	7.692E+02	6.159E+05	4.138E+01	2.055E+02	3.080E+05	2.069E+01
2136	7.539E+02	6.037E+05	4.056E+01	2.014E+02	3.019E+05	2.028E+01
2137	7.390E+02	5.918E+05	3.976E+01	1.974E+02	2.959E+05	1.988E+01
2138	7.244E+02	5.801E+05	3.897E+01	1.935E+02	2.900E+05	1.949E+01
2139	7.100E+02	5.686E+05	3.820E+01	1.897E+02	2.843E+05	1.910E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1999	0	0	0	0	0	0
2000	5.173E+01	2.826E+04	1.899E+00	7.505E-02	2.094E+01	1.407E-03
2001	1.640E+02	8.957E+04	6.018E+00	2.379E-01	6.637E+01	4.459E-03
2002	2.956E+02	1.615E+05	1.085E+01	4.289E-01	1.196E+02	8.039E-03
2003	4.257E+02	2.325E+05	1.562E+01	6.176E-01	1.723E+02	1.158E-02
2004	5.608E+02	3.064E+05	2.059E+01	8.137E-01	2.270E+02	1.525E-02
2005	7.121E+02	3.890E+05	2.614E+01	1.033E+00	2.883E+02	1.937E-02
2006	8.618E+02	4.708E+05	3.163E+01	1.251E+00	3.489E+02	2.344E-02
2007	1.096E+03	5.988E+05	4.023E+01	1.590E+00	4.437E+02	2.981E-02
2008	1.339E+03	7.314E+05	4.914E+01	1.943E+00	5.420E+02	3.641E-02
2009	1.574E+03	8.600E+05	5.778E+01	2.284E+00	6.373E+02	4.282E-02
2010	1.779E+03	9.717E+05	6.529E+01	2.581E+00	7.200E+02	4.838E-02
2011	1.986E+03	1.085E+06	7.291E+01	2.882E+00	8.041E+02	5.403E-02
2012	2.190E+03	1.196E+06	8.037E+01	3.177E+00	8.864E+02	5.956E-02
2013	2.363E+03	1.291E+06	8.675E+01	3.429E+00	9.567E+02	6.428E-02
2014	2.590E+03	1.415E+06	9.507E+01	3.758E+00	1.048E+03	7.044E-02
2015	2.839E+03	1.551E+06	1.042E+02	4.119E+00	1.149E+03	7.721E-02
2016	3.110E+03	1.699E+06	1.142E+02	4.513E+00	1.259E+03	8.459E-02
2017	3.251E+03	1.776E+06	1.193E+02	4.717E+00	1.316E+03	8.841E-02
2018	3.395E+03	1.855E+06	1.246E+02	4.926E+00	1.374E+03	9.234E-02
2019	3.552E+03	1.941E+06	1.304E+02	5.154E+00	1.438E+03	9.661E-02
2020	3.728E+03	2.037E+06	1.368E+02	5.410E+00	1.509E+03	1.014E-01
2021	3.913E+03	2.138E+06	1.436E+02	5.678E+00	1.584E+03	1.064E-01
2022	4.107E+03	2.244E+06	1.508E+02	5.960E+00	1.663E+03	1.117E-01
2023	4.311E+03	2.355E+06	1.583E+02	6.256E+00	1.745E+03	1.173E-01
2024	4.526E+03	2.472E+06	1.661E+02	6.567E+00	1.832E+03	1.231E-01
2025	4.751E+03	2.595E+06	1.744E+02	6.893E+00	1.923E+03	1.292E-01
2026	4.987E+03	2.724E+06	1.830E+02	7.236E+00	2.019E+03	1.356E-01
2027	4.888E+03	2.670E+06	1.794E+02	7.093E+00	1.979E+03	1.330E-01
2028	4.791E+03	2.617E+06	1.759E+02	6.952E+00	1.940E+03	1.303E-01
2029	4.696E+03	2.566E+06	1.724E+02	6.815E+00	1.901E+03	1.277E-01
2030	4.603E+03	2.515E+06	1.690E+02	6.680E+00	1.864E+03	1.252E-01
2031	4.512E+03	2.465E+06	1.656E+02	6.547E+00	1.827E+03	1.227E-01
2032	4.423E+03	2.416E+06	1.623E+02	6.418E+00	1.790E+03	1.203E-01
2033	4.335E+03	2.368E+06	1.591E+02	6.291E+00	1.755E+03	1.179E-01
2034	4.250E+03	2.322E+06	1.560E+02	6.166E+00	1.720E+03	1.156E-01
2035	4.165E+03	2.276E+06	1.529E+02	6.044E+00	1.686E+03	1.133E-01
2036	4.083E+03	2.230E+06	1.499E+02	5.924E+00	1.653E+03	1.111E-01
2037	4.002E+03	2.186E+06	1.469E+02	5.807E+00	1.620E+03	1.089E-01
2038	3.923E+03	2.143E+06	1.440E+02	5.692E+00	1.588E+03	1.067E-01
2039	3.845E+03	2.101E+06	1.411E+02	5.579E+00	1.557E+03	1.046E-01
2040	3.769E+03	2.059E+06	1.383E+02	5.469E+00	1.526E+03	1.025E-01
2041	3.694E+03	2.018E+06	1.356E+02	5.361E+00	1.496E+03	1.005E-01
2042	3.621E+03	1.978E+06	1.329E+02	5.254E+00	1.466E+03	9.849E-02
2043	3.549E+03	1.939E+06	1.303E+02	5.150E+00	1.437E+03	9.654E-02
2044	3.479E+03	1.901E+06	1.277E+02	5.048E+00	1.408E+03	9.463E-02
2045	3.410E+03	1.863E+06	1.252E+02	4.948E+00	1.381E+03	9.276E-02
2046	3.343E+03	1.826E+06	1.227E+02	4.850E+00	1.353E+03	9.092E-02
2047	3.277E+03	1.790E+06	1.203E+02	4.754E+00	1.326E+03	8.912E-02
2048	3.212E+03	1.755E+06	1.179E+02	4.660E+00	1.300E+03	8.736E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2049	3.148E+03	1.720E+06	1.156E+02	4.568E+00	1.274E+03	8.563E-02
2050	3.086E+03	1.686E+06	1.133E+02	4.478E+00	1.249E+03	8.393E-02
2051	3.025E+03	1.652E+06	1.110E+02	4.389E+00	1.224E+03	8.227E-02
2052	2.965E+03	1.620E+06	1.088E+02	4.302E+00	1.200E+03	8.064E-02
2053	2.906E+03	1.588E+06	1.067E+02	4.217E+00	1.176E+03	7.904E-02
2054	2.849E+03	1.556E+06	1.046E+02	4.133E+00	1.153E+03	7.748E-02
2055	2.792E+03	1.525E+06	1.025E+02	4.051E+00	1.130E+03	7.594E-02
2056	2.737E+03	1.495E+06	1.005E+02	3.971E+00	1.108E+03	7.444E-02
2057	2.683E+03	1.466E+06	9.847E+01	3.893E+00	1.086E+03	7.297E-02
2058	2.630E+03	1.437E+06	9.652E+01	3.815E+00	1.064E+03	7.152E-02
2059	2.577E+03	1.408E+06	9.461E+01	3.740E+00	1.043E+03	7.010E-02
2060	2.526E+03	1.380E+06	9.273E+01	3.666E+00	1.023E+03	6.872E-02
2061	2.476E+03	1.353E+06	9.090E+01	3.593E+00	1.002E+03	6.736E-02
2062	2.427E+03	1.326E+06	8.910E+01	3.522E+00	9.826E+02	6.602E-02
2063	2.379E+03	1.300E+06	8.733E+01	3.452E+00	9.632E+02	6.471E-02
2064	2.332E+03	1.274E+06	8.560E+01	3.384E+00	9.441E+02	6.343E-02
2065	2.286E+03	1.249E+06	8.391E+01	3.317E+00	9.254E+02	6.218E-02
2066	2.241E+03	1.224E+06	8.225E+01	3.251E+00	9.071E+02	6.095E-02
2067	2.196E+03	1.200E+06	8.062E+01	3.187E+00	8.891E+02	5.974E-02
2068	2.153E+03	1.176E+06	7.902E+01	3.124E+00	8.715E+02	5.856E-02
2069	2.110E+03	1.153E+06	7.746E+01	3.062E+00	8.542E+02	5.740E-02
2070	2.068E+03	1.130E+06	7.592E+01	3.001E+00	8.373E+02	5.626E-02
2071	2.028E+03	1.108E+06	7.442E+01	2.942E+00	8.207E+02	5.515E-02
2072	1.987E+03	1.086E+06	7.295E+01	2.884E+00	8.045E+02	5.405E-02
2073	1.948E+03	1.064E+06	7.150E+01	2.827E+00	7.886E+02	5.298E-02
2074	1.909E+03	1.043E+06	7.009E+01	2.771E+00	7.730E+02	5.193E-02
2075	1.872E+03	1.022E+06	6.870E+01	2.716E+00	7.576E+02	5.091E-02
2076	1.835E+03	1.002E+06	6.734E+01	2.662E+00	7.426E+02	4.990E-02
2077	1.798E+03	9.824E+05	6.601E+01	2.609E+00	7.279E+02	4.891E-02
2078	1.763E+03	9.629E+05	6.470E+01	2.558E+00	7.135E+02	4.794E-02
2079	1.728E+03	9.439E+05	6.342E+01	2.507E+00	6.994E+02	4.699E-02
2080	1.694E+03	9.252E+05	6.216E+01	2.457E+00	6.855E+02	4.606E-02
2081	1.660E+03	9.068E+05	6.093E+01	2.409E+00	6.720E+02	4.515E-02
2082	1.627E+03	8.889E+05	5.972E+01	2.361E+00	6.587E+02	4.426E-02
2083	1.595E+03	8.713E+05	5.854E+01	2.314E+00	6.456E+02	4.338E-02
2084	1.563E+03	8.540E+05	5.738E+01	2.268E+00	6.328E+02	4.252E-02
2085	1.532E+03	8.371E+05	5.625E+01	2.223E+00	6.203E+02	4.168E-02
2086	1.502E+03	8.205E+05	5.513E+01	2.179E+00	6.080E+02	4.085E-02
2087	1.472E+03	8.043E+05	5.404E+01	2.136E+00	5.960E+02	4.004E-02
2088	1.443E+03	7.884E+05	5.297E+01	2.094E+00	5.842E+02	3.925E-02
2089	1.415E+03	7.728E+05	5.192E+01	2.053E+00	5.726E+02	3.847E-02
2090	1.387E+03	7.575E+05	5.089E+01	2.012E+00	5.613E+02	3.771E-02
2091	1.359E+03	7.425E+05	4.989E+01	1.972E+00	5.502E+02	3.697E-02
2092	1.332E+03	7.278E+05	4.890E+01	1.933E+00	5.393E+02	3.623E-02
2093	1.306E+03	7.133E+05	4.793E+01	1.895E+00	5.286E+02	3.552E-02
2094	1.280E+03	6.992E+05	4.698E+01	1.857E+00	5.181E+02	3.481E-02
2095	1.255E+03	6.854E+05	4.605E+01	1.820E+00	5.079E+02	3.412E-02
2096	1.230E+03	6.718E+05	4.514E+01	1.784E+00	4.978E+02	3.345E-02
2097	1.205E+03	6.585E+05	4.424E+01	1.749E+00	4.880E+02	3.279E-02
2098	1.182E+03	6.455E+05	4.337E+01	1.714E+00	4.783E+02	3.214E-02
2099	1.158E+03	6.327E+05	4.251E+01	1.680E+00	4.688E+02	3.150E-02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2100	1.135E+03	6.202E+05	4.167E+01	1.647E+00	4.595E+02	3.088E-02
2101	1.113E+03	6.079E+05	4.084E+01	1.615E+00	4.504E+02	3.026E-02
2102	1.091E+03	5.958E+05	4.003E+01	1.583E+00	4.415E+02	2.967E-02
2103	1.069E+03	5.840E+05	3.924E+01	1.551E+00	4.328E+02	2.908E-02
2104	1.048E+03	5.725E+05	3.846E+01	1.521E+00	4.242E+02	2.850E-02
2105	1.027E+03	5.611E+05	3.770E+01	1.490E+00	4.158E+02	2.794E-02
2106	1.007E+03	5.500E+05	3.696E+01	1.461E+00	4.076E+02	2.738E-02
2107	9.869E+02	5.391E+05	3.622E+01	1.432E+00	3.995E+02	2.684E-02
2108	9.673E+02	5.285E+05	3.551E+01	1.404E+00	3.916E+02	2.631E-02
2109	9.482E+02	5.180E+05	3.480E+01	1.376E+00	3.838E+02	2.579E-02
2110	9.294E+02	5.077E+05	3.412E+01	1.349E+00	3.762E+02	2.528E-02
2111	9.110E+02	4.977E+05	3.344E+01	1.322E+00	3.688E+02	2.478E-02
2112	8.930E+02	4.878E+05	3.278E+01	1.296E+00	3.615E+02	2.429E-02
2113	8.753E+02	4.782E+05	3.213E+01	1.270E+00	3.543E+02	2.381E-02
2114	8.580E+02	4.687E+05	3.149E+01	1.245E+00	3.473E+02	2.334E-02
2115	8.410E+02	4.594E+05	3.087E+01	1.220E+00	3.404E+02	2.287E-02
2116	8.243E+02	4.503E+05	3.026E+01	1.196E+00	3.337E+02	2.242E-02
2117	8.080E+02	4.414E+05	2.966E+01	1.172E+00	3.271E+02	2.198E-02
2118	7.920E+02	4.327E+05	2.907E+01	1.149E+00	3.206E+02	2.154E-02
2119	7.763E+02	4.241E+05	2.850E+01	1.126E+00	3.143E+02	2.112E-02
2120	7.609E+02	4.157E+05	2.793E+01	1.104E+00	3.080E+02	2.070E-02
2121	7.459E+02	4.075E+05	2.738E+01	1.082E+00	3.019E+02	2.029E-02
2122	7.311E+02	3.994E+05	2.684E+01	1.061E+00	2.960E+02	1.989E-02
2123	7.166E+02	3.915E+05	2.630E+01	1.040E+00	2.901E+02	1.949E-02
2124	7.024E+02	3.837E+05	2.578E+01	1.019E+00	2.844E+02	1.911E-02
2125	6.885E+02	3.761E+05	2.527E+01	9.991E-01	2.787E+02	1.873E-02
2126	6.749E+02	3.687E+05	2.477E+01	9.793E-01	2.732E+02	1.836E-02
2127	6.615E+02	3.614E+05	2.428E+01	9.599E-01	2.678E+02	1.799E-02
2128	6.484E+02	3.542E+05	2.380E+01	9.409E-01	2.625E+02	1.764E-02
2129	6.356E+02	3.472E+05	2.333E+01	9.223E-01	2.573E+02	1.729E-02
2130	6.230E+02	3.403E+05	2.287E+01	9.040E-01	2.522E+02	1.695E-02
2131	6.107E+02	3.336E+05	2.242E+01	8.861E-01	2.472E+02	1.661E-02
2132	5.986E+02	3.270E+05	2.197E+01	8.686E-01	2.423E+02	1.628E-02
2133	5.867E+02	3.205E+05	2.154E+01	8.514E-01	2.375E+02	1.596E-02
2134	5.751E+02	3.142E+05	2.111E+01	8.345E-01	2.328E+02	1.564E-02
2135	5.637E+02	3.080E+05	2.069E+01	8.180E-01	2.282E+02	1.533E-02
2136	5.526E+02	3.019E+05	2.028E+01	8.018E-01	2.237E+02	1.503E-02
2137	5.416E+02	2.959E+05	1.988E+01	7.859E-01	2.193E+02	1.473E-02
2138	5.309E+02	2.900E+05	1.949E+01	7.703E-01	2.149E+02	1.444E-02
2139	5.204E+02	2.843E+05	1.910E+01	7.551E-01	2.107E+02	1.415E-02

ATTACHMENT 6.6

LandGEM Output

(Inventory Tab)

INVENTORY

Landfill Name or Identifier: Lea County Landfill

Enter year of emissions inventory: 2026

Gas / Pollutant	Emission Rate				
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(ft^3/year)*	*(short tons/year)*
Total landfill gas	6.804E+03	5.449E+06	3.661E+02	1.924E+08	7.485E+03
Methane	1.818E+03	2.724E+06	1.830E+02	9.621E+07	1.999E+03
Carbon dioxide	4.987E+03	2.724E+06	1.830E+02	9.621E+07	5.486E+03
NMOC	7.236E+00	2.019E+03	1.356E-01	7.129E+04	7.960E+00
1,1,1-Trichloroethane (methyl chloroform) - HAP	1.451E-02	2.615E+00	1.757E-04	9.236E+01	1.596E-02
1,1,2,2-Tetrachloroethane - HAP/VOC	4.184E-02	5.993E+00	4.027E-04	2.117E+02	4.603E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	5.383E-02	1.308E+01	8.786E-04	4.618E+02	5.921E-02
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	4.394E-03	1.090E+00	7.322E-05	3.848E+01	4.833E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	9.195E-03	2.234E+00	1.501E-04	7.889E+01	1.011E-02
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	4.609E-03	9.808E-01	6.590E-05	3.464E+01	5.070E-03
2-Propanol (isopropyl alcohol) - VOC	6.811E-01	2.724E+02	1.830E-02	9.621E+03	7.492E-01
Acetone	9.214E-02	3.814E+01	2.563E-03	1.347E+03	1.013E-01
Acrylonitrile - HAP/VOC	7.576E-02	3.433E+01	2.306E-03	1.212E+03	8.333E-02
Benzene - No or Unknown Co-disposal - HAP/VOC	3.363E-02	1.035E+01	6.956E-04	3.656E+02	3.700E-02
Benzene - Co-disposal - HAP/VOC	1.947E-01	5.993E+01	4.027E-03	2.117E+03	2.142E-01
Bromodichloromethane - VOC	1.151E-01	1.689E+01	1.135E-03	5.965E+02	1.266E-01
Butane - VOC	6.586E-02	2.724E+01	1.830E-03	9.621E+02	7.244E-02
Carbon disulfide - HAP/VOC	1.001E-02	3.160E+00	2.123E-04	1.116E+02	1.101E-02
Carbon monoxide	8.887E-01	7.628E+02	5.125E-02	2.694E+04	9.776E-01
Carbon tetrachloride - HAP/VOC	1.395E-04	2.179E-02	1.464E-06	7.697E-01	1.534E-04
Carbonyl sulfide - HAP/VOC	6.671E-03	2.670E+00	1.794E-04	9.428E+01	7.338E-03
Chlorobenzene - HAP/VOC	6.377E-03	1.362E+00	9.152E-05	4.810E+01	7.015E-03
Chlorodifluoromethane	2.547E-02	7.083E+00	4.759E-04	2.501E+02	2.802E-02
Chloroethane (ethyl chloride) - HAP/VOC	1.901E-02	7.083E+00	4.759E-04	2.501E+02	2.091E-02
Chloroform - HAP/VOC	8.117E-04	1.635E-01	1.098E-05	5.773E+00	8.929E-04
Chloromethane - VOC	1.373E-02	6.538E+00	4.393E-04	2.309E+02	1.510E-02
Dichlorobenzene - (HAP for para isomer/VOC)	6.996E-03	1.144E+00	7.688E-05	4.041E+01	7.695E-03
Dichlorodifluoromethane	4.384E-01	8.718E+01	5.857E-03	3.079E+03	4.823E-01
Dichlorofluoromethane - VOC	6.064E-02	1.417E+01	9.518E-04	5.003E+02	6.671E-02
Dichloromethane (methylene chloride) - HAP	2.695E-01	7.628E+01	5.125E-03	2.694E+03	2.964E-01
Dimethyl sulfide (methyl sulfide) - VOC	1.098E-01	4.250E+01	2.856E-03	1.501E+03	1.208E-01
Ethane	6.065E+00	4.849E+03	3.258E-01	1.713E+05	6.671E+00
Ethanol - VOC	2.820E-01	1.471E+02	9.885E-03	5.195E+03	3.102E-01
Ethyl mercaptan (ethanethiol) - VOC	3.238E-02	1.253E+01	8.420E-04	4.426E+02	3.562E-02
Ethylbenzene - HAP/VOC	1.107E-01	2.506E+01	1.684E-03	8.851E+02	1.217E-01
Ethylene dibromide - HAP/VOC	4.258E-05	5.449E-03	3.661E-07	1.924E-01	4.684E-05
Fluorotrichloromethane - VOC	2.366E-02	4.141E+00	2.782E-04	1.462E+02	2.603E-02
Hexane - HAP/VOC	1.289E-01	3.596E+01	2.416E-03	1.270E+03	1.418E-01
Hydrogen sulfide	2.780E-01	1.962E+02	1.318E-02	6.927E+03	3.058E-01
Mercury (total) - HAP	1.318E-05	1.580E-03	1.062E-07	5.580E-02	1.450E-05
Methyl ethyl ketone - HAP/VOC	1.160E-01	3.869E+01	2.599E-03	1.366E+03	1.276E-01
Methyl isobutyl ketone - HAP/VOC	4.313E-02	1.035E+01	6.956E-04	3.656E+02	4.744E-02
Methyl mercaptan - VOC	2.726E-02	1.362E+01	9.152E-04	4.810E+02	2.998E-02
Pentane - VOC	5.396E-02	1.798E+01	1.208E-03	6.350E+02	5.935E-02
Perchloroethylene (tetrachloroethylene) - HAP	1.390E-01	2.016E+01	1.355E-03	7.119E+02	1.530E-01
Propane - VOC	1.099E-01	5.993E+01	4.027E-03	2.117E+03	1.209E-01
t-1,2-Dichloroethene - VOC	6.151E-02	1.526E+01	1.025E-03	5.388E+02	6.766E-02
Toluene - No or Unknown Co-disposal - HAP/VOC	8.143E-01	2.125E+02	1.428E-02	7.504E+03	8.957E-01
Toluene - Co-disposal - HAP/VOC	3.549E+00	9.263E+02	6.224E-02	3.271E+04	3.904E+00
Trichloroethylene (trichloroethene) - HAP/VOC	8.338E-02	1.526E+01	1.025E-03	5.388E+02	9.172E-02
Vinyl chloride - HAP/VOC	1.034E-01	3.977E+01	2.672E-03	1.405E+03	1.137E-01
Xylenes - HAP/VOC	2.887E-01	6.538E+01	4.393E-03	2.309E+03	3.176E-01

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO_2e emissions from your facility.
2. GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG CO_2e emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
3. Emissions from routine or predictable start up, shut down, and maintenance must be included.
4. Report GHG mass and GHG CO_2e emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
5. All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO2e emissions for each unit in Table 2-P.
6. For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Sources for Calculating GHG Emissions:

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at http://www.epa.gov/ttn/chief/ap42/index.html
- EPA's Internet emission factor database WebFIRE at http://cfpub.epa.gov/webfire/
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases:

Global Warming Potentials (GWP):
Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO_2 over a specified time period.

"Greenhouse gas" for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC).** You may also find GHGs defined in 40 CFR 86.1818-12(a).

Metric to Short Ton Conversion:
Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.
1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

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Based on the most recent available data (i.e., through year 2019) obtained from LCLF, the greenhouse gas (GHG) emissions for LCLF are estimated to be approximately 39,842 tons/year (36,144 Mg/yr) CO_2e. **Section 2, Table 2-P** summarizes these estimated GHG emissions from the site. Unit 3 greenhouse gas emissions for LCLF were calculated using the EPA Electronic Greenhouse Gas Reporting Tool (e-GGRT). The e-GGRT is an internet-based system that the EPA has developed to support reporting under the 40 CFR 98 Mandatory Reporting of GHG rule. e-GGRT utilizes user inputted facility-specific data and Subpart HH equations to calculate GHG emissions that are electronically reported directly to the EPA. **Attachment 6.a.1** provides the GHG Summary Report generated by the e-GGRT that was utilized in determining GHG emissions from waste deposited at LCLF since 1999 and a copy of this report was provided by LCLF on March 1, 2020. The equations utilized by the e-GGRT are explained in greater detail in 40 CFR 98, Subpart HH (Greenhouse Gas Emissions from Municipal Solid Waste Landfills).

LCLF is not subject to the requirements of 20.2.74 NMAC (PSD), as the facility is not a new or existing PSD source.

ATTACHMENT 6.a.1

RY 2019 e-GGRT GHG SUMMARY REPORT

Submit Receipt

Your facility's annual GHG report has been successfully submitted to EPA and certified. The facility's representatives and agents will receive an email confirmation.

Annual Report Submission

Facility Name: Lea County Landfill
Address: 3219 East State Road 176, Eunice NM 88231
Reporting Year: 2019
Submitted Date: Thu Feb 27 13:20:59 EST 2020
Certification Date: Sun Mar 01 17:26:05 EST 2020
Submitted By: Velasquez, Lorenzo
Confirmation Number: 223118-204700

e-GGRT Reporting Year Comparison Report
Metric Tons of Greenhouse Gases by Subpart
RY2019 Version 1 Report Compared to Other Certified Reports

Facility: Lea County Landfill

Address: 3219 East State Road 176
Eunice, NM 88231

GHGRP ID: 558402

IMPORTANT: This report presents data contained on this annual report: RY2019 Version 1

as compared to data contained on the most recently SUBMITTED AND CERTIFIED annual reports for each of the other reporting years.

	RY2014 v1	RY2015 v1	RY2016 v1	RY2017 v1	RY2018 v1	RY2019 v1
	(mtons)	(mtons)	(mtons)	(mtons)	(mtons)	(mtons)
	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent
Subpart HH						
Methane	1,026.77	1,112.62	1,204.92	1,282.90	1,360.38	1,445.78

e-GGRT Reporting Year Comparison Report
Carbon Dioxide Equivalent (CO2e) Quantities

RY2019 Version 1 Report Compared to Other Certified Reports

Facility: Lea County Landfill

Address: 3219 East State Road 176
Eunice, NM 88231

GHGRP ID: 558402

IMPORTANT: This report presents data contained on this annual report: RY2019 Version 1

as compared to data contained on the most recently SUBMITTED AND CERTIFIED annual reports for each

of the other reporting years.

In order to provide a consistent time-series for each facility's CO2e quantities across reporting years, the EPA plans to publish CO2e values using the "Adjusted Values"? in the table below. CO2e values submitted for prior reporting years (see "Submitted Values"?) will continue to be made publicly available. The "Adjusted Values"? will not replace or alter the values that facilities reported for those years, will be clearly marked as recalculated, and are intended to enable unbiased comparison of CO2e quantities across years.

	RY2014 v1	RY2015 v1	RY2016 v1	RY2017 v1	RY2018 v1	RY2019 v1
	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)
	Complete, certified	Complete, certified	Complete, certified	Complete, certified	Complete, certified	Complete, certified
AS SUBMITTED (basis)	**(SAR)**	**(SAR)**	**(AR4)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**
Direct emissions in CO2e (C-II, SS-TT)***	25,669.3	27,815.5	30,123.0	32,072.5	34,009.5	36,144.5
Biogenic CO2 emissions (C-II, SS-TT)	0.0	0.0	0.0	0.0	0.0	0.0
CO2 received for injection (UU)	N/A	N/A	N/A	N/A	N/A	N/A
CO2 sequestered (RR)	N/A	N/A	N/A	N/A	N/A	N/A
CO2e from products supplied (LL-QQ)* **	0.0	0.0	0.0	0.0	0.0	0.0
ADJUSTED (basis)	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**
Direct emissions in CO2e (C-II, SS-TT)****	25,669.2	27,815.5	30,123.0	32,072.5	34,009.5	36,144.5
Biogenic CO2 emissions (C-II, SS-TT)	0.0	0.0	0.0	0.0	0.0	0.0
CO2 received for injection (UU)	N/A	N/A	N/A	N/A	N/A	N/A
CO2 sequestered (RR)	N/A	N/A	N/A	N/A	N/A	N/A
CO2e from products supplied (LL-QQ)* ** ****	0.0	0.0	0.0	0.0	0.0	0.0

*Negative numbers may result from the quantity of exports exceeding the quantity of imports.

**In some cases the CO2e quantity from a supplier may be Confidential Business Information (CBI) and will not be published.

***Under Subpart L. emissions are calculated using the GWPs as updated in the 12.11.14 Final Rule in all reporting years

****Facilities in subparts I, T, OO and QQ may have reported gases that did not appear on Table A-1 of Part 98 until 2015. In that case, EPA intends to assign these gases the appropriate chemical-specific or default GWPs and re-calculate the facilities' CO2e emissions for reporting years 2011 through 2014 for publication purposes. This chart does not reflect these additional adjustments.

Basis Definitions:

(SAR) means that the CO2e value was calculated using the GWPs published in the final rule that established the Greenhouse Gas Reporting Program (74 FR 5626, October 30, 2009). Most of these GWPs were drawn from the IPCC Second Assessment Report, though some, such as the GWPs for NF3 and several HFEs, were drawn from the IPCC Fourth Assessment Report.

