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 **X** 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) **X** 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.XX.XXX.X.X 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.): 29192	Updating Permit/NOI #: P252L-R1
1	Facility Name: Red Rock Regional 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): 101 Red Mesa Bluffs Drive, Thoreau, NM 87323		
2	Plant Operator Company Name: Northwest New Mexico Regional Solid Waste Authority	Phone/Fax: (505) 905-8402	
a	Plant Operator Address: PO Box 1330, Thoreau, NM 87323		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 85-0414821	
3	Plant Owner(s) name(s): Northwest New Mexico Regional Solid Waste Authority	Phone/Fax: (505) 905-8402
a	Plant Owner(s) Mailing Address(s): PO Box 1330, Thoreau, NM 87323	
4	Bill To (Company): Northwest New Mexico Regional Solid Waste Authority	Phone/Fax: (505) 905-8402
a	Mailing Address: PO Box 1330, Thoreau, NM 87323	E-mail: billy.moore@co.mckinley.nm.us
5	☐ Preparer: **X** Consultant: Magee & Associates, Inc.	Phone/Fax: (575) 523-9613
a	Mailing Address: PO Box 730, Mesilla Park, NM 88047	E-mail: mmagee@totacc.com
6	Plant Operator Contact: Billy Moore	Phone/Fax: (505) 905-8402
a	Address: PO Box 1330, Thoreau, NM 87323	E-mail: billy.moore@co.mckinley.nm.us
7	Air Permit Contact: Billy Moore	Title: Executive Director
a	E-mail: billy.moore@co.mckinley.nm.us	Phone/Fax: (505) 905-8402
b	Mailing Address: PO Box 1330, Thoreau, NM 87323	
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? **X**Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? **X** 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 **X** 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 **X** No
3	Is the facility currently shut down? ☐ Yes **X** No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes **X** 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)? **X** Yes ☐ No	If yes, the permit No. is: P-252L-R1
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes **X** No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes **X** No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☐ Yes **X** No	If yes, the permit No. is:
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes **X** 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: 21,28	Range: 12W	Township: 14N	County: McKinley	Elevation (ft): 7,000
2	UTM Zone: **X** 12 or ☐ 13			Datum: ☐ NAD 27 **X** NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 761384			UTM N (in meters, to nearest 10 meters): 3923645	
b	**AND** Latitude (deg., min., sec.): 35º25'19" N			Longitude (deg., min., sec.): 108º07'16" W	
3	Name and zip code of nearest New Mexico town: Thoreau, NM 87323				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Thoreau, NM, proceed northeast along NM 371 5.2 miles to the landfill access road (Red Mesa Bluffs Drive) on the east side of NM 371, marked by the landfill sign. Go 1.6 miles east along the access road to the landfill main entrance.				
5	The facility is 6 (distance) miles NE (direction) of Thoreau, NM (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service **X** 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: Navajo Nation, McKinley Co., Cibola Co.				
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 **X** No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:				
9	Name nearest Class I area: San Pedro Parks Wilderness				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 136800 m				
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: 530 meters				
12	Method(s) used to delineate the Restricted Area: The property perimeter is fenced by a continuous 4-wire barbed wire fence (with locked gates) to effectively preclude the public from accessing the landfill when the facility is closed during non-public business hours. "**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 **X** 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? **X** 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 ($\frac{\text{hours}}{\text{day}}$): N/A	($\frac{\text{days}}{\text{week}}$): N/A		($\frac{\text{weeks}}{\text{year}}$): N/A		($\frac{\text{hours}}{\text{year}}$): N/A	
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A		☐AM ☐PM		End: N/A		☐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 N/A						

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 **X** No If yes, specify:		
a	If yes, NOV date or description of issue:		NOV Tracking No:
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes **X** No If Yes, provide the 1c & 1d info below:		
c	Document Title:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes **X** 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 **X** No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☐ Yes **X** 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 N/A		
a	If yes, include the name of company providing commercial electric power to the facility: _____ 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.		

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." **X** 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): Billy Moore	Phone: (505) 905-8402
a	R.O. Title: Executive Director	R.O. e-mail: e-mail: billy.moore@co.mckinley.nm.us
b	R. O. Address: P.O. Box 1330, Thoreau, NM 87323	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Gary Ford	Phone: (505) 905-8402
a	A. R.O. Title: Operations Manager	A. R.O. e-mail: gary.ford@co.mckinley.nm.us
b	A. R. O. Address: P.O. Box 1330, Thoreau, NM 87323	
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.): N/A	
a	Address of Parent Company: N/A	
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: Site contacts: Billy Moore (505) 905-8402 Gary Ford (505) 905-8402	

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: N/A

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

X secure electronic transfer. Air Permit Contact Name: Cyrice Smith

Email: cyricesmith@gmail.com

Phone number: 575-523-9613

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.

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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 Haul Roads	NA	NA	NA	NA	NA	1996 1996	NA NA		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	20.2.70.300.D.5 NMAC	
2	Landfill Operations	NA	NA	NA	NA	NA	1996 1996	NA NA		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	20.2.70.300.D.5 NMAC	
3	Landfill Gas - NMOC	NA	NA	NA	NA	NA	1996 1996	NA NA		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	40 CFR Subpart WWW	
4	PCS Landfarm	NA	NA	NA	NA	NA	1996 1996	NA NA		X 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] 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 https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/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 Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
1	Compactor	Caterpillar	4/15/1902	315	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			OBXD00615	horsepower			
2	Compactor	Caterpillar	4/5/1902	315	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			AYH00666	horsepower			
3	Compactor	Caterpillar		315	20.2.72.202.A.(3)		☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			BXD00486	horsepower			
4	Scraper	Caterpillar	623G	365	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			HCES00542	horsepower			
5	Bulldozer	Caterpillar	D7R	240	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			AECO00857	horsepower			
6	Motor Grader	Caterpillar	120M2	150	20.2.72.202.A.(3)		☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional X Replacement Unit ☐ To Be Modified ☐ To be Replaced
			72V17537	horsepower			
7	Backhoe/Loader	Caterpillar	420	96	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			8ZK08560	horsepower			
8	Skid-steer loader	Bobcat	S330	85	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			A02060063	horsepower			
9	Tractor	New Holland	10/8/1913	76	20.2.72.202.A.(3)		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				horsepower			
							☐ 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
	Water application to roads and disturbed soils, as needed to control dust	1996	TSP (PM-30), PM-10, PM-2.5	1,2	80%	AP-42

[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]		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	-	-	-	-	-	-	-	-	0.05	0.07	0.01	0.01	0.00	0.00	-	-	-	-
2	-	-	-	-	-	-	-	-	113.65	166.62	33.35	50.28	3.98	5.47	-	-	-	-
3	-	-	0.27	1.19	2.25	9.83	-	-	-	-	-	-	-	-	0.08	0.34	-	-
NOTE: EMISSIONS FOR UNIT 3 ARE FOR YEAR **2020**																		
4	-	-	-	-	0.0003	0.0012	-	-	-	-	-	-	-	-	-	-	-	-
Totals	0.00	0.00	0.27	1.19	2.25	9.83	0.00	0.00	113.70	166.69	33.36	50.29	3.98	5.47	0.08	0.34	0.00	0.00

[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).

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]		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	-	-	-	-	-	-	-	-	0.01	0.07	0.00	0.01	0.00	0.00	-	-	-	-
2	-	-	-	-	-	-	-	-	22.73	33.32	6.67	10.06	0.80	1.09	-	-	-	-
3	-	-	0.27	1.19	2.25	9.83	-	-	-	-	-	-	-	-	0.08	0.34	-	-
NOTE: EMISSIONS FOR UNIT 3 ARE FOR YEAR **2020**																		
4	-	-	-	-	0.0003	0.0012	-	-	-	-	-	-	-	-	-	-	-	-
NOTE: EMISSIONS FOR UNIT 4 ARE FOR YEAR **2020**																		
Totals	0.00	0.00	0.27	1.19	2.25	9.83	0.00	0.00	22.74	33.39	6.67	10.07	0.80	1.10	0.08	0.34	0.00	0.00

[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).

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]		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).

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)			

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 it 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		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		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
-	3	1.87397	8.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:		1.87397	8.208																

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

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)
1	20200106	diesel	hydrocarbon	7.1	130	70	0.009	100	0.022
1	20200306	gasoline	hydrocarbon	5.6	68	70	5.1284	100	8.8344

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			
1	1996	Diesel	NA	FX	238	2,419	2.4384	NA	WH	WH	Good	155,000	15.50
1	1996	Gasoline	NA	FX	48	484	2.4384	NA	WH	WH	Good	4,850	2.43

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)**

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

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

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	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
2	**mass GHG**			2,191											2,191	
	CO_2e			54,766												54,766
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
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	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
Total	**mass GHG**			2,191												
	CO_2e			54,766												

[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.

Particulate Emission Calculations for Red Rock Regional Landfill:

Site Information:

Hours and Days of Operation:

8 a.m. to 5 p.m. M-F and		
8 a.m. to 3 p.m. Sat. =	51	hours/week
	2652	hours/year
5.75 d/wk x 52 wk/yr =	299	days/year
less 10 holidays =	**289**	days/year

Turn-off to active face and Small Vehicle Disposal Area (SVDA) are each 0.4 miles from entrance along paved haul road.

Maintenance Area is additional 0.3 miles from SVDA along paved haul road.

Active face is 0.5 miles from turn-off along unpaved haul road.

HAUL ROAD Lengths, Surfacing and Mitigation Factors for Control Measures:

HAUL ROAD, PAVED AP-42 Section 13.2.1

	From entrance to turn-off to active face: (surfaced with asphalt)	From entrance to SVDA: (surfaced with asphalt)	From SVDA to maintenance area (surfaced with asphalt)	
Silt loading (sL)	0.02	0.02	0.02	(g/m2)
Length, one-way:	0.4	0.4	0.3	mile (mi)
Length, two-way:	0.8	0.8	0.6	mile (mi)
Mitigation factor (watering)	NONE	NONE	NONE	

OPERATIONS AREA

Unpaved haul road to active face:
(graded, natural soils)

Silt loading (sL)	12	% silt content
Length, one-way:	15	% moisture content
Length, two-way:	0.5	mi
Mitigation factor (watering)	1	mi
	80%	

Vehicle and Trip Information: Waste haulers data from scalehouse records

Average Truck Waste Haulers:

Vehicles	36,905	pounds (lb)	
Waste	17,296	lb	
Vehicle + waste	54,201	lb	
Average of loaded weight entering and empty weight leaving			
((54201+36905) / 2) / 2000 lb/ton (t) =		**22.78**	t
Average waste hauler trips, all areas =		**50.0**	trips (tr)/d

Landfill Service Vehicles:

Water truck, empty	40,000	lb, or	20	t
Water truck, loaded	74,560	lb, or	37	t
Water truck, average			**28.64**	t
Water truck trips per day, all areas =			**1.5**	tr/d

POV and Service Vehicles	11,287	lb (avg. wt.) =	**5.64**	t

Travel, paved haul road from entrance to turn-off to active face	**20**	tr/d
Travel, paved haul road from entrance to SVDA =	**78.52**	tr/d
Travel, paved haul road from SVDA to Maintenance Area =	**20**	tr/d
Travel, unpaved within OPERATIONS AREA =	**8.72**	tr/d

Landfill Service Vehicles:

Backhoe, Bobcat, Tractor	10,537	lb, or	**5.27**	t
Backhoe, Bobcat, Tractor, OPERATIONS AREA =			**5**	tr/d

Weighted Avg: Vehicles on paved haul road to turn-off to active face

$$\frac{(22.78 \text{ t} \times 50 \text{ trips/d}) + (5.64 \times 20)}{(50+20)} = \mathbf{17.9} \text{ t}$$

Trip Count:	**70.0**	tr/d
d/yr x tr/d =	20,230	tr/yr
Paved haul road length(mi) x tr/yr	**16,184.00**	VMT/yr

Weighted Avg: POVs on paved haul road to SVDA

$$\frac{(5.64 \text{ t} \times 78.52 \text{ trips/d})}{78.52} = \mathbf{5.64} \text{ t}$$

Trip Count:	**78.52**	tr/d
d/yr x tr/d =	22,692	tr/yr
Paved haul road length(mi) x tr/yr	**18,153**	VMT/yr

Weighted Avg: POVs on paved haul road from SVDA to maintenance area

$$\frac{(5.64 \text{ t} \times 20.00 \text{ trips/d})}{20.00} = \mathbf{5.64} \text{ t}$$

Trip Count:	**20.00**	tr/d
d/yr x tr/d =	5,780	tr/yr
Paved haul road length(mi) x tr/yr	**3,468**	VMT/yr

Weighted Average of Vehicles within OPERATIONS AREA:

$$\frac{(22.78 \text{ t} \times 50 \text{ tr/d}) + (28.64 \times 1.5) + (5.64 \times 8.7242214532872) + (5.27 \times 5)}{(50+1.5+8.7242214532872+5)} = \mathbf{19.3} \text{ t}$$

Trip Count:	**65.2**	tr/d
=	18,850	tr/yr
Paved haul road length(mi) x tr/yr	**18,850**	VMT/yr

Dust Emissions for UNPAVED roads:
Industrial Sites (AP-42, Chapter 13.2.2)

Emissions Equation 1a for Industrial Sites
E (lb/VMT) = k(s/12)^{a}(W/3)^{b} where:
E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
k, a and b from Table 13.2.2-2.

Natural Mitigation, Equation 2
Eext = E [(365-P)/365] where:
P = 70 days per year with >0.01 inch precipitation
(365-70)/365 = **0.81**
Therefore:
E_{ext} (lb/VMT) = k(s/12)^{a}(W/3)^{b}(0.81)
Source: AP-42 Chapter 13.2.2 Emissions Equation 1a for Industrial Sites

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a

Constant	Industrial Roads (Equation 1a)		
	PM2.5	PM10	PM30*
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

* Equivalent to total suspended particulate matter (TSP)

Dust Emissions for PAVED roads:
Industrial Sites (AP-42, Chapter 13.2.1)

Emissions Equation 1 for Industrial Sites
E (lb/VMT) = k(sL)0.91(W)1.02 where:
E = size-specific emission factor (lb/VMT)
sL = surface silt loading (g/m2)
W = mean vehicle weight (tons)
k from Table 13.2.1-1.

Natural Mitigation, Equation 2
Eext = [k(sL)$^{0.91}$(W)$^{1.02}$](1-P/4N) where:
P = 70 days per year with >0.01 inch precipitation
N = 365 days per year
Therefore for mitigated:
Eext = [k(sL)$^{0.91}$(W)$^{1.02}$](1-P/4N)
Source: AP-42 Chapter 13.2.1 Emissions Equation 1 for Industrial Sites

Table 13.2.1-1. PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Constant	Industrial Roads (Equation 1)		
	PM2.5	PM10	PM30*
k (lb/VMT)	0.00054	0.0022	0.011

* Equivalent to total suspended particulate matter (TSP)

Waste haulers (private and commercial), employee vehicles, service and deliveries:

Unit 1 Particulate Emissions WASTE HAULERS

PAVED HAUL ROAD from entrance to beginning of unpaved haul road

E (lb/VMT) = k(s/12)^{a}(W/3)^{b} where:
W = 17.9 t

	$PM_{2.5}$ Emission Rate	PM_{10} Emission Rate	PM_{30} Emission Rate
	k = 0.00054	k = 0.0022	k = 0.011
E (lb/VMT) =	**0.000**	**0.001**	**0.006**
(PAVED VMT/yr) / (2,652 hr/yr) = VMT/hr = 6.1			
E (lb/VMT) x (VMT/hr) = E (lb/hr) =	0.002	0.007	0.036
E (lb/hr) (mitigated) =	**0.000**	**0.001**	**0.006**
Total yearly uncontrolled emissions 16184 VMT/yr (lb) =	4.708 4.708	19.182 19.182	95.910 95.910
Total yearly uncontrolled emissions 16184 VMT/yr (t) =	0.002	0.010	0.048
Total yearly mitigated emissions(NO watering paved) 16184 VMT/yr (t) =	eq uncontrld **0.002**	eq uncontrld **0.010**	eq uncontrld **0.048**

Private Vehicles:

Unit 1 Particulate Emissions POVs

PAVED HAUL ROAD from entrance to SVDA then SVDA to maintenance area:

E (lb/VMT) = k(s/12)^{a}(W/3)^{b} where:
W = 5.6 t

	$PM_{2.5}$ Emission Rate	PM_{10} Emission Rate	PM_{30} Emission Rate
	k = 0.00054	k = 0.0022	k = 0.011
E (lb/VMT) =	**0.000**	**0.000**	**0.002**
(Total PAVED VMT/yr) / (2,652 hr/yr) = VMT/hr = 8.2			
E (lb/VMT) x (VMT/hr) = E (lb/hr) =	0.001	0.003	0.015
E (lb/hr) (mitigated) =	**0.000**	**0.000**	**0.002**
Total yearly uncontrolled emissions 18849.8 VMT/yr (lb) =	0.000 1.940	0.000 7.903	0.000 39.517
Total yearly uncontrolled emissions 18849.8 VMT/yr (t) =	0.001	0.004	0.020
Total yearly mitigated emissions(NO watering paved) 18849.8 VMT/yr (t) =	eq uncontrld **0.001**	eq uncontrld **0.004**	eq uncontrld **0.020**

Unit 2 Particulate Emissions WASTE HAULERS

OPERATIONS AREA:

		$PM_{2.5}$ Emission Rate	PM_{10} Emission Rate	PM_{30} Emission Rate
s =	12 %	k = 0.15	k = 1.5	k = 4.9
W =	19.3 t	a = 0.9	a = 0.9	a = 0.7
		b = 0.45	b = 0.45	b = 0.45
E (lb/VMT) =		**0.281**	**2.806**	**9.167**
(18849.8 VMT/yr) / (2,652 hr/yr) = VMT/hr =	7.1			
E (lb/VMT) x (VMT/hr) = E (lb/hr) =		1.995	19.947	65.160
E (lb/hr) (mitigated) =		**0.399**	**3.989**	**13.032**
Total yearly uncontrolled emissions, 9,942 VMT/yr (lb) =		5,289.948 5,289.948	52,899.479 52,899.479	172,804.965 172,804.965
Total yearly uncontrolled emissions, 9,942 VMT/yr (t) =		2.645	26.450	86.402
Total yearly mitigated emissions, 9,942 VMT/yr (t) =		**0.529**	**5.290**	**17.280**

Dust Emissions for unpaved roads:
Industrial Sites (Chapter 13, AP-42)

Emissions Equation 1a for Industrial Sites

E (lb/VMT) = k(s/12)^{a}(W/3)^{b} where:

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

k, a and b from Table 13.2.2-2.