(AR4) means that the CO2e value was calculated using the GWPs as updated by the final rule, "2013 Revisions to the Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements"? (78 FR 71904, November 29, 2013). Most of these GWPs were drawn from the IPCC Fourth Assessment Report.

(12.11.14 Final Rule) means that the CO2e value was calculated using GWPs as updated by the final rule, "Greenhouse Gas Reporting Program: Addition of Global Warming Potentials to the General Provisions and Amendments and Confidentiality Determinations for Fluorinated Gas Production"? (79 FR 73750, December 11, 2014). These amendments added chemical-specific or default GWPs for fluorinated GHGs that had not been assigned chemical-specific GWPs by the previous rules.

Certification Statement:

The designated representative or alternate designated representative must sign (i.e., agree to) this certification statement. If you are an agent and you click on "SUBMIT", you are not agreeing to the certification statement, but are submitting the certification statement on behalf of the designated representative or alternate designated representative who is agreeing to the certification statement. An agent is only authorized to make the electronic submission on behalf of the designated representative, not to sign (i.e., agree to) the certification statement.

Facility Name: Lea County Landfill
Facility Identifier: 558402
Facility Reporting Year: 2019
Facility Location:
Address: 3219 East State Road 176
City: Eunice
State: NM
Postal Code: 88231

Facility Site Details:

CO2 equivalent emissions from facility subparts C-II, SS, and TT (metric tons): 36,144.5
CO2 equivalent emissions from supplier subparts LL-QQ (metric tons): 0
Biogenic CO2 emissions from facility subparts C-II, SS, and TT (metric tons): 0
Cogeneration Unit Emissions Indicator: N
GHG Report Start Date: 2019-01-01
GHG Report End Date: 2019-12-31
Description of Changes to Calculation Methodology:
Plant Code Indicator: N
Primary NAICS Code: 562212
Second Primary NAICS Code:

Parent Company Details:

Parent Company Name: COUNTY OF LEA
Address: 1019 East Bender Blvd., Hobbs, NM 88240
Percent Ownership Interest: 100

Subpart HH: Municipal Solid Waste Landfills

Gas Information Details

Gas Name	Methane
Gas Quantity	1,445.78 (Metric Tons)
Own Result?	

Landfill Details

Is the landfill open?	Y	
Estimated Year LandFill Closure	2048	
Starting Year for Accepting Waste	1999	
First year of emissions reporting	2014	
Leachate recirculation was used during the reporting year	N	
Typical frequency of use for leachate recirculation system	Not used for the past 10 years	
Scales are present at the landfill in the reporting year	Y	
Does the landfill have a landfill gas collection system?	N	
Passive vents and/or flares are present	N	
Landfill Capacity	2330112 (Metric Tons)	
Total surface area of the landfill containing waste	240383.27 (Square Meters)	
Covertype Details	Other soil mixture	( )

Aeration Details

Aeration Blower Capacity	( )
Landfill Fraction Affected by Aeration	( )
Aeration Blower Operations Hours	( )
Other MCF Factors	
Additional Description	

Current Waste Disposal Quantity Determination Details

First Year to Current Year Annual Waste Quantity Method

Reporting Year	**2019**
Total Annual Waste Disposal Quantity	106075 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	106075 (Metric Tons)
Reporting Year	**2018**
Total Annual Waste Disposal Quantity	94551.87 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	94551.87 (Metric Tons)
Reporting Year	**2017**
Total Annual Waste Disposal Quantity	86598.26 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	86598.26 (Metric Tons)
Reporting Year	**2016**
Total Annual Waste Disposal Quantity	85714.93 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	85714.93 (Metric Tons)
Reporting Year	**2015**
Total Annual Waste Disposal Quantity	96231.94 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	96231.94 (Metric Tons)
Reporting Year	**2014**
Total Annual Waste Disposal Quantity	89374.99 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	89374.99 (Metric Tons)

Waste Type Details

Year Waste Disposed	**2019**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**2018**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste	Percent by	Degradable Organic	Fraction Of DOC	Decay

		Type	Weight	Carbon Value	Dissimilated	Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**2017**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**2016**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**2015**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**2014**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Historical Waste Disposal Quantity Estimation Details

Method used to determine the annual waste quantity for any prior years

Were scales used to determine the annual waste quantity	Y
Start Year	1999
End Year	2014

Prior Year Annual Waste Quantity Method

Reporting Year	**2013**
Total Annual Waste Disposal Quantity	78595.51 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	78595.51 (Metric Tons)
Reporting Year	**2012**
Total Annual Waste Disposal Quantity	70093.42 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights

Annual Waste Disposal Quantity	70093.42 (Metric Tons)
Reporting Year	**2011**
Total Annual Waste Disposal Quantity	71024.36 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	71024.36 (Metric Tons)
Reporting Year	**2010**
Total Annual Waste Disposal Quantity	68642.21 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	68642.21 (Metric Tons)
Reporting Year	**2009**
Total Annual Waste Disposal Quantity	73149.03 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	73149.03 (Metric Tons)
Reporting Year	**2008**
Total Annual Waste Disposal Quantity	74758.37 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	74758.37 (Metric Tons)
Reporting Year	**2007**
Total Annual Waste Disposal Quantity	74828.56 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	74828.56 (Metric Tons)
Reporting Year	**2006**
Total Annual Waste Disposal Quantity	71434.50 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	71434.50 (Metric Tons)
Reporting Year	**2005**
Total Annual Waste Disposal Quantity	76211.98 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	76211.98 (Metric Tons)
Reporting Year	**2004**
Total Annual Waste Disposal Quantity	66368.44 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	66368.44 (Metric Tons)
Reporting Year	**2003**
Total Annual Waste Disposal Quantity	62364.67 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	62364.67 (Metric Tons)

Reporting Year	**2002**
Total Annual Waste Disposal Quantity	59449.00 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	59449.00 (Metric Tons)
Reporting Year	**2001**
Total Annual Waste Disposal Quantity	63055.88 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	63055.88 (Metric Tons)
Reporting Year	**2000**
Total Annual Waste Disposal Quantity	46610.24 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	46610.24 (Metric Tons)
Reporting Year	**1999**
Total Annual Waste Disposal Quantity	20787.45 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	20787.45 (Metric Tons)

Waste Type Details

Year Waste Disposed	**2013**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2012**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2011**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2010**
Missing data procedure used?	N
Number of Times	

Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2009**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2008**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2007**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2006**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2005**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2004**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk	Bulk	1	0.2	0.5	0.02

	Waste	waste				

Year Waste Disposed	**2003**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2002**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2001**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**2000**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Year Waste Disposed	**1999**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Bulk Waste	Bulk waste	1	0.2	0.5	0.02

Working Capacity Details

Were working capacities used to determine waste disposal quantities	N

Tipping Receipt Details

Were tipping receipts or company records used to determine waste disposal quantities	N

Method used for estimating all annual waste quantities that are not determined with the methods above

Method	None

Method Start Year	
Method End Year	

Historical Estimation Population Details

Historical landfill Capacity
Reason

Methane Generation and Emissions For Landfills Without LFG Collection Systems

Gas Collection Systems Details

Methane Generation Equation HH5	1445.78 (Metric Tons)
Is Override Indicator?	N

Equation HH-1 Details:

The fraction of CH4 in landfill gas (F), is it based on a measured value or default value	default
Fraction by volume of CH4 in landfill gas	0.5
An MCF value other than the default of 1 was used	N
Annual MCF Value	1.0

Annual Modeled Methane Generation	1606.42 (Metric Tons)
Annual Modeled Methane Generation User Overrided value?	N

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☑ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- ☑ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- ☑ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- ☐ If an older version of AP-42 is used, include a complete copy of the section.
- ☐ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- ☐ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

7.0 Introduction

Multiple sources of equipment and activity-specific data, equations and emissions factors were used in determining potential emissions produced by activities at LCLF. Information used to determine emissions is outlined in the following Sections and Attachments. As necessary, engineering calculations were used to supplement and/or support the data used to determine emissions estimates.

7.1 Manufacturer Data

When necessary, available manufacturer data were used in determining emissions rates from heavy equipment operations at the facility. Equipment weight and soil density data from the Caterpillar Performance Handbook (Edition 48, June 2018) were used to determine particulate emissions from scraper operations. **Attachment 7.1** provides copies of manufacturer specifications, as well as a standard soil density used to determine emissions from scraper loading/unloading operations.

7.2 EPA Emissions Factors and AP-42

The most recent version of the Environmental Protection Agency's Emissions Factors and AP-42 (5th Edition and associated updates) were used in determining particulate emissions for this Application. Pages containing relevant equations, emissions factors, and tables are included in **Attachment 7.2**.

7.3 Other Modeling and Emissions Determination

No computer models were used to determine particulate emissions. VOC/HAP emissions that could potentially occur from the remediation of petroleum contaminated soils (PCS) have been estimated as demonstrated in **Section 6** using the most recent AQB-approved mass-balance method. This approach is demonstrated in **Section 6.4**, and an example PCS shipment/HAP tracking sheet, which continually calculates HAP emissions due to landfarming of PCS is provided as **Table 6.6**, **Section 6**.

The EPA Landfill Gas Emissions Model (LandGEM) Version 3.02 (USEPA, May, 2005) was used to calculate total landfill gas production, as well as the uncontrolled NMOC, VOC, and HAP emission rates from landfill gas. The Model estimates emissions resulting from the biodegradation of refuse in landfills and is recommended by EPA for use in developing estimates for state inventories. The Model uses a first-order decay rate equation, and estimates annual emissions over any time period specified by the user. The time period specified for waste acceptance at LCLF was 1999 (the first year of waste acceptance) through 2026. This conservative timeframe was selected to project emissions estimates for the 5-year Operating Permit term, as well as the anticipated 18-month Permit review/issuance period.

Air Dispersion Modeling was performed in support of this Application for Renewal. The accompanying Air Dispersion Modeling Analysis Report, which is submitted concurrent with this Application as UA4, demonstrates compliance with applicable regulations, specifically 40 CFR 50 (National Ambient Air Quality Standards); 40 CFR 52 (Prevention of Significant Deterioration); and 20.2.3 NMAC (New Mexico Ambient Air Quality Standards).

7.4 Insignificant Activities and Equipment

Several activities conducted at LCLF are considered “insignificant” or “trivial”. Consistent with 20.2.70.300.D(6) NMAC, this Section evaluates the insignificance of each activity utilizing guidance furnished by NMED Air Quality Bureau (AQB). Specifically, AQB has developed a List of Insignificant Activities (dated March 24, 2005) and a List of Trivial Activities (dated September 15, 2008), which enumerate activities and equipment that are considered insignificant or trivial on the basis of size, emissions, purpose, or production rate. **Table 2-B** in **Section 2** provides a list of these activities, and a copy of each List is provided in **Attachment 7.3**.

- **Diesel Fuel Storage Tank** - LCLF maintains an above-ground, double-walled, 1,000-gallon diesel fuel (distillate fuel oil #2) storage tank that is used exclusively for on-site consumptive use in landfill operations. As allowed by the Bureau, tanks used solely for fueling company-owned equipment which have a capacity of less than 25,000 gallons are considered insignificant, as stated in Item 8 of the List of Insignificant Activities (**Attachment 7.3**)

- **Used Oil Storage Tanks** – LCLF utilizes one 250-gallon used oil storage tank, which is located within Maintenance Facility. The used oil is derived from the routine servicing of heavy equipment. The motor oil purchased for the heavy equipment exhibits a vapor pressure less than 1 millimeter of mercury (mm Hg). Therefore, consistent with the criteria in Item 5 of the List of Insignificant Activities, emissions of volatile organic compounds (VOCs) from the waste oil storage tank are considered to be insignificant. MSDS data for motor oils and lubricants used at LCLF are provided in **Attachment 7.4**.

- **Portable Light Plant** – An Allmand portable light plant/generator is used at the fill face to illuminate operational activities when daylight is insufficient. The plant is powered by a diesel engine rated at 8 hp. Item 6 of the List of Insignificant Activities states that portable diesel engines that have a design capacity of less than 200 hp are considered insignificant, and the light plant meets the definition of a portable source (per 20.2.70.7.R(Z) NMAC).

- **Air Compressor** – The Landfill Maintenance Facility utilizes a portable Ingersol-Rand air compressor for various tasks around the Landfill. The compressor is powered by a 14 hp gasoline engine. Due to the small size of the engine (i.e., < 500 hp gasoline-powered), the unit is considered insignificant per item 6 of the List of Insignificant Activities.

- **Motor Oil and Antifreeze** - Motor oil, antifreeze, hydraulic oil, and lubricating grease are used at the landfill. These materials exhibit vapor pressures less than 1 mm Hg. Therefore, consistent with the criteria in Item 5 of the List of Insignificant Activities, emissions of VOCs from these materials are also considered insignificant. MSDS data for motor oils, lubricants, and antifreeze used at LCLF are provided in **Attachment 7.4**.

- **Vehicle Maintenance Fluids Storage** – Motor oil, antifreeze, hydraulic oil, and automatic transmission fluid are stored and used at LCLF. These materials exhibit vapor pressures considerably less than the 0.2 psi threshold value specified in Item 5 of the List of Insignificant Activities. Therefore, storage of these materials is also considered an insignificant activity. Individual SDSs for these products are provided in **Attachment 7.4**.

7.5 Dust Control

As described in **Section 6.1.5** a dust control efficiency of 60% is allowed on unpaved portions of the disposal route at LCLF which are regularly watered. Unpaved Auxiliary Roads which are only watered during periods of high wind are conservatively assigned a dust control efficiency of 0%.

7.6 References

AP-42: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, Office of Air Quality Planning and Standards/Office of Air and Radiation, US Environmental Protection Agency, Research Triangle Park, NC 27711, October 2008 (Draft), November 2006; September, October, and November 1998; January 1995; and September 1991.

ATTACHMENT 7.1
EQUIPMENT MANUFACTURER'S SPECIFICATION SHEETS

2018 CATERPILLAR® PERFORMANCE HANDBOOK SECTIONS

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m^3 (yd^3)	Approx. Shipping Weight kg (lb)	Dimensions m (ft) Length	Width	Height	Width of Tread	Tire Size (Standard) & ply rating Tractor & Scraper	Turning Circle m (ft)
627	54K	68-74	T/225	10.7/15.3	29 900	12.00	3.50	3.60	2.20	29.5 × 29-28	13.30
			S/225	**(14/20)**	**(66,000)**	**(36'9")**	**(11'7")**	**(11'8")**	**(7'3")**		**(43'9")**
627B	14S	73-86	T/225	10.7/15.3	34 610	13.3	3.45	3.63	2.18	29.5-29,	11.10
			S/225	**(14/20)**	**(76,300)**	**(43'9")**	**(11'4")**	**(11'11")**	**(7'2")**	28 PR (E-3)	**(36'6")**
627E	6EB	86-90	T/225	10.7/15.3	34 670	12.89	3.47	3.71	2.21 **(7'3")**	33.25-29,	10.90
			S/225	**(14/20)**	**(76,435)**	**(42'3")**	**(11'4")**	**(12'2")**	2.18 **(7'2")**	26 PR (E-3)	**(35'9")**
627E	7CG	90-93	T/330	10.7/15.3	35 160	12.93	3.47	3.71	2.21	33.25-29,	10.9
			S/225	**(14/20)**	**(77,500)**	**(42'5")**	**(11'4")**	**(12'2")**	**(7'3")**	26 PR (E-3)	**(35'8")**
627F Series II	1DL	93-00	T/330	10.7/15.3	37 060	12.9	3.47	3.71	2.21	33.25-R29	10.9
			S/225	**(14/20)**	**(81,640)**	**(42'5")**	**(11'4")**	**(12'2")**	**(7'3")**	★★ (E-2/E-3)	**(35'9")**
627B/PP	15S	73-86	T/225	10.7/15.3	35 660	14.91	3.45	3.63	2.18	29.5-29,	11.1
			S/225	**(14/20)**	**(78,620)**	**(48'11")**	**(11'4")**	**(11'11")**	**(7'2")**	28 PR (E-3)	**(36'6")**
627E/PP	6GB	86-89	T/225	10.7/15.3	36 130	12.89	3.47	3.71	2.21 **(7'3")**	33.25-29,	10.90
			S/225	**(14/20)**	**(79,655)**	**(42'3")**	**(11'4")**	**(12'2")**	2.18 **(7'2")**	26 PR (E-3)	**(35'9")**
627E/PP	7CG	90-93	T/330	10.7/15.3	36 620	15.2	3.47	3.71	2.21	33.25-29,	10.9
			S/225	**(14/20)**	**(80,735)**	**(49'7")**	**(11'4")**	**(12'2")**	**(7'3")**	26 PR (E-3)	**(35'8")**
627F/PP Series II	1DL	93-00	T/330	10.7/15.3	38 103	15.2	3.47	3.71	2.21	33.25-R29	10.9
			S/225	**(14/20)**	**(84,000)**	**(49'7")**	**(11'4")**	**(12'2")**	**(7'3")**	★★ (E-2/E-3)	**(35'9")**
627G/PP	AXF	00-02	T/330/365	10.7/15.3	38 140	15.2	3.47	3.71	2.20	33.25R29	11.7
			S/225	**(14/20)**	**(84,075)**	**(49'7")**	**(11'4")**	**(12'2")**	**(7'3")**		**(38'5")**
627G/PP	CEX	02-05	T/330/365	12/17	39 186	15.2	3.47	3.71	2.20	33.25R29	11.7
			S/225/249	**(15.7/22)**	**(86,390)**	**(49'7")**	**(11'4")**	**(12'2")**	**(7'3")**		**(38'5")**
627G P/P	DBD	05-10	T/330/365	12/17	39 443	15.2	3.58	3.81	2.23	33.25R29	11.7
			S/239/266	**(15.7/22)**	**(86,957)**	**(49'7")**	**(11'9")**	**(12'6")**	**(7'4")** Tractor 2.20 **(7'3")** Scraper	★★ (E-3)	**(38'5")**
627H	DBW LCT	10-13	T/407 S/290	13/18.4 **17.1/24**	26 127 **(90,213)**	14.02 **(45'10")**	3.57 **(11'7")**	4.03 **(13'2")**	2.29 **(7'5")** Tractor 2.28 **(7'4")** Scraper	33.25R29 ★★ (E-3)	11.8 **(38'7")**
630A & 482C Scraper	52F	60-62	420/335	21/27 **(27/35)**	35 830 **(79,000)**	14.63 **(48'0")**	3.91 **(12'10")**	4.01 **(13'2")**	2.39 **(7'10")** Scraper	16.0 × 25-16 29.5 × 35-28 33.5 × 33-26	11.89 **(39'0")**
630A	52F	60-62	420/335	16/21.4 **(21/28)**	31 430 **(69,300)**	13.82 **(45'4")**	3.58 **(11'9")**	3.73 **(12'3")**	2.21 **(7'3")**	16.0 × 25-16 29.5 × 35-28	11.89 **(39'0")**
630B	14G	62-63	420/335	16/23 **(21/30)**	33 520 **(73,900)**	14.12 **(46'4")**	3.81 **(12'6")**	3.71 **(12'2")**	2.41 **(7'11")**	16.0-25, 16 29.5-35, 28	13.36 **(43'10")**
630B	14G	63-66	400/360	16/23 **(21/30)**	33 570 **(74,000)**	14.30 **(46'11")**	3.81 **(12'6")**	3.94 **(12'11")**	2.41 **(7'11")**	16.0-25, 16 29.5-35, 34	13.36 **(43'10")**
630B	10G	62-69	/400	16/23 **(21/30)**	35 750 **(78,800)**	14.35 **(47'1")**	3.81 **(12'6")**	3.94 **(12'11")**	2.40 **(7'10")**	16.0-25, 16 29.5-35, 34	13.36 **(43'10")**

T — Tractor Engines
S — Scraper Engines

MATERIAL DENSITY STANDARDS
(CATERPILLAR HANDBOOK, 2018)

BULLDOZER PRODUCTION OFF-THE-JOB

You can estimate bulldozer production using the production curves that follow and the correction factors that are applicable. Use this formula:

$$\text{Production } (Lm^3/hr) \text{ (LCY/hr)} = \text{Maximum production} \times \text{Correction factors}$$

The bulldozer production curves give maximum uncorrected production for universal, semi-universal, and straight blades and are based on the following conditions:

1. 100% efficiency (60 minute hour — level cycle).
2. Power shift machines with 0.05 min. fixed times.
3. Machine cuts for 15 m (50 feet), then drifts blade load to dump over a high wall. (Dump time — 0 sec.)
4. Soil density of 1370 kg/Lm^3 (2300 lb/LCY).
5. Coefficient of traction:*
   a. Track machines — 0.5 or better
   b. Wheel machines — 0.4 or better
6. Hydraulic controlled blades used.
7. Dig 1F**
   Carry 2F**
   Return 2R**

To obtain estimated production in bank cubic meters or bank cubic yards, appropriate load factor from the Tables section should be applied to the corrected production as calculated above.

$$\text{Production } Bm^3/hr \text{ (BCY/h)} = Lm^3/hr \text{ (LCY/h)} \times LF \times LF$$

*Coefficient of traction assumed to be at least 0.4. While poor traction affects both track and wheel vehicles, causing them to take smaller blade loads, wheeled units are affected more severely and production falls much more rapidly. While no fixed rules can predict this production loss, a rough rule of thumb is that wheel dozer production falls off 4% for each one-hundredth decrease in coefficient of traction below 0.40. If, for example, coefficient of traction is 0.30, the difference is ten-hundredths (0.10), and production is 60% (10 × 4% = 40% decrease).

**This gear sequence is based on level to downhill terrain, light to medium density material, and no blade extensions such as spill plates, rock guards, etc. Exceeding these conditions may require carry in 1F, but productivity should equal or exceed "standard conditions" due to the larger loads that can be carried in 1F.

ATTACHMENT 7.2
AP-42 SECTIONS

Table 11.9-1 (English Units). EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES[a]

Operation	Material	Emissions By Particle Size Range (Aerodynamic Diameter)[b,c]				Units	EMISSION FACTOR RATING
		Emission Factor Equations		Scaling Factors			
		TSP ≤30 µm	≤15 µm	≤10 µm[d]	≤2.5 µm/TSP[e]		
Blasting[f]	Coal or overburden	$0.000014(A)^{1.5}$	ND	0.52[e]	0.03	lb/blast	C_DD
Truck loading	Coal	$\frac{1.16}{(M)^{1.2}}$	$\frac{0.119}{(M)^{0.9}}$	0.75	0.019	lb/ton	BBCC
Bulldozing	Coal	$\frac{78.4\ (s)^{1.2}}{(M)^{1.3}}$	$\frac{18.6\ (s)^{1.5}}{(M)^{1.4}}$	0.75	0.022	lb/hr	CCDD
	Overburden	$\frac{5.7\ (s)^{1.2}}{(M)^{1.3}}$	$\frac{1.0\ (s)^{1.5}}{(M)^{1.4}}$	0.75	0.105	lb/hr	BCDD
Dragline	Overburden	$\frac{0.0021\ (d)^{1.1}}{(M)^{0.3}}$	$\frac{0.0021\ (d)^{0.7}}{(M)^{0.3}}$	0.75	0.017	lb/yd^3	BCDD
Vehicle traffic[g]							
Grading		$0.040\ (S)^{2.5}$	$0.051\ (S)^{2.0}$	0.60	0.031	lb/VMT	CCDD
Active storage pile[h] (wind erosion and maintenance)	Coal	0.72 u	ND	ND	ND	$\frac{lb}{(acre)(hr)}$	C[i]_ _ _

[a] Reference 1, except as noted. VMT = vehicle miles traveled. ND = no data. Quality ratings coded where "Q, X, Y, Z" are ratings for ≤30 µm, ≤15 µm, ≤10 µm, and ≤2.5 µm, respectively. See also note below.

[b] Particulate matter less than or equal to 30 µm in aerodynamic diameter is sometimes termed "suspendable particulate" and is often used as a surrogate for TSP (total suspended particulate). TSP denotes what is measured by a standard high volume sampler (see Section 13.2).

[c] Symbols for equations:

A = horizontal area (ft^2), with blasting depth ≤ 70 ft. Not for vertical face of a bench.
M = material moisture content (%)
s = material silt content (%)
u = wind speed (mph)
d = drop height (ft)
W = mean vehicle weight (tons)
S = mean vehicle speed (mph)
w = mean number of wheels

Table 11.9-4 (English And Metric Units). UNCONTROLLED PARTICULATE EMISSION FACTORS FOR OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES

Source	Material	Mine Location[a]	TSP Emission Factor[b]	Units	EMISSION FACTOR RATING
Drilling	Overburden	Any	1.3 0.59	lb/hole kg/hole	C C
	Coal	V	0.22 0.10	lb/hole kg/hole	E E
Topsoil removal by scraper	Topsoil	Any	0.058 0.029	lb/ton kg/Mg	E E
		IV	0.44 0.22	lb/ton kg/Mg	E E
Overburden replacement	Overburden	Any	0.012 0.0060	lb/ton kg/Mg	C C
Truck loading by power shovel (batch drop)[c]	Overburden	V	0.037 0.018	lb/ton kg/Mg	E E
Train loading (batch or continuous drop)[c]	Coal	Any	0.028 0.014	lb/ton kg/Mg	E E
		III	0.0002 0.0001	lb/ton kg/Mg	E E
Bottom dump truck unloading (batch drop)[c]	Overburden	V	0.002 0.001	lb/ton kg/Mg	E E
	Coal	IV	0.027 0.014	lb/ton kg/Mg	E E
		III	0.005 0.002	lb/ton kg/Mg	E E
		II	0.020 0.010	lb/ton kg/Mg	E E
		I	0.014 0.0070	lb/T kg/Mg	E E
		Any	0.066 0.033	lb/T kg/Mg	D D

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS[a]

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

[a]References 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k\,(s/12)^a (W/3)^b \qquad (1a)$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k\,(s/12)^a (S/30)^d}{(M/0.5)^c} - C \qquad (1b)$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s, W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

1 lb/VMT = 281.9 g/VKT

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k-factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)
"-" = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17[a]	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

[a] See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (*C*) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range

average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

$$E_{ext} = E\ [(365 - P)/365] \quad (2)$$

where:

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor from Equation 1a or 1b

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (see below)

Figure 13.2.2-1 gives the geographical distribution for the mean annual number of "wet" days for the United States.

Equation 2 provides an estimate that accounts for precipitation on an annual average basis for the purpose of inventorying emissions. It should be noted that Equation 2 does not account for differences in the temporal distributions of the rain events, the quantity of rain during any event, or the potential for the rain to evaporate from the road surface. In the event that a finer temporal and spatial resolution is desired for inventories of public unpaved roads, estimates can be based on a more complex set of assumptions. These assumptions include:

1. The moisture content of the road surface material is increased in proportion to the quantity of water added;
2. The moisture content of the road surface material is reduced in proportion to the Class A pan evaporation rate;
3. The moisture content of the road surface material is reduced in proportion to the traffic volume; and
4. The moisture content of the road surface material varies between the extremes observed in the area. The CHIEF Web site (http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html) has a file which contains a spreadsheet program for calculating emission factors which are temporally and spatially resolved. Information required for use of the spreadsheet program includes monthly Class A pan evaporation values, hourly meteorological data for precipitation, humidity and snow cover, vehicle traffic information, and road surface material information.

It is emphasized that the simple assumption underlying Equation 2 and the more complex set of assumptions underlying the use of the procedure which produces a finer temporal and spatial resolution have not been verified in any rigorous manner. For this reason, the quality ratings for either approach should be downgraded one letter from the rating that would be applied to Equation 1.

13.2.2.3 Controls[18-22]

A wide variety of options exist to control emissions from unpaved roads. Options fall into the following three groupings:

1. Vehicle restrictions that limit the speed, weight or number of vehicles on the road;

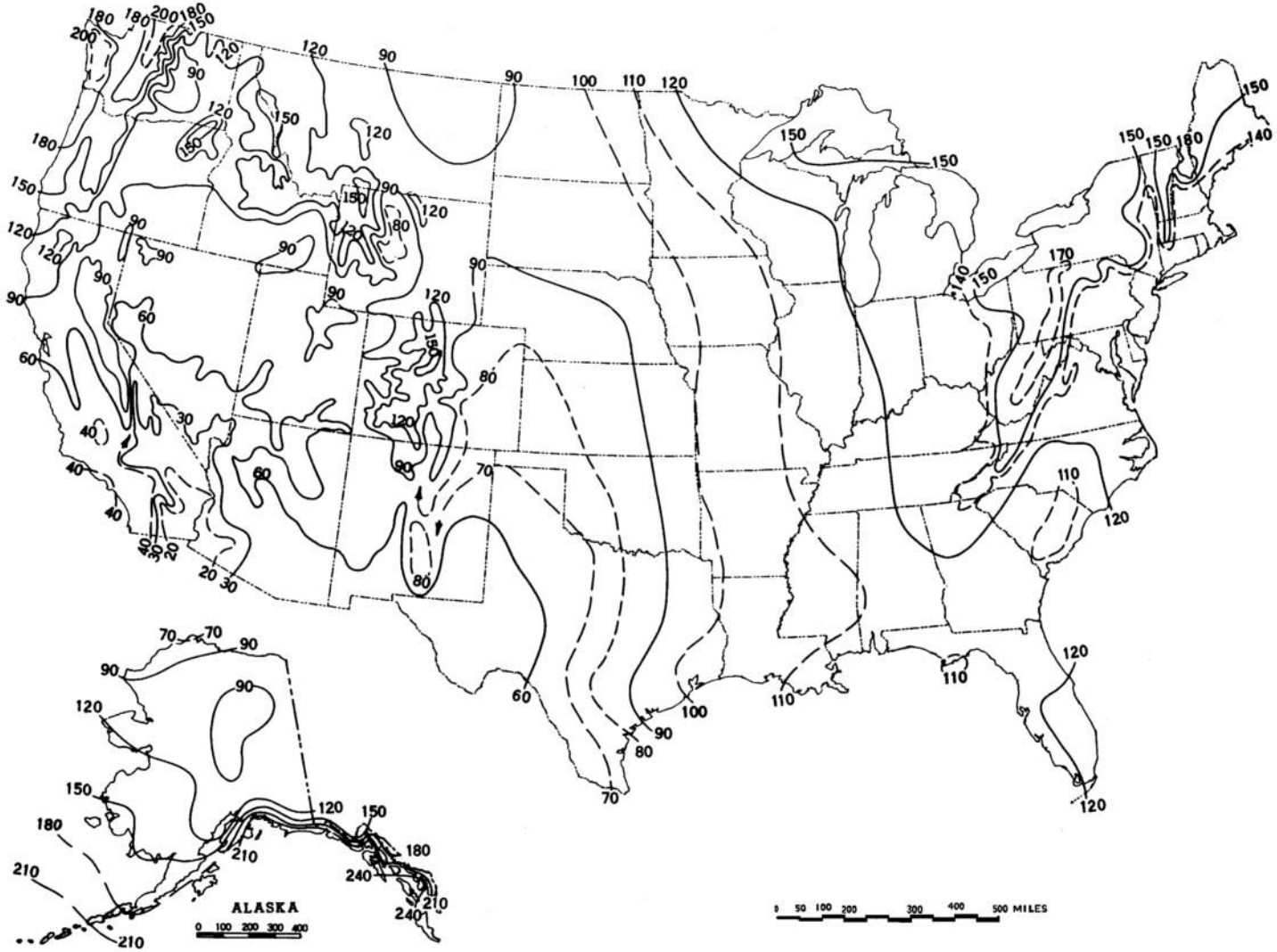


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Table 13.2.3-1 (cont.).

Construction Phase	Dust-generating Activities	Recommended Emission Factor	Comments	Rating Adjustment[b]
II. Site Preparation (earth moving)	1. Bulldozing	Dozer equation (overburden) in Tables 11.9-1 and 11.9-2		-1/-2[c]
	2. Scrapers unloading topsoil	Scraper unloading factor in Table 11.9-4		-1
	3. Scrapers in travel	Scraper (travel mode) expression in Tables 11.9-1 and 11.9-2		-0/-1[c]
	4. Scrapers removing topsoil	5.7 kg/vehicle kilometer traveled (VKT) (20.2 lb/vehicle mile traveled [VMT])		E[d]
	5. Loading of excavated material into trucks	Material handling emission factor equation in Section 13.2.4		-0/-1[c]
	6. Truck dumping of fill material, road base, or other materials	Material handling emission factor equation in Section 13.2.4	May occur offsite	-0/-1[c]
	7. Compacting	Dozer equation in Tables 11.9-1 and 11.9-2	Emission factor downgraded because of differences in operating equipment	-1/-2[c]
	8. Motor grading	Grading equation in Tables 11.9-1 and 11.9-2		-1/-2[c]

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:[11]

$$E = k(0.0016) \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (kg/megagram [Mg])} \quad (1)$$

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 µm	< 15 µm	< 10 µm	< 5 µm	< 2.5 µm
0.74	0.48	0.35	0.20	0.053[a]

[a] Multiplier for < 2.5 µm taken from Reference 14.

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for

ATTACHMENT 7.3
NMED AQB LISTS OF INSIGNIFICANT AND TRIVIAL ACTIVITIES

NMED AQB INSIGNIFICANT ACTIVITIES LIST
(MARCH 24, 2005)

New Mexico Environment Department (NMED) Air Quality Bureau (AQB)
Operating Permit Program
List of Insignificant Activities
March 24, 2005

Insignificant activities are those activities, which are listed herein by the Environment Department and approved by the Administrator of the US Environmental Protection Agency as insignificant on the basis of size, emissions or production rate. Any activity for which applicable requirements apply, is not insignificant, regardless of whether the activity meets the criteria listed below.

Operating permit applications submitted under 20.2.70 NMAC for sources, which include any of the following emissions units, operations or activities must provide the information required for emissions units under Subsection D.6 of 20.2.70.300 NMAC:

1.a. Any emissions unit, operation or activity that has the potential to emit no more than one (1) ton per year of any regulated air pollutant, excluding 112(b) hazardous air pollutants (see item 1.b), but including 112(r) flammable and toxic regulated pollutants that are not listed in Sections 500 – 502 of 20.2.72 NMAC. Regulated 112(r) pollutants that are listed in Sections 500 – 502 of 20.2.72 NMAC are insignificant if they are emitted in quantities less than the threshold (pound per hour) of that regulation.

1.b. Any emissions unit, operation or activity that has the potential to emit no more than the lesser of either one (1) ton per year or the de minimis level of any 112(b) hazardous air pollutants listed in the U.S. EPA document "Documentation of De Minimis Rates for Proposed 40 CFR part 63 subpart B", EPA-453/R-93-035 or de minimis levels established under subsequent rulemaking for 112(g).

2. Surface coating of equipment, including spray painting and roll coating, for sources with facility-wide total clean-up solvent and coating actual emissions of less than two (2) tons per year.

3. Fuel burning equipment which uses gaseous fuel, has a design rate less than or equal to five (5) million BTU per hour, and is used solely for heating buildings for personal comfort or for producing hot water for personal use.

4. Fuel burning equipment which uses distillate oil, has a design rate less than or equal to one (1) million BTU per hour, and is used solely for heating buildings for personal comfort or for producing hot water for personal use.

5. Any emissions unit, operation, or activity that handles or stores a liquid with a vapor pressure less than 10 mm Hg or in quantities less than 500 gallons.

6. Portable engines and portable turbines that have a design capacity (based on sea level specifications) or a physically derated capacity less than or equal to:

200 HP engine if fueled by diesel or natural gas;
500 HP engine if fueled by gasoline;
650 HP engine if fueled by JP-4 or JP-8;
1,500 HP turbine if fueled by natural gas.

A certification of physical engine deration must accompany the portable source and be kept by the Operator or Owner. Physical deration is a result of equipment design, such as combining an engine with a compressor that has an rpm limit. Physical deration is not a result of environmental conditions such as altitude or temperature.

OR

Portable engines, portable turbines, or fixed and portable emergency generators for which the Operator or Owner can adequately demonstrate through actual test data (using EPA approved methods) or manufacturer emissions data that at maximum sea level horsepower the units produce no more that 25 tons per year nitrogen oxides (NOx). In such a case, the documentary information is to be kept with the portable engine, portable turbine, or fixed and portable emergency generator.

To be classified as emergency, a generator's sole function is to provide electrical power when power from the local utilities is interrupted.

OR

Portable Aerospace Ground Equipment (such as power generators, compressors, heaters, air conditioners, lighting units) in direct support of aircraft operations on or in the immediate vicinity of an airfield.

To be classified as portable, the engine must comply with the definition of portable source in 20.2.70 NMAC.

7. Emergency generators which on a temporary basis replaces equipment used in normal operation, and which either has an allowable emission rate or potential to emit for each fee pollutant that is equal to or less than the equipment replaced, or which does not operate for a period exceeding 500 hours per calendar year. (revised 3/4/05)

8. Emissions from fuel storage and dispensing equipment operated solely for company-owned, company-leased or company-rented vehicles, which have a capacity of less than 25,000 gallons.

NMED AQB TRIVIAL ACTIVITIES LIST
(SEPTEMBER 15, 2008)

New Mexico Environment Department (NMED) Air Quality Bureau (AQB)
Operating Permit Program
List of Trivial Activities
September 15, 2008

These specific activities are established and approved by the Environment Department. These activities need not be included in an operating permit application. Similar activities may be excluded from operating permit applications with written authorization from the Department. Any activity for which applicable requirements apply, other than ambient air standards, is not trivial, regardless of whether the activity meets the criteria listed below.

1. Any activity that is not a source of regulated pollutants.

2. Activities that occur strictly for maintenance of grounds or buildings, including: lawn care, pest control, grinding, cutting, welding, painting, woodworking, sweeping, general repairs, janitorial activities, plumbing, re-tarring roofs, installing insulation, steam cleaning and water washing activities, and paving of roads, parking lots and other areas.

3. Activities for maintenance and repair of equipment, pollution control equipment, or motor vehicles either inside or outside of a building.

4. Combustion emissions from mobile sources, such as forklifts, courier vehicles, front loaders, graders, carts, and maintenance trucks.

5. Use of fire control equipment, including maintenance, testing, and training.

6. Use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction.

7. Characterization of waste disposal sites (not waste treatment).

8. Non-anthropogenic wind blown dust.

9. Residential activities such as fireplaces, woodstoves, barbecue cookers, and emergency (backup) electrical generators.

10. Routine calibration and maintenance of laboratory equipment or other analytical instruments, including gases used as part of those processes.

11. Laundry activities, except for dry cleaning and steam boilers.

12. Food service and cafeteria activities.

13. Paint or non-paint materials dispensed from prepackaged aerosol cans of 16 ounce or less capacity.

14. Emissions from solid waste containers (pails, drums, and dumpsters).

15. Emissions from engine crankcase vents and equipment lubricating pumps.

16. Emissions from equipment lubricating systems (i.e., oil mist).

17. Air-conditioning units used for human comfort.

18. Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing/industrial or commercial process.

19. Vent emissions from sanitary sewer plumbing traps not within the boundary of publicly owned sewage treatment plant.

20. Tobacco smoking rooms and areas.

21. Portable electrical generators that can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device from one location to another.

22. Pneumatically operated equipment.

23. Batteries and battery charging stations, except at battery manufacturing plants.

24. Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any volatile organic compound (VOC) or hazardous air pollutant (HAP).

25. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.

26. Vents from continuous emissions monitors and other analyzers.

27. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

28. Hand-held applicator equipment for hot-melt adhesives with no volatile organic compound (VOC) in the adhesive formulation.

29. Laser trimmers using dust collection to prevent fugitive emissions.

30. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents.

31. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.

32. Hydraulic and hydrostatic testing equipment.

33. Fugitive emissions related to movement of passenger vehicles, provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.

34. Boiler water treatment operations, not including cooling towers.

35. Oxygen scavenging (de-aeration) of water.

~~36. Emissions from blow-down of compressors and other vessels containing pipeline quality natural gas for the purpose of maintenance or due to emergency circumstances.~~

37. Pipeline quality natural gas emissions from safety relief valves.

Record of Changes:
a) 9/15/08, Item 36 deleted due to revisions to 20.2.70 NMAC.

ATTACHMENT 7.4
MOTOR OIL AND VEHICLE MAINTENANCE FLUIDS SDS DATA

Chevron Delo 400 LE 15W-40

HEAVY DUTY MOTOR OIL SDS

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Delo 400 LE SAE 15W-40

Product Use: Heavy Duty Motor Oil
Product Number(s): 219719, 222220, 278058
Synonyms: Delo 400 LE SAE 15W-40 ISOCLEAN Certified
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency & Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight
Zinc alkyl dithiophosphate	68649-42-3	1 - < 2.5 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs. If exposure to hydrogen sulfide (H2S) gas is possible during an emergency, wear an approved, positive pressure air-supplying respirator. Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing. Hydrogen sulfide has a strong rotten-egg odor. However, with continued exposure and at high levels, H2S may deaden a person's sense of smell. If the rotten egg odor is no longer noticeable, it may not necessarily mean that exposure has stopped. At low levels, hydrogen sulfide causes irritation of the eyes, nose, and throat. Moderate levels can cause headache, dizziness, nausea, and vomiting, as well as coughing and difficulty breathing. Higher levels can cause shock, convulsions, coma, and death. After a serious exposure, symptoms usually begin immediately.

The U.S. National Institute for Occupational Safety and Health (NIOSH) considers air concentrations of hydrogen sulfide gas greater than 100 ppm to be Immediately Dangerous to Life and Health (IDLH).

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed
Note to Physicians: Administration of 100% oxygen and supportive care is the preferred treatment for poisoning by hydrogen sulfide gas. For additional information on H2S, see Chevron MSDS No. 301.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Phosphorus, Zinc, Sulfur.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: Do not breathe gas. Wash thoroughly after handling. Keep out of the reach of children.
Unusual Handling Hazards: Toxic quantities of hydrogen sulfide (H2S) may be present in storage tanks and bulk transport vessels which contain or have contained this material. Persons opening or entering these compartments should first determine if H2S is present. See Exposure Controls/Personal Protection -Section 8. Do not attempt rescue of a person over exposed to H2S without wearing approved supplied-air or self-contained breathing equipment. If there is a potential for exceeding one-half the occupational exposure standard, monitoring of hydrogen sulfide levels is required. Since the sense of smell cannot be relied upon to detect the presence of H2S, the concentration should be measured by the use of fixed or portable devices.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.

If material is heated and emits hydrogen sulfide, determine if airborne concentrations are below the occupational exposure limit for hydrogen sulfide. If not, wear an approved positive pressure air-supplying respirator. For more information on hydrogen sulfide, see Chevron MSDS No. 301. If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	--	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	--	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Light to Brown
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: No data available
Vapor Density (Air = 1): No data available
Initial Boiling Point: No data available
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Density: 0.877 kg/l @ 15°C (59°F) (Typical)
Viscosity: 14.60 mm2/s @ 100°C (212°F) (Minimum)
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): Not Applicable

Flashpoint: (Cleveland Open Cup) 204 °C (399 °F) (Minimum)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: Alkyl Mercaptans (Elevated temperatures), Hydrogen Sulfide (Elevated temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an

evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: Not applicable

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc alkyl dithiophosphate	06, 07

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: EINECS (European Union), ENCS (Japan), IECSC (China), TCSI (Taiwan).

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: SECTION 02 - Environmental Classification information was added.
SECTION 02 - Hazard Statements information was added.
SECTION 02 - Hazards Otherwise Not Classified information was modified.
SECTION 02 - Precautionary Statements information was added.
SECTION 03 - Composition information was modified.
SECTION 08 - General Considerations information was modified.
SECTION 09 - Physical/Chemical Properties information was deleted.
SECTION 09 - Physical/Chemical Properties information was modified.
SECTION 12 - Ecological Information information was modified.
SECTION 15 - Chemical Inventories information was modified.
SECTION 15 - New Jersey Right To Know information was modified.
SECTION 15 - Regulatory Information information was added.

Revision Date: January 20, 2020

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

CHEVRON CLARITY

HYDRAULIC OIL AW 68 SDS

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Clarity Hydraulic Oil AW 32, 46, 68, 100

Product Use: Hydraulic Oil
Product Number(s): 230340, 230341, 230342, 255702, 274310, 278022, 278023, 278024
Synonyms: Clarity Hydraulic Oil AW 100 ISOCLEAN Certified; Clarity Hydraulic Oil AW 32 ISOCLEAN Certified; Clarity Hydraulic Oil AW 46 ISOCLEAN Certified; Clarity Hydraulic Oil AW 68 ISOCLEAN Certified

Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However,

because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty

container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg (Estimated) @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1 (Estimated)
Initial Boiling Point: 315°C (599°F) (Estimated)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Density: 0.8666 kg/l - 0.8694 kg/l @ 15°C (59°F)
Viscosity: 43.70 mm2/s - 110 mm2/s @ 40°C (104°F)
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

This material is not expected to be harmful to aquatic organisms.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY

No data available.

PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE

Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO

5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), IECSC (China), KECI (Korea), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: SECTION 01 - Product Code(s) information was modified.
SECTION 04 - Immediate Health Effects - Skin information was modified.

Revision Date: June 14, 2017

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit

GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

VALVOLINE ULTRAMAX TRANS & DRIVETRAIN

TO-4M TRANSMISSION FLUID SDS

SAFETY DATA SHEET

Valvoline™ ULTRAMAX TRANS & DRIVE TRAIN TO-4M

Version: 1.3 | Revision Date: 02/26/2020 | Print Date: 06/11/2020

29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Trade name : Valvoline™ ULTRAMAX TRANS & DRIVE TRAIN TO-4M

Product code : 833406

Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Lubricant

Details of the supplier of the safety data sheet Valvoline LLC 100 Valvoline Way Lexington, KY 40509 United States of America (USA) 1-800-TEAMVAL (1-800-832-6825) SDS@valvoline.com	**Emergency telephone number** 1-800-VALVOLINE (1-800-825-8654) **Regulatory Information Number** 1-800-TEAMVAL (1-800-832-6825) **Product Information** 1-800-TEAMVAL (1-800-832-6825)

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (%)
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based	72623-87-1	Asp. Tox. 1; H304	>=50.00 - < 60.00
DISTILLATES (PETROLEUM),	64742-54-7	Not a hazardous	>=15.00 - < 20.00

HYDROTREATED HEAVY PARAFFINIC		substance or mixture.	
Mineral Oil		Asp. Tox. 1; H304	>=1.50 - < 5.00
PHENOL, DODECYL-, BRANCHED	121158-58-5	Skin Corr. 1C; H314 Eye Dam. 1; H318 Repr. 1B; H360	>=0.10 - < 0.50

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If symptoms persist, call a physician.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

If swallowed : If symptoms persist, call a physician.
Never give anything by mouth to an unconscious person.
Do not give milk or alcoholic beverages.
Obtain medical attention.

Most important symptoms and effects, both acute and delayed : No symptoms known or expected.

Notes to physician : No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local

		circumstances and the surrounding environment. Water spray Foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses. If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release.
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	Product is compatible with standard fire-fighting agents.
Further information	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Ensure adequate ventilation. Use personal protective equipment.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.
Other information	:	Comply with all applicable federal, state, and local regulations.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Dispose of rinse water in accordance with local and national regulations.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Avoid contact with skin and eyes.
Avoid exposure - obtain special instructions before use.
Container hazardous when empty.
Do not smoke.
Do not breathe vapours/dust.

Conditions for safe storage : Observe label precautions.
Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based	72623-87-1	TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3 Inhalable particulate matter	ACGIH
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3 Mist	NIOSH REL
		ST	10 mg/m3 Mist	NIOSH REL
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC	64742-54-7	TWA	5 mg/m3 Mist	OSHA Z-1
		TWA	5 mg/m3 Inhalable particulate matter	ACGIH
		TWA	5 mg/m3 Mist	OSHA P0
		TWA	5 mg/m3	NIOSH REL

			Mist	
		ST	10 mg/m3 Mist	NIOSH REL
		PEL	5 mg/m3 particulate	CAL PEL

Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection : Wear resistant gloves (consult your safety equipment supplier).
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Safety shoes
Impervious clothing
Wear as appropriate:

Hygiene measures : When using do not smoke.
When using do not eat or drink.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	662 °F / 350 °C (1,013.333333 hPa) Calculated Phase Transition Liquid/Gas
Flash point	:	> 390 °F / > 199 °C Method: Cleveland open cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Self-ignition	:	No data available
Upper explosion limit / Upper flammability limit	:	6 %(V) GLP: Calculated Explosive Limit
Lower explosion limit / Lower flammability limit	:	1 %(V) GLP: Calculated Explosive Limit
Vapour pressure	:	0.1333333 hPa (68 °F / 20 °C) Calculated Vapor Pressure
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	0.872 g/cm3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available
Viscosity		

Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	108.65 mm2/s (104 °F / 40 °C)
Oxidizing properties	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Product will not undergo hazardous polymerization.
Conditions to avoid	:	None known. heat excessive heat
Incompatible materials	:	Zinc water strong mineral acids strong alkalis sodium reducing agents peroxides Oxidizing agents metal oxides Metals magnesium Lead Iron halogens Copper alloys Copper Combustible material Ammonia Amines aluminum Alkali metals 1,3-butadiene
Hazardous decomposition products		No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin contact
Eye Contact
Ingestion
Acute toxicity
Not classified based on available information.
Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 5.58 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: Not classified as acutely toxic by inhalation under GHS. Remarks: No mortality observed at this dose.
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Remarks: No mortality observed at this dose.

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:

Acute oral toxicity	:	LD50 (Rat): > 15 g/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 5 g/kg

PHENOL, DODECYL-, BRANCHED:

Acute oral toxicity	:	LD50 (Rat): 2,100 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): 15,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.
Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:

Species	:	Rabbit
Result	:	No skin irritation

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:

Assessment	:	Slight, transient irritation
Result	:	Slight, transient irritation

PHENOL, DODECYL-, BRANCHED:

Species	:	Rabbit
Result	:	Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation
Not classified based on available information.

Product:
Remarks : Unlikely to cause eye irritation or injury.

Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:
Species : Rabbit
Result : No eye irritation

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
Result : No eye irritation
Assessment : No eye irritation

PHENOL, DODECYL-, BRANCHED:
Species : Rabbit
Result : Corrosive

Respiratory or skin sensitisation
Skin sensitisation
Not classified based on available information.
Respiratory sensitisation
Not classified based on available information.
Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:
Test Type : Buehler Test
Species : Guinea pig
Assessment : Does not cause skin sensitisation.

PHENOL, DODECYL-, BRANCHED:
Test Type : Buehler Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Germ cell mutagenicity
Not classified based on available information.
Components:
PHENOL, DODECYL-, BRANCHED:
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: negative

Carcinogenicity
Not classified based on available information.
Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:
Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified based on available information.
Components:
PHENOL, DODECYL-, BRANCHED:
Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT - single exposure
Not classified based on available information.
STOT - repeated exposure
Not classified based on available information.
Aspiration toxicity
Not classified based on available information.

Components:
Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based:
May be fatal if swallowed and enters airways.

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC:
No aspiration toxicity classification

Mineral Oil:
May be fatal if swallowed and enters airways.

Further information
Product:
Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Product:
Ecotoxicology Assessment
Short-term (acute) aquatic hazard : Not classified based on available information.

Long-term (chronic) aquatic hazard	:	Not classified based on available information.

Components:

Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based**:**

Toxicity to fish	:	LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 203 Remarks: No toxicity at the limit of solubility
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 202
Toxicity to algae	:	NOEL (Pseudokirchneriella subcapitata (green algae)): >= 100 mg/l End point: Growth inhibition Exposure time: 72 h Test Type: static test Test substance: WAF Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOELR (Oncorhynchus mykiss (rainbow trout)): >= 1,000 mg/l Exposure time: 14 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEL (Daphnia (water flea)): 10 mg/l Exposure time: 21 d Test substance: WAF Method: OECD Test Guideline 211

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC**:**

Toxicity to fish	:	LL50 (Fish): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Aquatic invertebrates): > 10,000 mg/l Exposure time: 48 h
Toxicity to algae	:	EL50 (Algae, algal mat (Algae)): > 100 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Fish): 10 mg/l
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Aquatic invertebrates): 10 mg/l

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Not classified based on available information.

Long-term (chronic) aquatic hazard : Not classified based on available information.

PHENOL, DODECYL-, BRANCHED**:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 3.2 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: WAF
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.037 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 0.36 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 0.07 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.004 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

Persistence and degradability

Components:

Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based**:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 - 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

PHENOL, DODECYL-, BRANCHED**:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 6 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

No data available

Bioaccumulative potential

Components:

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC**:**

Partition coefficient: n-octanol/water : log Pow: Expected > 7

PHENOL, DODECYL-, BRANCHED**:**

Partition coefficient: n-octanol/water : log Pow: 7.1

No data available

Mobility in soil

Components:

No data available

Other adverse effects

No data available

Product:

Additional ecological information : No data available

Components:

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice : Dispose of in accordance with all applicable local, state and federal regulations.

Send to a licensed waste management company.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

49 CFR
Not regulated as a dangerous good

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
71-43-2	Not Assigned	10	10 (D018)
100-41-4	Not Assigned	100	100 (F003)
108-88-3	Not Assigned	100	100 (F005)
71-43-2	Not Assigned	10	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
7446-09-5	Not Assigned	500	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Zinc bis[bis(tetrapropylenephenyl)] bis(hydrogen dithiophosphate)	11059-65-7	>= 1 - < 5 %

The components of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	Not in compliance with the inventory
TSCA	:	On TSCA Inventory

TSCA list

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Inventories

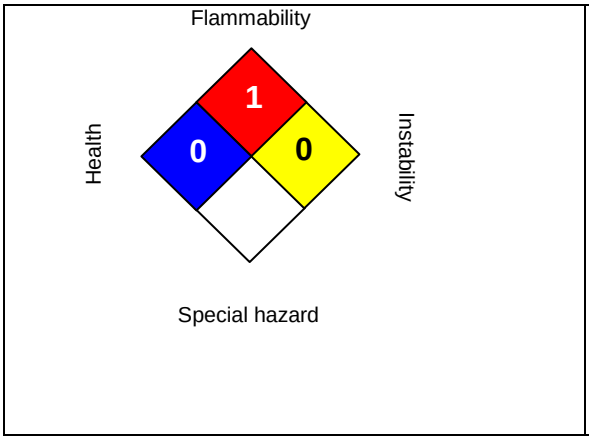
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

Internal information : 000000204611

NFPA:	HMIS III:



HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

NFPA Flammable and Combustible Liquids Classification
Combustible Liquid Class IIIB

Full text of H-Statements

H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H360	May damage fertility or the unborn child.

Sources of key data used to compile the Safety Data Sheet
Valvoline internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Valvoline's Environmental Health and Safety Department (1-800-VALVOLINE).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :
ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).

ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
DOT : Department of Transportation
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
HMIRC : Hazardous Materials Information Review Commission
HMIS : Hazardous Materials Identification System
NFPA : National Fire Protection Association
NIOSH : National Institute for Occupational Safety and Health
OSHA : Occupational Safety and Health Administration
PMRA : Health Canada Pest Management Regulatory Agency
RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System

PRESTONE 50/50

PREDILUTED ENGINE COOLANT/ANTIFREEZE SDS

SAFETY DATA SHEET

1. Product And Company Identification

SDS ID: SDS508
PRODUCT NAME: Prestone ® 50/50 Prediluted Engine Coolant/Antifreeze
Prestone ® 50/50 Ready-to-Use Antifreeze/Coolant
PRODUCT NUMBER: 71175, AF2100, 71183, AF2725, PRES01R, PRES04R, AF2050ML, AF2050M, AF2050M19, AF2050M200, 71217, AF2100UK, AF2100PL, AF2100LCZ, AF2100LHR, AF2100LD, AF2100LRU, AF2100RU, AF2100S/F, AF2100LT/F, AF2100S/FC, AF2100-Retro/F, 65077
FORMULA NUMBER: YA-956BY-P50, YA-956BY-P50-B, YA-956BY-P50M, YA-956BY-P50M-B

MANUFACTURER:
Prestone Products Corporation
Danbury, CT 06810-5109

CANADIAN OFFICE:
FRAM Group (Canada), Inc.
Mississauga, Ontario L5L 3S6

MEDICAL EMERGENCIES AND ALL OTHER INFORMATION PHONE NUMBER:
(800)890-2075 (in the US)
(800)668-9349 (in Canada)
TRANSPORTATION EMERGENCY PHONE NUMBER (Chemical Spills and Transport Accidents only):
CHEMTREC 1-800-424-9300 (in the US)
CANUTEC (613)996-6666 (in Canada)
SDS DATE OF PREPARATION/REVISION: 04/22/13

PRODUCT USE: Automobile antifreeze – consumer product

2. Hazards Identification

GHS Classification:

Health	Environmental	Physical
Specific Target Organ Toxicity – repeated exposure Category 2	None	Not Hazardous

Label Elements

WARNING!
H373 May cause damage to kidneys through prolonged or repeated exposure.

Prevention:
P260 Do not breathe mist or vapors.
Response:
P314 Get medical attention if you feel unwell.
Disposal:
P501 Dispose of contents and container in accordance with local and national regulations.

3. Composition/Information On Ingredients

Component	CAS No.	Amount
Ethylene Glycol	107-21-1	45-55
Diethylene Glycol	111-46-6	0-5
2-Ethyl Hexanoic Acid, Sodium Salt	19766-89-3	0-5

(See Section 8 for Exposure Limits)

4. First Aid Measures

INHALATION: Remove the victim to fresh air. If breathing has stopped administer artificial respiration. If breathing is difficult, have medical personnel administer oxygen. Get medical attention.