Natural Mitigation, Equation 2

Eext = E [(365-P)/365] where:

P = 70 days per year with >0.01 inch precipitation

(365-70)/365 = **0.81**

Therefore:

E_{ext} (lb/VMT) = k(s/12)^{a}(W/3)^{b}(0.81)

Source: AP-42 Chapter 13 Emissions Equation 1a for Industrial Sites

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a

Constant	Industrial Roads (Equation 1a)		
	PM2.5	PM10	PM30*
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

* Equivalent to total suspended particulate matter (TSP)

Unit 2 Particulate Emissions SCRAPER

Scraper weight and trips:

Scraper, empty	74,300	lb, or	37.2	t
Scraper, loaded	129,300	lb, or	64.7	t
Scraper, average			**50.9**	t
Scraper trips, OPERATIONS AREA =			12	tr/d
		=	3468 tr/yr x 0.5 mi	**3,468** VMT/yr

Scraper operations:

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
s =	12 %	k = 0.15	k = 1.5	k = 4.9
W =	50.9 t	a = 0.9	a = 0.9	a = 0.7
(average of ful/empty weights)		b = 0.45	b = 0.45	b = 0.45
E (lb/VMT) =		**0.434**	**4.344**	**14.191**
(1,734 VMT/yr) / (2,548 hr/yr) = VMT/hr =	1.31			
E (lb/VMT) x (VMT/hr) = E (lb/hr) =		0.568	5.681	18.557
E (lb/hr) (mitigated) =		**0.114**	**1.136**	**3.711**
Total yearly uncontrolled emissions, 1734 VMT/yr (lb) =		1,506.516 1,506.516	15,065.162 15,065.162	49,212.862 49,212.862
Total yearly uncontrolled emissions, 1734 VMT/yr (t) =		0.753	7.533	24.606
Total yearly mitigated emissions, 1734 VMT/yr (t) =		**0.151**	**1.507**	**4.921**

Unit 2 Particulate Emissions BULLDOZER and COMPACTORS

Earth moving activities in OPERATIONS AREA:

Emissions from Bulldozer Operation, overburden (from Table 11.9-1, Chapter 11, AP-42)

These equations are used to determine emissions rates from operation of the bulldozer and the two compactors in the OPERATIONS AREA.

Emission Equations, (lb/hr):

PM_{30} E = 5.7 $(s)^{1.2}$ / $(M)^{1.3}$ where:	PM_{15} E = 1.0 $(s)^{1.5}$ / $(M)^{1.4}$	PM_{10} E = (PM_{15} E) x 0.75 = (1.0 $(s)^{1.5}$ / $(M)^{1.4}$) x 0.7	$PM_{2.5}$ E = (PM_{30} E) x 0.105 = (5.7 $(s)^{1.2}$ / $(M)^{1.3}$) x 0.105
s = material silt content (%)			
M = material moisture content (%)			

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
BULLDOZER, 2.5 hr/d, 5 d/wk =	**650** hr/yr			
E (lb/hr) =		0.349	0.704	3.326
E (lb/hr) (mitigated) =		**0.070**	**0.141**	**0.665**
Total yearly uncontrolled emissions, 650 hr/yr (lb) =		227.026	457.318	2162.156
Total yearly uncontrolled emissions, 650 hr/yr (t) =		0.114	0.229	1.081
Total yearly mitigated emissions, 650 hr/yr (t) =		**0.023**	**0.046**	**0.216**

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
Compactors, 8 hr/d, 289 d/yr =	**2312** hr/yr		Scaling Factors	
E (lb/hr) =		0.349	0.704	3.326
E (lb/hr) (mitigated) =		**0.070**	**0.141**	**0.665**
Total yearly uncontrolled emissions, 2312 hr/yr (lb) =		807.515	1626.647	7690.623
Total yearly uncontrolled emissions, 2312 hr/yr (t) =		0.404	0.813	3.845
Total yearly mitigated emissions, 2312 hr/yr (t) =		**0.081**	**0.163**	**0.769**

Unit 2 Particulate Emissions GRADER

Emissions from Grader Operation (from Table 11.9-1, Chapter 11, AP-42)

Emission Equations, (lb/hr):

PM_{30} E = 0.040 $(S)^{2.5}$ where:	PM_{15} E = 0.051 $(S)^{2.0}$	PM_{10} E = (PM_{15} E) x 0.60 = (0.051 $(S)^{2.0}$) x 0.60	$PM_{2.5}$ E = (PM_{30} E) x 0.031 = (0.040 $(S)^{2.5}$) x 0.031
S = mean vehicle speed (mph)			

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
Grader operation, S (mph) =	**10** mph			
Grader, 2.5 hr/d, 5 d/wk =	**650** hr/yr			
E (lb/hr) =		0.392	3.060	12.649
E (lb/hr) (mitigated) =		**0.078**	**0.612**	**2.530**
Total yearly uncontrolled emissions, 650 hr/yr (lb) =		254.880	1,989.000	8,221.922
Total yearly uncontrolled emissions, 650 hr/yr (t) =		0.127	0.995	4.111
Total yearly mitigated emissions, 650 hr/yr (t) =		**0.025**	**0.199**	**0.822**

Emissions from Wind Erosion (from Table 11.9-4, Chapter 11, AP-42)

PM_{30} E = 0.38 t/acre (ac)-yr

hours per year = 8760

(from Table 13.2.2-2., Chapter 13, AP-42)

kPM-30	kPM-10	kPM-2.5
4.9	1.5	0.15

Emission Equations, (lb/hr):

	$PM_{2.5}$ E = (PM_{30} E x $k_{PM-2.5}$) / k_{PM-30} $PM_{2.5}$ E = (0.38 x 0.15) / 4.9 t/ac-yr	PM_{10} E = (PM_{30} E x k_{PM-10}) / k_{PM-30} PM_{10} E = (0.38 x 1.5) / 4.9 t/ac-yr	PM_{30} E = 0.38 t/ac-yr

Unit 2 Particulate Emissions WIND EROSION

OPERATIONS AREA

Disturbed Area = **5,339,060** square feet (sq ft)

= **122.6** acres (ac)

lb/ac-hr = (t/ac-yr) x (2000/2548)

lb/hr = (lb/ac-hr) x (ac)

	$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
E (t/ac-yr) =	0.012	0.116	0.380
E (lb/ac-hr) =	0.003	0.027	0.087
E (lb/hr) =	0.326	3.255	10.634
E (lb/hr) (mitigated) =	**0.065**	**0.651**	**2.127**
Total yearly uncontrolled emissions, 111.9 ac (t/yr)	1.426	14.258	46.576
Total yearly mitigated emissions,111.9 ac (t/yr)	**0.285**	**2.852**	**9.315**

Unit 1 Particulate Emission TOTALS

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
Uncontrolled Emissions	**E (lb/hr) =**	0.003	0.010	0.051
	E (t/yr) =	**0.003**	**0.014**	**0.068**
Mitigated Emissions	**E (lb/hr) =**	0.000	0.001	0.007
	E (t/yr) =	**0.003**	**0.014**	**0.068**

Unit 2 Particulate Emission TOTALS

		$PM_{2.5}$ Emissions	PM_{10} Emissions	PM_{30} Emissions
(haulers+scraper..grader+wind) **ncontrolled Emissions**	**E (lb/hr) =**	3.979	33.350	113.653
	E (t/yr) =	**5.469**	**50.277**	**166.622**
Mitigated Emissions	**E (lb/hr) =**	0.796	6.670	22.731
	E (t/yr) =	**1.094**	**10.055**	**33.324**

Unit 4 Emissions

PCS Landfarm HAPs

Acceptance at PCS Landfarm (Average over 5 years 2015-2020):

Total BTEX (CHAPs) = 5.11 ppm

MPCS = 238.6 tons

VLF = 100%

HAPs Emission Equation:
MHAPs = (CHAPs)(MPCS)(VLF), where:
MHAPs = mass of HAPs emitted per year from PCS landfarm,
CHAPs = estimated concentration of HAPs in PCS accepted for landfarm treatment,
MPCS = mass of PCS accepted for treatment, and
VLF = % of HAPs volatilized by landfarm treatment.

MHAPs = (5.11 ppm)(238.6 tons)(100%) / (1 x 106 (conversion factor)) = **0.0012 t/yr** = **0.0003 lb/hr**

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.

Red Rock Regional Landfill accepts Municipal Solid Waste, and Special Waste including Industrial, Sludge, and PCS. The landfill is applying for a Title V permit renewal and qualifies under 20.2.64.109.A NMAC.

The landfill currently operates under air quality permit# P252L-R1, dated June7, 2017.

Red Rock Regional Landfill also operates under the requirements of the New Mexico Solid Waste MSW Permit No. SWM-172203 and Special Waste Permit No. SWM-051740 (SP).

Red Rock Regional Landfill began operations in 1996 and includes a total of 26 existing and planned disposal cells. At the time of this application submittal, cells #1 through #11a have been filled, and the current disposal cells are cells #13a and 14. The planned cells for the remainder of the landfill are cells #11b, #12, #13b, and #15 through #26.

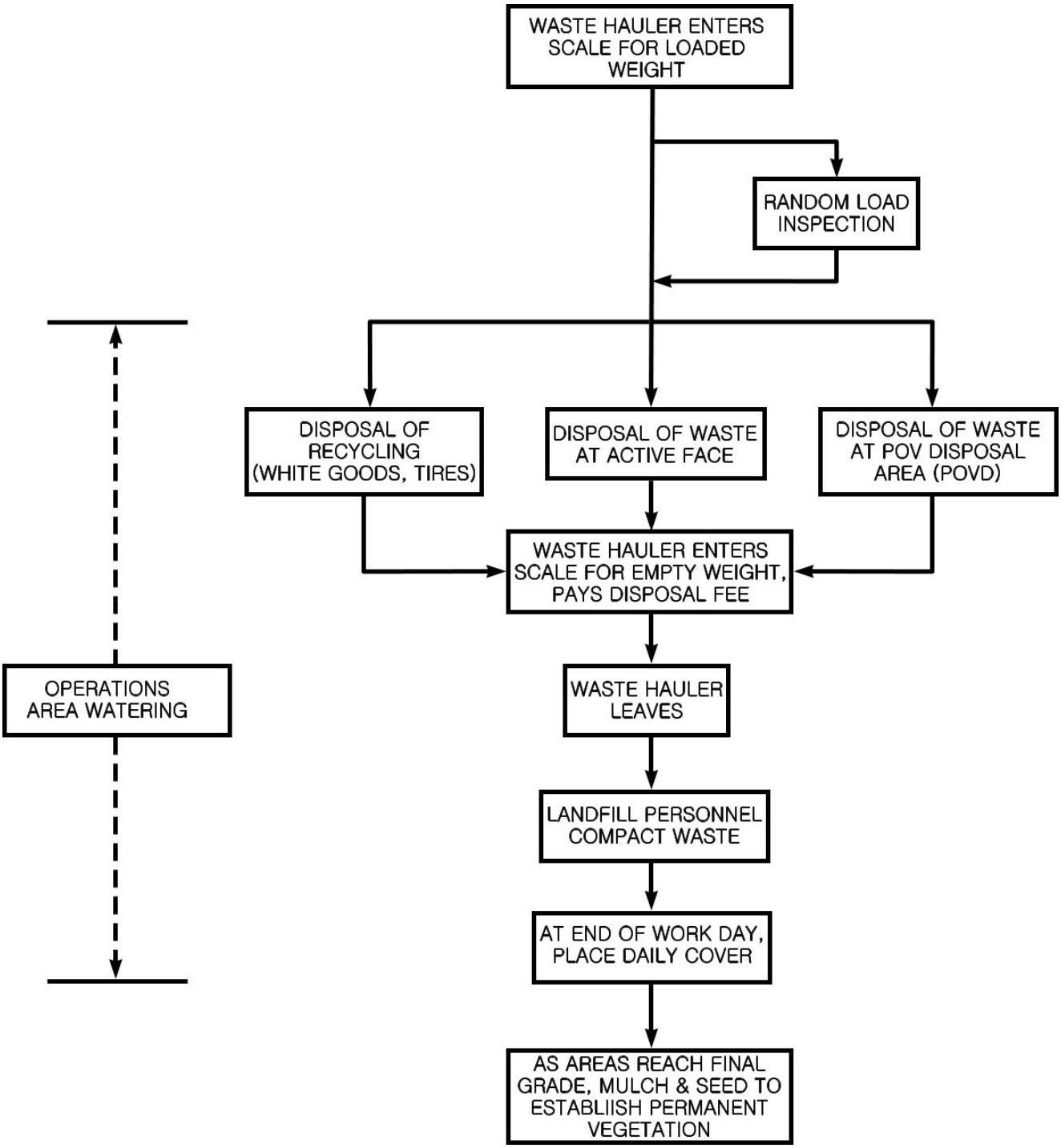
Changes since the last permit:

The design and operation of the landfill have not changed from the previous reporting period. Because the current disposal cells have changed, the location of the entrance to the disposal cells has changed location; therefore, the length of the paved haul road to the active face being utilized has changed to 0.4 miles, and the length of the unpaved road (from the paved road to the active face) has changed to 0.5 miles. Because the road changes affect particulate emissions, Sections 2 and 6 reflect these changes.

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.



Section 5

Plot Plan Drawn To Scale

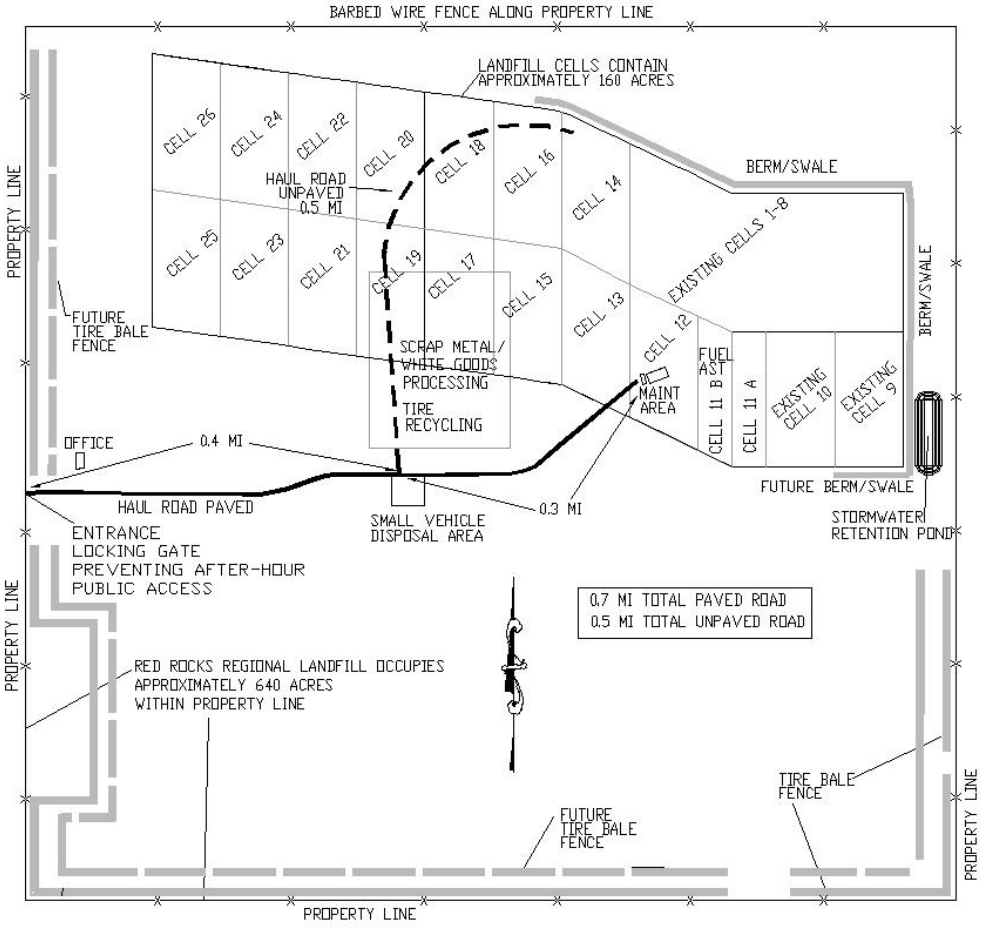
A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent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

Red Rock Regional Landfill is open to the public for waste disposal during the day. Hours of operation are:

Monday thru Friday 8:00am to 5:00pm (last load 4:30)
Saturday 8:00am to 3:00pm (last load 2:30)
Closed Sunday

It is fenced along the property line with a gate that is closed and locked to restrict public access during non-operational hours. The plot plan is on the following page.

RED ROCK REGIONAL LANDFILL
PLOT PLAN



GRAPHIC SCALE

1000 0 500 1000 2000

(IN FEET)

1 inch = 1000 ft.

TITLE **RED ROCK REGIONAL LANDFILL**			DESIGN BY MAGEE & ASSOCIATES, INC. CONSULTING ENGINEERS - CIVIL and ENVIRONMENTAL PO Box 730 Mesilla Park, NM 88047 Phone (575) 523-9613 Fax (575) 523-9614
PLOT PLAN OF EXISTING AND FUTURE CELLS	DATE *MAY 2, 2021*	SCALE *1" = 1000'*	

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.

Section 2 calculations of significant emissions from the Units are provided in the "Calculations" worksheet in the attached spreadsheet *A-P252-RRRLF2021-02.xlsx*. Additional calculation spreadsheets, *A-P252-RRRLF2021-03-Emit.xlsx* and *A-P252-RRRLF2021-02-Wgt.xlsx*, are also provided. A graphical representation of the logical flow between the documents is also provided in *A-P252-RRRLF2021-Flowchart.pdf*.

A table summarizing emissions from all sources at each of the four landfill emission units is provided on the following page.

All landfill gas emissions were determined using LandGEM Version 3.02 (U.S.E.P.A, May 2005). The LandGEM summary report is attached to this application.

Red Rock Regional Landfill
Summary of Emissions from Significant Sources

Emission Unit No.	Description	Source Type	Pollutant	Maximum/Uncontrolled Air Pollutant Emission Rate		Actual/Controlled Air Pollutant Emission Rate	
				tons/yr	lb/hr	tons/yr	lb/hr
1	**Paved Haul Road, Entrance to Maintenance Area**						
	Waste Haulers	Area	PM_{30}	0.048	0.036	0.048	0.006
	Wind Erosion			0	0	0	0
			Unit Total	**0.048**	**0.036**	**0.048**	**0.006**
	Waste Haulers	Area	PM_{10}	0.010	0.007	0.010	0.001
	Wind Erosion			0	0	0	0
			Unit Total	**0.010**	**0.007**	**0.010**	**0.001**
	Waste Haulers	Area	$PM_{2.5}$	0.002	0.002	0.002	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.002**	**0.002**	**0.002**	**0.000**
1	**Paved Haul Road, Entrance to *SVDA area and Maintenance Areas**						
	Waste Haulers	Area	PM_{30}	0.020	0.015	0.020	0.002
	Wind Erosion			0	0	0	0
			Unit Total	**0.020**	**0.015**	**0.020**	**0.002**
	Waste Haulers	Area	PM_{10}	0.004	0.003	0.004	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.004**	**0.003**	**0.004**	**0.000**
	Waste Haulers	Area	$PM_{2.5}$	0.001	0.001	0.001	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.001**	**0.001**	**0.001**	**0.000**
2	**Operations Area, Maintenance Area to Active Face, Borrow Areas, White Goods, Tires**						
	Waste Haulers	Area	PM_{30}	86.402	65.160	17.280	13.032
	Scraper			24.606	18.557	4.921	3.711
	Bulldozer			1.081	3.326	0.216	0.665
	Compactors			3.845	3.326	0.769	0.665
	Grader			4.111	12.649	0.822	2.530
	Wind Erosion			46.576	10.634	9.315	2.127
			Unit Total	**166.622**	**113.653**	**33.324**	**22.731**
	Waste Haulers	Area	PM_{10}	26.450	19.947	5.290	3.989
	Scraper			7.533	5.681	1.507	1.136
	Bulldozer			0.229	0.704	0.046	0.141
	Compactors			0.813	0.704	0.163	0.141
	Grader			0.995	3.060	0.199	0.612
	Wind Erosion			14.258	3.255	2.852	0.651
			Unit Total	**50.277**	**33.350**	**10.055**	**6.670**
	Waste Haulers	Area	$PM_{2.5}$	2.645	1.995	0.529	0.399
	Scraper			0.753	0.568	0.151	0.114
	Bulldozer			0.114	0.349	0.023	0.070
	Compactors			0.404	0.349	0.081	0.070
	Grader			0.127	0.392	0.025	0.078
	Wind Erosion			1.426	0.326	0.285	0.065
			Unit Total	**5.469**	**3.979**	**1.094**	**0.796**
3	**Landfill Gas**						
	Landfill Gas (Year 2020)	Area	NMOC	15.693	3.583	15.693	3.583
	Landfill Gas (Year 2020)	Area	HAP	8.208	1.874	8.208	1.874
			Unit Total	**23.901**	**5.457**	**23.901**	**5.457**
4	**PCS Landfarm**						
	PCS Landfarm	Area	HAP	0.001	0.000	0.001	0.000
			Unit Total	**0.001**	**0.000**	**0.001**	**0.000**

*SVDA = Small Vehicle Disposal Area

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)

Calculations are provided on the "GREEN HOUSE GAS" tab in the attached Excel file *A-P252-RRRLF2021-03-Emit.xlsx*, included with this permit application.

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.

All emission factors were obtained from various chapters of the current edition of the AP-42. Specific chapters and sections used are as follows:

- AP-42, Fifth Edition, Volume I Chapter 7: Liquid Storage Tanks, Section 7.1 Final, November 2006
- AP-42, Fifth Edition, Volume I Chapter 11 Section 11.9: Western Surface Coal Mining, Final, October 1998
- AP-42, Fifth Edition, Volume I Chapter 13: Miscellaneous Sources;
    - Section 13.2.1, Paved Roads, Final, January 2011
    - Section 13.2.2, Unpaved Roads, Final, November 2006
    - Section 13.2.3, Heavy Construction Operations, Final, January 1995
    - Section 13.2.5, industrial Wind Erosion, Final, November 2006

All landfill gas emissions were determined using LandGEM Version 3.02 (U.S.E.P.A, May 2005). The LandGEM report is attached to this application, *A-P252-RRRLF2021-LandGEM.xlsm*.

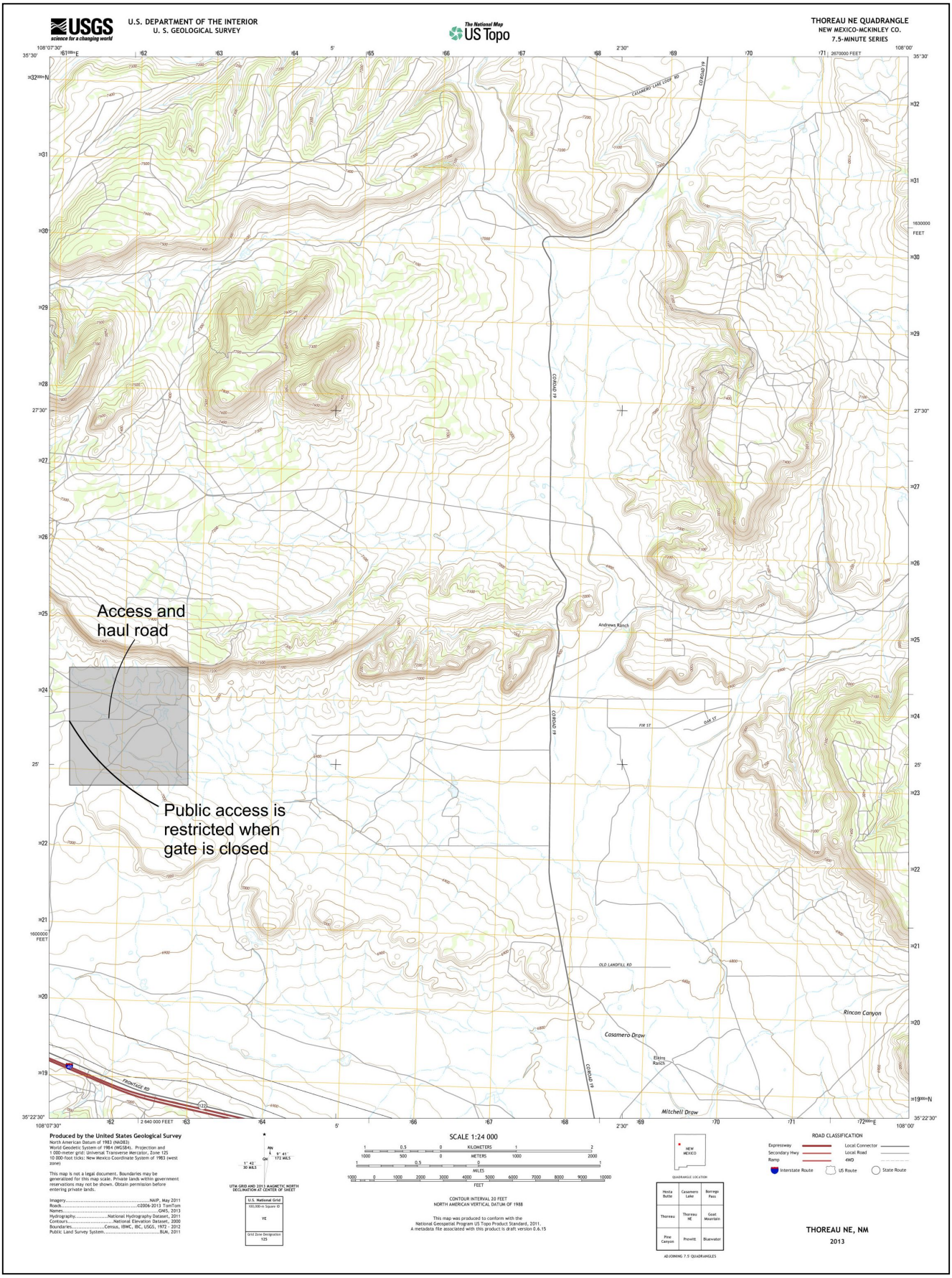
Section 8

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	

The map of the landfill on the U.S.G.S. 7.5 minute quadrangle of the area (Thoreau NE) is attached as the following page.


U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY
USGS
science for a changing world
The National Map
US Topo
THOREAU NE QUADRANGLE
NEW MEXICO-MCKINLEY CO.
7.5-MINUTE SERIES
Access and haul road
Public access is restricted when gate is closed
Andrews Ranch
Rincon Canyon
Casamero Draw
Mitchell Draw
OLD LANDFILL RD
FIR ST
OAK ST
CORONA DR
CASAMERO LAKE LOOP RD
FRONTAGE RD
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
ROAD CLASSIFICATION
THOREAU NE, NM
2013

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")

X 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.

Red Rock Landfill is applying for a Title V permit renewal; therefore, the Air Quality Bureau will manage the public notice requirement.

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.

Please see the attached 8-page Operations Plan, *A-P252-RRRLF2021-Opsplan 2020.pdf*, for Red Rock Regional Landfill.

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)**:**

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.

X Yes **☐ No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

X Yes **☐ No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

X Yes **☐ No**

C. Make a determination:

X 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):

This section is not applicable to Red Rock Regional Landfill.

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.**

B. **This facility [is or is not] one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **[significant or not significant]. [Discuss why.] The "project" emissions listed below [do or do not] only result from changes described in this permit application, thus no emissions from other [revisions or modifications, past or future] to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: XX.X TPY**
b. **CO: XX.X TPY**
c. **VOC: XX.X TPY**
d. **SOx: XX.X TPY**
e. **PM: XX.X TPY**
f. **PM10: XX.X TPY**
g. **PM2.5: XX.X TPY**
h. **Fluorides: XX.X TPY**
i. **Lead: XX.X TPY**
j. **Sulfur compounds (listed in Table 2): XX.X TPY**
k. **GHG: XX.X TPY**

C. **Netting [is required, and analysis is attached to this document.] OR [is not required (project is not significant)] OR [Applicant is submitting a PSD Major Modification and chooses not to net.]**

D. **BACT** is **[not required for this modification, as this application is a minor modification.] OR [required, as this application is a major modification. List pollutants subject to BACT review and provide a full top down BACT determination.]**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

This section is not applicable to Red Rock Regional Landfill.

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/

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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	Facility	Red Rock Landfill is subject to Title 20 Environmental Protection Chapter 2 Air Quality of the New Mexico Administrative Code so is subject to Part 1 General Provisions, Update to Section 116 of regulation for Significant figures & rounding. Applicable with no permitting requirements.
20.2.7 NMAC	Excess Emissions	Yes	Facility	All Title V major sources are subject to Air Quality Control Regulations, as defined in 20.2.7 NMAC, and are thus subject to the requirements of this regulation. Minimization of excess emissions: initial report (end of next business day) and final report (<10 days) after excess emissions. All Title V major sources are subject to Air Quality Control Regulations Records kept of any excess emissions periods and notifications provided to NMED.
20.2.64 NMAC	Municipal Solid Waste Landfills	Yes	Unit 3	Requires Title V permits for all landfills with design capacities equal to or greater than 2.5 Million cubic meters. (40 CFR 60.752(a)(2) and 60.752 (b). Red Rock Landfill capacity is 11.851 Million cubic meters.
20.2.70 NMAC	Operating Permits	Yes	Facility	**Landfills:** Red Rock Landfill is subject to Title V due to NSPS WWW. 40 CFR 60.752 (b) states: The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters is subject to part 70 or 71 permitting requirements.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	Red Rock Landfill is subject to 20.2.70 NMAC as cited at 20.2.71.109 NMAC. The Fee regulation allows the Department to collect fees on established emission limits and this permit currently does not have established emission limits. If the fee regulation is revised to allow fees again for landfills, then the facility will then be required to pay the fees.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	Applicable to all facilities that require a permit. PER **>** 10 tpy for a regulated air contaminant.
20.2.77 NMAC	New Source Performance	Yes	Unit 3	Applies to any stationary source constructing or modifying and which is subject to the requirements of 40 CFR Part 60.