SKIN CONTACT: Remove contaminated clothing. Immediately wash contacted area thoroughly with soap and water. If irritation persists, get medical attention.

EYE CONTACT: Immediately flush eyes with large amounts of water for 15 minutes. Get medical attention if irritation persists.

INGESTION: Seek immediate medical attention. Immediately call local poison control center or go to an emergency department. Never give anything by mouth to or induce vomiting in an unconscious or drowsy person.

MOST IMPORTANT SYMPTOMS: May cause eye irritation. Inhalation of mists may cause nose and throat irritation and nervous system effects. Ingestion may cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT, IF NEEDED: Seek immediate medical attention for large ingestions.

NOTES TO PHYSICIAN: The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. The combination of metabolic acidosis, an osmol gap and oxalate crystals in the urine is evidence of ethylene glycol poisoning. Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. Respiratory support with mechanical ventilation may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphagia.

Ethanol is antidotal and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. The objective is to rapidly achieve and maintain a blood ethanol level of approximately 100 mg/dl by giving a loading dose of ethanol followed by a maintenance dose. Intravenous administration of ethanol is the preferred route. Ethanol blood levels should be checked frequently. Hemodialysis may be required. 4-Methyl pyrazole (Fomepizole®), a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning. Fomepizole® is easier to use clinically than ethanol, does not cause CNS depression or hypoglycemia and requires less monitoring than ethanol. Additional therapeutic modalities which may decrease the adverse consequences of ethylene glycol metabolism are the administration of both thiamine and pyridoxine. As there are complicated and serious overdoses, we recommend you consult with the toxicologists at your poison control center.

5. Firefighting Measures

SUITABLE EXTINGUISHING MEDIA: Use any media appropriate for the surrounding fire.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: A solid stream of water or foam directed into hot, burning liquid can cause frothing. Burning may produce carbon monoxide and carbon dioxide.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHERS: Do not spray pool fires directly. Firefighters should wear positive pressure self- contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

6: Accidental Release Measures

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Wear appropriate protective clothing and equipment (See Section 8).

METHODS AND MATERIALS FOR CONTAINMENT/CLEANUP: Collect with absorbent material and place in appropriate, labeled container for disposal or, if permitted flush spill area with water.

7. Handling and Storage

PRECAUTIONS FOR SAFE HANDLING:
Harmful or Fatal if Swallowed
Do not drink antifreeze or solution.
Avoid eye and prolonged or repeated skin contact.
Avoid breathing vapors or mists.
Wash exposed skin thoroughly with soap and water after use.
Do not store in opened or unlabeled containers.
Keep container away from open flames and excessive heat.
Do not reuse empty containers unless properly cleaned.
Empty containers retain product residue and may be dangerous.
Do not cut, weld, drill, etc. containers, even empty.

Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without any obvious ignition sources. Published "autoignition" or "ignition" temperatures cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Use of this product in elevated temperature applications should be thoroughly evaluated to assure safe operating conditions.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
NFPA Classification: Not Applicable. Store away from excessive heat and oxidizers.

8. Exposure Controls / Personal Protection

EXPOSURE GUIDELINES

CHEMICAL	EXPOSURE LIMIT
Ethylene Glycol (as aerosol)	100 mg/m^3 Ceiling ACGIH TLV
Diethylene Glycol	10 mg/m^3 TWA AIHA WEEL
2-Ethyl Hexanoic Acid	None Established

APPROPRIATE ENGINEERING CONTROLS: Use general ventilation or local exhaust as required to maintain exposures below the occupational exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: For operations where the TLV is exceeded a NIOSH approved respirator with organic vapor cartridges and dust/mist prefilters or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration. Select and use in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

GLOVES: Chemical resistant gloves such as neoprene or PVC where contact is possible.

EYE PROTECTION: Splash-proof goggles.

OTHER PROTECTIVE EQUIPMENT/CLOTHING: Appropriate protective clothing as needed to minimize skin contact.

9. Physical and Chemical Properties

APPEARANCE:	Yellow liquid	ODOR:	Characteristic odor
ODOR THRESHOLD:	None	pH:	9.0
MELTING/FREEZING POINT:	-34°F (-36°C)	BOILING POINT/RANGE:	229°F (109°C)
FLASH POINT:	No flash @ 216°F (102.2°C) SCC	EVAPORATION RATE:	Not determined
FLAMMABILITY (SOLID, GAS)	Not Applicable	FLAMMABILITY LIMITS:	LEL: Not determined UEL: Not determined
VAPOR PRESSURE:	< 0.1 mmHg @ 68°F	VAPOR DENSITY:	Not determined
RELATIVE DENSITY:	1.07	SOLUBILITIES	Water: Complete
PARTITION COEFFICIENT (n-octanol/water)	Not determined	AUTOIGNITION TEMPERATURE:	Not determined
DECOMPOSITION TEMPERATURE:	Not determined	VISCOSITY:	Not determined

10. Stability and Reactivity

REACTIVITY: Normally unreactive

CHEMICAL STABILITY: Stable

POSSIBILITY OF HAZARDOUS REACTIONS: Reaction with strong oxidizers will generate heat.

CONDITIONS TO AVOID: None known

INCOMPATIBLE MATERIALS: Normally unreactive, however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents, and materials reactive with hydroxyl compounds.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide.

11. Toxicological Information

POTENTIAL HEALTH EFFECTS:

ACUTE HAZARDS:
INHALATION: May cause irritation of the nose and throat with headache, particularly from mists. High vapor concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace, may produce nausea, vomiting, headache, dizziness and irregular eye movements.

SKIN CONTACT: No evidence of adverse effects from available information.

EYE CONTACT: Liquid, vapors or mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness or conjunctiva. Serious corneal injury is not anticipated.

INGESTION: May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure and pulmonary edema may develop. Severe kidney damage which may be fatal may follow the swallowing of ethylene glycol. A few reports have been published describing the development of weakness of the facial muscles, diminishing hearing, and difficulty with swallowing, during the late stages of severe poisoning.

CHRONIC EFFECTS: Prolonged or repeated inhalation exposure may produce signs of central nervous system involvement, particularly dizziness and jerking eye movements. Prolonged or repeated skin contact may cause skin sensitization and an associated dermatitis in some individuals. Ethylene glycol has been found to cause birth defects in laboratory animals. The significance of this finding to humans has not been determined.

CARCINOGENICITY LISTING: None of the components of these products is listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, or OSHA.

ACUTE TOXICITY VALUES:

Ethylene Glycol:	LD50 Oral Rat: 4700 mg/kg LD50 Skin Rabbit: 9530 mg/kg
Diethylene Glycol:	LD50 Oral Rat: 12,565 mg/kg LD50 Skin Rabbit: 11,890 mg/kg

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH:
Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1,000 and 2,500 mg/m3 for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentrations, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1,000 and 2,500 mg/m3) and developmental toxicity in with minimal evidence of teratogenicity (2,500 mg/m3). The no-effects concentration (based on maternal toxicity) was 500 mg/m3. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol

concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous invitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

This product contains less than 0.07% tolytriazole which has demonstrates mutagenic activity in a bacterial test system. A correlation has been established between mutagenic activity and carcinogenic activity for many chemicals. Tolytriazole has not been identified as a carcinogen or probable carcinogen by NTP, IARC, ACGIH or OSHA.

12. Ecological Information

ECOTOXICITY:

Ethylene Glycol: LC50 Fathead Minnow <10,000 mg/L/96 hr
EC50 Daphnia Magna 100,000 mg/L/48 hr
Bacterial (Pseudomonas putida): 10,000 mg/l
Protozoa (Entosiphon sulcatum and Uronema parduczi; Chatton-Lwoff): >10,000 mg/l
Algae (Microcystis aeruginosa): 2,000 mg/l
Green algae (Scenedesmus quandricauda): >10,000 mg/l

Diethylene Glycol: LC50 western mosquitofish >32,000 mg/L/96 hr

PERSISTENCE AND DEGRADABILITY:

Ethylene Glycol is readily biodegradable (97-100% in 2-12 days). Diethylene glycol is readily biodegradable (>70% in 19days).

BIOACCUMULATIVE POTENTIAL:

Ethylene glycol: A BCF of 10, reported for ethylene glycol in fish, Golden ide (Leuciscus idus melanotus), after 3 days of exposure suggests the potential for bioconcentration in aquatic organisms is low.

Diethylene glycol: An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low.

MOBILITY IN SOIL: Ethylene glycol and diethylene glycol are highly mobile in soil.

OTHER ADVERSE EFFECTS: None known

13. Disposal Considerations

Dispose of product in accordance with all local, state/provincial and federal regulations.

14. Transport Information

U.S. DOT HAZARD CLASSIFICATION: Not Regulated (unless package contains a reportable quantity)

Note: IF A SHIPMENT OF A REPORTABLE QUANTITY (9,090 LBS/1,018 GAL.) IN A SINGLE PACKAGE IS INVOLVED, THE FOLLOWING INFORMATION APPLIES:
PROPER SHIPPING NAME: RQ, Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)
UN NUMBER: UN3082
PACKING GROUP: III
LABELS REQUIRED: Class 9

DOT MARINE POLLUTANTS: This product does not contain Marine Pollutants as defined in 49 CFR 171.8.

IMDG CODE SHIPPING CLASSIFICATION: Not Regulated

CANADIAN TDG CLASSIFICATION: Not Regulated

15. Regulatory Information

CERCLA SECTION 103: Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for this product, based on the RQ for Ethylene Glycol (55% maximum) of 5,000 lbs., is 9090 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

EPA SARA 311/312 HAZARD CLASSIFICATION: Acute health, chronic health

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Ethylene Glycol	107-21-1	45-55%

PROTECTION OF STRATOSPHERIC OZONE: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CALIFORNIA PROPOSITION 65: The normal consumer use of this product does not result in exposures to chemicals known to the State of California to cause Cancer and/or Reproductive Harm above the significant risk level for carcinogens or the maximum allowable dose levels for reproductive toxins. Therefore, no warnings are required for consumer packages. Industrial or other occupational use of this product at higher frequency and using larger quantities of this product may result in exposures exceeding these levels and are labeled accordingly.

EPA TSCA INVENTORY: All of the components of this material are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT: All of the ingredients are listed on the Canadian Domestic Substances List.

CANADIAN WHMIS CLASSIFICATION: Class D - Division 2 - Subdivision A - (A very toxic material causing other toxic effects)

CANADIAN WHMIS HAZARD SYMBOLS: 

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS): All of the ingredients are listed on the EINECS inventory.

AUSTRALIA: All of the ingredients of this product are listed on the Australian Inventory of Chemical Substances.

JAPAN: All of the ingredients of this product are listed on the Japanese Existing and New Chemical Substances (METI) List.

KOREA: All of the ingredients of this product are listed on the Korean Existing Chemicals List (KECL).

CHINA. All of the ingredients of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

PHILIPPINES All of the ingredients of this product are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS).

16. Other Information

NFPA RATING - FIRE: 1 HEALTH: 2 REACTIVITY: 0

REVISION SUMMARY: All Sections – conversion to Hazcom 2012 classification and labeling and format. Addition of product name and product numbers.

SDS Date of Preparation/Revision: April 22, 2013

This SDS is directed to professional users and bulk handlers of the product. Consumer products are labeled in accordance with Federal Hazardous Substances Act regulations.

While Prestone Products Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Prestone Products Corporation assumes legal responsibility. They are offered solely for your consideration, investigation and verification. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

If more information is needed, please contact:

Prestone Products Corporation
69 Eagle Road
Danbury CT 06810
(800) 890-2075

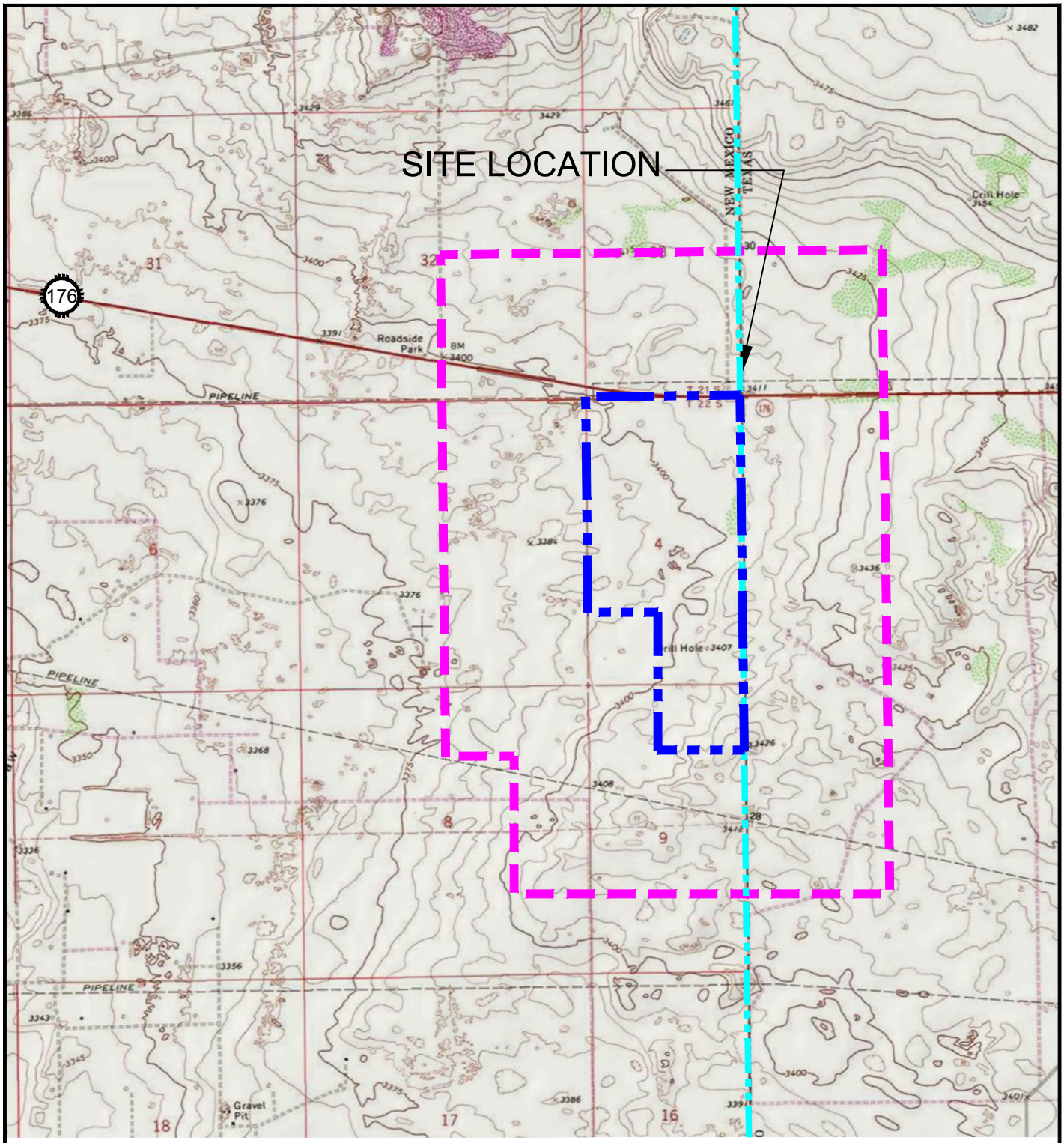
Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

Figure 8.1 is a map of the LCLF and a ½-mile radius surrounding area. **Figure 8.1** is plotted on a portion of the Eunice NE (1969, Photorevised 1979) 7.5-minute USGS quadrangle map. The figure shows the facility boundary, surrounding topography, map name, graphical scale, north arrow, and the UTM scales on both axes. The area which is restricted to public access is the facility property boundary. Due to the condensed nature of the map elements required by this Section, on-site Landfill roads are shown in detail on **Figure 5.1, Section 5**.



LEGEND

PROPERTY BOUNDARY

1/2–MILE RADIUS

NOTES:
1. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 32° 25.367' N, 103° 4.158' W.

2. MAP REFERENCES:
MAP BASE FROM USA TOPO MAPS, 1:24000
USA TOPOGRAPHIC SERVICES, TOPO MAP

NORTH

0 .25 MILE .5 MILE

Drawing:A:\2020\0417.20\03_DSGN\01_DWG\050_CIVIL\TV_PERMIT_APP\FIGURE-8.1_SITELOC.dwg
Date/Time:Sep. 03, 2020-12:09:29 ; LAYOUT: Parkhill Layout-A (P)

SITE LOCATION MAP

LEA COUNTY LANDFILL
LEA COUNTY, NEW MEXICO

Parkhill

PROJECT #: 0417.20	DATE: 09/03/2020
DRAWN BY: DMI	REVIEWED BY: MJC
CAD: SITE LOCATION.DWG	
ISSUING OFFICE: RIO RANCHO	
WWW.PARKHILL.COM	FIGURE 8.1

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☐ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. ☐ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☐ A sample of the letters sent to the owners of record.
5. ☐ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☐ A sample of the public notice posted and a verification of the local postings.
7. ☐ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☐ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☐ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☐ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

Public notification does not need to be performed by the Applicant for Title V Permit Applications or Renewals.

Section 10

Written Description of the Routine Operations of the Facility

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A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

10.0 Operational Plan

10.1 Solid Waste Permit Operational Plans

The December 2017 Solid Waste Permit Application (Updated August 2018) for the Lea County Landfill (LCLF) includes detailed operating and construction plans for the Landfill. For example, the following Plans are included in Volume II (Landfill Management Plans) of the Permit Application:

Section 1: Permit Plans
Section 2: Plan of Operations
Section 3: Contingency Plan
Section 4: Construction Quality Assurance (CQA) Plan
Section 5: Closure/Post-Closure Plan
Section 6: Landfill Gas Management Plan
Section 7: Leachate Management Plan
Section 8: Special Waste Disposal Management Plans
Section 9: Transportation Plan
Section 10: Waste Screening and Inspection Plan

The Plans have been approved by NMED Solid Waste Bureau (SWB) and are incorporated by reference in the facility's Permit (Solid Waste Facility I.D. No. SWM-130402 and SWM-130402(SP), dated September 30, 2019). Copies of the Plans are available at SWB and will be made available by LCLF upon request. **Section 14** contains a description of measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies for landfill operations that have the potential to emit pollutants of concern (e.g., particulates, NMOCs, VOCs). There are no known major bottlenecks that limit production at LCLF.

Section 11
Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

Lea County Landfill and all associated support activities which occur on the Facility property.

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☑ **Yes** ☐ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☑ **Yes** ☐ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☑ **Yes** ☐ **No**

C. Make a determination:

☑ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☑ **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

This document represents an Application for Operating Permit for a minor source under the provisions of 20.2.70 NMAC. Lea County Landfill is not subject to the requirements of either 20.2.72 NMAC or 20.2.74 NMAC.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:
For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

Applicable STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	All Units	The purpose of this Part (20.2.1 NMAC) is to establish general provisions which apply to all parts of this chapter (20.2.1 through 20.2.99 NMAC).
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	All Units	Compliance with NMAAQS is demonstrated in the Air Dispersion Modeling Analysis Report (Submitted to NMED AQB as part of this application)
20.2.7 NMAC	Excess Emissions	Yes	All Units	Records kept of any excess emission periods and notifications provided to NMED. Verbal (< 24 hrs) and written (< 10 days) notice of excess emissions.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		No affected facilities
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This facility has no oil burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit that would be subject to this rule.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		No affected facilities
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	No		No affected facilities
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		No affected facilities
20.2.61.109 NMAC	Smoke & Visible Emissions	No		No affected facilities
20.2.70 NMAC	Operating Permits	Yes	All Units	Per 20.2.64.110 and the design capacity of LCLF, a Title V operating permit is required
20.2.71 NMAC	Operating Permit Fees	Yes	All Units	LCLF will submit required fees when assessed by NMED.
20.2.72 NMAC	Construction Permits	Yes	All Units	Not an affected facility as defined under 20.2.72 NMAC.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	All Units	The facility will submit annual emissions inventory as required by NMED.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		The facility is not a PSD major source as defined by 20.2.74 NMAC.
20.2.75 NMAC	Construction Permit Fees	No		No affected facilities
20.2.77 NMAC	New Source Performance	No		See discussion of NSPS below (40 CFR 60)

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.78 NMAC	Emission Standards for HAPS	No		See discussion of NSHAPS below (40 CFR 61 & 63)
20.2.79 NMAC	Permits – Nonattainment Areas	No		No affected facilities
20.2.80 NMAC	Stack Heights	No		No affected facilities
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	All Units	The facility is not a major source for HAPs (NMOC emissions are < 50 Mg/yr, facility-wide HAP emissions <10tpy individually and < 25tpy in the aggregate).

Applicable FEDERAL REGULATIONS:

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	All Units	Compliance with NAAQS is demonstrated in the Air Dispersion Modeling Analysis Report (Submitted to NMED AQB as part of this application)
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	All Units	Facility will comply with applicable sections.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No		The facility does not own or operate **Electrical Utility Steam Generating Units**
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No		The facility does not own or operate **Electrical Utility Steam Generating Units**
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		The facility does not own or operate **Small Industrial-Commercial-Institutional Steam Generating Units**
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No		The facility does not own any storage vessels with capacities > 40,000 gallons.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No		The facility does not own any storage vessels with capacities > 75 m^3
NSPS 40 CFR 60.330	**Stationary Gas Turbines**	No		No affected facilities

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart GG				
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No		No affected facilities
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No		No affected facilities
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No		No affected facilities
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	No		No affected facilities
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No		All engines located at this facility are considered mobile, non-road internal combustion engines, and do not fall under the requirements of this subpart.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		No affected facilities
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No		No affected facilities
NSPS 40 CFR 60	Emissions Guidelines for	No		No affected facilities

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart UUUU	Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units			
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	Yes	All Units	Operating Permit will satisfy NSPS Subpart WWW, XXX, Cc, and Cf requirements.
NESHAP 40 CFR 61 Subpart A	General Provisions	No		No affected facilities
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No		No affected facilities
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No		No affected facilities
MACT 40 CFR 63, Subpart A	General Provisions	Yes	All Units	The facility is not a major source for HAPs (NMOC emissions are <34 Mg/yr, facility-wide HAP emissions < 10tpy individually and < 25tpy in the aggregate).
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	No		No affected facilities
MACT 40 CFR 63 Subpart HHH		No		No affected facilities
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		No affected facilities
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No		No affected facilities
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for	No		No affected facilities

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)			
40 CFR 64	**Compliance Assurance Monitoring**	No		This facility does not have an emissions source subject to the provisions of 40 CFR 64
40 CFR 68	**Chemical Accident Prevention**	Yes	All Units	Facility-wide Risk Management Plan in Place
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No		Not an affected source under 40 CFR 72
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No		Not an affected source under 40 CFR 73
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No		Not an affected source under 40 CFR 75
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No		Not an affected source under 40 CFR 76
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No		The facility does not service, maintain or dispose any refrigerant-containing or formerly refrigerant-containing appliances or motor-vehicle air conditioners (MVAC). All refrigerant-containing devices at the facility are designed to contain less than 50 pounds of refrigerant at full charge

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☑ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

LCLF has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, Scheduled Maintenance, and Emergencies. This Plan is summarized in **Section 3** and is maintained on-site as part of the Facility Operating Record.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

Alternative Operating Scenarios

The Lea County Landfill disposes of municipal solid waste (MSW), construction and demolition (C&D) debris, specific approved special wastes, and sludge; and is permitted to accept, remediate, and dispose of petroleum contaminated soils (PCS). PCS tracking methods and forms have been developed for LCLF, and are described in **Section 6.4** and **Table 6.6** of this Application. As of the submittal of this Application, no PCS have been accepted at LCLF.

Control Measures for Disposal Routes and Control Efficiency – The LCLF may elect to apply select fugitive dust control measures to on-site roads to achieve greater control efficiencies in the future. The following control efficiencies, recommended by the AQB, will be applied if and when such control measures are warranted:

Control Measure	**Control Efficiency**
None	0%
Base course **or** watering	60%
Base course **and** watering	80%
Chip Seal – swept and watered	85%
Base course **and** surfactant	90%
Paved **and** Swept	95%

Section 16

Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	X
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☑ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☐ No modeling is required.

Due to the dynamic nature of the MSW disposal area as fill progresses, the location of the active MSW disposal area has been estimated to be within Cells 1-5 during the Permit period. The worst-case scenario was modeled for travel along the unpaved road that leads to the active MSW disposal area and the road that the scraper travels between the borrow area and potentially most distal active fill face, since the orientation of these roads will necessarily change depending on the location of the active disposal area.

Air Dispersion modeling was performed for LCLF to support this Application for renewal and the UA4 form is attached to this section.

ATTACHMENT 16.1
UNIVERSAL APPLICATION 4
(UA4)

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification

1	Name of facility:	**Lea County Landfill**
2	Name of company:	**Lea County Solid Waste Authority**
3	Current Permit number:	**Not applicable (N/A) – initial permit application**
4	Name of applicant's modeler:	**James Newby, Cirrus Consulting, LLC**
5	Phone number of modeler:	**(801) 294-3024**
6	E-mail of modeler:	**jnewby@cirrusllc.com**

Introduction

The Lea County Landfill is located in Sections 4 and 9, Township 22 South, Range 38 East, in Lea County, approximately 5 miles east of Eunice, New Mexico. The landfill receives and disposes of municipal solid waste. It is being permitted for vehicle traffic, compactor operations, bulldozer operations, scraper operations and wind erosion.

The following pollutants require modeling: particulate matter less than or equal to 10 microns in diameter (PM_{10}) and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). The PM_{10} and $PM_{2.5}$ were modeled to comply with 20.2.70.7 of the New Mexico Administrative Code (NMAC). PSD modeling is not applicable (see Section 2.1.1 of the *NMAQB Air Dispersion Modeling Guidelines, Revised June 6, 2019* (Modeling Guidelines)).

The landfill will be open to receive waste from 0730-1730 Monday through Saturday. Facility equipment (compactor, bulldozer, scraper, and miscellaneous vehicles) will operate from 0630-1800 Monday through Saturday.

Emissions within the disposal areas were modeled using area sources. Emissions in each disposal area included those from disposal vehicle traffic, miscellaneous vehicle traffic, scraper traffic and operations, compactor operations, bulldozer operations, and wind erosion.

Emissions within the borrow area were also modeled using an area source. Emissions included those from miscellaneous vehicle traffic, scraper traffic and operations, and wind erosion.

Haul road emissions from vehicle traffic and wind erosion were modeled using volume sources in accordance with Section 5.3.3 of the Modeling Guidelines. Because roads at the landfill are very long, they were represented by alternating volume sources.

There are no startup, shutdown and maintenance (SSM) emissions associated with the landfill.

16-B: Brief

1	Was a modeling protocol submitted and approved?	**Yes☒**	No☐
2	Why is the modeling being done?	**New Facility**	
3	Describe the permit changes relevant to the modeling.		
	This is an existing landfill that recently triggered the requirement to obtain a Title V permit. Since compliance with the NAAQS has never been demonstrated, and since sources will relocate during the term of the permit, modeling must be included in the application.		
4	What geodetic datum was used in the modeling?	**WGS84**	
5	How long will the facility be at this location?	**80 years**	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	**No☒**
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	**155**	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	**3/16/1988 (minor source baseline date)**	
	SO2	**7/28/1978 (minor source baseline date)**	
	PM10	**2/20/1979 (minor source baseline date)**	
	PM2.5	**11/13/2013 (minor source baseline date)**	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	N/A		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	**No☒**
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
1	CO	**N/A**		
	NO_2	**N/A**		
	SO_2	**N/A**		
	H_2S	**N/A**		
	PM2.5	**N/A**		
	PM10	**N/A**		
	TSP	**N/A**		
	Lead	**N/A**		
	Ozone (PSD only)	**N/A**		
	NM Toxic Air Pollutants (20.2.72.402 NMAC)	**N/A**		

16-D: Modeling Performed for this Application

For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
1	CO	☐	☐	☐	☐	☒
	NO_2	☐	☐	☐	☐	☒
	SO_2	☐	☐	☐	☐	☒
	H_2S	☐	☐	☐	☐	☒
	PM2.5	☐	☒	☐	☐	☐
	PM10	☐	☒	☐	☐	☐
	TSP	☐	☐	☐	☐	☒
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

TSP modeling was not conducted because the TSP standards have been removed from the regulations.

Modeling was conducted in accordance with the approved protocol and Modeling Guidelines. First, significant impact modeling was conducted using all landfill sources. Then, since impacts exceeded the SIL (for all pollutants and averaging periods), cumulative impacts were determined using landfill sources, neighboring sources within 10 kilometers (km), and the appropriate background concentrations. These cumulative impacts were compared with the applicable NAAQS to determine compliance.

16-E: New Mexico Toxic Air Pollutants Modeling

1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. **N/A**					
2	List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required. **N/A**					
	Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
	N/A					

16-F: Modeling Options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	**Yes☒**	No☐
	N/A		

The Providence Engineering and Environmental Group, LLC BEEST for Windows modeling manager was used to prepare the input files and manage processing.