Example of a Table for Applicable FEDERAL REGULATIONS (Note: This is not an exhaustive list):

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	Independent of permit applicability; applies to all sources of emissions for which there is a Federal Ambient Air Quality Standard. Applicable at the time air dispersion modeling was performed for Red Rock Regional Landfill Operating Permit P252L.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Unit 3	Applies if any other subpart applies and subparts Cf and WWW apply.
NSPS 40 CFR 60, Subpart Cf	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills	Yes	Unit 3	Pursuant to §60.31f(a), Red Rock Landfill is subject to this subpart: Red Rock Landfill is a MSW landfill subject to emission guidelines 60.30f through 60.41f. The designated facility to which these Emission Guidelines apply is each existing MSW landfill for which construction, reconstruction, or modification was commenced on or before July 17, 2014. Red Rock Landfill is an active municipal solid waste landfill, constructed in 1996 with a capacity of 5.987 million megagrams by mass and 11,851,000 (11.851 million) cubic meters by volume, exceeding the subpart's threshold of 2.5 million megagrams and 2.5 million cubic meters. Therefore, Red Rock Landfill would be subject to the newly promulgated 34 megagrams per year threshold for installation of a gas collection system, if and when it meets the conditions in §60.33f(a)(3).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				The landfill's NMOC projection is 17.8 Mg/yr in 2027. Therefore, it is unlikely the landfill will meet the 34 Mg/yr threshold in the near future.
NSPS 40 CFR 60, Subpart WWW	NSPS- Standards of Performance for Municipal Waste Solid Landfills	Yes	Unit 3	Applies since Red Rock Landfill is a municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Red Rock Landfill is an active municipal solid waste landfill constructed in 1996 with a design capacity of 11,851,000 cubic meters (11.851 million M^3) and NMOC < 50 Mg/yr. NMOC is expected to be 17.8 Mg/yr in 2027. Subject to TV Permitting: The facility Owners/Operators (O/O) are subject to 40 CFR 60.752(a), 60.752(b) (TV permitting), and 60.752(b)(1) as the NMOC emission rates is less than 50 Mg/yr.
NSPS 40 CFR 60, Subpart XXX	Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014	No	Unit 3	NSPS 40 CFR 60, Subpart XXX does not apply to MSW landfills that commenced construction, modification, or reconstruction on or before July 17, 2014.
40 CFR 82	Protection of **Stratospheric Ozone**	Yes	Unit 2	Per Red Rock Regional Landfill Operations Plan: Landfill personnel will be trained in handling white goods to ensure that white goods containing CFC's are not damaged. Landfill personnel will segregate white goods containing CFC's from other white goods. The CFC containing white goods will be stored lying on their sides so that they will not tip or fall over and possibly release CFC's. The landfill foreman will ensure that the scrap metal and white good areas are marked with signs and easily accessible. The landfill manager will conduct spot checks to ensure that procedures are being followed and that the areas are in compliance with all regulatory procedures. The landfill manager will solicit bids for a contract to remove the refrigerant (CFC)'s as needed from white goods at least once a year or more often as necessary. The landfill manager will solicit bids for a contract for scrap metal and white good removal. The contracts for scrap metal and white good removal will include weight of material removed. The weight and type of material will be recorded and tracked by the scale operator as part of daily operations on the operating record. The landfill manager will specify the timeline of removal of scrap metal and white goods as part of the removal contract. Per 40 CFR 82.161: "Any person who could be reasonably expected to violate the integrity of the refrigerant circuit during the maintenance, service, repair, or disposal of appliances (as follows in this paragraph) containing a class I or class II refrigerant or a non-exempt substitute refrigerant must pass a certification exam offered by an approved technician certification program."
40 CFR 98	Mandatory Greenhouse Reporting	Yes	Unit 2	Required but not applicable in Title V.

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.

X **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.

Because it is subject to an emissions standard under 20.2.70 NMAC and 40 CFR 60, Subparts A and WWW, 20.2.7.14 A and B NMAC requirements do not apply to Red Rock Regional Landfill.

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.

This section is not applicable to Red Rock Regional Landfill.

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.

X No modeling is required.

Red Rock Regional Landfill is subject to Title V due to NSPS WWW and has completed air dispersion modeling in accordance with 20.2.70.201.D(3). Current facility operations do not require a construction permit, and no changes have been made to the landfill operations since modeling was conducted in 2011.
Air Quality Dispersion Modeling was conducted for Red Rock Regional Landfill Permit No. P252L by David Heath, Air Quality Bureau, dated 6/2/2011. The conclusion states, "This modeling analysis demonstrates that normal operation of the facility does not cause or significantly contribute to any exceedances of applicable air quality standard. The standards relevant at this facility are NMAAQS for TSP and NAAQS for PM2.5 and PM10." This (these) model(s) are currently on file with the Air Quality Bureau.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

Red Rock Regional Landfill does not have an NSR permit.

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.

Red Rock Regional Landfill is defined as a major source in 20.2.70 NMAC.

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.

Red Rock Regional Landfill does not have an emission source subject to 40 CFR 64.

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.

20.2.1 NMAC: Compliance will all other applicable requirements will satisfy the requirements of 20.2.1 NMAC.
20.2.7 NMAC: Excess Emissions During Malfunction, Startup, Shutdown, or Scheduled Maintenance
Minimization of excess emissions: initial report (end of next business day) and final report (<10 days) after excess emissions. All Title V major sources are subject to Air Quality Control Regulations Records kept of any excess emission periods and notifications provided to NMED.

20.2.64 NMAC: These regulations provide guidance but do not impose any specific requirements on the operation of this facility.

20.2.70 NMAC: Operating Permits

Being regulated under Sections III and/or 112 of the federal Clean Air Act, this facility requires an operating permit This Application for Permit satisfies applicable requirements.

20.2.71 NMAC: Operating Permit Fees

It is anticipated that no maximum allowable emission limits will be imposed for this facility, as estimated emissions of any **fee** pollutant are less than 100 tons per year and 10 tons per year for any HAP or 25 tons per year for any combination of HAPs.

20.2.73 NMAC: NOI & Emissions Inventory Requirements

Reporting requirements: This facility does not emit or have the potential to emit 5 tons per year or more of lead or lead compounds, or 100 tons per year or more of PM IO, PM2.5, SOx, NOx, CO, or VOCs.

20.2.77 NMAC: New Source Performance

Design capacity for facility is > 2.5 million megagrams and 2.5 million m3. Operating Permit will satisfy NSPS Subpart WWW requirements.

40 CFR 50: National Ambient Air Quality Standards (NAAQS)

Compliance demonstrated by Air Dispersion Modeling submitted to the AQB during previous permitting period.

40 CFR 60 A: NSPS -General

General Provisions

Operating Permit will satisfy NSPS Subpart A requirements.

40 CFR 60 Cf: NSPS -Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

The facility will continue to monitor NMOC emission rates, calculated in accordance with Subpart WWW, and does not anticipate exceedance of 34 Mg/yr.

40 CFR 60 WWW: NSPS -Standards of Performance for Municipal Waste Solid Landfills

Design capacity for facility is > 2.5 million megagrams and 2.5 million m^3

Operating Permit will satisfy NSPS Subpart WWW requirements.

40 CFR 60 XXX: Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014

Does not apply to MSW landfills that commenced construction, modification, or reconstruction on or before July 17, 2014.

40 CFR 82 -Protection of Stratospheric Ozone

Design capacity for facility is > 2.5 million megagrams and 2.5 million m^3

This facility will continue to handle CFC containing white goods to ensure compliance requirements.

40 CFR 98 – Mandatory Greenhouse Reporting

Required but not applicable in Title V.

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.

It is the intent of the landfill operator to continue to be in compliance with requirements for which it is in compliance at the time of permit application. The landfill operator is committed to comply with other applicable requirements as they come into effect during the permit term. This compliance will occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

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.

Red Rock Regional Landfill will submit certification of compliance on an annual basis throughout the term of the 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? **X Yes** **☐ No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? **☐ Yes** **X 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)? **X 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.)

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40 CFR 82 Subpart F – Recycling and Emissions Reduction
Per 82.161, Any person who could be reasonably expected to violate the integrity of the refrigerant circuit during the maintenance, service, repair, or disposal of appliances (as follows in this paragraph) containing a class I or class II refrigerant or a non-exempt substitute refrigerant must pass a certification exam offered by an approved technician certification program.

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**.

Red Rock Regional Landfill is in compliance with all applicable requirements at the time the permit application is submitted to the department.

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.

Red Rock Regional Landfill is not subject to section 112(r) of the Clean Air Act.

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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.)

NM Counties : McKinley - 0 km, Cibola - 13km, San Juan – 64km, and Sandoval – 79km
Indian Pueblos & Reservations: Acoma – 61km, Navajo – 5km, Zuni – 77km, and Laguna – 79km.

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

Responsible Official (20.2.70.300.D.2 NMAC):	**Billy Moore**
Phone:	**(505) 905-8402**
R.O. Title:	**Executive Director**
R.O. e-mail:	**billy.moore@co.mckinley.nm.us**
R. O. Address:	**P.O. Box 1330, Thoreau, NM 87323**

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.

N/A

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? 60+ years			
2	Maximum operational hours per year: 2700 hours/year			
3	Landfill Operating hours (open to the public) M-F: 8:00 a.m. to 5:00 p.m.	Sat. 8:00 a.m. to 3:00 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. 1996			
5	Landfill Design Capacity. Enter all 3	Tons: 6,600,000	Megagrams (Mg): 5,987,419	Cubic meters: 11,851,000
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: 215,600 cubic meters per year in 2020, but varies			
8	Is Petroleum Contaminated Soil Accepted? Yes	If so, what is the annual acceptance rate? Varies, 5-year average is 428 cubic meters.		
9	NM Solid Waste Bureau (SWB) Permit No.: SWM-172203, SWM-051740	SWB Permit Date: January 14, 2016		
10	Describe the NM Solid Waste Bureau Permit, Status, and Type of waste deposited at the landfill. On March 20, 2009, conditional permit SWB-08-31(P) was issued to Red Rock Regional Landfill for the disposal of MSW and Special Waste including Industrial, Sludge, and PCS. The permit was a five (5) year conditional rehabilitation permit plus a fifteen (15) year extension permit. The 5-year rehabilitation permit has been satisfied, and the 15-year extension permit was approved January 14, 2016.			
11	Describe briefly any process(es) or any other operations conducted at the landfill. Recycling of tires, plastics, cardboard, paper, and metal is performed at the landfill.			

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): 14.27 Mg/yr in calendar year 2020.
2	Tier 2 Sampling:
3	Tier 3 Rate Constant:
4	Tier 4 Surface Emissions Monitoring:
5	Attach all Tier Procedure calculations, procedures, and results used to determine the Gas Collection and Control System (GCCS) requirements.

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?
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.
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?
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)?
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.
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)?

Section 22: Certification

Company Name: Red Rock Regional Landfill

I, Billy Moore, 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 ____ day of _____, _____, upon my oath or affirmation, before a notary of the State of

New Mexico.

_____ _____
*Signature Date

Billy Moore Executive Director
Printed Name Title

Scribed and sworn before me on this ____ day of _____, _____.

My authorization as a notary of the State of _____ expires on the

_____ day of _____, _____.

_____ _____
Notary's Signature Date

_____
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.

Section 22: Certification

Company Name: Red Rock Regional Landfill

I, Billy Moore, 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 2nd day of June, 2021, upon my oath or affirmation, before a notary of the State of New Mexico.

Billy Moore
*Signature

6/2/21
Date

Billy Moore
Printed Name

Executive Director
Title

Scribed and sworn before me on this 2nd day of June, 2021

My authorization as a notary of the State of New Mexico expires on the 29th day of November, 2024.

Sally D Mayberry
Notary's Signature

6/2/21
Date

Sally D Mayberry
Notary's Printed Name

OFFICIAL SEAL
Sally D Mayberry
NOTARY PUBLIC-State of New Mexico
My Commission Expires 11/29/2024

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.

Red Rock Regional Landfill

Operations Plan

Revised May 2020

Daily Operating Record

The daily operating record will include all information specified in section 20.9.5.16 of the SWR. There are three main categories of information required for the daily operating record. The first category is waste load information pertaining to each load of waste that enters the landfill. The second category is implementation and deviation information such as load inspections, monitoring results, and construction logs that must be compiled at set intervals. The third category is facility operations information such as the facility permit and financial assurance plan that are required for facility operations. The information required for each category is listed below.

Waste Load Information

Each load of waste will have the following information recorded in the Waste Works system at the time the load is weighed in at the scale house:

- the type (including special waste) and weight or volume of each load of solid waste received;
- the country (if other than the United States), state, county, and municipality in which the solid waste originated (i.e. the origin);
- the business name of any commercial hauler of solid waste for each load of the solid waste if it can be reasonably obtained;
- type and weight or volume of non-solid waste materials, as referenced in Paragraph (9) of Subsection S of 20.9.2.7 NMAC, received;
- the generator of any special waste received
- the disposal location of any special waste received

At the end of each day, Waste Works will generate a report containing the above information for inclusion in the operating record. Additionally, the following information will be complied daily and included in the operating record:

- copies of special waste manifests required under 20.9.8.19 NMAC
- copies of certificates of processing, transformation, or disposal of special wastes required under 20.9.8.13 NMAC

Implementation and Deviation Information

- a record of load inspections
- a description of solid waste or special waste handling problems or emergency disposal activities
- a record of deviations from the approved design or operational plans

- a daily log of construction activities
- any documentation of implementation of required plans
- all monitoring and testing results

All records of deviations, waste handling problems, and construction activities will be annotated on a daily deviation form and filed by the compliance clerk. Documentation of plans will be reviewed and filed by the compliance clerk. Completed random load inspections and monitoring results will be reviewed by the compliance clerk and filed as part of the operating record.

Facility Operations Information

- plans for operations, contingencies, detection and identification of unauthorized waste, and any other plans required by 20.9.2 - 20.9.10 NMAC
- financial assurance information, including a copy of the current standby trust document, current estimates for closure, post-closure care, phase I and phase II assessments and a copy of the financial assurance mechanism being utilized
- a complete and current copy of the facility permit, final order issuing the permit, and any approvals granted by the secretary under 20.9.2 - 20.9.10 NMAC
- any demonstration made to the secretary under Paragraphs (12) and (13) of Subsection A of 20.9.4.9 NMAC regarding seismic impact areas and unstable areas

All plans and information required above will be compiled, reviewed, and filed by the compliance clerk and made accessible for inspection as needed.

All staff that completes forms that are part of the operating record will be trained in the proper method of completing the forms. The training will include the applicable rules, information required in each field, frequency of completion, and the tracking and review process for each form. A sample form that is fully completed and annotated will be utilized to show the operator the correct way to complete each form. If deficiencies are discovered in accurately completing a form, the staff member will receive additional training tailored to the specific deficiencies noted. All training on operating records will be annotated in the employee training record.

Compaction of Waste

The landfill foreman will prepare and conduct a daily briefing to equipment operators and laborers. The briefing will discuss topics such as the location of the active face that will be used for the day, to include boundaries and dimensions. The landfill foreman will also provide the work schedule and task listing at the briefing. If conditions at the landfill change during the day, the landfill foreman will redirect operations as necessary.

The landfill foreman and equipment operators will take measures to ensure the active face is kept as small as practically possible for daily operations. During the working day, a GPS coordinate will be taken of the active face to produce an approximate area of the day's active face. Any training conducted regarding compaction or cover operations will be documented in the employee training record.

The compaction of waste will be conducted by the equipment operators using a landfill compactor. The compactor operator will spread trash into approximately two foot lifts and begin compaction. The compactor operator will conduct a minimum of 3-5 passes per lift to achieve proper compaction or more as directed by the landfill foreman or landfill manager. The exact number of passes and compaction density will vary with the type of waste being compacted. A rule of thumb compaction density for municipal waste is 1200 pounds per cubic yard. The landfill foreman will visually supervise the equipment operators daily to ensure proper compaction.

The landfill foreman or designee will develop and implement a training plan to ensure the competency of the equipment operators. All training will be documented through an evaluation sheet and retained in the employee file. The training plan will consist of vehicle operations and maintenance, proper compaction techniques, hazmat identification procedures, identification of unauthorized waste, contingency plans, and basic regulatory compliance procedures. The training will include a practical exercise portion where the operator will conduct compaction operations under the supervision of the landfill foreman.

Daily and Intermediate Cover

The work schedule for equipment operators will include a list of tasks by priority and will address the placing of daily and intermediate cover, location of excavation, road grading, slope shaping, vehicle maintenance, and site maintenance. The landfill foreman will also specify where wind screens will be placed and any other tasks that will be completed during the day. The landfill foreman will include directions to the equipment operators to cut and fill areas in order to achieve the proper slopes.

The scraper operator will keep a daily count of the number of loads used to provide active cover and intermediate cover. The count will be separated into daily cover loads and intermediate cover loads. At the end of the working day, the scraper operator will give the load counts to the landfill foreman, who will determine the volume in cubic yards of cover material. The landfill foreman will annotate this information on the daily cover form and will file the information at the scale house.

The landfill foreman will calculate the volume of daily cover applied to ensure that the active face is covered with six inches of soil at the end of daily operations. The soil will be emplaced more often as conditions dictate, such as inactivity at site, rain, high wind, or other conditions that make more frequent cover necessary. The landfill foreman will calculate the volume of intermediate cover applied to ensure that any area of a landfill that has not received waste for 60 days or longer is covered with an intermediate cover of soil that is at least one foot thick. With consultation with the landfill manager, the landfill foreman will stage the filling of a cell to minimize the amount of intermediate cover necessary. The daily cover form will be used to calculate daily cover applied.

The landfill foreman will prepare a map of the landfill that divides the landfill into active, intermediate, and final cover zones. The map will aid the landfill foreman in preparing the daily brief and in directing the placement of daily and intermediate cover. The map will be updated monthly to reflect continuing operations. The landfill foreman will conduct a weekly inspection of all areas of the landfill to ensure accuracy in mapping and to determine problems areas in the landfill.

The landfill manager will conduct spot checks of daily operations to ensure that all operations are in compliance with regulations and procedures. The manager will review the daily cover form and zone map to ensure that the proper amount of daily and intermediate cover is emplaced.

Litter Control

The primary methods of litter control will be control, containment, and clean-up. Primary control of litter will be accomplished by prompt and proper compaction and placement of daily cover. During periods of wind activity, daily cover will be emplaced immediately after the compaction process in order to mitigate litter propagation. At the discretion of the landfill manager, disposal operations will be suspended or moved to areas protected from prevailing winds during periods of heavy and/or sustained wind activity. The landfill manager will weigh factors such as weather forecasts, storage capacity, available work force, etc., in making this decision. If possible, transfer stations will suspend hauling waste to the landfill and commercial haulers appearing at the landfill will be diverted to the transfer stations.

Containment of litter will be provided through the use of fencing and portable litter fences to stop blowing litter from spreading beyond the active face. The landfill foreman will designate fencing positions near the active face to contain litter that blows away from the active face. The placement of litter fences will be opposite the prevailing wind direction. Secondary fencing positions such as additional portable litter fences or permanent fencing will be emplaced as needed to catch litter that has migrated past the primary fencing positions.

Clean-up of fugitive litter will be accomplished by regular inspection and litter pick up by landfill labor personnel. The landfill foreman will direct pick up operations and schedule increased laborer support, such as county detainees, Youth Conservation Corps or temporary employees during periods of heavy winds.

Data from the weather station will be used to document weather conditions that affect litter control operations.

The landfill manager will monitor litter control operations and may direct additional methods and resources as necessary.

Waste Screening for Unauthorized Waste

A minimum of one load per day or one percent of the loads, whichever is greater, will be selected for inspection. The number of inspections performed during the week will vary with the daily load frequency. The Landfill Foreman, or designee, will determine by randomization a load to inspect during that period and will inspect the appropriate load. The inspection intervals will be rotated periodically to avoid setting a predictable pattern. Special waste loads will be included in the randomization process and eligibility for inspection. All loads originating from a medical facility will be inspected.

When a load that will be inspected arrives at the landfill, the landfill foreman or the designated inspector will guide the load to the designated inspection area near the active face, unless the load is a special waste that requires special handling procedures. The inspection area will be adjacent to but separate from the active face. The inspection team will have the load spread in the inspection area and determine if any unauthorized waste is

present. If no unauthorized waste is present, the load will be moved to the active face and handled normally. If unauthorized waste is found, the waste will marked, and covered until the generator of the waste, or appropriate transporter, can pick it up. If the unauthorized waste is small enough to move and poses no health, safety, or environmental risk the waste will be removed to the storage area adjacent to the maintenance building. The load inspector will alert the landfill manager, who will notify the NMED, and the hauler and generator of the waste at once by phone and in writing within 48 hours. If the waste poses an immediate health or environmental risk, the inspection team will evacuate the area and take appropriate actions to restrict public and landfill personnel access such as covering the load and erecting barriers. The load inspector and landfill manager will follow the same alert procedures as detailed for non-reactive waste. The landfill manager will coordinate with appropriate agencies to conduct waste removal and site cleanup of the waste.

The load inspector will complete the Random Load Inspection Form and have both the driver of the load and the inspector sign and date the form. The form will be filed at the Scale house in both hardcopy and scanned Adobe Acrobat© Format. The completed inspection sheets will be placed in a file as designated by the landfill manager and made available for inspection by the NMED. The electronic copies of the inspection sheets will be archived and made available for inspection as necessary.

The landfill foreman will designate and train load inspectors from the laborers and equipment operators. The landfill foreman will specify the number of inspectors for each random inspection load based on the size of the load and volume of activity at the landfill site at the time of inspection. The inspection team will wear steel toed boots, gloves, eye protection, and reflective vests, and will have rakes and other implements necessary to spread waste. The lead inspector will have the random load inspection form to document if any unacceptable waste is found. The landfill foreman will be present for all inspections if possible. If the landfill foreman is unable to be present at an inspection, the foreman will designate a lead inspector. The lead inspector will be responsible for filling out the Random Load Inspection Sheet to document the inspection. Once the inspection is completed, the lead inspector will give the form to the landfill foreman, who will check to ensure the form is complete and correctly filled out. The landfill foreman will then file the completed inspection sheet with the compliance clerk. The landfill manager will provide oversight of the inspection process by conducting spot checks, witnessing inspections, and reviewing inspection sheets for accuracy. The landfill manager will specify procedures for heightened scrutiny for haulers or generators that have past violations for unacceptable or waste that originates from hospitals or industrial facilities.

Equipment/Truck Maintenance

A list will be compiled of existing equipment, manuals, and maintenance logs. The manuals and service guides will be studied to determine the proper interval for routine maintenances operations such as oil and filter changes, lubrication, and spark plugs. A service schedule form will be generated for each piece of equipment that will list the intervals for each maintenance operation and the last time each operation was performed. The mechanics and landfill foreman will develop service schedule for vehicle maintenance services that incorporates downtime necessary for maintenance. The landfill foreman will include vehicle maintenance in the daily work priorities. Any vehicle problems and repairs will be annotated on the service schedule form in order to provide tracking.

Before each day's operation, the operator of each piece of equipment will conduct an inspection of their equipment to ensure that it is functional and ready to safely operate. The inspection shall consist of a vehicle walk around to find any visible damage or defective tires. After the walk around, the operator will check the oil level and any other fluids as necessary. Once the engine reaches operating temperature, the operator will monitor the gauges for any problems. A daily inspection form will be completed by the operator for each piece of equipment/truck operated each day. If any problems are discovered, the operator note the problems on the inspection form and notify the landfill foreman of the problem. The landfill foreman and mechanic will make a decision of whether to allow the vehicle to continue operations or bring the vehicle in for service and repair.

The landfill foreman will review daily inspection sheets to ensure that they are correctly filled out and that necessary maintenance is scheduled with the mechanic. The landfill manager will conduct periodic inspections of vehicles and service schedule forms to ensure that proper maintenance is being conducted.

The landfill foreman and mechanic will determine if a major vehicle repair can be done by the mechanic. If the repair is beyond the scope of the mechanic, the landfill foreman and landfill manager will coordinate for contract repair. The landfill manager and landfill foreman will coordinate alternate machinery for the inoperative equipment. This could include a short term lease, or borrowing equipment from other city, county, or state agencies.

Scrap Metal / White Goods

The procedures for handling scrap metal and white goods begin at the Scale house when the load comes in to be weighed. The scale operator will ask the driver of the load to declare what kind of waste is being carried. Upon learning that scrap metal or white goods are being carried the scale operator will direct the load to the scrap metal and white good recycling area. The scale operator will contact the landfill foreman and inform the foreman that a load of white goods or scrap metal is being offloaded. Designated landfill personnel will ensure that the load is offloaded in the appropriate area and that no municipal waste is offloaded into the white goods and scrap metal areas.

The landfill foreman or designated personnel will inspect the white goods and scrap metal areas daily to ensure that no solid waste is being dumped in those areas. Landfill personnel will be trained in handling white goods to ensure that white goods containing CFC's are not damaged. Landfill personnel will segregate white goods containing CFC's from other white goods. The CFC containing white goods will be stored lying on their sides so that they will not tip or fall over and possibly release CFC's. The landfill foreman will ensure that the scrap metal and white good areas are marked with signs and easily accessible. The landfill manager will conduct spot checks to ensure that procedures are being followed and that the areas are in compliance with all regulatory procedures.

The landfill manager will solicit bids for a contract to remove the refrigerant (CFC)'s as needed from white goods at least once a year or more often as necessary. The landfill manager will solicit bids for a contract for scrap metal and white good removal. The contracts for scrap metal and white good removal will include weight of material removed. The weight and type of material will be recorded and tracked by the scale operator as part of daily operations on the operating record. The landfill manager will specify the timeline of removal of scrap metal and white goods as part of the removal contract.

Management of Scrap Tires

The Solid Waste Rules (SWR) pertaining to recycling, illegal dumping, and scrap tire management: Title 20 Environmental Protection, Chapter 9 Solid Waste, Part 20 Recycling, Illegal Dumping and Scrap Tire Management will be provided in digital (PDF) format with the affirmative action plane. The sections that apply to the landfill are 20.9.20.45, 50, 55, 60, and 63.

The scale operator will determine when a load contains tires and will require a New Mexico Scrap Tire Form if the load contains more than 10 tires. The scale house operator will keep a copy of the manifest and return the original copy to the generator of the tire load within 30 days of receipt of the load. The copy will be filed by the compliance clerk and will be retained through closing of the landfill. Manifests are not required for

NWNMRSWA vehicles transporting tires from transfer stations to the landfill. Once any manifest processing is completed, the scale house operator will assess the current tipping fee based on the following schedule which is subject to change:

Tires (Each)	
Standard Auto (up to 15")	$3.00
Truck	$8.00
Tractor	$25.00
Tires per ton	$200.00

The scale operator will direct the load to the designated tire storage area and inform the landfill foreman that a load of tires is being dumped. The landfill foreman or designated personnel will conduct a daily inspection of the tire area to ensure that no unauthorized waste is in the area. The landfill manager will conduct spot checks to ensure that tire manifests are being correctly completed and filed. The landfill manager will also conduct periodic inspections of the tire storage area to ensure that no solid waste is present in the area and that the tires are being stored in a safe manner.

Incoming tires will be baled by landfill staff or contractor and placed in a baled tire fence. The landfill estimates that approximately 36,000 tires are received annually. Tires coming in on a regular basis will be processed on a regular basis to prevent the accumulation of large quantities.

Cell, Slopes and Final Cover Grade

Base grade cell elevations will be verified in accordance with the Quality Assurance/Quality Control Plan developed for the Permit and within the Construction Quality Control section. The grade cell elevations will be certified by a New Mexico Registered Land Surveyor. Filling of the landfill will progress and in those areas where the grades are close to reaching final grades the area will be monitored to prevent exceeding the final grades. When the grades within the cell reach the final grades a New Mexico Registered Land Surveyor will set grade stakes to aid in determining remaining height left in the fill areas. Once the final cover is placed, a New Mexico Registered Land Surveyor will survey the site and certify the final grades.

Storm Water Control, Erosion Repair and Maintenance

The landfill foreman or designated personnel will conduct a weekly inspection of the diversion ditches, berms, storm water retention pond, and other components of the storm water containment system to ensure they are in compliance with the SWPPP and NPDES permit guidelines. Repairs will be made as necessary. The landfill foreman will conduct a daily inspection of the landfill area to identify areas that are susceptible to increased erosion and will direct controls as necessary and document any repairs or changes in the operating record. The landfill foreman and landfill manager will provide supervisory oversight of the storm water and erosion plan by conducting spot checks and scheduling repair work as necessary to implement the plan. The landfill foreman will ensure that materials for the storm water containment system such as silt fencing, compost socks, sandbags, and other material is on hand and ready for use if needed during storm events in order to stay in compliance with the NPDES permit.

After special weather events, such as heavy rain, wind, snow, or other activity, the landfill foreman will conduct a site walkthrough of all components of the storm water containment system to check for flooding, damage or breach of fencing, levels of water in holding ponds, and other changes in the system. The landfill foreman will document the inspection with pictures and will notify the NMED after extraordinary events.

Leachate Management

The leachate level will be monitored at a minimum of a weekly basis and more frequently as necessary. The maximum allowable leachate head is 12 inches above the liner. The depth of the leachate will be determined by using a yardstick or other calibrated instrument to record the depth of leachate from the bottom of the leachate collection sump. Prior to the leachate level exceeding 12 inches above liner, each collection sump will be pumped and used for dust control at the top of the landfill. The operator will annotate the amount of leachate pumped from each leachate collection sump. The amount of leachate pumped will be calculated by measuring the amount of water in the tank of the water truck the leachate will be pumped into, and the amount of water/ leachate in the water tank after leachate is pumped into water tank, calculating gallons by inches of water/leachate added to water tank. The landfill foreman will supervise the pumping operator as necessary and will conduct spot checks of the leachate collection sumps to ensure that the leachate head remains within acceptable parameters. The amount of leachate generated by each sump will be entered into a leachate production log and compiled quarterly as part of the operating record.

Testing will be conducted at two year intervals in accordance with the NMED Solid Waste Bureau Landfill Leachate Monitoring Guidelines dated June 2008. The compliance clerk, under the supervision of the landfill manager, will implement an appointment tasking in Microsoft Outlook or other calendar software and in hardcopy for specified leachate testing and reminders prior to the testing date. The landfill manager will specify a sampling agent that will be certified on all procedures necessary for leachate sampling. The sampling agent will collect leachate samples in accordance with the NMED guidelines. The leachate sampling results will be submitted to NMED within 60 days of the sampling event. When the laboratory results are received, they will be analyzed and filed by the compliance clerk. The landfill foreman will supervise the sampling agent in the collection and management of leachate samples. The landfill manager will schedule laboratory testing and conduct spot checks in the implementation of the leachate management plan. The sampling agent will provide results to the landfill manager and compliance clerk for filing and compliance purposes.

Summary Report

Landfill Name or Identifier: Red Rocks Regional Landfill

Date: Monday, May 24, 2021

Description/Comments:
Waste acceptance rates are determined as follows: 1996 - 2014 rates are actual. 2015 - future rates are calculated using an annual increase of 1.1% per year.

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	**1996**	
Landfill Closure Year (with 80-year limit)	**2055**	
Actual Closure Year (without limit)	***2055***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**6,600,000**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*year $^{-1}$*
Potential Methane Generation Capacity, L_o	**100**	*m^3/Mg*
NMOC Concentration	**600**	*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)*
1996	60,255	66,281	0	0
1997	92,214	101,435	60,255	66,281
1998	117,734	129,507	152,469	167,716
1999	96,743	106,417	270,203	297,223
2000	93,737	103,111	366,945	403,640
2001	113,685	125,053	460,682	506,751
2002	94,717	104,189	574,367	631,804
2003	81,814	89,995	669,084	735,993
2004	88,161	96,977	750,898	825,988
2005	84,013	92,415	839,059	922,965
2006	82,859	91,145	923,072	1,015,379
2007	89,978	98,976	1,005,931	1,106,524
2008	79,037	86,941	1,095,910	1,205,501
2009	77,603	85,363	1,174,947	1,292,441
2010	63,083	69,391	1,252,549	1,377,804
2011	78,175	85,992	1,315,632	1,447,195
2012	83,110	91,421	1,393,807	1,533,187
2013	87,145	95,859	1,476,917	1,624,608
2014	83,874	92,261	1,564,061	1,720,467
2015	84,900	93,390	1,647,935	1,812,728
2016	88,767	97,644	1,732,835	1,906,118
2017	91,565	100,721	1,821,602	2,003,762
2018	85,325	93,857	1,913,167	2,104,484
2019	94,708	104,179	1,998,492	2,198,341
2020	113,603	124,963	2,093,200	2,302,520
2021	90,841	99,925	2,206,803	2,427,483
2022	91,841	101,025	2,297,644	2,527,408
2023	92,851	102,136	2,389,484	2,628,433
2024	93,872	103,259	2,482,335	2,730,569
2025	94,905	104,395	2,576,207	2,833,828
2026	95,949	105,544	2,671,112	2,938,223
2027	97,004	106,705	2,767,061	3,043,767
2028	98,071	107,878	2,864,065	3,150,471
2029	99,150	109,065	2,962,136	3,258,350
2030	100,241	110,265	3,061,286	3,367,415
2031	101,343	111,478	3,161,527	3,477,679
2032	102,458	112,704	3,262,870	3,589,157
2033	103,585	113,944	3,365,328	3,701,861
2034	104,725	115,197	3,468,913	3,815,804
2035	105,876	116,464	3,573,638	3,931,001