16-G: Surrounding Source Modeling

1	Date of surrounding source retrieval	**New Mexico Sources: 06/02/2020** **Texas Sources: 07/29/2020**
2	If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.	
	AQB Source ID	Description of Corrections
	25343	**The data provided by NMAQB indicates TSP = 7.03 g/sec, PM10 = PM2.5 = 1.789 g/sec. As this is a haul road, PM2.5 was set to 0.1789 g/sec. This is consistent with AP-42, Section 13.2.2. The PM10 k constant = 1.5. The PM2.5 k constant = 0.15. So PM2.5 emissions are typically a tenth the value of PM10 emissions.**
	608	**The data provided by the NMAQB indicates TSP = PM10 = PM2.5 = 8.064 g/sec. As this is a crusher, PM10 was set to 3.629 g/sec (45% of TSP) and PM2.5 was set to 0.726 g/sec (9% of TSP). This is consistent with the tertiary crushing emission factors in AP-42, Section 11.19.2.**

The above corrections were approved by Eric Peters, NMAQB.

Since the east border of the Lea County Landfill is located adjacent to the Texas border, it was necessary to include neighboring sources from Texas that are within 10 km of the facility. These sources were obtained from the Texas Commission on Environmental Quality (TCEQ). The available emissions data came from the 2017 and 2018 emissions inventories. Where available, an average of the two years was modeled. Where only one year of data was available, that value was modeled. The emissions data was provided in tons per year. The tons per year were converted to pounds per hour assuming 8,760 hours per year of operation. The sources were then modeled assuming 8,760 hours per year of operation.

Workbooks containing the neighboring sources are provided on the modeling CD submitted with this application.

16-H: Building and Structure Downwash

1	How many buildings are present at the facility?	**N/A**		
2	How many above ground storage tanks are present at the facility?	**N/A**		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☐	**No☒**
	All sources at the landfill were modeled as area or volume sources. As the downwash algorithms do not apply to area or volume sources, building downwash was not included in the modeling.			
4	Building comments.	**N/A**		

16-I: Receptors and Modeled Property Boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.						
	A fence surrounds the property.						
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?					Yes☐	**No☒**
3	Are restricted area boundary coordinates included in the modeling files?					**Yes☒**	No☐
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.						
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments	
	Discrete	**Cartesian**	**50-meter**	**0 meters**	**500 meters**		
	Discrete	**Cartesian**	**100-meter**	**500 meters**	**1,000 meters**		
	Discrete	**Cartesian**	**250-meter**	**1,000 meters**	**3,000 meters**		
	Discrete	**Cartesian**	**500-meter**	**3,000 meters**	**5,000 meters**		
5	Describe receptor spacing along the fence line.						
	The fence line was modeled using receptors with 50 meter spacing (or less).						
6	Describe the PSD Class I area receptors.						
	N/A						

The receptors described in the table above were placed on both sides of the border, New Mexico and Texas.

Significant impact modeling was conducting using the receptor grid defined in the table above. Cumulative impact modeling was conducted using the same grid, except it was limited to those receptors for which there

were significant impacts. Twelve NAAQS modeling runs were required, as there was a different receptor grid for each scenario, pollutant and averaging period.

There were no impacts greater than 75 % of the standard, so it was not necessary to generate refined grids to identify local highs.

16-J: Sensitive Areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☐	**No☒**
	N/A		
2	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	**No☒**

16-K: Modeling Scenarios

	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
1	**During the five-year term of the permit, disposal operations at the landfill will take place within Cells 1-5. The size of the fill face at any one point in time will be approximately one acre. Modeling was conducted using four scenarios, selected so as to identify the worst-case impacts. In each case the disposal area was placed as near the property boundary as possible. Scenario 1 models disposal at the eastern edge of Cell 5, the current location of operations. Scenario 2 models disposal at the eastern edge of Cell 1. Scenario 3 models disposal at the northwestern edge of Cell 2. Scenario 4 models disposal at the southwestern edge of Cell 4. Figures 1 through 22 at the end of this modeling report show the locations of the various sources used for each scenario.**		
2	Which scenario produces the highest concentrations? Why?		
	Scenario 1 produced the highest impacts because operation at that location brings disposal road sources (disposal vehicle travel, miscellaneous vehicle travel, and scraper travel) nearest the property boundary.		
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	**Yes☒**	No☐
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.)		

5

Sources: **DCELL_1, DCELL_2, DCELL_4, DCELL_5, PDR_01 thru PDR_06, UDR1_01 thru UDR1_36, UDR2_01 thru UDR2_25, UDR3_01 thru UDR3_08, and UDR4_01 thru UDR4_12**				Sources: **MCELL_1, MCELL_2, MCELL_4, MCELL_5, PMR_01 thru PMR_06, UMR1_01 thru UMR1_36, UMR2_01 thru UMR2_51, UMR3_01 thru UMR3_34, UMR4_01 thru UMR4_38, and UAR_01 thru UAR_107**				Sources: **SCELL_1, SCELL_2, SCELL_4, SCELL_5, SBORROW, USR1_01 thru USR1_5, USR2_01 thru USR2_50, USR3_01 thru USR3_33, and USR4_01 thru USR4_37**			
Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor
1	**0**	13	**1**	1	**0**	13	**1**	1	**0**	13	**0**
2	**0**	14	**1**	2	**0**	14	**1**	2	**0**	14	**0**
3	**0**	15	**1**	3	**0**	15	**1**	3	**0**	15	**0**
4	**0**	16	**1**	4	**0**	16	**1**	4	**0**	16	**0**
5	**0**	17	**1**	5	**0**	17	**1**	5	**0**	17	**0**
6	**0**	18	**0.5**	6	**0**	18	**1**	6	**0**	18	**0**
7	**0**	19	**0**	7	**0.5**	19	**0**	7	**0.5**	19	**0**
8	**0.5**	20	**0**	8	**1**	20	**0**	8	**1**	20	**0**
9	**1**	21	**0**	9	**1**	21	**0**	9	**1**	21	**0**
10	**1**	22	**0**	10	**1**	22	**0**	10	**0.5**	22	**0**
11	**1**	23	**0**	11	**1**	23	**0**	11	**0**	23	**0**
12	**1**	24	**0**	12	**1**	24	**0**	12	**0**	24	**0**

If hourly, variable emission rates were used that were not described above, describe them below.

See the written description below.

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☐	**No☒**
	N/A		

Sources: **CCELL_1, CCELL_2, CCELL_4, and CCELL_5**				Sources: **BCELL_1, BCELL_2, BCELL_4, and BCELL_5**				Sources: **1, 2, 10, 12, 18, 10001, 10002, 10010, 10012 & 10018**			
Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor
1	**0**	13	**0.6957**	1	**0**	13	**0**	1	**0**	13	**1**
2	**0**	14	**0.6957**	2	**0**	14	**0**	2	**0**	14	**1**
3	**0**	15	**0.6957**	3	**0**	15	**0**	3	**0**	15	**1**
4	**0**	16	**0.6957**	4	**0**	16	**0**	4	**0**	16	**1**
5	**0**	17	**0.6957**	5	**0**	17	**0**	5	**0**	17	**0**
6	**0**	18	**0.6957**	6	**0**	18	**0**	6	**0**	18	**0**
7	**0.3478**	19	**0**	7	**0.5**	19	**0**	7	**1**	19	**0**
8	**0.6957**	20	**0**	8	**1**	20	**0**	8	**1**	20	**0**
9	**0.6957**	21	**0**	9	**0.5**	21	**0**	9	**1**	21	**0**
10	**0.6957**	22	**0**	10	**0**	22	**0**	10	**1**	22	**0**
11	**0.6957**	23	**0**	11	**0**	23	**0**	11	**1**	23	**0**
12	**0.6957**	24	**0**	12	**0**	24	**0**	12	**1**	24	**0**

Sources: **3-8 & 10003-10008**				Sources: **9, 11, 13-17, 19-21, 10009, 10011, 10013-10017 & 10019-10021**				Sources: **22 & 10022**			
Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor
1	**0**	13	**1**	1	**0**	13	**1**	1	**1**	13	**0**
2	**0**	14	**1**	2	**0**	14	**1**	2	**0**	14	**0**
3	**0**	15	**1**	3	**0**	15	**1**	3	**0**	15	**0**
4	**0**	16	**0**	4	**0**	16	**1**	4	**0**	16	**0**
5	**0**	17	**0**	5	**0**	17	**1**	5	**0**	17	**0**
6	**0**	18	**0**	6	**0**	18	**1**	6	**0**	18	**0**
7	**1**	19	**0**	7	**1**	19	**0**	7	**0**	19	**0**
8	**1**	20	**0**	8	**1**	20	**0**	8	**0**	20	**0**
9	**1**	21	**0**	9	**1**	21	**0**	9	**0**	21	**0**
10	**1**	22	**0**	10	**1**	22	**0**	10	**0**	22	**0**
11	**1**	23	**0**	11	**1**	23	**0**	11	**0**	23	**0**
12	**1**	24	**0**	12	**1**	24	**0**	12	**0**	24	**0**

Refuse delivery vehicles will be in operation continuously, Monday through Saturday from 0730-1730. Therefore, emissions were evenly distributed throughout that entire time period (see the first set of sources in the tables above).

Miscellaneous vehicles will travel the disposal and scraper routes eight times per day. Though travel will be intermittent, it will be spread over the entire day, 0630-1800. Therefore, emissions were evenly distributed over the entire time period (see the second set of sources in the tables above).

The scraper will typically operate once a day for 3 hours. Modeling was conducted to determine the 3-hour time periods during which the scraper would produce the highest impacts. Four time periods were evaluated

for each operating scenario: 0630-0930, 0900-1200, 1200-1500, and 1500-1800. It was determined that scraper operation from 0630-0930 produced the highest impacts for all scenarios, pollutants and averaging periods. Consequently, all significant and cumulative impact modeling was conducted assuming the scraper operates exclusively from 0630-0930 (see the third set of sources in the tables above). The scraper modeling files are provided on the CD submitted with this modeling report. A summary of the results is provided on the Operating Time tab in the Lea County Landfill – Modeling Data.xlsx workbook (also provided on the CD submitted with this application).

The compactor will operate 70% of the day. Though operation will be intermittent, in general it will operate over the entire day, 1630-1800. Therefore, compactor emissions were evenly distributed over the entire day. A factor of 0.6957 (8/11.5) was used to distribute 8 hours of operation over an 11.5 hour day. Half that value was used to identify emissions from 0630-0700 (see the fourth set of sources in the tables above).

The bulldozer will typically operate once a day for 2 hours. Modeling was conducted to determine the 2-hour time periods during which the bulldozer would produce the highest impacts. Six time periods were evaluated for each operating scenario: 0630-0830, 0800-1000, 1000-1200, 1200-1400, 1400-1600, and 1600-1800. It was determined that bulldozer operation from 0630-0830 produced the highest impacts for all scenarios, pollutants and averaging periods. Consequently, all significant and cumulative impact modeling was conducted assuming the bulldozer operates exclusively from 0630-0830 (see the fifth set of sources in the tables above). The bulldozer modeling files are provided on the CD submitted with this modeling report. A summary of the results is provided on the Operating Time tab in the Lea County Landfill – Modeling Data.xlsx workbook (also provided on the CD submitted with this application).

The New Mexico neighboring volume sources were assigned the values identified in the .inp files provided by the NMAQB (see the sixth through nineth set of sources in the tables above).

Wind erosion emissions, New Mexico neighboring point source emissions and all Texas neighboring source emissions were modeled at 8,760 hours per year.

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply. **N/A**			
	☐	ARM2		
	☐	100% NO_X to NO_2 conversion		
	☐	PVMRM		
	☐	OLM		
	☐	Other:		
2	Describe the NO_2 modeling.			
	N/A			
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.		Yes☐	No☐
	N/A			
4	Describe the design value used for each averaging period modeled.			
	N/A			

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10
	☒	None
2	Describe the particle size distributions used. Include the source of information.	
	N/A	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☐ **No☒**
4	Was secondary PM modeled for PM2.5?	Yes☐ **No☒**

5 If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-hour}}$

N/A

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration require that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

The paved portion of the haul road was artificially ended 50 meters before intersection with the public road. The property boundary is located 36 meters from the beginning of the intersection. The first volume source representing the paved haul road was located 14 meters inside that property boundary. Emissions from the entire paved portion of the haul road were included in the paved road modeling.

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☐	**No☒**

Unit Number in UA-2	Unit Number in Modeling Files
1	**All disposal and miscellaneous vehicle road dust sources**
2	**All scraper, compactor, bulldozer and wind erosion sources**

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	**Yes☒**	No☐
	N/A		
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	**No☒**

4 Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
N/A				

5	PSD increment description for sources (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	**N/A**

6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	**Yes☒**	No☐
	N/A		

722 landfill sources were needed to conduct the modeling. Emissions from Units 1 & 2 were assigned, as appropriate, to all these sources. To accomplish this a two-step process was used. First, emission rates, control efficiencies, operating times, road lengths and areas (from the calculations) were entered into the Emission Rates tab (see the Lea County Landfill – Modeling Data.xlsx workbook provided on the modeling CD submitted with this application). These were used to calculate the pounds per hour emissions rates for each source group. Second, these calculated pounds per hour emission rates were linked to the Area Sources and Volume Sources tabs (in the same workbook) for distribution to the individual sources. Note that these area and volume sources were then copied into the BEEST files for modeling.

16-P: Flare Modeling

1 For each flare or flaring scenario, complete the following.

Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
N/A			

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines?	Yes☐	**No☒**
	N/A		
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	See the Conversions tab in the Lea County Landfill – Modeling Data.xlsx workbook provided on the modeling CD submitted with this application. These calculated values can be compared with the values in the Area Sources and Volume Sources tab in the same workbook.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	See the Emission Rates, Area Sources and Volume Sources tabs in the Lea County Landfill – Modeling Data.xlsx workbook provided on the modeling CD submitted with this application.		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		
	N/A		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used, describe the data that was used.	**Yes☒**	No☐
	CO: **N/A**		
	NO_2: **N/A**		
	PM2.5: **Hobbs-Jefferson (350450019)**		
	PM10: **Hobbs-Jefferson (350250008)**		
	SO_2: **N/A**		
	Other: **N/A**		
	Comments: **PM10 24-hour background concentration: 37.3 µg/m^3 (2nd high)** **PM2.5 annual background concentration: 5.9 µg/m^3** **PM2.5 24-hour background concentration: 13.4 µg/m^3 (98th percentile)**		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	**No☒**
	N/A		

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so, select the station used. **Hobbs**	**Yes☒**	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		
	N/A		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	**Yes☒**	No☐
	N/A		
2	What was the source of the terrain data?		
	Source elevations were obtained from a plot plan provided by the Lea County Solid Waste Authority. **Terrain elevations for the receptors were obtained using United States Geological Survey (USGS) National Elevation Dataset (NED) 1/3 arc second data (viewer/nationalmap.gov/basic/). The AERMOD Terrain Preprocessor (AERMAP) was used to calculate elevations and terrain maximums. The domain used to calculate terrain maximums was sufficient to identify all terrain nodes that create a slope greater than or equal to 10 percent.**		

16-U: Modeling Files

Describe the modeling files.

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
Lea County Landfill – September 2020 – AERMAP Files.zip	**N/A**	**Calculate receptor elevations**
Lea County Landfill – September 2020 – AERMOD Files (Scraper).zip	**PM10 & PM2.5**	**Identify time of highest scraper impacts**
Lea County Landfill – September 2020 – AERMOD Files (Bulldozer).zip	**PM10 & PM2.5**	**Identify time of highest bulldozer impacts**
Lea County Landfill – September 2020 – AERMOD Files (ROI).zip	**PM10 & PM2.5**	**ROI/SIA**
Lea County Landfill – September 2020 – AERMOD Files (NAAQS).zip	**PM10 & PM2.5**	**Cumulative**
Lea County Landfill – September 2020 – Modeling Protocol Files.zip	**N/A**	**Modeling protocol files**
Lea County Landfill – September 2020 – Modeling Report Files.zip	**N/A**	**Modeling report files**

The zipped modeling report file contains the following:

- **Lea County Landfill – September 2020 – Modeling Report.xlsx (Microsoft Word version of this modeling report)**
- **Lea County Landfill – September 2020 – Modeling Report.pdf (Adobe Acrobat version of this modeling report [including surfer plots of the source locations])**
- **Lea County Landfill – Modeling Data.xlsx (Microsoft Excel workbook containing miscellaneous modeling data and calculations [source locations, parameters and emission rates; fence line coordinates; operating times; receptors; etc.])**
- **Lea County Landfill – New Mexico Neighboring Sources.xlsx (Excel workbook identifying the New Mexico neighboring sources used in the modeling)**
- **Lea County Landfill – Texas Neighboring Sources.xlsx (Excel workbook identifying the Texas neighboring sources used in the modeling)**

16-V: PSD New or Major Modification Applications			
1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)? **N/A**	Yes☐	**No☒**
2	If not, did AQB approve an exemption from preconstruction monitoring? **N/A**	Yes☐	**No☒**
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
	N/A		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	N/A		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so, describe below.	Yes☐	**No☒**
	N/A		

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so, describe below.	Yes☐	**No☒**
	N/A		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
PM10 24-Hr NAAQS (Scenario 1)	**74.80**	**75.12**	**N/A**	**37.3**	**112.42**	**150**	**74.95**	**681968**	**3589088**	**3407**
PM10 24-Hr NAAQS (Scenario 2)	**49.01**	**49.10**	**N/A**	**37.3**	**86.40**	**150**	**57.60**	**681100**	**3589300**	**3397**
PM10 24-Hr NAAQS (Scenario 3)	**50.81**	**50.85**	**N/A**	**37.3**	**88.15**	**150**	**58.76**	**681101**	**3589289**	**3397**
PM10 24-Hr NAAQS (Scenario 4)	**53.16**	**53.19**	**N/A**	**37.3**	**90.49**	**150**	**60.33**	**681100**	**3589250**	**3397**
PM2.5 Annual NAAQS (Scenario 1)	**1.02**	**1.07**	**N/A**	**5.9**	**6.97**	**12**	**58.06**	**681969**	**3589038**	**3406**
PM2.5 Annual NAAQS (Scenario 2)	**0.54**	**0.60**	**N/A**	**5.9**	**6.50**	**12**	**54.18**	**681187**	**3589479**	**3400**
PM2.5 Annual NAAQS (Scenario 3)	**0.64**	**0.70**	**N/A**	**5.9**	**6.60**	**12**	**54.99**	**681298**	**3589522**	**3404**
PM2.5 Annual NAAQS (Scenario 4)	**0.63**	**0.69**	**N/A**	**5.9**	**6.59**	**12**	**54.94**	**681100**	**3589300**	**3397**
PM2.5 24-Hr NAAQS (Scenario 1)	**3.86**	**4.02**	**N/A**	**13.4**	**17.42**	**35**	**49.77**	**681969**	**3589038**	**3406**
PM2.5 24-Hr NAAQS (Scenario 2)	**2.40**	**2.47**	**N/A**	**13.4**	**15.87**	**35**	**45.35**	**681100**	**3589300**	**3397**
PM2.5 24-Hr NAAQS (Scenario 3)	**2.36**	**2.67**	**N/A**	**13.4**	**16.07**	**35**	**45.92**	**681298**	**3589522**	**3404**
PM2.5 24-Hr NAAQS (Scenario 4)	**2.91**	**3.09**	**N/A**	**13.4**	**16.49**	**35**	**47.11**	**681100**	**3589300**	**3397**

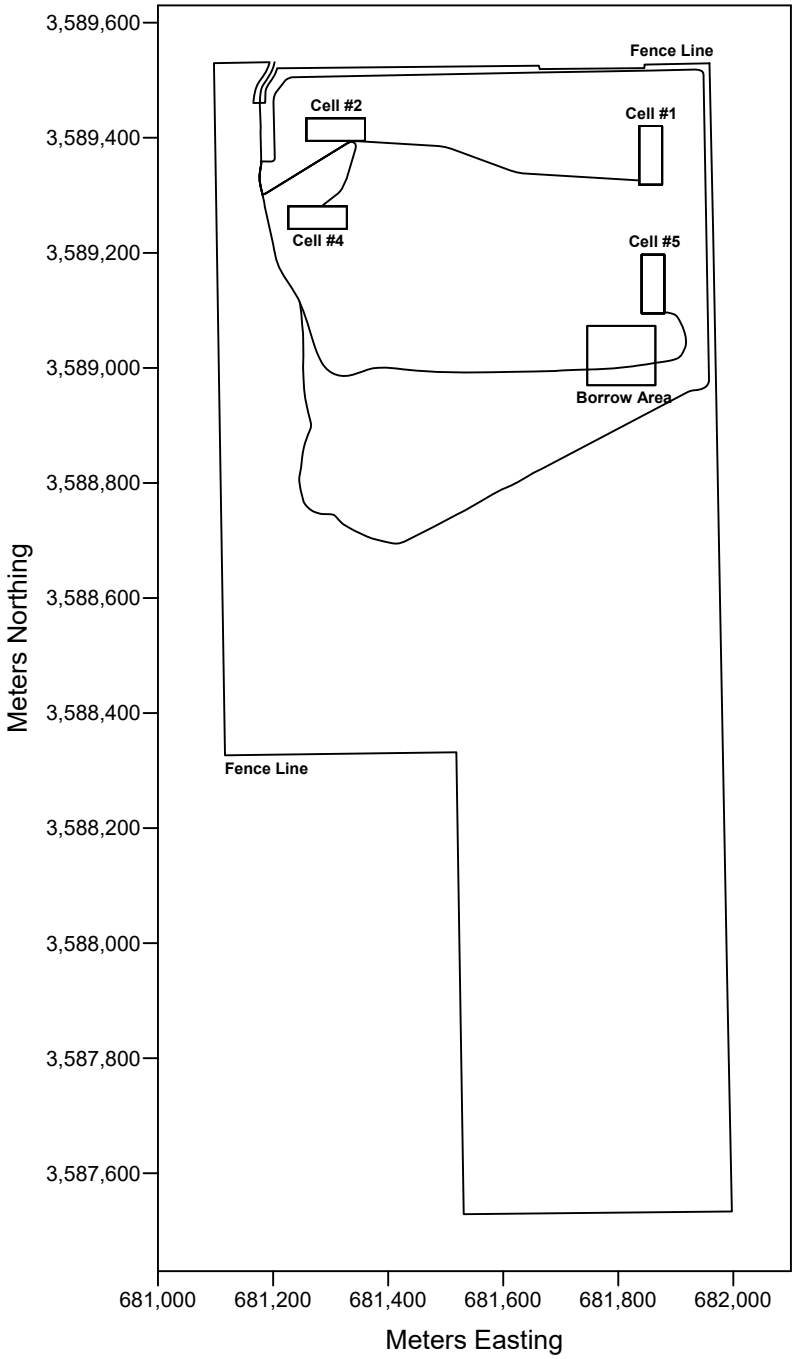
The PM10 24-hour average impacts in the table above are high-first-high impacts. Cumulative impacts were determined using the 24-hour Background Second High concentration from Table 19 of the Modeling Guidelines (Tier 1, Option 1).

The PM2.5 24-hour average impacts in the table above are high-eighth-high impacts. Cumulative impacts were determined using the 24-hour Background 98th Percentile concentration from Table 18 of the Modeling Guidelines (Tier 1).

16-X: Summary/Conclusions

1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	The modeling requirements have been satisfied and the permit can be issued.

Lea County Landfill
Fence Line, Road, and Cell Locations

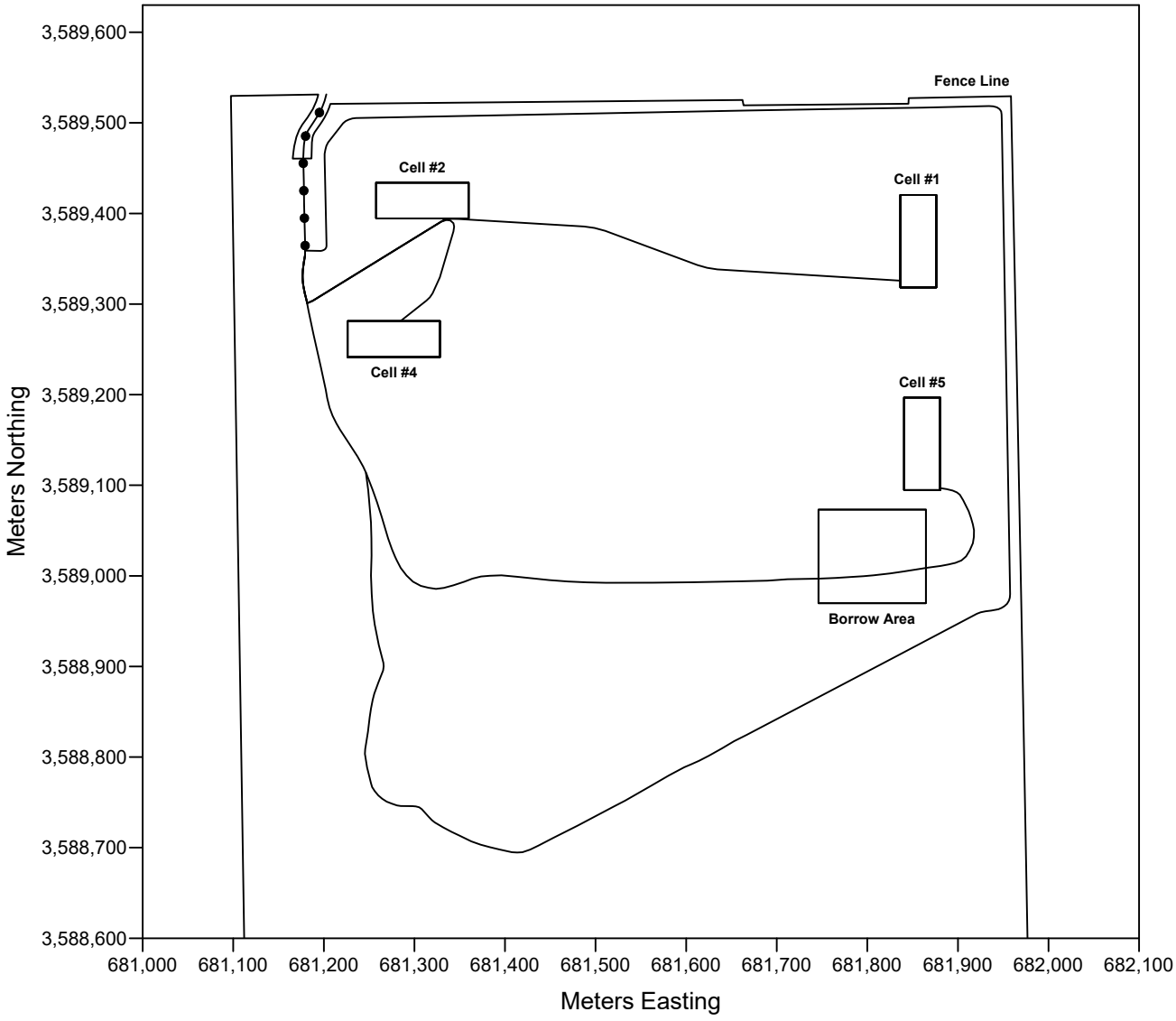


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 1

Cirrus Consulting, LLC

Lea County Landfill
Paved Disposal Road Volume Source Locations (Scenarios 1-4)