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2036	107,041	117,745	3,679,514	4,047,466
2037	108,219	119,040	3,786,555	4,165,211
2038	109,409	120,350	3,894,774	4,284,251
2039	110,612	121,674	4,004,183	4,404,601
2040	111,829	123,012	4,114,795	4,526,275
2041	113,059	124,365	4,226,625	4,649,287
2042	114,303	125,733	4,339,684	4,773,652
2043	115,560	127,116	4,453,987	4,899,386
2044	116,831	128,515	4,569,547	5,026,502
2045	118,117	129,928	4,686,379	5,155,017
2046	119,416	131,358	4,804,495	5,284,945
2047	120,730	132,802	4,923,911	5,416,302
2048	122,058	134,263	5,044,641	5,549,105
2049	123,400	135,740	5,166,698	5,683,368
2050	124,758	137,233	5,290,099	5,819,108
2051	126,130	138,743	5,414,856	5,956,342
2052	127,517	140,269	5,540,986	6,095,085
2053	128,920	141,812	5,668,503	6,235,354
2054	130,338	143,372	5,797,423	6,377,166
2055	131,772	144,949	5,927,761	6,520,538
2056	0	0	6,059,533	6,665,487
2057	0	0	6,059,533	6,665,487
2058	0	0	6,059,533	6,665,487
2059	0	0	6,059,533	6,665,487
2060	0	0	6,059,533	6,665,487
2061	0	0	6,059,533	6,665,487
2062	0	0	6,059,533	6,665,487
2063	0	0	6,059,533	6,665,487
2064	0	0	6,059,533	6,665,487
2065	0	0	6,059,533	6,665,487
2066	0	0	6,059,533	6,665,487
2067	0	0	6,059,533	6,665,487
2068	0	0	6,059,533	6,665,487
2069	0	0	6,059,533	6,665,487
2070	0	0	6,059,533	6,665,487
2071	0	0	6,059,533	6,665,487
2072	0	0	6,059,533	6,665,487
2073	0	0	6,059,533	6,665,487
2074	0	0	6,059,533	6,665,487
2075	0	0	6,059,533	6,665,487

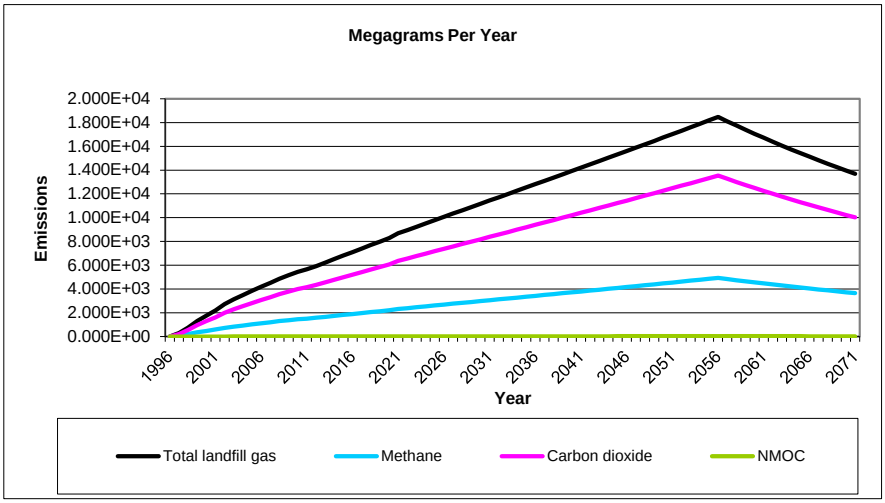
Pollutant Parameters

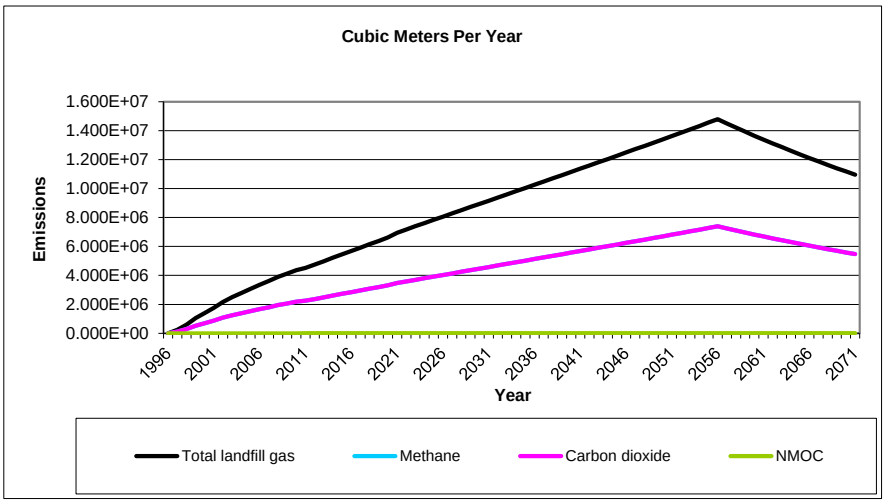
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl 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		

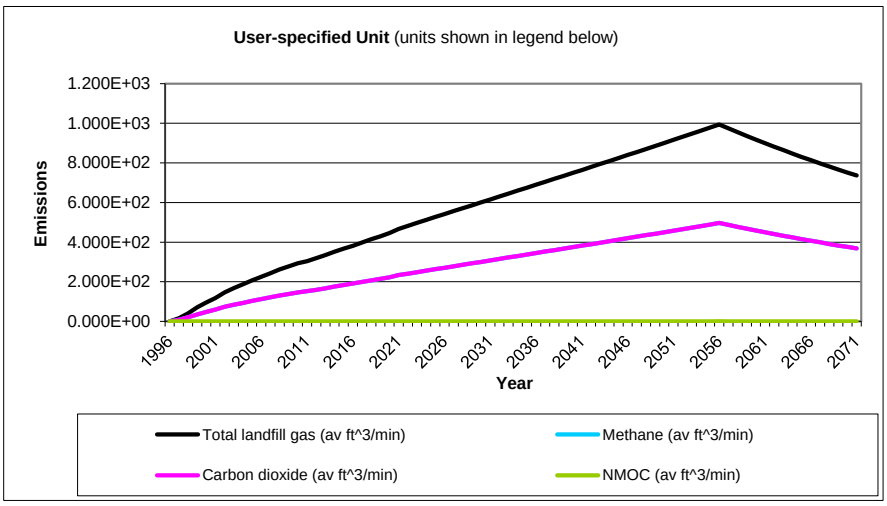
Pollutant Parameters (Continued)