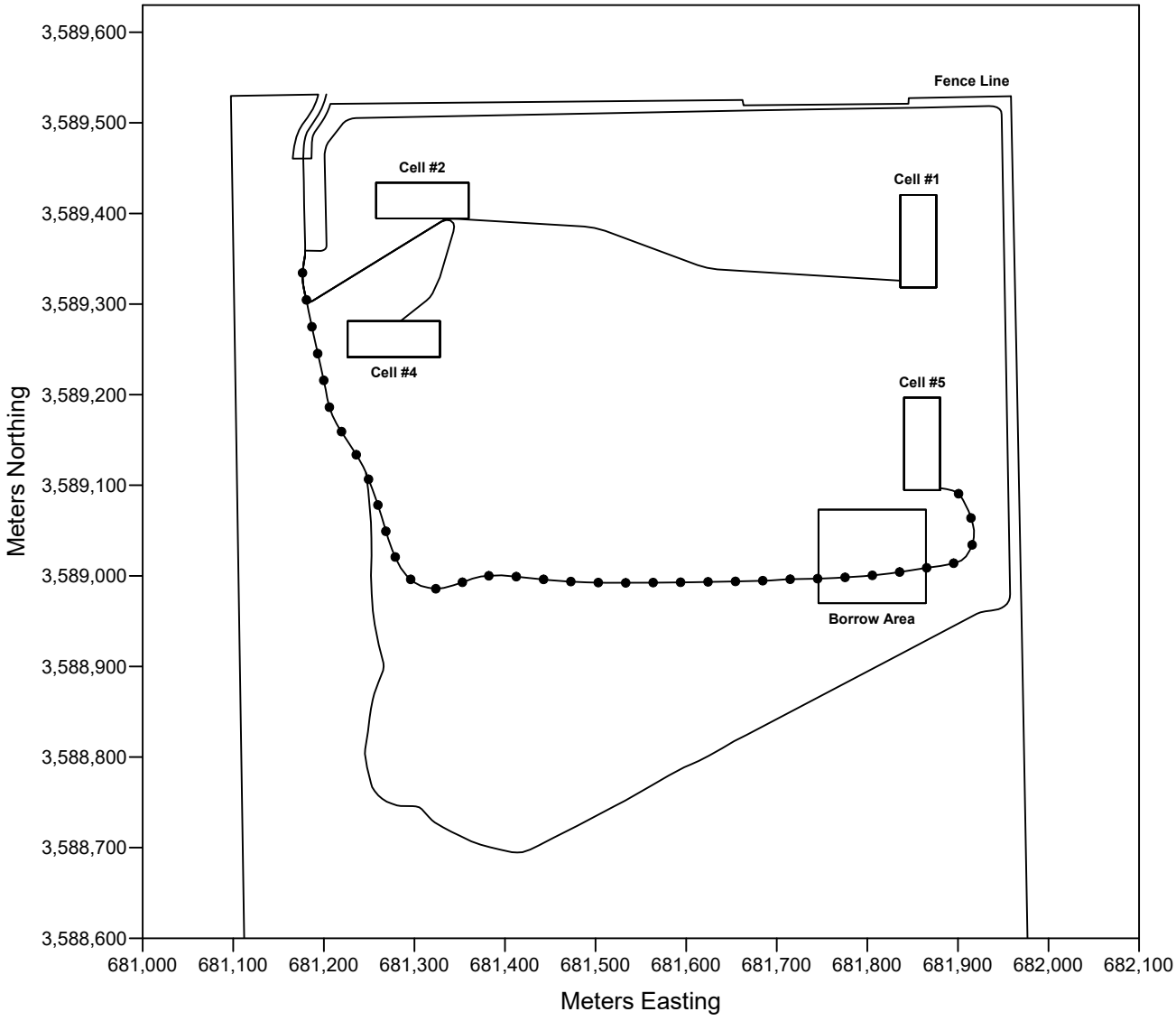


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 2

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Disposal Road Volume Source Locations (Scenario 1)

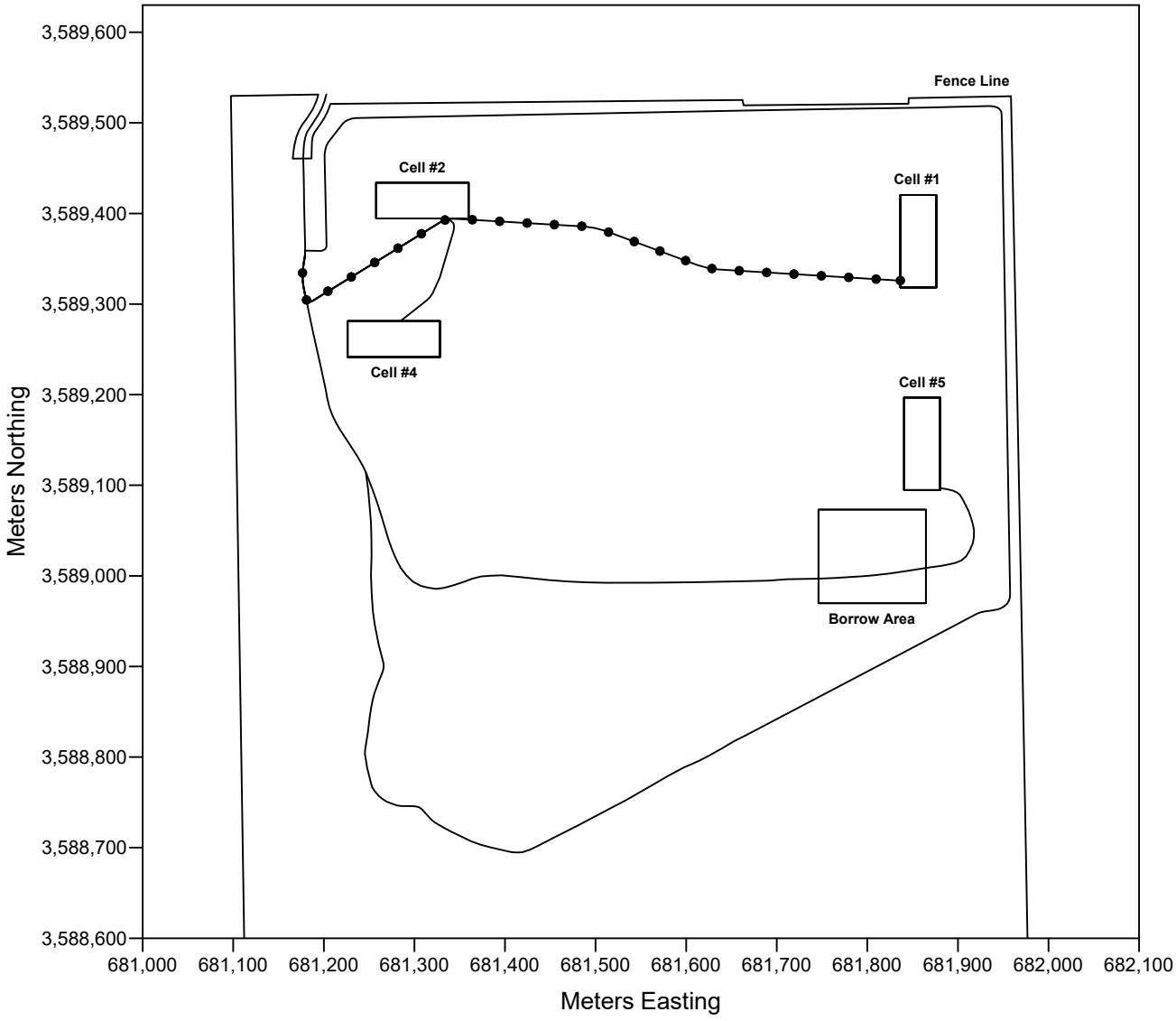


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 3

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Disposal Road Volume Source Locations (Scenario 2)

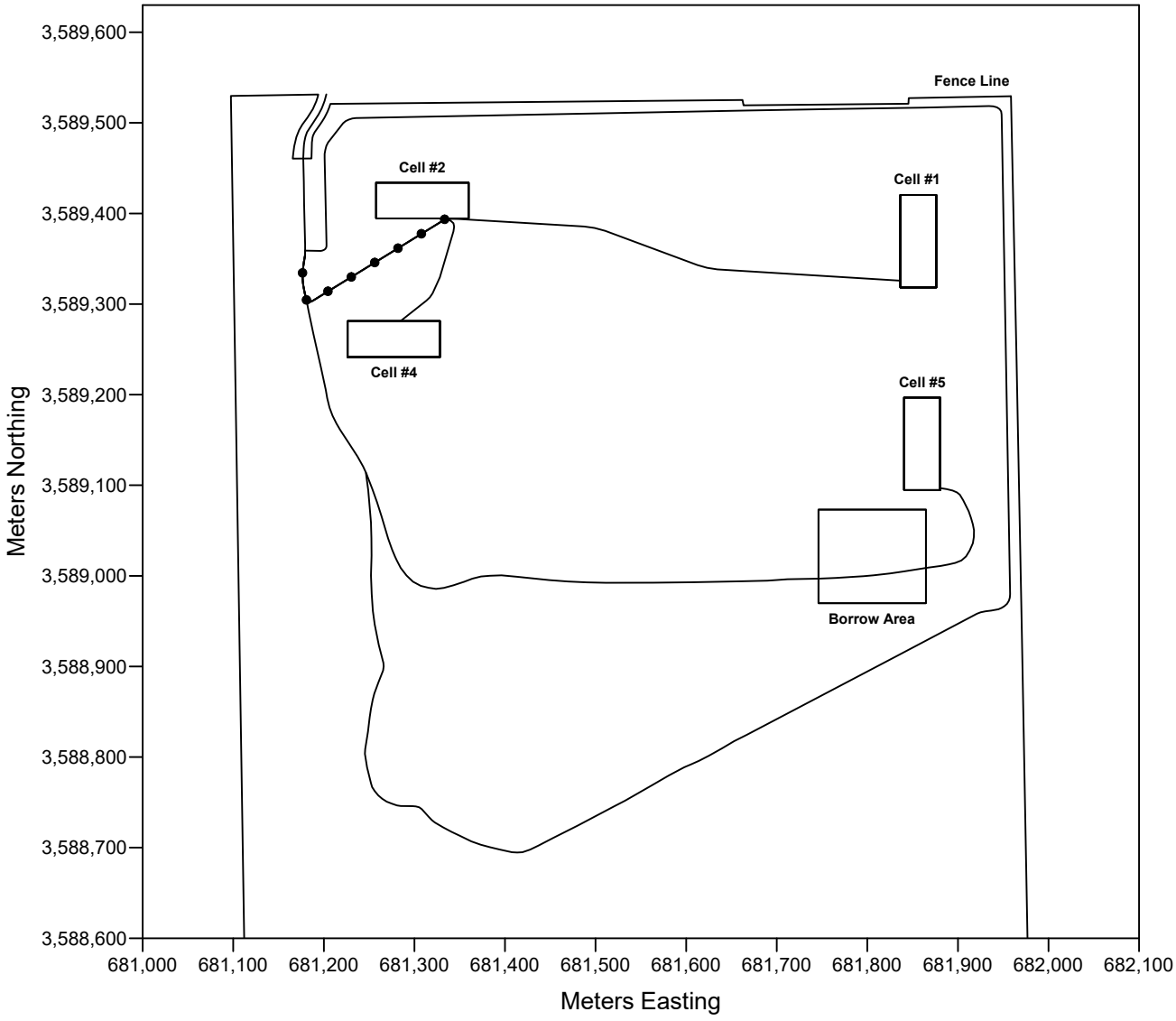


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 4

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Disposal Road Volume Source Locations (Scenario 3)

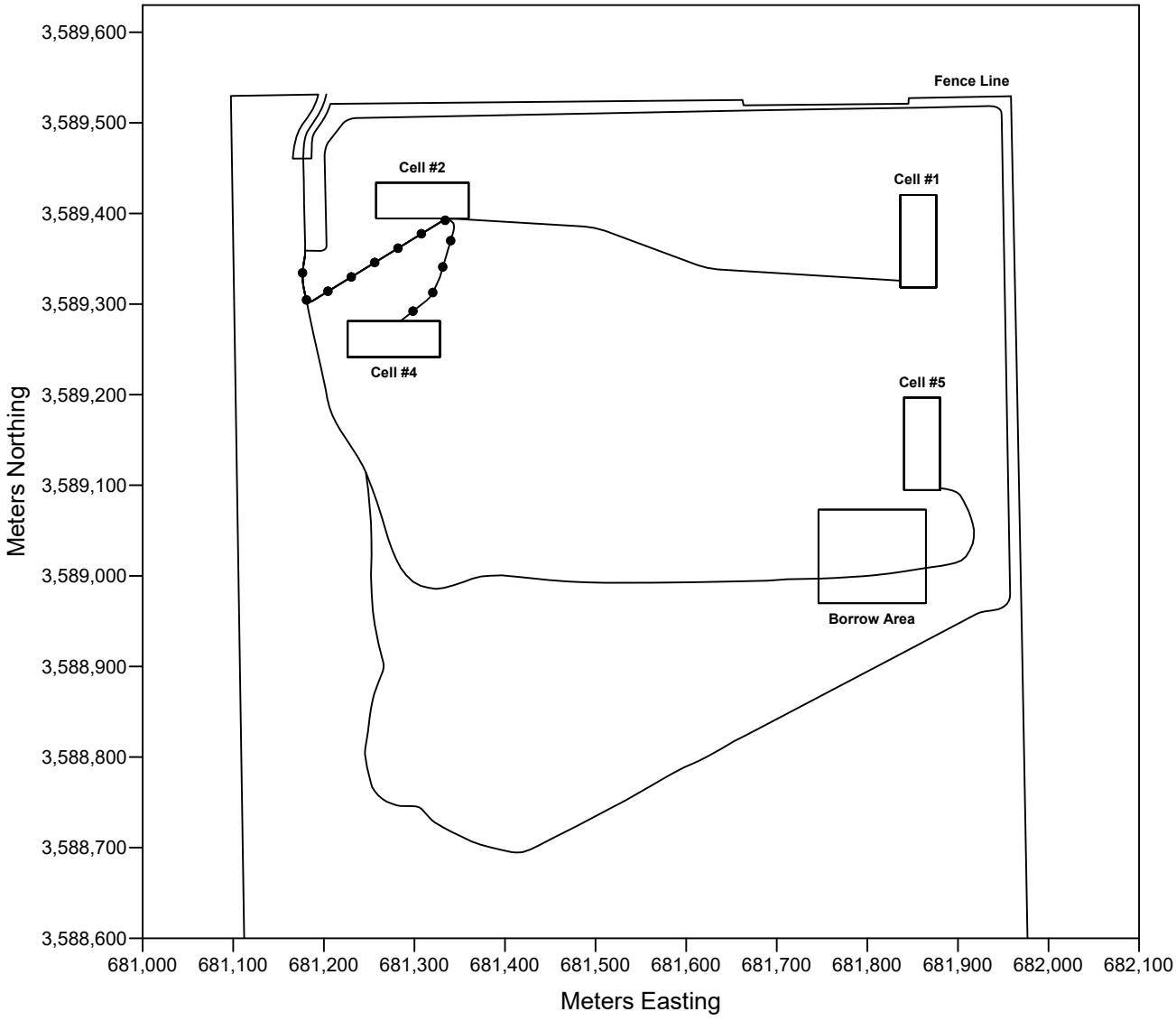


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 5

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Disposal Road Volume Source Locations (Scenario 4)

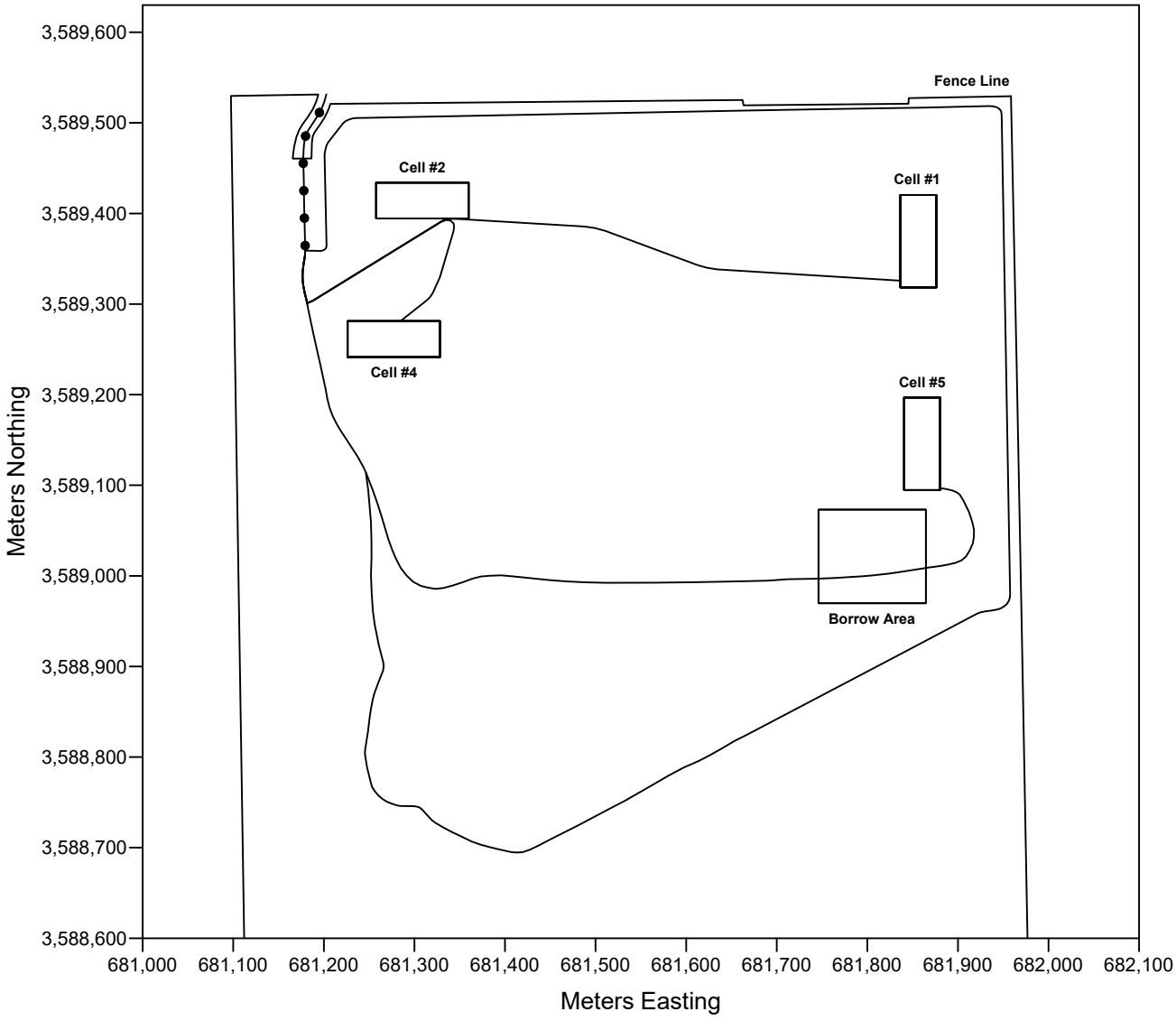


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 6

Cirrus Consulting, LLC

Lea County Landfill
Paved Miscellaneous Road Volume Source Locations (Scenarios 1-4)

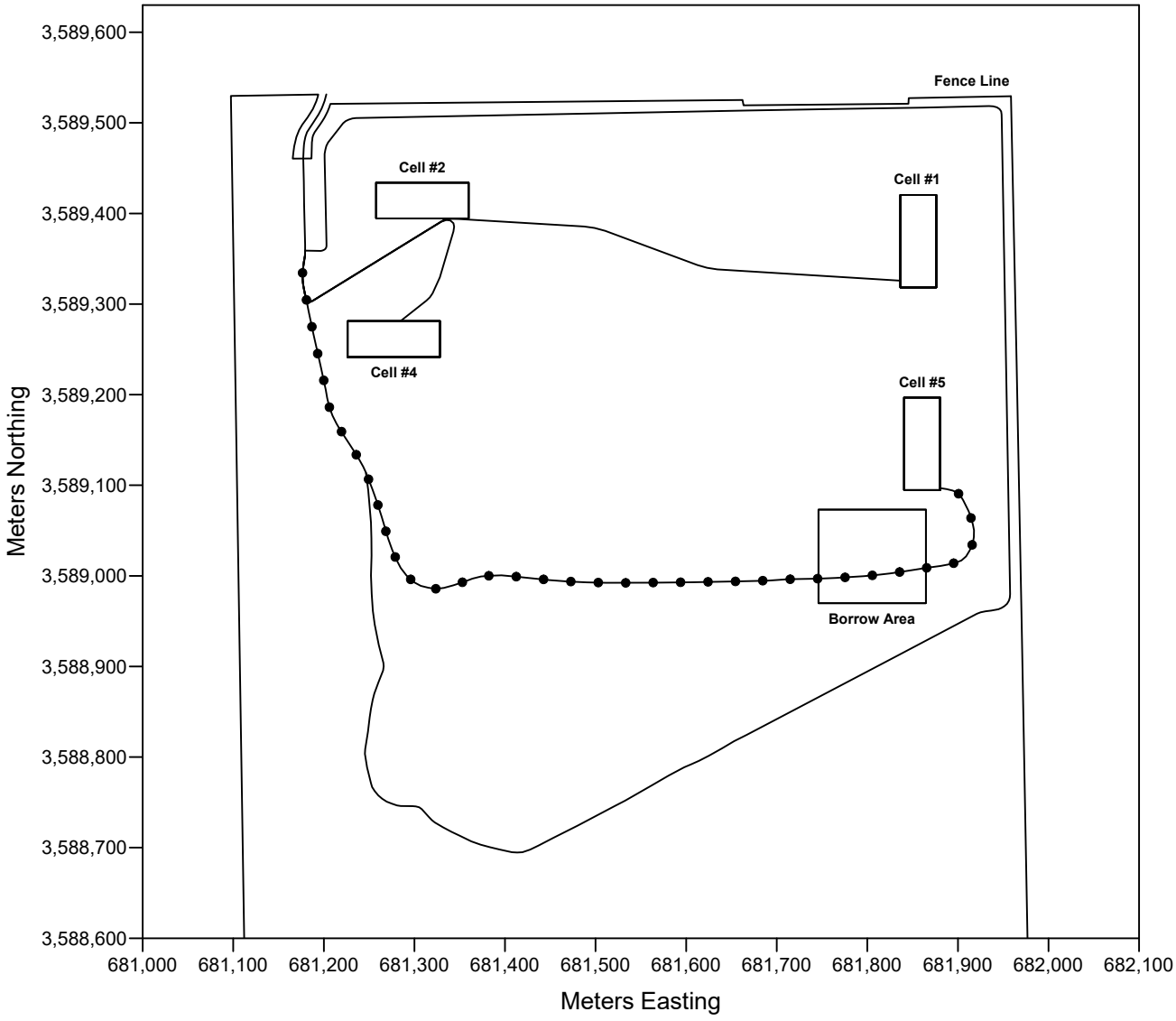


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 7

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Miscellaneous Road Volume Source Locations (Scenario 1)

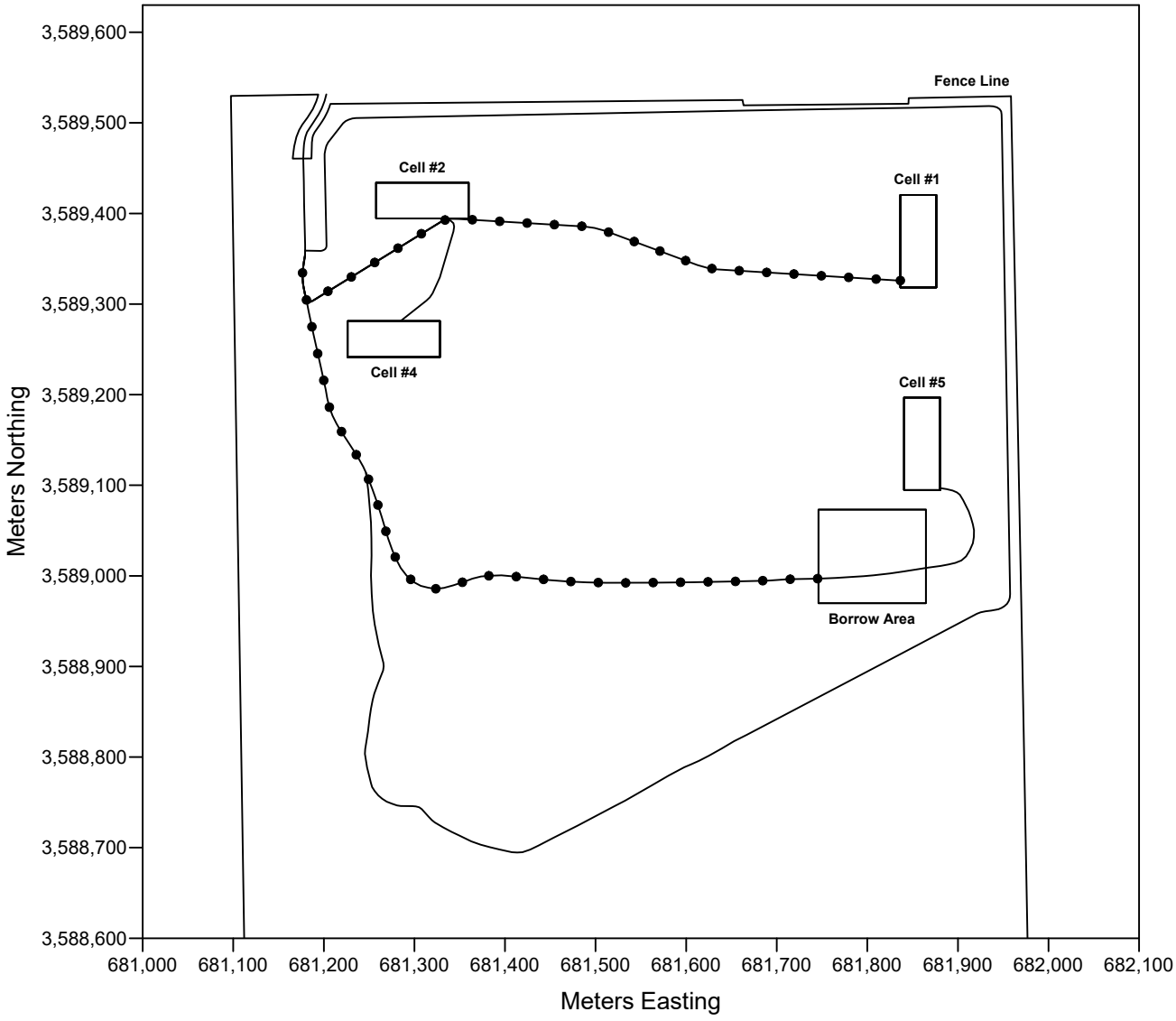


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 8

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Miscellaneous Road Volume Source Locations (Scenario 2)

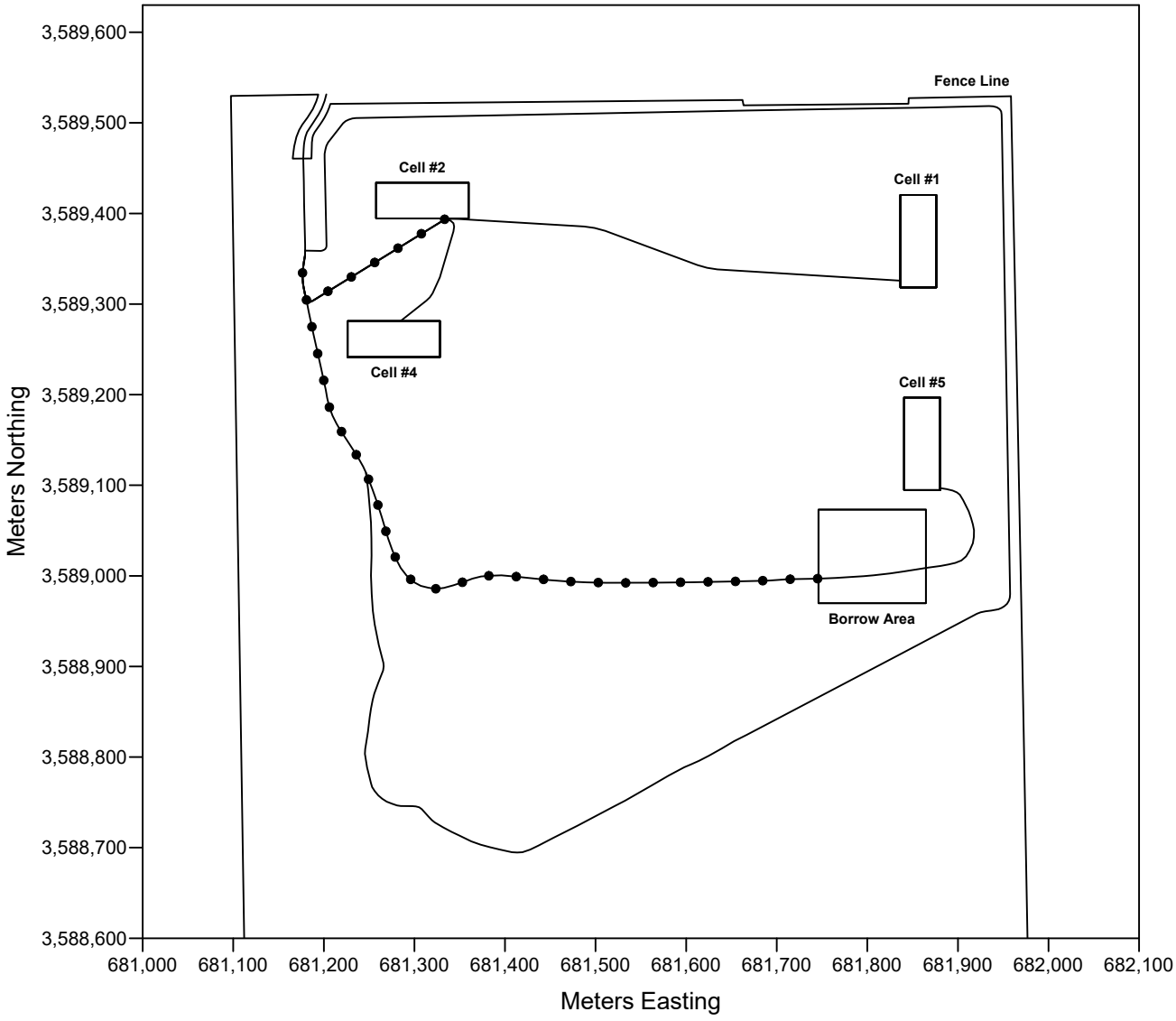


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 9

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Miscellaneous Road Volume Source Locations (Scenario 3)