		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
2.000E+04
1.800E+04
1.600E+04
1.400E+04
1.200E+04
1.000E+04
8.000E+03
6.000E+03
4.000E+03
2.000E+03
0.000E+00
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
2071
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
1.600E+07
1.400E+07
1.200E+07
1.000E+07
8.000E+06
6.000E+06
4.000E+06
2.000E+06
0.000E+00
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
2071
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
1.200E+03
1.000E+03
8.000E+02
6.000E+02
4.000E+02
2.000E+02
0.000E+00
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
2071
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)*
1996	0	0	0	0	0	0
1997	2.983E+02	2.389E+05	1.605E+01	7.968E+01	1.194E+05	8.025E+00
1998	7.489E+02	5.997E+05	4.029E+01	2.000E+02	2.998E+05	2.015E+01
1999	1.317E+03	1.055E+06	7.085E+01	3.518E+02	5.273E+05	3.543E+01
2000	1.770E+03	1.417E+06	9.522E+01	4.727E+02	7.086E+05	4.761E+01
2001	2.199E+03	1.761E+06	1.183E+02	5.873E+02	8.804E+05	5.915E+01
2002	2.718E+03	2.177E+06	1.462E+02	7.260E+02	1.088E+06	7.312E+01
2003	3.133E+03	2.509E+06	1.686E+02	8.369E+02	1.254E+06	8.429E+01
2004	3.476E+03	2.784E+06	1.870E+02	9.285E+02	1.392E+06	9.351E+01
2005	3.844E+03	3.078E+06	2.068E+02	1.027E+03	1.539E+06	1.034E+02
2006	4.184E+03	3.350E+06	2.251E+02	1.117E+03	1.675E+06	1.125E+02
2007	4.511E+03	3.612E+06	2.427E+02	1.205E+03	1.806E+06	1.214E+02
2008	4.867E+03	3.897E+06	2.619E+02	1.300E+03	1.949E+06	1.309E+02
2009	5.162E+03	4.133E+06	2.777E+02	1.379E+03	2.067E+06	1.389E+02
2010	5.444E+03	4.359E+06	2.929E+02	1.454E+03	2.180E+06	1.464E+02
2011	5.648E+03	4.523E+06	3.039E+02	1.509E+03	2.262E+06	1.520E+02
2012	5.924E+03	4.743E+06	3.187E+02	1.582E+03	2.372E+06	1.594E+02
2013	6.218E+03	4.979E+06	3.345E+02	1.661E+03	2.489E+06	1.673E+02
2014	6.526E+03	5.226E+06	3.511E+02	1.743E+03	2.613E+06	1.756E+02
2015	6.812E+03	5.455E+06	3.665E+02	1.820E+03	2.727E+06	1.833E+02
2016	7.097E+03	5.683E+06	3.819E+02	1.896E+03	2.842E+06	1.909E+02
2017	7.396E+03	5.923E+06	3.979E+02	1.976E+03	2.961E+06	1.990E+02
2018	7.703E+03	6.168E+06	4.145E+02	2.058E+03	3.084E+06	2.072E+02
2019	7.973E+03	6.385E+06	4.290E+02	2.130E+03	3.192E+06	2.145E+02
2020	8.284E+03	6.634E+06	4.457E+02	2.213E+03	3.317E+06	2.229E+02
2021	8.682E+03	6.953E+06	4.671E+02	2.319E+03	3.476E+06	2.336E+02
2022	8.960E+03	7.175E+06	4.821E+02	2.393E+03	3.587E+06	2.410E+02
2023	9.238E+03	7.397E+06	4.970E+02	2.467E+03	3.698E+06	2.485E+02
2024	9.514E+03	7.619E+06	5.119E+02	2.541E+03	3.809E+06	2.559E+02
2025	9.791E+03	7.840E+06	5.268E+02	2.615E+03	3.920E+06	2.634E+02
2026	1.007E+04	8.061E+06	5.416E+02	2.689E+03	4.030E+06	2.708E+02
2027	1.034E+04	8.282E+06	5.564E+02	2.763E+03	4.141E+06	2.782E+02
2028	1.062E+04	8.502E+06	5.713E+02	2.836E+03	4.251E+06	2.856E+02
2029	1.089E+04	8.723E+06	5.861E+02	2.910E+03	4.361E+06	2.930E+02
2030	1.117E+04	8.943E+06	6.009E+02	2.983E+03	4.471E+06	3.004E+02
2031	1.144E+04	9.163E+06	6.157E+02	3.057E+03	4.582E+06	3.078E+02
2032	1.172E+04	9.384E+06	6.305E+02	3.130E+03	4.692E+06	3.152E+02
2033	1.199E+04	9.604E+06	6.453E+02	3.204E+03	4.802E+06	3.226E+02
2034	1.227E+04	9.824E+06	6.601E+02	3.277E+03	4.912E+06	3.300E+02
2035	1.254E+04	1.004E+07	6.749E+02	3.351E+03	5.022E+06	3.375E+02
2036	1.282E+04	1.027E+07	6.898E+02	3.424E+03	5.133E+06	3.449E+02
2037	1.310E+04	1.049E+07	7.046E+02	3.498E+03	5.243E+06	3.523E+02
2038	1.337E+04	1.071E+07	7.195E+02	3.572E+03	5.354E+06	3.597E+02
2039	1.365E+04	1.093E+07	7.344E+02	3.646E+03	5.465E+06	3.672E+02
2040	1.393E+04	1.115E+07	7.493E+02	3.720E+03	5.576E+06	3.746E+02
2041	1.420E+04	1.137E+07	7.642E+02	3.794E+03	5.687E+06	3.821E+02
2042	1.448E+04	1.160E+07	7.792E+02	3.869E+03	5.799E+06	3.896E+02
2043	1.476E+04	1.182E+07	7.942E+02	3.943E+03	5.910E+06	3.971E+02
2044	1.504E+04	1.204E+07	8.093E+02	4.018E+03	6.022E+06	4.046E+02
2045	1.532E+04	1.227E+07	8.244E+02	4.093E+03	6.135E+06	4.122E+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)*
2046	1.560E+04	1.249E+07	8.395E+02	4.168E+03	6.247E+06	4.198E+02
2047	1.589E+04	1.272E+07	8.547E+02	4.243E+03	6.360E+06	4.274E+02
2048	1.617E+04	1.295E+07	8.699E+02	4.319E+03	6.474E+06	4.350E+02
2049	1.645E+04	1.318E+07	8.852E+02	4.395E+03	6.588E+06	4.426E+02
2050	1.674E+04	1.340E+07	9.006E+02	4.471E+03	6.702E+06	4.503E+02
2051	1.702E+04	1.363E+07	9.160E+02	4.547E+03	6.816E+06	4.580E+02
2052	1.731E+04	1.386E+07	9.314E+02	4.624E+03	6.931E+06	4.657E+02
2053	1.760E+04	1.409E+07	9.469E+02	4.701E+03	7.047E+06	4.735E+02
2054	1.789E+04	1.433E+07	9.625E+02	4.779E+03	7.163E+06	4.813E+02
2055	1.818E+04	1.456E+07	9.782E+02	4.856E+03	7.279E+06	4.891E+02
2056	1.847E+04	1.479E+07	9.939E+02	4.934E+03	7.396E+06	4.970E+02
2057	1.811E+04	1.450E+07	9.742E+02	4.837E+03	7.250E+06	4.871E+02
2058	1.775E+04	1.421E+07	9.549E+02	4.741E+03	7.106E+06	4.775E+02
2059	1.740E+04	1.393E+07	9.360E+02	4.647E+03	6.966E+06	4.680E+02
2060	1.705E+04	1.366E+07	9.175E+02	4.555E+03	6.828E+06	4.588E+02
2061	1.672E+04	1.338E+07	8.993E+02	4.465E+03	6.692E+06	4.497E+02
2062	1.638E+04	1.312E+07	8.815E+02	4.376E+03	6.560E+06	4.408E+02
2063	1.606E+04	1.286E+07	8.641E+02	4.290E+03	6.430E+06	4.320E+02
2064	1.574E+04	1.261E+07	8.470E+02	4.205E+03	6.303E+06	4.235E+02
2065	1.543E+04	1.236E+07	8.302E+02	4.122E+03	6.178E+06	4.151E+02
2066	1.512E+04	1.211E+07	8.138E+02	4.040E+03	6.056E+06	4.069E+02
2067	1.483E+04	1.187E+07	7.976E+02	3.960E+03	5.936E+06	3.988E+02
2068	1.453E+04	1.164E+07	7.818E+02	3.882E+03	5.818E+06	3.909E+02
2069	1.424E+04	1.141E+07	7.664E+02	3.805E+03	5.703E+06	3.832E+02
2070	1.396E+04	1.118E+07	7.512E+02	3.729E+03	5.590E+06	3.756E+02
2071	1.369E+04	1.096E+07	7.363E+02	3.656E+03	5.479E+06	3.682E+02
2072	1.341E+04	1.074E+07	7.217E+02	3.583E+03	5.371E+06	3.609E+02
2073	1.315E+04	1.053E+07	7.074E+02	3.512E+03	5.264E+06	3.537E+02
2074	1.289E+04	1.032E+07	6.934E+02	3.443E+03	5.160E+06	3.467E+02
2075	1.263E+04	1.012E+07	6.797E+02	3.374E+03	5.058E+06	3.399E+02
2076	1.238E+04	9.916E+06	6.662E+02	3.308E+03	4.958E+06	3.331E+02
2077	1.214E+04	9.719E+06	6.531E+02	3.242E+03	4.860E+06	3.265E+02
2078	1.190E+04	9.527E+06	6.401E+02	3.178E+03	4.764E+06	3.201E+02
2079	1.166E+04	9.338E+06	6.274E+02	3.115E+03	4.669E+06	3.137E+02
2080	1.143E+04	9.153E+06	6.150E+02	3.053E+03	4.577E+06	3.075E+02
2081	1.120E+04	8.972E+06	6.028E+02	2.993E+03	4.486E+06	3.014E+02
2082	1.098E+04	8.795E+06	5.909E+02	2.934E+03	4.397E+06	2.955E+02
2083	1.077E+04	8.620E+06	5.792E+02	2.876E+03	4.310E+06	2.896E+02
2084	1.055E+04	8.450E+06	5.677E+02	2.819E+03	4.225E+06	2.839E+02
2085	1.034E+04	8.282E+06	5.565E+02	2.763E+03	4.141E+06	2.782E+02
2086	1.014E+04	8.118E+06	5.455E+02	2.708E+03	4.059E+06	2.727E+02
2087	9.938E+03	7.958E+06	5.347E+02	2.654E+03	3.979E+06	2.673E+02
2088	9.741E+03	7.800E+06	5.241E+02	2.602E+03	3.900E+06	2.620E+02
2089	9.548E+03	7.646E+06	5.137E+02	2.550E+03	3.823E+06	2.569E+02
2090	9.359E+03	7.494E+06	5.035E+02	2.500E+03	3.747E+06	2.518E+02
2091	9.174E+03	7.346E+06	4.936E+02	2.450E+03	3.673E+06	2.468E+02
2092	8.992E+03	7.200E+06	4.838E+02	2.402E+03	3.600E+06	2.419E+02
2093	8.814E+03	7.058E+06	4.742E+02	2.354E+03	3.529E+06	2.371E+02
2094	8.639E+03	6.918E+06	4.648E+02	2.308E+03	3.459E+06	2.324E+02
2095	8.468E+03	6.781E+06	4.556E+02	2.262E+03	3.391E+06	2.278E+02
2096	8.301E+03	6.647E+06	4.466E+02	2.217E+03	3.323E+06	2.233E+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)*
2097	8.136E+03	6.515E+06	4.378E+02	2.173E+03	3.258E+06	2.189E+02
2098	7.975E+03	6.386E+06	4.291E+02	2.130E+03	3.193E+06	2.145E+02
2099	7.817E+03	6.260E+06	4.206E+02	2.088E+03	3.130E+06	2.103E+02
2100	7.662E+03	6.136E+06	4.123E+02	2.047E+03	3.068E+06	2.061E+02
2101	7.511E+03	6.014E+06	4.041E+02	2.006E+03	3.007E+06	2.020E+02
2102	7.362E+03	5.895E+06	3.961E+02	1.966E+03	2.948E+06	1.980E+02
2103	7.216E+03	5.778E+06	3.883E+02	1.928E+03	2.889E+06	1.941E+02
2104	7.073E+03	5.664E+06	3.806E+02	1.889E+03	2.832E+06	1.903E+02
2105	6.933E+03	5.552E+06	3.730E+02	1.852E+03	2.776E+06	1.865E+02
2106	6.796E+03	5.442E+06	3.656E+02	1.815E+03	2.721E+06	1.828E+02
2107	6.661E+03	5.334E+06	3.584E+02	1.779E+03	2.667E+06	1.792E+02
2108	6.530E+03	5.229E+06	3.513E+02	1.744E+03	2.614E+06	1.757E+02
2109	6.400E+03	5.125E+06	3.443E+02	1.710E+03	2.563E+06	1.722E+02
2110	6.273E+03	5.024E+06	3.375E+02	1.676E+03	2.512E+06	1.688E+02
2111	6.149E+03	4.924E+06	3.308E+02	1.643E+03	2.462E+06	1.654E+02
2112	6.028E+03	4.827E+06	3.243E+02	1.610E+03	2.413E+06	1.621E+02
2113	5.908E+03	4.731E+06	3.179E+02	1.578E+03	2.365E+06	1.589E+02
2114	5.791E+03	4.637E+06	3.116E+02	1.547E+03	2.319E+06	1.558E+02
2115	5.676E+03	4.545E+06	3.054E+02	1.516E+03	2.273E+06	1.527E+02
2116	5.564E+03	4.455E+06	2.994E+02	1.486E+03	2.228E+06	1.497E+02
2117	5.454E+03	4.367E+06	2.934E+02	1.457E+03	2.184E+06	1.467E+02
2118	5.346E+03	4.281E+06	2.876E+02	1.428E+03	2.140E+06	1.438E+02
2119	5.240E+03	4.196E+06	2.819E+02	1.400E+03	2.098E+06	1.410E+02
2120	5.136E+03	4.113E+06	2.763E+02	1.372E+03	2.056E+06	1.382E+02
2121	5.035E+03	4.031E+06	2.709E+02	1.345E+03	2.016E+06	1.354E+02
2122	4.935E+03	3.952E+06	2.655E+02	1.318E+03	1.976E+06	1.328E+02
2123	4.837E+03	3.873E+06	2.603E+02	1.292E+03	1.937E+06	1.301E+02
2124	4.741E+03	3.797E+06	2.551E+02	1.266E+03	1.898E+06	1.275E+02
2125	4.648E+03	3.722E+06	2.500E+02	1.241E+03	1.861E+06	1.250E+02
2126	4.555E+03	3.648E+06	2.451E+02	1.217E+03	1.824E+06	1.225E+02
2127	4.465E+03	3.576E+06	2.402E+02	1.193E+03	1.788E+06	1.201E+02
2128	4.377E+03	3.505E+06	2.355E+02	1.169E+03	1.752E+06	1.177E+02
2129	4.290E+03	3.435E+06	2.308E+02	1.146E+03	1.718E+06	1.154E+02
2130	4.205E+03	3.367E+06	2.263E+02	1.123E+03	1.684E+06	1.131E+02
2131	4.122E+03	3.301E+06	2.218E+02	1.101E+03	1.650E+06	1.109E+02
2132	4.040E+03	3.235E+06	2.174E+02	1.079E+03	1.618E+06	1.087E+02
2133	3.960E+03	3.171E+06	2.131E+02	1.058E+03	1.586E+06	1.065E+02
2134	3.882E+03	3.108E+06	2.089E+02	1.037E+03	1.554E+06	1.044E+02
2135	3.805E+03	3.047E+06	2.047E+02	1.016E+03	1.523E+06	1.024E+02
2136	3.730E+03	2.987E+06	2.007E+02	9.962E+02	1.493E+06	1.003E+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)*
1996	0	0	0	0	0	0
1997	2.186E+02	1.194E+05	8.025E+00	5.137E-01	1.433E+02	9.630E-03
1998	5.489E+02	2.998E+05	2.015E+01	1.290E+00	3.598E+02	2.418E-02
1999	9.652E+02	5.273E+05	3.543E+01	2.268E+00	6.327E+02	4.251E-02
2000	1.297E+03	7.086E+05	4.761E+01	3.048E+00	8.503E+02	5.713E-02
2001	1.611E+03	8.804E+05	5.915E+01	3.787E+00	1.056E+03	7.098E-02
2002	1.992E+03	1.088E+06	7.312E+01	4.681E+00	1.306E+03	8.774E-02
2003	2.296E+03	1.254E+06	8.429E+01	5.396E+00	1.505E+03	1.011E-01
2004	2.548E+03	1.392E+06	9.351E+01	5.987E+00	1.670E+03	1.122E-01
2005	2.817E+03	1.539E+06	1.034E+02	6.620E+00	1.847E+03	1.241E-01
2006	3.066E+03	1.675E+06	1.125E+02	7.205E+00	2.010E+03	1.351E-01
2007	3.306E+03	1.806E+06	1.214E+02	7.769E+00	2.167E+03	1.456E-01
2008	3.567E+03	1.949E+06	1.309E+02	8.382E+00	2.338E+03	1.571E-01
2009	3.783E+03	2.067E+06	1.389E+02	8.890E+00	2.480E+03	1.666E-01
2010	3.990E+03	2.180E+06	1.464E+02	9.375E+00	2.616E+03	1.757E-01
2011	4.140E+03	2.262E+06	1.520E+02	9.728E+00	2.714E+03	1.823E-01
2012	4.341E+03	2.372E+06	1.594E+02	1.020E+01	2.846E+03	1.912E-01
2013	4.557E+03	2.489E+06	1.673E+02	1.071E+01	2.987E+03	2.007E-01
2014	4.783E+03	2.613E+06	1.756E+02	1.124E+01	3.135E+03	2.107E-01
2015	4.992E+03	2.727E+06	1.833E+02	1.173E+01	3.273E+03	2.199E-01
2016	5.202E+03	2.842E+06	1.909E+02	1.222E+01	3.410E+03	2.291E-01
2017	5.421E+03	2.961E+06	1.990E+02	1.274E+01	3.554E+03	2.388E-01
2018	5.646E+03	3.084E+06	2.072E+02	1.327E+01	3.701E+03	2.487E-01
2019	5.843E+03	3.192E+06	2.145E+02	1.373E+01	3.831E+03	2.574E-01
2020	6.071E+03	3.317E+06	2.229E+02	1.427E+01	3.980E+03	2.674E-01
2021	6.363E+03	3.476E+06	2.336E+02	1.495E+01	4.172E+03	2.803E-01
2022	6.567E+03	3.587E+06	2.410E+02	1.543E+01	4.305E+03	2.893E-01
2023	6.770E+03	3.698E+06	2.485E+02	1.591E+01	4.438E+03	2.982E-01
2024	6.973E+03	3.809E+06	2.559E+02	1.639E+01	4.571E+03	3.071E-01
2025	7.175E+03	3.920E+06	2.634E+02	1.686E+01	4.704E+03	3.161E-01
2026	7.378E+03	4.030E+06	2.708E+02	1.734E+01	4.837E+03	3.250E-01
2027	7.580E+03	4.141E+06	2.782E+02	1.781E+01	4.969E+03	3.339E-01
2028	7.782E+03	4.251E+06	2.856E+02	1.829E+01	5.101E+03	3.428E-01
2029	7.983E+03	4.361E+06	2.930E+02	1.876E+01	5.234E+03	3.516E-01
2030	8.185E+03	4.471E+06	3.004E+02	1.923E+01	5.366E+03	3.605E-01
2031	8.387E+03	4.582E+06	3.078E+02	1.971E+01	5.498E+03	3.694E-01
2032	8.588E+03	4.692E+06	3.152E+02	2.018E+01	5.630E+03	3.783E-01
2033	8.790E+03	4.802E+06	3.226E+02	2.065E+01	5.762E+03	3.872E-01
2034	8.992E+03	4.912E+06	3.300E+02	2.113E+01	5.895E+03	3.961E-01
2035	9.194E+03	5.022E+06	3.375E+02	2.160E+01	6.027E+03	4.050E-01
2036	9.396E+03	5.133E+06	3.449E+02	2.208E+01	6.159E+03	4.139E-01
2037	9.598E+03	5.243E+06	3.523E+02	2.255E+01	6.292E+03	4.228E-01
2038	9.801E+03	5.354E+06	3.597E+02	2.303E+01	6.425E+03	4.317E-01
2039	1.000E+04	5.465E+06	3.672E+02	2.351E+01	6.558E+03	4.406E-01
2040	1.021E+04	5.576E+06	3.746E+02	2.398E+01	6.691E+03	4.496E-01
2041	1.041E+04	5.687E+06	3.821E+02	2.446E+01	6.825E+03	4.585E-01
2042	1.061E+04	5.799E+06	3.896E+02	2.494E+01	6.958E+03	4.675E-01
2043	1.082E+04	5.910E+06	3.971E+02	2.542E+01	7.093E+03	4.765E-01
2044	1.102E+04	6.022E+06	4.046E+02	2.590E+01	7.227E+03	4.856E-01
2045	1.123E+04	6.135E+06	4.122E+02	2.639E+01	7.362E+03	4.946E-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)*
2046	1.144E+04	6.247E+06	4.198E+02	2.687E+01	7.497E+03	5.037E-01
2047	1.164E+04	6.360E+06	4.274E+02	2.736E+01	7.632E+03	5.128E-01
2048	1.185E+04	6.474E+06	4.350E+02	2.785E+01	7.769E+03	5.220E-01
2049	1.206E+04	6.588E+06	4.426E+02	2.834E+01	7.905E+03	5.311E-01
2050	1.227E+04	6.702E+06	4.503E+02	2.883E+01	8.042E+03	5.403E-01
2051	1.248E+04	6.816E+06	4.580E+02	2.932E+01	8.179E+03	5.496E-01
2052	1.269E+04	6.931E+06	4.657E+02	2.981E+01	8.318E+03	5.589E-01
2053	1.290E+04	7.047E+06	4.735E+02	3.031E+01	8.456E+03	5.682E-01
2054	1.311E+04	7.163E+06	4.813E+02	3.081E+01	8.595E+03	5.775E-01
2055	1.332E+04	7.279E+06	4.891E+02	3.131E+01	8.735E+03	5.869E-01
2056	1.354E+04	7.396E+06	4.970E+02	3.181E+01	8.876E+03	5.964E-01
2057	1.327E+04	7.250E+06	4.871E+02	3.118E+01	8.700E+03	5.845E-01
2058	1.301E+04	7.106E+06	4.775E+02	3.057E+01	8.528E+03	5.730E-01
2059	1.275E+04	6.966E+06	4.680E+02	2.996E+01	8.359E+03	5.616E-01
2060	1.250E+04	6.828E+06	4.588E+02	2.937E+01	8.193E+03	5.505E-01
2061	1.225E+04	6.692E+06	4.497E+02	2.879E+01	8.031E+03	5.396E-01
2062	1.201E+04	6.560E+06	4.408E+02	2.822E+01	7.872E+03	5.289E-01
2063	1.177E+04	6.430E+06	4.320E+02	2.766E+01	7.716E+03	5.184E-01
2064	1.154E+04	6.303E+06	4.235E+02	2.711E+01	7.563E+03	5.082E-01
2065	1.131E+04	6.178E+06	4.151E+02	2.657E+01	7.414E+03	4.981E-01
2066	1.108E+04	6.056E+06	4.069E+02	2.605E+01	7.267E+03	4.883E-01
2067	1.087E+04	5.936E+06	3.988E+02	2.553E+01	7.123E+03	4.786E-01
2068	1.065E+04	5.818E+06	3.909E+02	2.503E+01	6.982E+03	4.691E-01
2069	1.044E+04	5.703E+06	3.832E+02	2.453E+01	6.844E+03	4.598E-01
2070	1.023E+04	5.590E+06	3.756E+02	2.404E+01	6.708E+03	4.507E-01
2071	1.003E+04	5.479E+06	3.682E+02	2.357E+01	6.575E+03	4.418E-01
2072	9.831E+03	5.371E+06	3.609E+02	2.310E+01	6.445E+03	4.330E-01
2073	9.637E+03	5.264E+06	3.537E+02	2.264E+01	6.317E+03	4.245E-01
2074	9.446E+03	5.160E+06	3.467E+02	2.220E+01	6.192E+03	4.161E-01
2075	9.259E+03	5.058E+06	3.399E+02	2.176E+01	6.070E+03	4.078E-01
2076	9.075E+03	4.958E+06	3.331E+02	2.133E+01	5.949E+03	3.997E-01
2077	8.896E+03	4.860E+06	3.265E+02	2.090E+01	5.832E+03	3.918E-01
2078	8.720E+03	4.764E+06	3.201E+02	2.049E+01	5.716E+03	3.841E-01
2079	8.547E+03	4.669E+06	3.137E+02	2.008E+01	5.603E+03	3.765E-01
2080	8.378E+03	4.577E+06	3.075E+02	1.969E+01	5.492E+03	3.690E-01
2081	8.212E+03	4.486E+06	3.014E+02	1.930E+01	5.383E+03	3.617E-01
2082	8.049E+03	4.397E+06	2.955E+02	1.891E+01	5.277E+03	3.545E-01
2083	7.890E+03	4.310E+06	2.896E+02	1.854E+01	5.172E+03	3.475E-01
2084	7.734E+03	4.225E+06	2.839E+02	1.817E+01	5.070E+03	3.406E-01
2085	7.580E+03	4.141E+06	2.782E+02	1.781E+01	4.969E+03	3.339E-01
2086	7.430E+03	4.059E+06	2.727E+02	1.746E+01	4.871E+03	3.273E-01
2087	7.283E+03	3.979E+06	2.673E+02	1.711E+01	4.775E+03	3.208E-01
2088	7.139E+03	3.900E+06	2.620E+02	1.678E+01	4.680E+03	3.145E-01
2089	6.998E+03	3.823E+06	2.569E+02	1.644E+01	4.587E+03	3.082E-01
2090	6.859E+03	3.747E+06	2.518E+02	1.612E+01	4.497E+03	3.021E-01
2091	6.723E+03	3.673E+06	2.468E+02	1.580E+01	4.407E+03	2.961E-01
2092	6.590E+03	3.600E+06	2.419E+02	1.549E+01	4.320E+03	2.903E-01
2093	6.460E+03	3.529E+06	2.371E+02	1.518E+01	4.235E+03	2.845E-01
2094	6.332E+03	3.459E+06	2.324E+02	1.488E+01	4.151E+03	2.789E-01
2095	6.206E+03	3.391E+06	2.278E+02	1.458E+01	4.069E+03	2.734E-01
2096	6.083E+03	3.323E+06	2.233E+02	1.430E+01	3.988E+03	2.680E-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)*
2097	5.963E+03	3.258E+06	2.189E+02	1.401E+01	3.909E+03	2.627E-01
2098	5.845E+03	3.193E+06	2.145E+02	1.373E+01	3.832E+03	2.575E-01
2099	5.729E+03	3.130E+06	2.103E+02	1.346E+01	3.756E+03	2.524E-01
2100	5.616E+03	3.068E+06	2.061E+02	1.320E+01	3.681E+03	2.474E-01
2101	5.505E+03	3.007E+06	2.020E+02	1.293E+01	3.609E+03	2.425E-01
2102	5.396E+03	2.948E+06	1.980E+02	1.268E+01	3.537E+03	2.377E-01
2103	5.289E+03	2.889E+06	1.941E+02	1.243E+01	3.467E+03	2.330E-01
2104	5.184E+03	2.832E+06	1.903E+02	1.218E+01	3.398E+03	2.283E-01
2105	5.081E+03	2.776E+06	1.865E+02	1.194E+01	3.331E+03	2.238E-01
2106	4.981E+03	2.721E+06	1.828E+02	1.170E+01	3.265E+03	2.194E-01
2107	4.882E+03	2.667E+06	1.792E+02	1.147E+01	3.200E+03	2.150E-01
2108	4.785E+03	2.614E+06	1.757E+02	1.124E+01	3.137E+03	2.108E-01
2109	4.691E+03	2.563E+06	1.722E+02	1.102E+01	3.075E+03	2.066E-01
2110	4.598E+03	2.512E+06	1.688E+02	1.080E+01	3.014E+03	2.025E-01
2111	4.507E+03	2.462E+06	1.654E+02	1.059E+01	2.954E+03	1.985E-01
2112	4.417E+03	2.413E+06	1.621E+02	1.038E+01	2.896E+03	1.946E-01
2113	4.330E+03	2.365E+06	1.589E+02	1.017E+01	2.839E+03	1.907E-01
2114	4.244E+03	2.319E+06	1.558E+02	9.973E+00	2.782E+03	1.869E-01
2115	4.160E+03	2.273E+06	1.527E+02	9.776E+00	2.727E+03	1.832E-01
2116	4.078E+03	2.228E+06	1.497E+02	9.582E+00	2.673E+03	1.796E-01
2117	3.997E+03	2.184E+06	1.467E+02	9.393E+00	2.620E+03	1.761E-01
2118	3.918E+03	2.140E+06	1.438E+02	9.207E+00	2.568E+03	1.726E-01
2119	3.840E+03	2.098E+06	1.410E+02	9.024E+00	2.518E+03	1.692E-01
2120	3.764E+03	2.056E+06	1.382E+02	8.846E+00	2.468E+03	1.658E-01
2121	3.690E+03	2.016E+06	1.354E+02	8.670E+00	2.419E+03	1.625E-01
2122	3.617E+03	1.976E+06	1.328E+02	8.499E+00	2.371E+03	1.593E-01
2123	3.545E+03	1.937E+06	1.301E+02	8.330E+00	2.324E+03	1.562E-01
2124	3.475E+03	1.898E+06	1.275E+02	8.165E+00	2.278E+03	1.531E-01
2125	3.406E+03	1.861E+06	1.250E+02	8.004E+00	2.233E+03	1.500E-01
2126	3.339E+03	1.824E+06	1.225E+02	7.845E+00	2.189E+03	1.471E-01
2127	3.273E+03	1.788E+06	1.201E+02	7.690E+00	2.145E+03	1.441E-01
2128	3.208E+03	1.752E+06	1.177E+02	7.538E+00	2.103E+03	1.413E-01
2129	3.144E+03	1.718E+06	1.154E+02	7.388E+00	2.061E+03	1.385E-01
2130	3.082E+03	1.684E+06	1.131E+02	7.242E+00	2.020E+03	1.358E-01
2131	3.021E+03	1.650E+06	1.109E+02	7.099E+00	1.980E+03	1.331E-01
2132	2.961E+03	1.618E+06	1.087E+02	6.958E+00	1.941E+03	1.304E-01
2133	2.903E+03	1.586E+06	1.065E+02	6.820E+00	1.903E+03	1.278E-01
2134	2.845E+03	1.554E+06	1.044E+02	6.685E+00	1.865E+03	1.253E-01
2135	2.789E+03	1.523E+06	1.024E+02	6.553E+00	1.828E+03	1.228E-01
2136	2.733E+03	1.493E+06	1.003E+02	6.423E+00	1.792E+03	1.204E-01