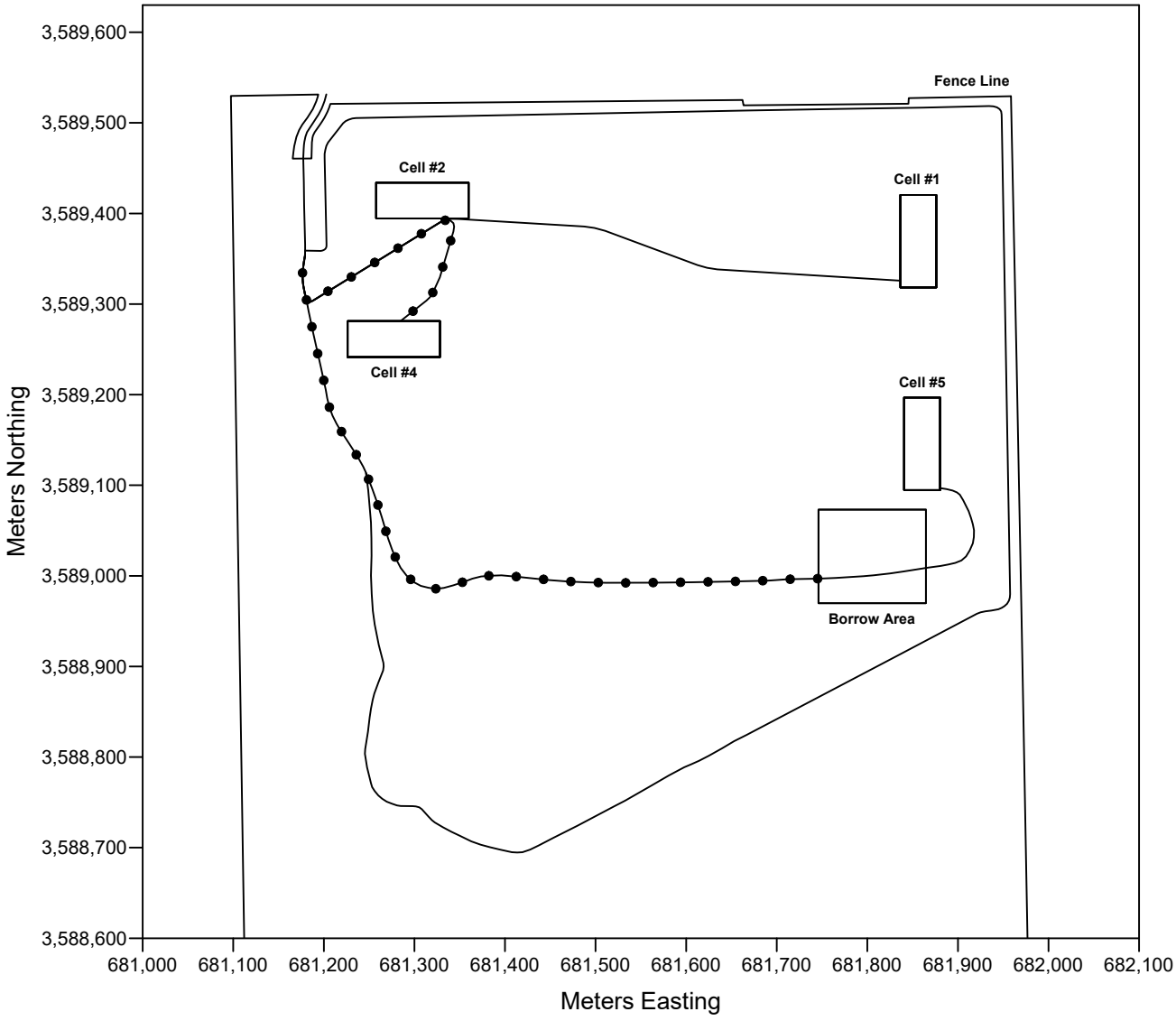


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 10

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Miscellaneous Road Volume Source Locations (Scenario 4)

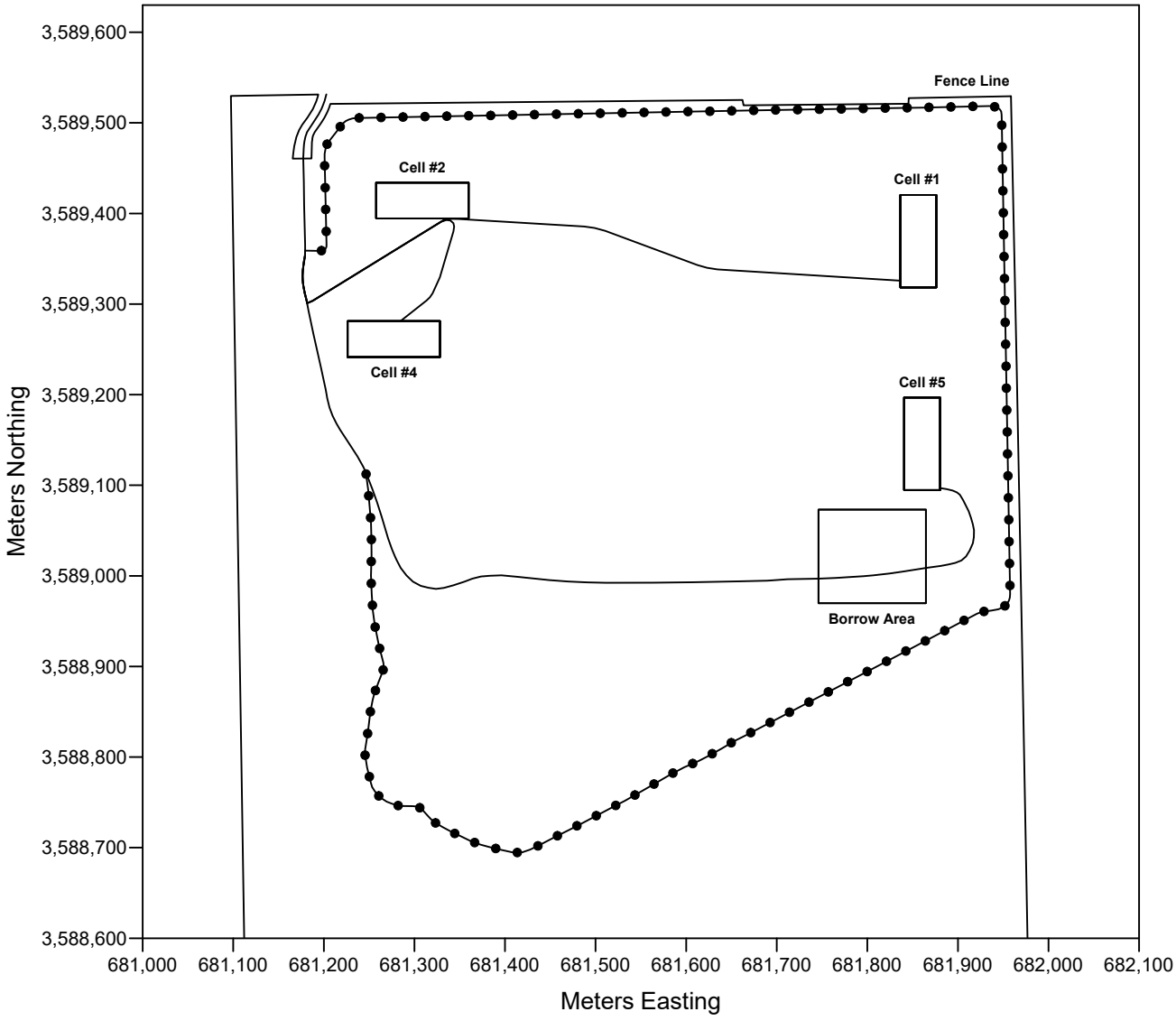


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 11

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Auxiliary Road Volume Source Locations (Scenarios 1-4)

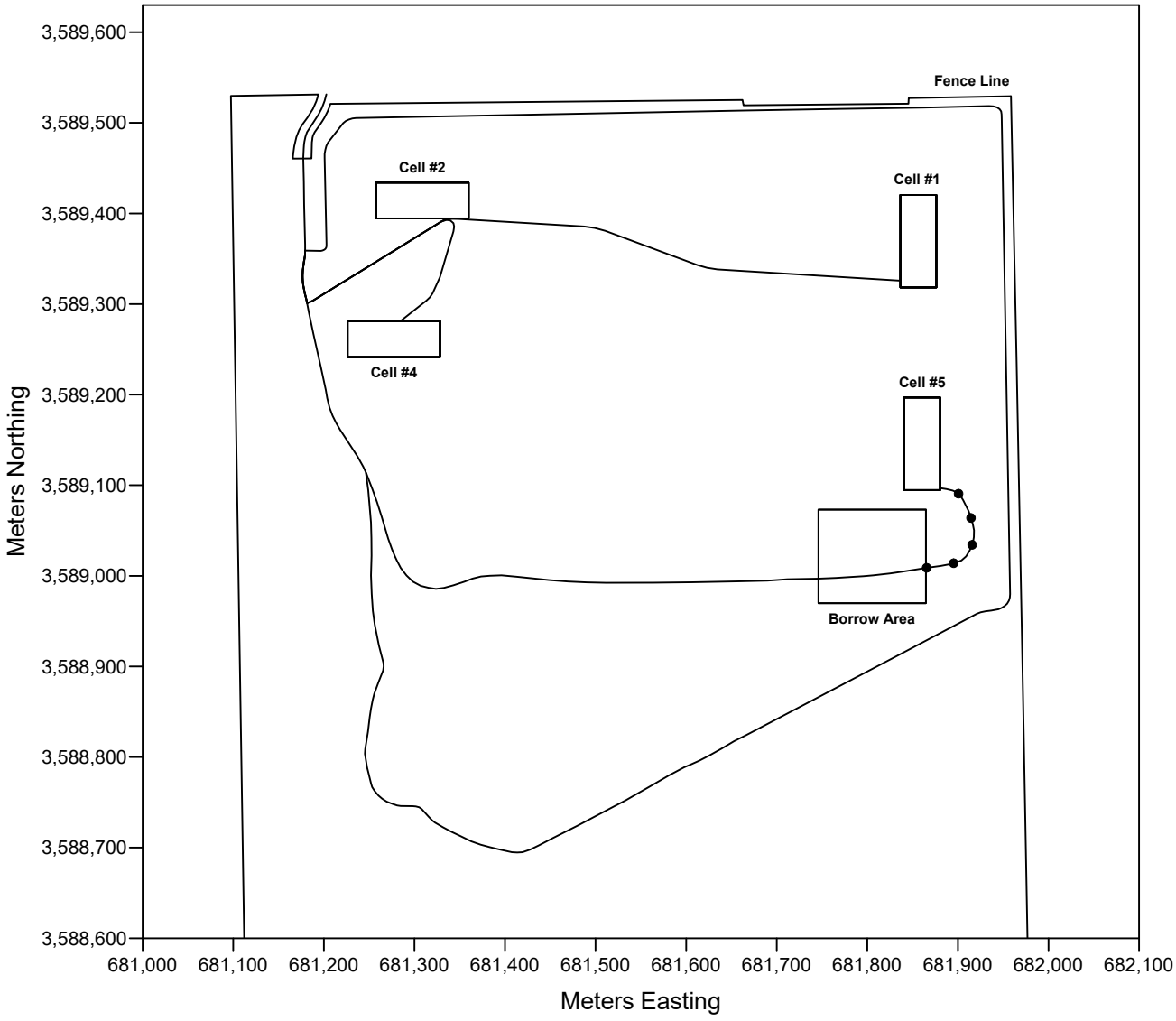


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 12

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Scraper Road Volume Source Locations (Scenario 1)

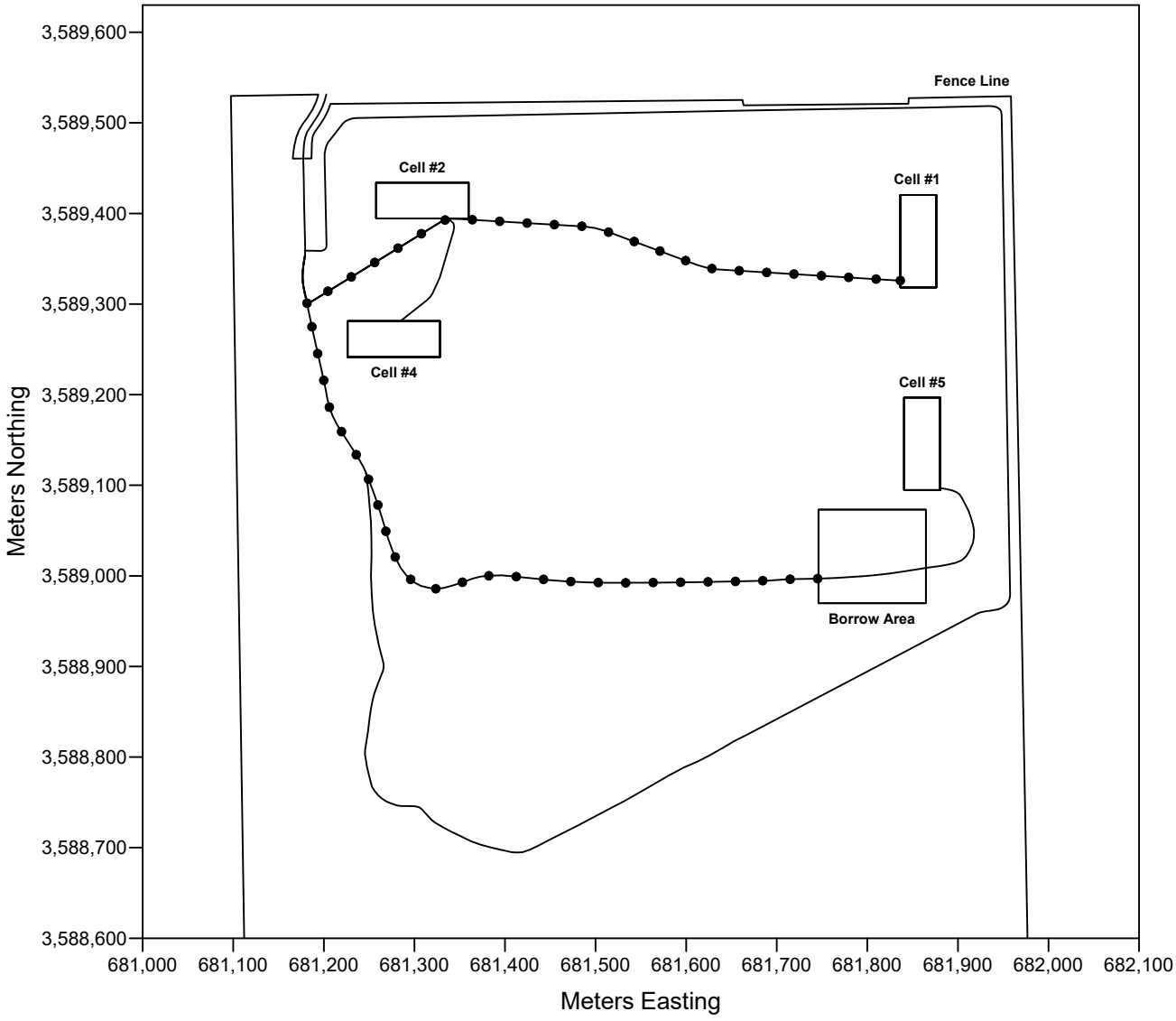


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 13

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Scraper Road Volume Source Locations (Scenario 2)

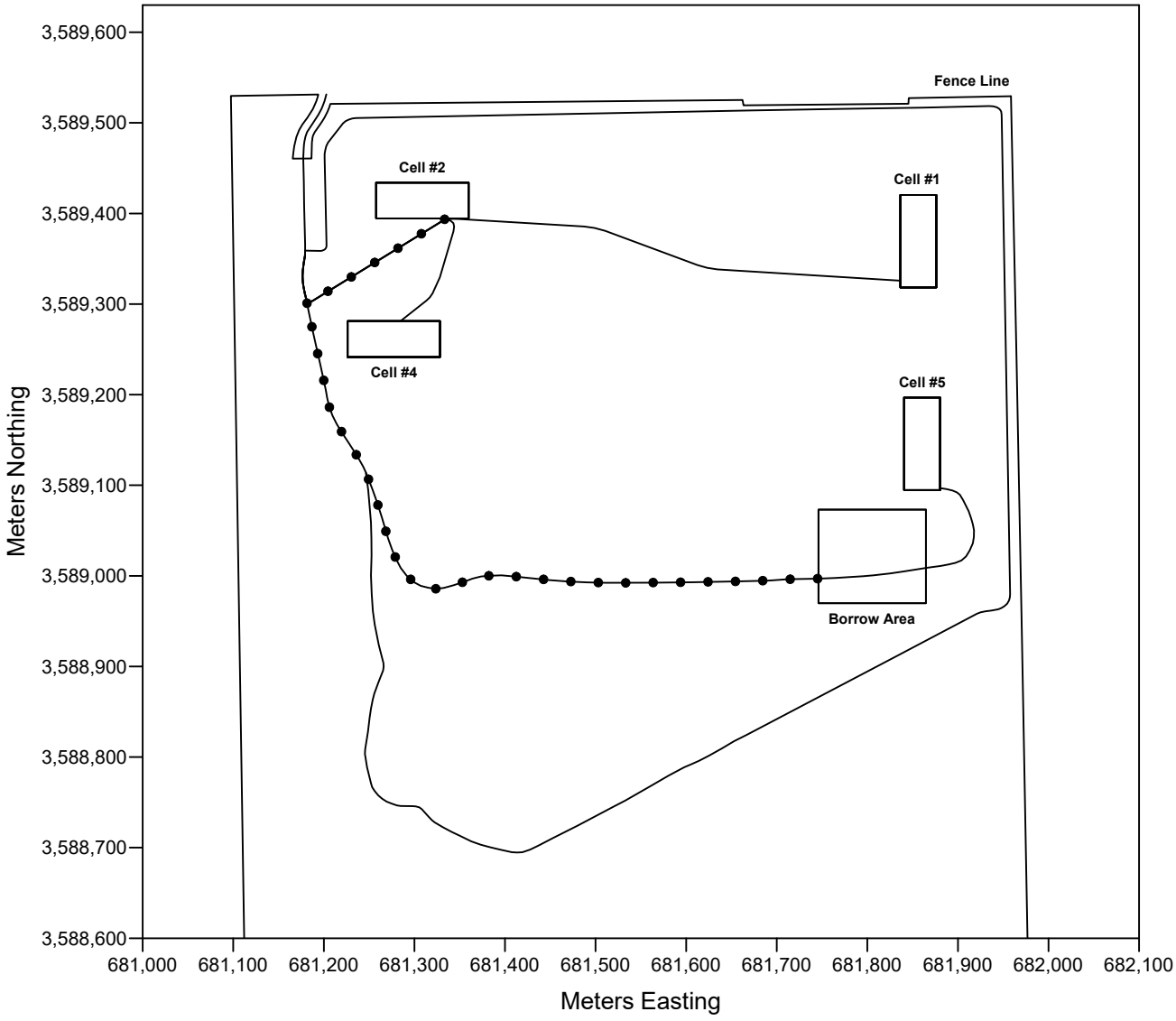


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 14

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Scraper Road Volume Source Locations (Scenario 3)

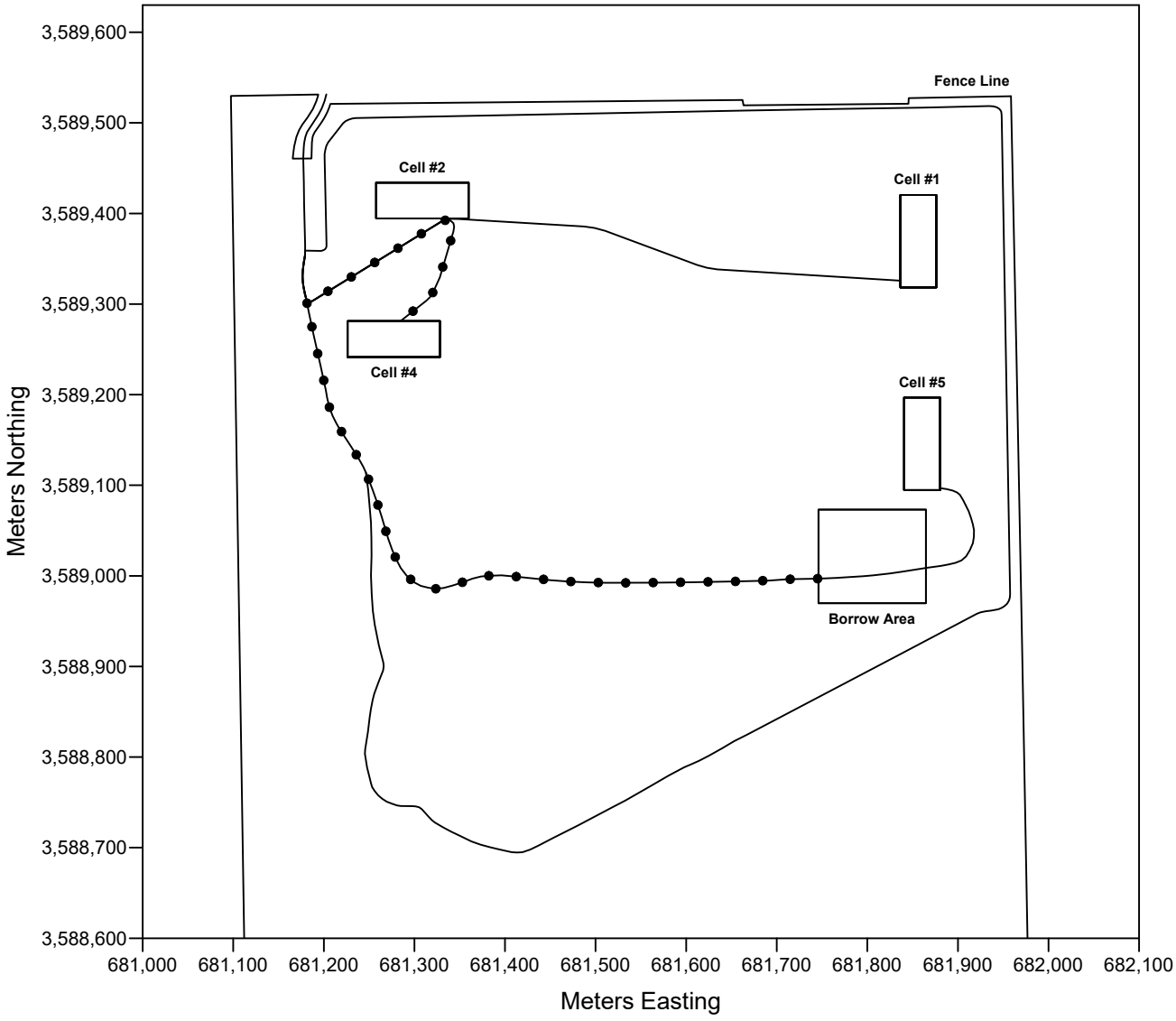


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 15

Cirrus Consulting, LLC

Lea County Landfill
Unpaved Scraper Road Volume Source Locations (Scenario 4)

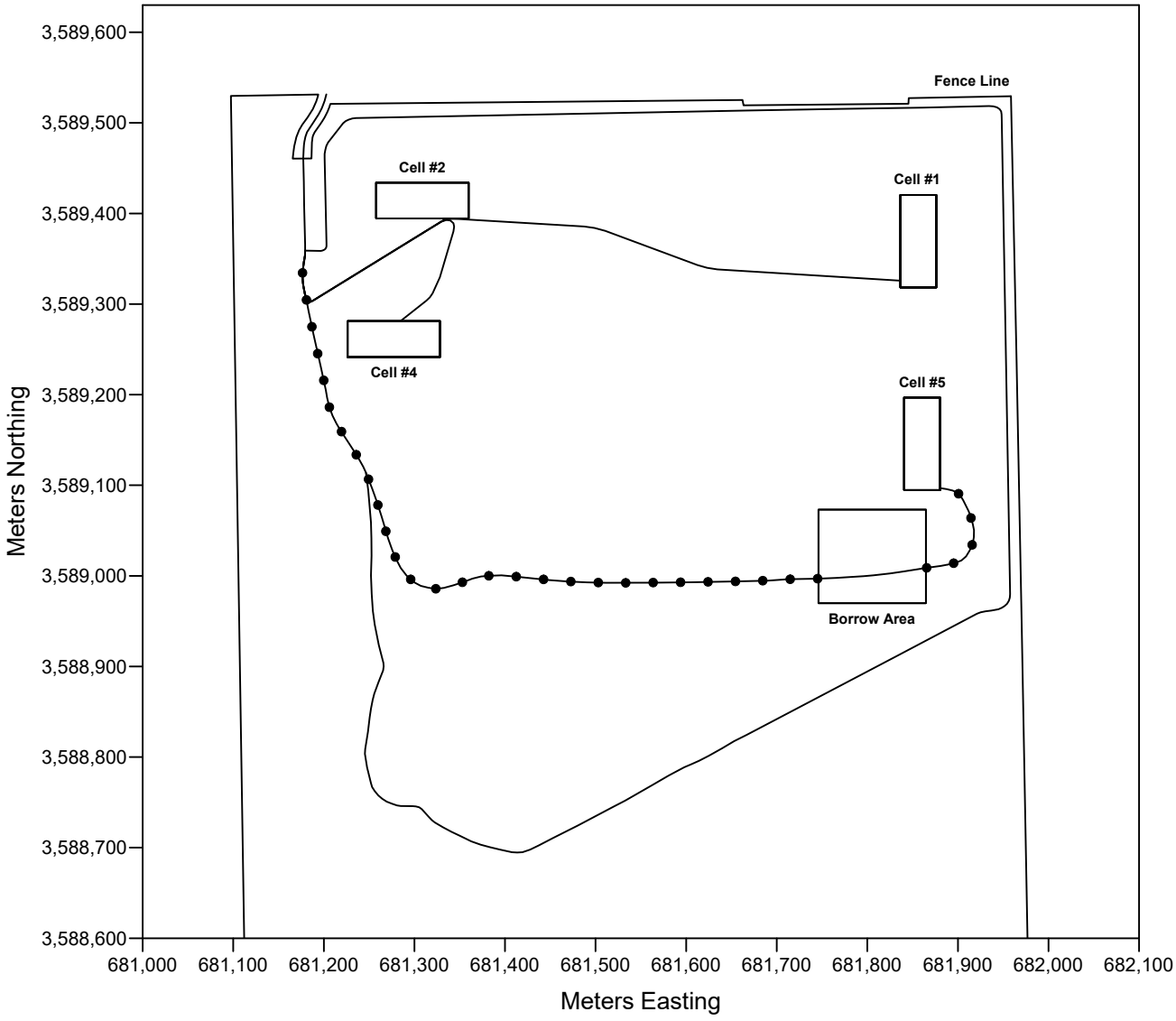


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 16

Cirrus Consulting, LLC

Lea County Landfill
Disposal Road Wind Erosion Volume Source Locations (Scenario 1)

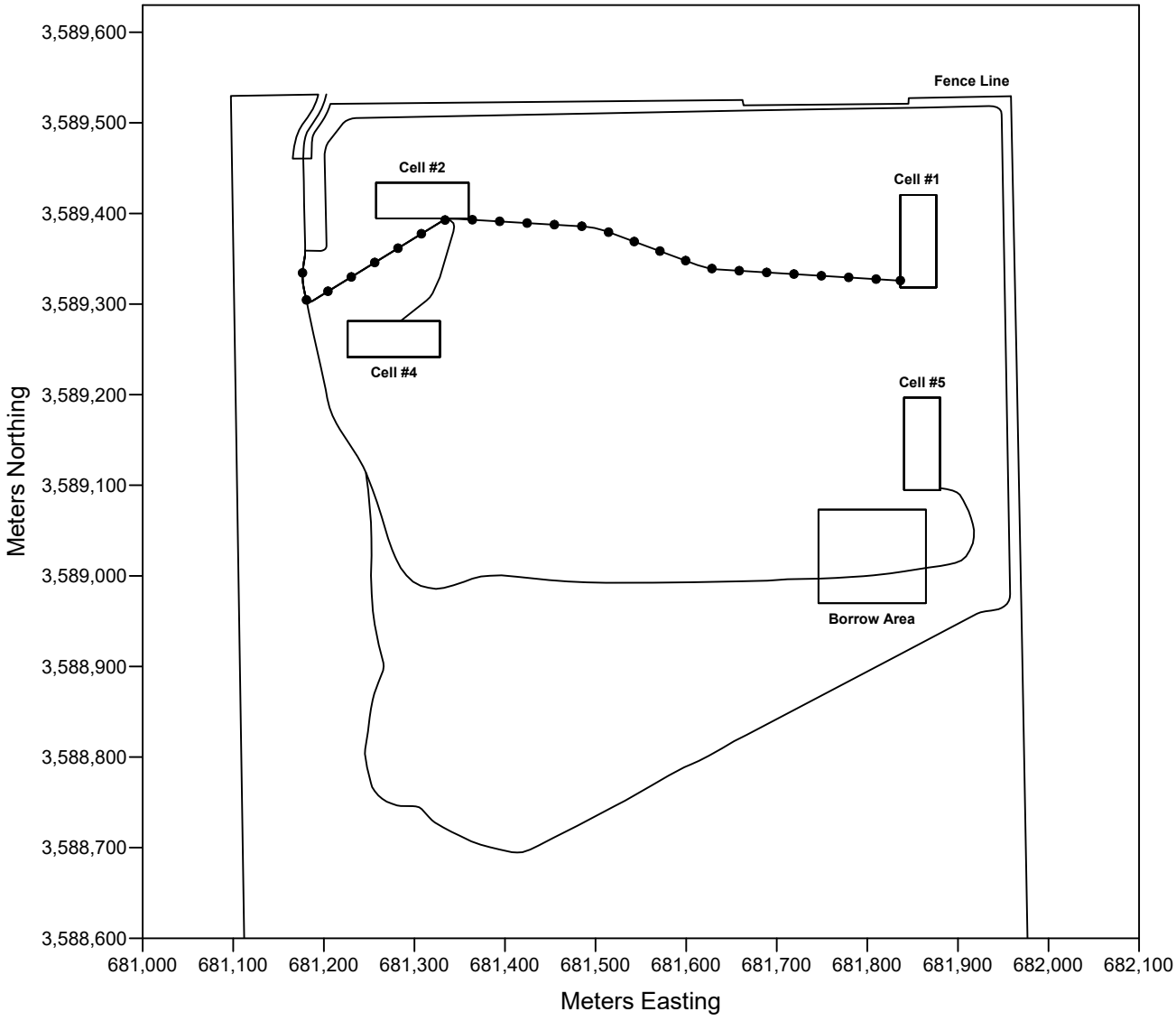


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 17

Cirrus Consulting, LLC

Lea County Landfill
Disposal Road Wind Erosion Volume Source Locations (Scenario 2)

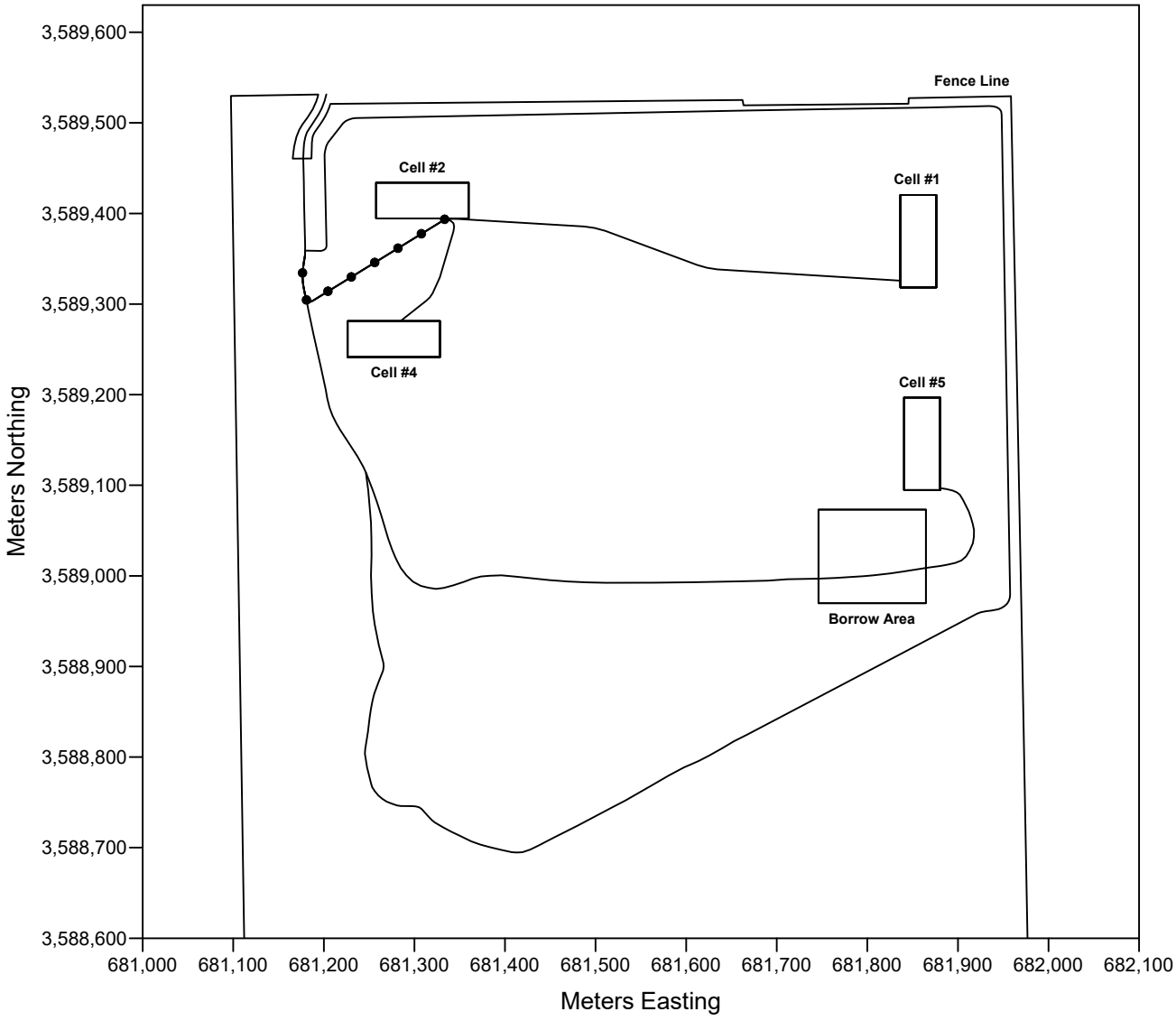


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 18

Cirrus Consulting, LLC

Lea County Landfill
Disposal Road Wind Erosion Volume Source Locations (Scenario 3)

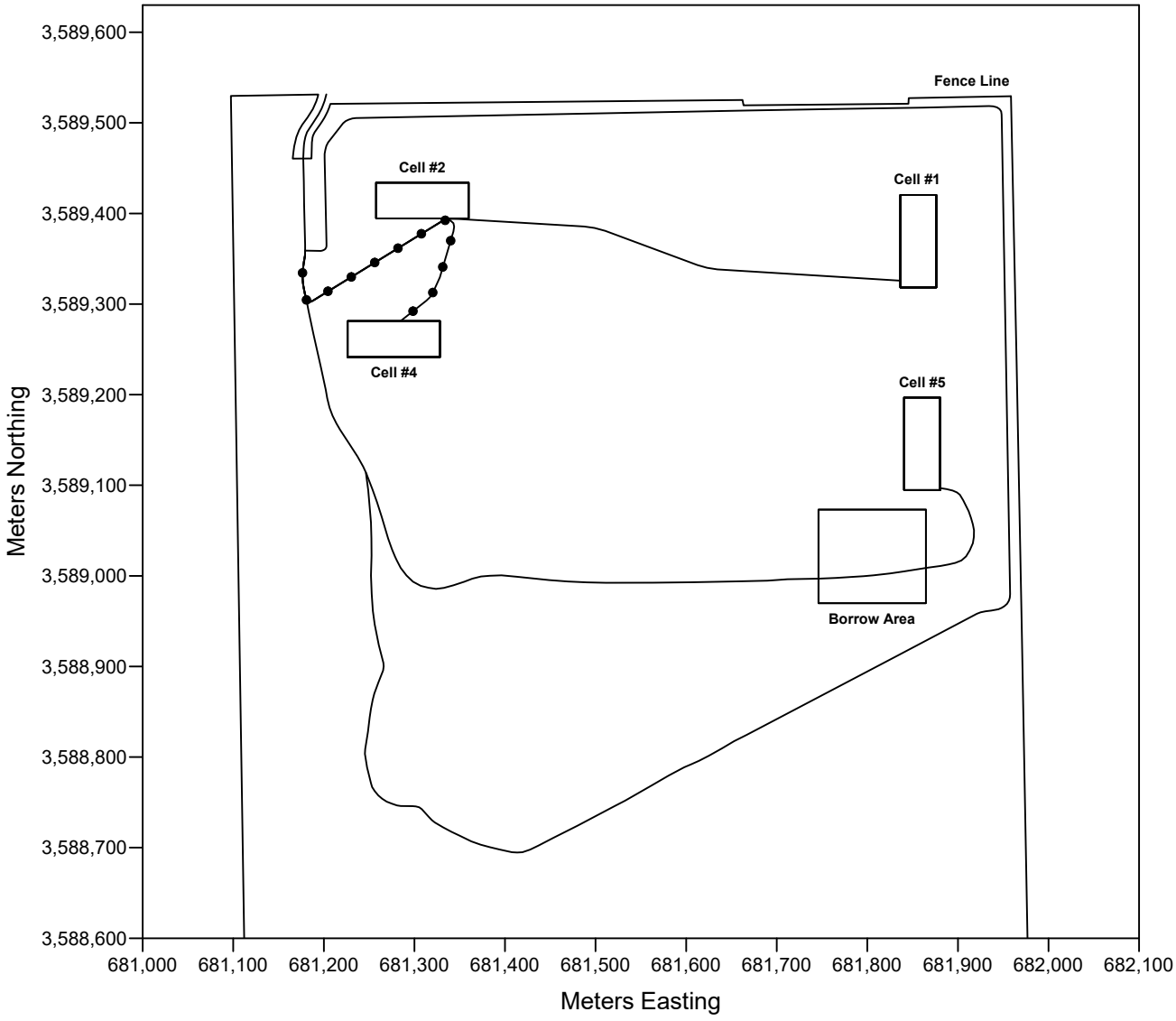


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 19

Cirrus Consulting, LLC

Lea County Landfill
Disposal Road Wind Erosion Volume Source Locations (Scenario 4)

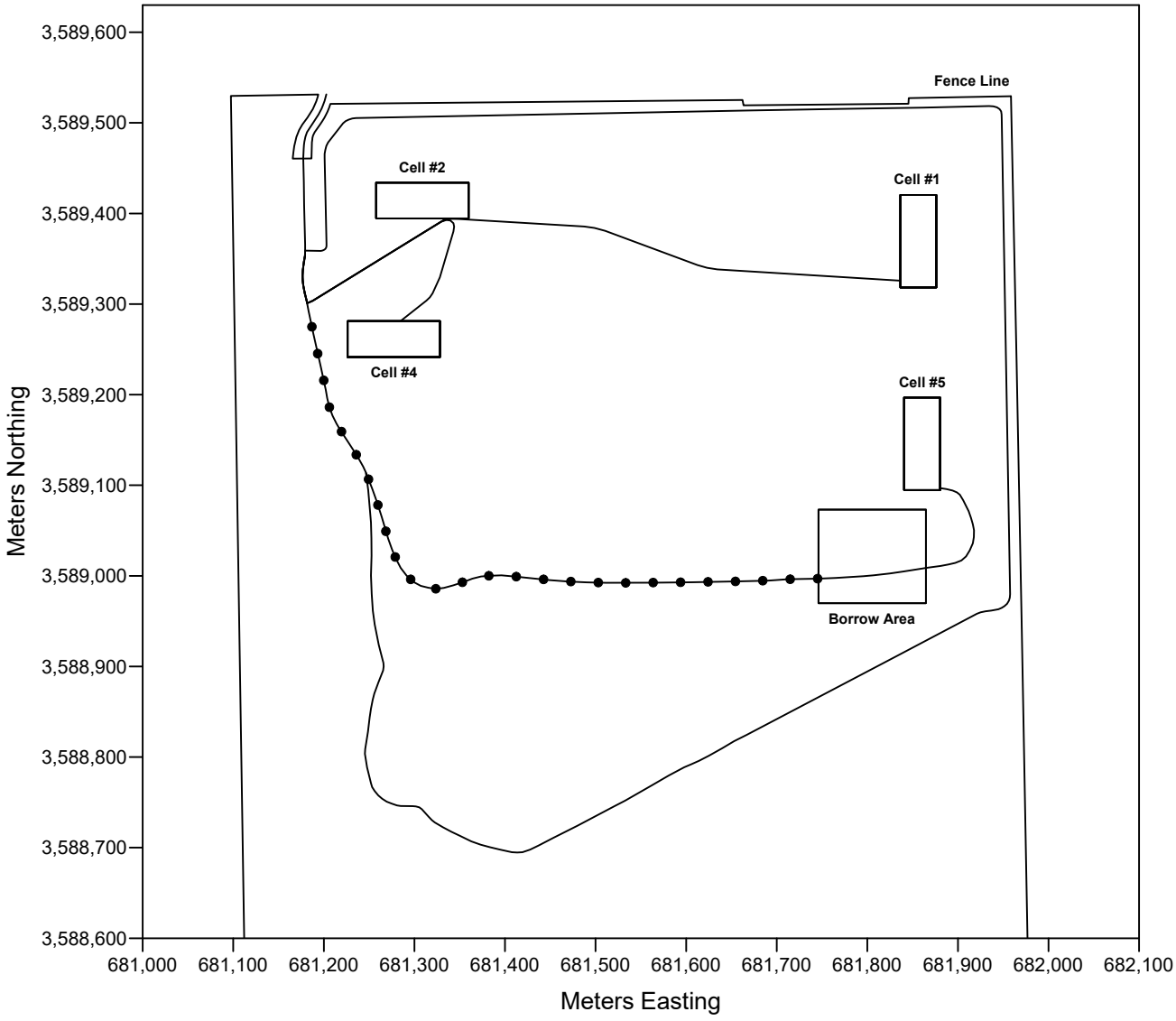


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 20

Cirrus Consulting, LLC

Lea County Landfill
Scraper Road Wind Erosion Volume Source Locations (Scenarios 2-4)

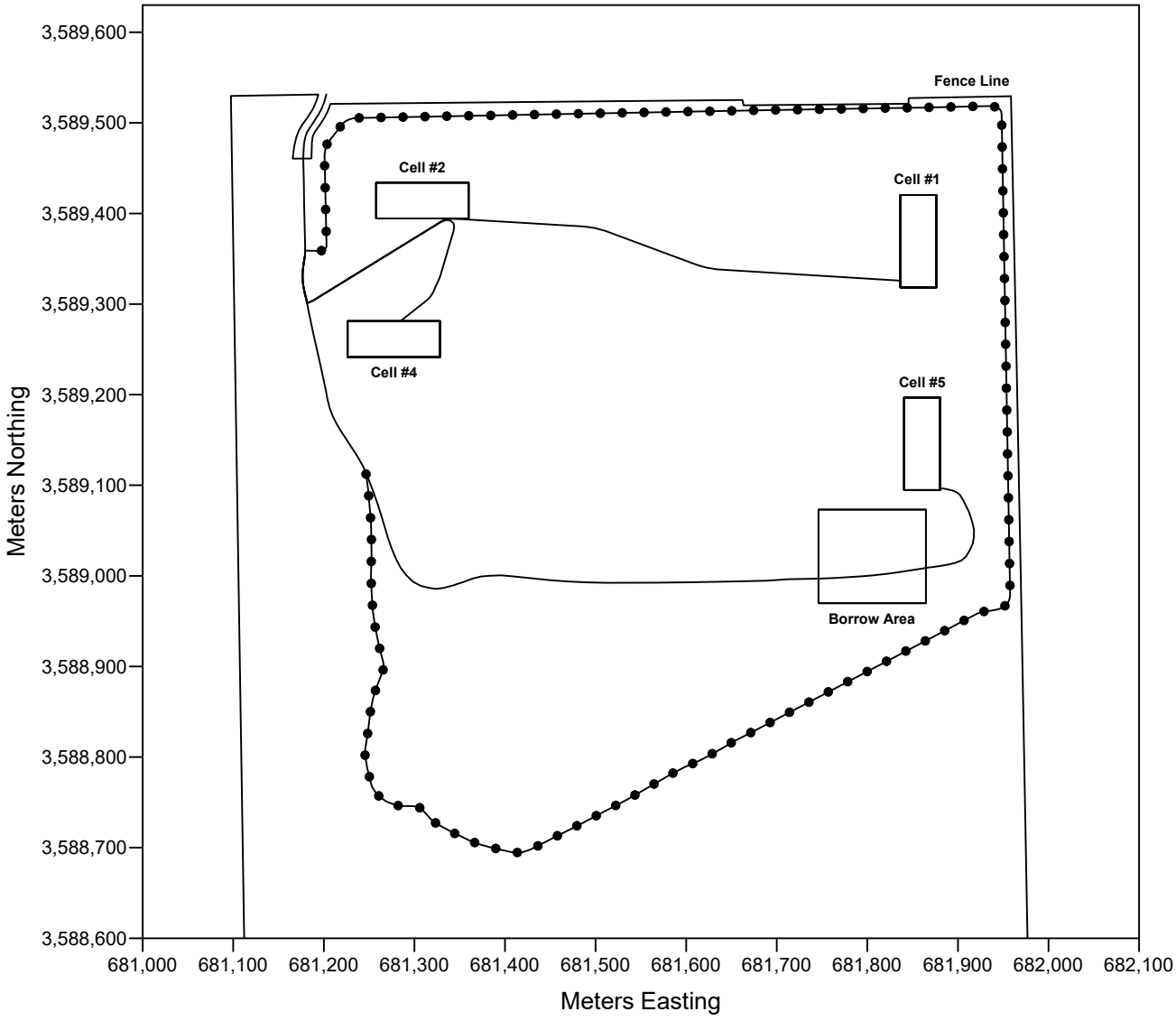


Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 21

Cirrus Consulting, LLC

Lea County Landfill
Auxiliary Road Wind Erosion Volume Source Locations (Scenarios 1-4)



Universal Transverse Mercator Coordinates, Zone 13, NAD83

Figure 22

Cirrus Consulting, LLC

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

17.1 Compliance Plan

LCLF affirms that it is in compliance with applicable Title V regulatory requirements at the time this Application is submitted. If, however, it is determined that LCLF needs to attain compliance with additional regulatory requirements, Waste Connections, Inc. and the Lea County Solid Waste Authority commit to working with NMED AQB to develop a schedule and plan for achieving compliance.

This Application for Permit represents an initial Application. Therefore, LCLF has not submitted any semiannual monitoring reports (SAMR) or Annual Compliance Certifications (ACC) to-date. Lea County Landfill will submit SAMRs and ACCs to AQB and EPA consistent with the schedule established in this permitting action. In addition, LCLF will submit Annual NMOC Emission Rate Estimate Reports to ABQ, consistent with the conditions of the current permitting action.

Compliance Schedule

In the event that compliance issues are identified, LCLF will respond expeditiously to correct potential deficiencies and maintain compliance with applicable regulations. Additional compliance requirements, if any, which may be imposed by enactment of new regulations, will be addressed in accordance with applicable regulatory schedules.

Section 19

Requirements for Title V Program

Do not print this section unless this is a Title V application.

Who Must Use this Attachment:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

LCLF does not operate an emissions source that is subject to 40 CFR Part 64 (Compliance Assurance Monitoring). Therefore, compliance assurance monitoring is not performed.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

LCLF is committed to comply with applicable regulatory requirements. To that end, relevant regulatory citations have been compiled, and the Landfill's compliance status has been summarized for all known applicable regulations (**Section 13**) at the time of this Application for Permit. Any omissions from the

regulatory requirements cited in **Section 13** or future regulatory requirements will be addressed in a timely manner consistent with the schedules specified by the applicable regulatory requirement.

19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

Consistent with historical monitoring and reporting practices, LCLF hereby commits to remain in compliance with applicable local, state, and federal regulations at the time of this Application for Operating Permit. Compliance will be maintained for those regulatory elements where compliance is required, and will, in a timely manner or at such schedule expressly required by the applicable requirement, meet additional applicable requirements that become effective during the Permit period.

19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

LCLF will submit Semiannual Monitoring Reports, Annual Compliance Certifications and Annual NMOC Emission Rate Estimate Reports to ABQ, consistent with the conditions established in the Final Operating Permit.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☑ **Yes** **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? **Yes** ☑ **No**
   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? **Yes** ☑ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)

LCLF does not service, maintain or dispose any refrigerant-containing or formerly refrigerant-containing appliances or motor-vehicle air conditioners (MVAC). All refrigerant-containing devices at the facility are designed to contain less than 50 pounds of refrigerant at full charge. Therefore, LCLF is not subject to the requirements of 40 CFR Part 82, Subparts A through G.

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

The LCLF believes it is in compliance with applicable regulatory requirements at the time this Application for Operating Permit is submitted to the AQB. Additional compliance requirements, if any, which may be imposed by virtue of new regulations, will be addressed in accordance with applicable regulatory schedules.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

The Lea County Landfill does not store or use any of the chemicals listed in Section 112(r) in or exceeding the threshold quantities specified in this Section.

19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

The Texas state boundary lies concurrent with the eastern boundary of LCLF. There are no Indian Tribes or pueblos within 50 miles or less of the facility boundary. The nearest Class I area, Carlsbad Caverns National Park, is situated 130 km (81 miles) west-southwest of the facility.

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

19.9 - Responsible Official

Pursuant to 20.2.70.7.AE NMAC, the responsible official at LCLF is Mr. Lorenzo Velasquez, Director of Environmental Services for Lea County. The alternate responsible official is Mr. Israel Galindo, Landfill Manager at LCLF.

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No other relevant information is necessary for the Application for Permit.

Section 21

Addendum for Landfill Applications

Do not print this section unless this is a landfill application.

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations:
https://www3.epa.gov/airtoxics/landfill/landflpg.html

NM Solid Waste Bureau Website: https://www.env.nm.gov/swb/

21-A: Municipal Solid Waste Landfill Information

1	How long will the landfill be operated? **Expected longevity is approximately 80 years**			
2	Maximum operational hours per year: **3,599.5**			
3	Landfill Operating hours (open to the public) M-F: **7:30 a.m. – 5:30 p.m.**	Sat. **7:30 a.m. – 5:30 p.m.**	Sun. **Closed**	
4	To determine to what NSPS and emissions guidelines the landfill is subject, what is the date that the landfill was constructed, modified, or reconstructed as defined at 40 CFR 60, Subparts A, WWW, XXX, Cc, and Cf. **Facility was Modified 9/30/2019**			
5	Landfill Design Capacity. Enter all 3	Tons: **6,348,802**	Megagrams (Mg): **5,758,364**	Cubic meters: **9,185,856**
6	Landfill NMOC Emission Rate (NSPS XXX)	☒ Less than 34 Mg/year using Tiers 1 to 3	☐ Equal to or Greater than 34 Mg/year using Tiers 1 to 3	
	Landfill NMOC Emission Rate (NSPS XXX)	☐ Less than 500 ppm using Tier 4	☐ Equal to or Greater than 500 ppm using Tier 4	
	Landfill NMOC Emission Rate (NSPS WWW)	☒ Less than 50 Mg/yr	☐ Equal to or Greater than 50 Mg/yr	
7	Annual Waste Acceptance Rate: **83,500 tons/year (75,750 Mg/yr); average based on 2000-2019 waste receipts data**			
8	Is Petroleum Contaminated Soil Accepted? **Allowed by Permit**	If so, what is the annual acceptance rate? **No PCS have been accepted to-date**		
9	NM Solid Waste Bureau (SWB) Permit No.: **SWM-130402 & SWM-130402(SP)**	SWB Permit Date: **09/30/2019**		
10	Describe the NM Solid Waste Bureau Permit, Status, and Type of waste deposited at the landfill. **The Lea County Landfill (LCLF) is a permitted municipal solid waste and special waste landfill (Facility ID; SWM-130402 and SWM-130402 (SP)), and has been in operation since 1999. LCLF disposes of Treated formally characteristic hazardous wastes (TFCH), Packing house and killing plant offal, Sludge, Industrial solid waste (ISW), Spill of a chemical substance or commercial product, Petroleum contaminated soils (PCS), Asbestos, and Special Waste not otherwise specified.**			
11	Describe briefly any process(es) or any other operations conducted at the landfill**.** **LCLF is authorized to dispose of municipal solid wastes and specific NMED-defined special wastes. Waste types approved for acceptance at the LCLF are detailed in the December 2017 (Updated August 2018) Application For Permit to NMED SWB. Special wastes accepted for treatment or disposal include chemical spill residue, petroleum contaminated soil, sludge, offal, industrial solid wastes, treated formerly characteristic hazardous waste, and oil conservation division (OCD) waste. The Landfill maintains one 1,000 gallon diesel tank, whose fuel is used exclusively**			

	for on-site equipment. **LCLF does not engage in the following processes/activities nor does it operate the following equipment:** • **Transfer stations** • **Composting facility** • **Paint booths** • **Chipper or shredder** • **Boilers**

21-B: NMOC Emissions Determined Pursuant to 40 CFR 60, Subparts WWW or XXX

	Enter the regulatory citation of all Tier 1, 2, 3, and/or 4 procedures used to determine NMOC emission rates and the date(s) that each Tier procedure was conducted. In Section 7 of the application, include the input data and results.
1	Tier 1 equations (e.g. LandGEM): **61.43 tons/yr (55.65 Mg/year) – 12/3/2019**
2	Tier 2 Sampling: **7.97 tons/year (7.23 Mg/year) (LandGEM estimate of 2026 NMOC generation from projected waste receipts through 2025) – 05/18/2020**
3	Tier 3 Rate Constant: **N/A**
4	Tier 4 Surface Emissions Monitoring: **N/A**
5	Attach all Tier Procedure calculations, procedures, and results used to determine the Gas Collection and Control System (GCCS) requirements. **Calculations, procedures, and results are provided as Attachment 6.5.**

Facilities that have a landfill GCCS must complete Section 21-C.

21-C: Landfill Gas Collection and Control System (GCCS) Design Plan

1	Was the GCCS design certified by a Professional Engineer? **N/A**
2	Attach a copy of the GCCS Design Plan and enter the submittal date of the Plan pursuant to the deadlines in either NSPS WWW or NSPS XXX. The NMOC applicability threshold requiring a GCCS plan is 50Mg/yr for NSPS WWW and 34 Mg/yr or 500 ppm for NSPS XXX. **N/A**
3	Is/Was the GCCS planned to be operational within 30 months of reporting NMOC emission rates equal to or greater than 50 Mg/yr, 34 Mg/yr, or 500 ppm pursuant to the deadlines specified in NSPS WWW or NSPS XXX? **N/A**
4	Does the GCCS comply with the design and operational requirements found at 60.752, 60.753, and 69.759 (NSPS WWW) or at 60.762, 60.763, and 60.769 (NSPS XXX)? **N/A**
5	Enter the control device(s) to which the landfill gas will be/is routed such as an open flare, enclosed combustion device, boiler, process heater, or other. **N/A**
6	Do the control device(s) meet the operational requirements at 60.752 and 60.756 (NSPS WWW) or 60.762, 60.763, 60.766 (NSPS XXX)? **N/A**

In the April 2020 Tier 2 NMOC Landfill Gas Field Collection Data Report for the Lea County Landfill (Vista Geoscience), a site-specific NMOC concentration of 370.5 ppmv as hexane was calculated. This NMOC concentration was used in place of the Tier 1 default value provided by NSPS of 4,000 ppmv as hexane. Using this calculated concentration, NMOC emissions from the Landfill were calculated (LandGEM model) to be 5.41 Mg/yr in 2020 for waste received through 2019. Utilizing conservative projected annual waste receipt values over the current permit period produces projected NMOC emissions from the landfill of 7.23 Mg/yr (7.97 tons/yr) as determined through application of the LandGEM model, for 2026 for wastes deposited through 2025 (see **Attachment 6.5**). In the event that future Tier 2 testing and subsequent LandGEM simulations indicate NMOC emissions to be greater than the current regulatory threshold of 34 Mg/yr, a landfill gas collection and control system (GCCS) will be designed and installed in accordance with the requirements of 40 CFR 60 Subpart XXX.

Section 22: Certification

Company Name: Lea County Solid Waste Authority

I, Lorenzo Velasquez, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 14 day of September, 2020, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

9-14-2020
Date

Lorenzo Velasquez
Printed Name

Director
Title

Scribed and sworn before me on this 14 day of September, 2020.

My authorization as a notary of the State of New Mexico expires on the

____ day of January, 2024.

ELISA MILLAN NOTARY PUBLIC STATE OF NEW MEXICO

Notary's Signature

09-14-2020
Date

Elisa Millan
Notary's Printed Name

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.