VEHICLE WEIGHT CALCS FOR INPUT INTO A-P252-RRRLF2021-02.xlsx

Orange numbers used in permit document A-P252-R1-RRRLF2021-02.xlsx

TRUCK Waste Haulers USED DAILY	WEIGHT	TYPE
702-2018 Freightliner 120SD (CCTS)	34,720	Transporter
708 - 2015 Peterbilt 567 (MCTS)	46,260	Transporter
709-2015 Freightliner 120SD (MCTS)	39,800	Transporter
711 – 2012 Kenworth T800 (MCTS)	36,820	Transporter
714-2020 Kenworth T800 (MCTS)	46,740	Transporter
909-2020 Kenworth T800	30,080	Transporter
910-Kenworth T800	30,280	Transporter
911-Peterbilt 567	30,540	Transporter

AVERAGE WEIGHT **36,905** lbs (Assuming an even distribution of weight amoung types of trucks)

In 2020:

Total waste tons/yr =	**124,963**	tons/yr
Total waste lbs/yr =	249,926,000	lb/yr
Total waste lbs/yr / 289 days/yr =	864,795.85	lb/day
Estimate truck lb/trip, based on yrly average of 50 trips/day =	**17,296**	lb/trip (cell B24 in A-P252-RRRLF2021-02.xlsx)

CASH CUSTOMER BREAKDOWN: …..10% go to OPERATIONS ACTIVE FACE…..90% go to SMALL VEHICLE DISPOSAL AREA (SVDA)

2020 TOTAL CASH CUSTOMERS (taken from 01/01/20 - 12/31/20 Site Activity Report)

TOTAL #CASH CUSTOMERS YEAR 2020 =	25,213	trips	**TOTAL WEIGHT CASH CUSTOMERS =**	133,295.74	tons
days/year =	289	days			
CUSTOMERS (trips TOTAL/day) =	87.24	trips/day	**WEIGHT (tons TOTAL/day) =**	461.23	tons/day
CUSTOMERS 10% (trips to OPERATIONS/day) =	**8.72**	trips/day	**WEIGHT 10% (tons to OPERATIONS/day) =**	**46.12**	tons/day
CUSTOMERS 90% (trips to SVDA/day) =	**78.52**	trips/day	**WEIGHT 90% (tons to SVDA/day) =**	415.11	tons/day

TOTAL WEIGHT 415.108/TOTAL TRIP 78.518 (t/trip-dy) 5.29 ton/trip day

TONS EMPTY Privately Owned Vehicle (POV) (6000 LB) =	3	TONS EMPTY =	6000	LBS
FULL POV=3 TONS + 5.287 TONS=	8.29	TONS LOADED =	16573.57	LBS
AVG EMPTY AND FULL = (3+8.287)/2=	**5.64**	TONS AVG =	**11,287**	LBS AVG (cell B34)

For UNPAVED POV Dust Emission trips, use OPERATIONS AREA trips (UNIT 2): **8.72**

RED ROCK REGIONAL LANDFILL EMISSIONS CALCULATIONS

Supporting Document for Title V Minor and PSD Minor for GHG Emissions

(Red Rock Regional Landfill is a 20.2.70 NMAC major stationary source of air pollutants that directly emits or has the potential to emit, 100 or more tons per year of any air pollutant subject to regulation.)

POLLUTANTS

Gas / Pollutant	**2020 Emission Rate** (short tons/year)
Total landfill gas	9112.510274
Methane	2434.049372
Carbon dioxide	6678.460902
NMOC	15.693245
1,1,1-Trichloroethane (methyl chloroform) - HAP	0.019435004
1,1,2,2-Tetrachloroethane - HAP/VOC	0.056036248
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	0.072089137
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.005884208
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.012313983
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.006172591
2-Propanol (isopropyl alcohol) - VOC	0.91216152
Acetone	0.123389914
Acrylonitrile - HAP/VOC	0.101452513
Benzene - No or Unknown Co-disposal - HAP/VOC	0.04504175
Benzene - Co-disposal - HAP/VOC	0.260768025
Bromodichloromethane - VOC	0.154138149
Butane - VOC	0.088196353
Carbon disulfide - HAP/VOC	0.01340105
Carbon monoxide	1.190134814
Carbon tetrachloride - HAP/VOC	0.00018676
Carbonyl sulfide - HAP/VOC	0.008933234
Chlorobenzene - HAP/VOC	0.008540418
Chlorodifluoromethane	0.034116449
Chloroethane (ethyl chloride) - HAP/VOC	0.02545615
Chloroform - HAP/VOC	0.001087037
Chloromethane - VOC	0.018388302
Dichlorobenzene - (HAP for para isomer/VOC)	0.009368966
Dichlorodifluoromethane	0.587133984
Dichlorofluoromethane - VOC	0.081213484
Dichloromethane (methylene chloride) - HAP	0.360907001
Dimethyl sulfide (methyl sulfide) - VOC	0.147079103
Ethane	8.122289216
Ethanol - VOC	0.37759936
Ethyl mercaptan (ethanethiol) - VOC	0.043369479
Ethylbenzene - HAP/VOC	0.14820872
Ethylene dibromide - HAP/VOC	5.70211E-05
Fluorotrichloromethane - VOC	0.031687802
Hexane - HAP/VOC	0.172625695
Hydrogen sulfide	0.372354924
Mercury (total) - HAP	1.76565E-05
Methyl ethyl ketone - HAP/VOC	0.155384917
Methyl isobutyl ketone - HAP/VOC	0.057756775
Methyl mercaptan - VOC	0.036503153
Pentane - VOC	0.07226122
Perchloroethylene (tetrachloroethylene) - HAP	0.18621722
Propane - VOC	0.147193218
t-1,2-Dichloroethene - VOC	0.082378914
Toluene - No or Unknown Co-disposal - HAP/VOC	1.090487503
Toluene - Co-disposal - HAP/VOC	4.753407066
Trichloroethylene (trichloroethene) - HAP/VOC	0.111662774
Vinyl chloride - HAP/VOC	0.138470701
Xylenes - HAP/VOC	0.386631443
HAP TOTAL	8.208001568
VOC TOTAL	9.833594741

Northwest New Mexico Regional Solid Waste Authority
Red Rock Regional Landfill

June 1, 2021

RED ROCK REGIONAL LANDFILL GREEN HOUSE GAS CALCULATIONS

Supporting Document for A-P252-RRRLF

CH_4 Adj for oxidation = CH_4 x (1-OX) where OX = 0.10 per 40 CFR Part 98 Subpart HH and Table HH-4:

CH_4 CO_2e = CH_4 x (GWP of 25) per 40 CFR Part 98 Subpart A, Table A-1:

GREEN HOUSE GAS CALCULATIONS

1.1 short tons/metric ton

YEAR	From LandGEM WASTE (metric tons)	From LandGEM CH_4 (metric tons/yr)	CH_4 CO_2e (metric tons/yr)	CH_4 CO_2e (short tons/yr)	ADJUSTED CH_4 Adj for oxid (metric tons/yr)	ADJUSTED CH4 CO_2e (metric tons/yr)	ADJUSTED CH4 CO_2e (short tons/yr)	
1996	60,255	0	0	0	0	0	0	
1997	92,214	80	1,992	2,191	72	1,793	1,972	
1998	117,734	200	5,001	5,501	180	4,501	4,951	
1999	96,743	352	8,794	9,674	317	7,915	8,706	
2000	93,737	473	11,818	13,000	425	10,636	11,700	
2001	113,685	587	14,683	16,151	529	13,215	14,536	
2002	94,717	726	18,151	19,966	653	16,336	17,969	
2003	81,814	837	20,923	23,015	753	18,830	20,713	
2004	88,161	929	23,213	25,534	836	20,892	22,981	
2005	84,013	1,027	25,668	28,235	924	23,101	25,411	**Required to report GHG**
2006	82,859	1,117	27,937	30,731	1,006	25,143	27,658	when annual CH4 >= 25K
2007	89,978	1,205	30,123	33,135	1,084	27,111	29,822	metric tons CO2e
2008	79,037	1,300	32,501	35,751	1,170	29,251	32,176	
2009	77,603	1,379	34,470	37,918	1,241	31,023	34,126	
2010	63,083	1,454	36,353	39,989	1,309	32,718	35,990	
2011	78,175	1,509	37,719	41,491	1,358	33,947	37,342	
2012	83,110	1,582	39,556	43,512	1,424	35,601	39,161	
2013	87,145	1,661	41,521	45,673	1,495	37,369	41,106	
2014	83,874	1,743	43,580	47,937	1,569	39,222	43,144	
2015	84,900	1,820	45,489	50,038	1,638	40,940	45,034	
2016	88,767	1,896	47,395	52,135	1,706	42,656	46,921	
2017	91,565	1,976	49,391	54,331	1,778	44,452	48,897	
2018	85,325	2,058	51,440	56,584	1,852	46,296	50,926	
2019	94,708	2,130	53,243	58,567	1,917	47,918	52,710	
2020	113,603	2,213	55,319	60,851	1,991	49,787	54,766	**Year of emissions invento**
2021	90,841	2,319	57,980	63,777	2,087	52,182	57,400	
2022	91,841	2,393	59,835	65,818	2,154	53,851	59,236	
2023	92,851	2,467	61,686	67,855	2,221	55,517	61,069	
2024	93,872	2,541	63,534	69,887	2,287	57,181	62,899	
2025	94,905	2,615	65,379	71,917	2,354	58,841	64,726	
2026	95,949	2,689	67,222	73,944	2,420	60,500	66,550	
2027	97,004	2,763	69,063	75,969	2,486	62,157	68,372	
2028	98,071	2,836	70,902	77,993	2,552	63,812	70,193	
2029	99,150	2,910	72,741	80,015	2,619	65,467	72,013	
2030	100,241	2,983	74,578	82,036	2,685	67,120	73,832	
2031	101,343	3,057	76,415	84,057	2,751	68,774	75,651	
2032	102,458	3,130	78,252	86,078	2,817	70,427	77,470	
2033	103,585	3,204	80,090	88,099	2,883	72,081	79,289	
2034	104,725	3,277	81,929	90,121	2,949	73,736	81,109	
2035	105,876	3,351	83,768	92,145	3,016	75,392	82,931	
2036	107,041	3,424	85,610	94,171	3,082	77,049	84,754	
2037	108,219	3,498	87,453	96,199	3,148	78,708	86,579	
2038	109,409	3,572	89,299	98,229	3,215	80,369	88,406	
2039	110,612	3,646	91,148	100,263	3,281	82,033	90,236	
2040	111,829	3,720	93,000	102,300	3,348	83,700	92,070	
2041	113,059	3,794	94,855	104,341	3,415	85,370	93,907	
2042	114,303	3,869	96,715	106,386	3,482	87,043	95,748	
2043	115,560	3,943	98,578	108,436	3,549	88,721	97,593	
2044	116,831	4,018	100,447	110,491	3,616	90,402	99,442	
2045	118,117	4,093	102,320	112,552	3,684	92,088	101,297	**Subject to Title V GHG**
2046	119,416	4,168	104,199	114,619	3,751	93,779	103,157	and/or PSD if total annual
2047	120,730	4,243	106,083	116,692	3,819	95,475	105,022	CO2e >= 100,000 tons/yr
2048	122,058	4,319	107,974	118,771	3,887	97,177	106,894	
2049	123,400	4,395	109,871	120,858	3,955	98,884	108,772	
2050	124,758	4,471	111,775	122,952	4,024	100,597	110,657	
2051	126,130	4,547	113,686	125,055	4,093	102,317	112,549	
2052	127,517	4,624	115,605	127,165	4,162	104,044	114,449	
2053	128,920	4,701	117,531	129,284	4,231	105,778	116,356	
2054	130,338	4,779	119,466	131,412	4,301	107,519	118,271	
2055	131,772	4,856	121,409	133,550	4,371	109,268	120,195	**Landfill Closure Year**

Red Rock Regional Landfill
Summary of Emissions from Significant Sources

Emission Unit No.	Description	Source Type	Pollutant	Maximum/Uncontrolled Air Pollutant Emission		Actual/Controlled Air Pollutant Emission Rate	
				tons/yr	lb/hr	tons/yr	lb/hr
1	**Paved Haul Road, Entrance to Maintenance Area**						
	Waste Haulers	Area	PM_{30}	0.048	0.036	0.048	0.006
	Wind Erosion			0	0	0	0
			Unit Total	**0.048**	**0.036**	**0.048**	**0.006**
	Waste Haulers	Area	PM_{10}	0.010	0.007	0.010	0.001
	Wind Erosion			0	0	0	0
			Unit Total	**0.010**	**0.007**	**0.010**	**0.001**
	Waste Haulers	Area	$PM_{2.5}$	0.002	0.002	0.002	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.002**	**0.002**	**0.002**	**0.000**
1	**Paved Haul Road, Entrance to *SVDA area and Maintenance Areas**						
	Waste Haulers	Area	PM_{30}	0.020	0.015	0.020	0.002
	Wind Erosion			0	0	0	0
			Unit Total	**0.020**	**0.015**	**0.020**	**0.002**
	Waste Haulers	Area	PM_{10}	0.004	0.003	0.004	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.004**	**0.003**	**0.004**	**0.000**
	Waste Haulers	Area	$PM_{2.5}$	0.001	0.001	0.001	0.000
	Wind Erosion			0	0	0	0
			Unit Total	**0.001**	**0.001**	**0.001**	**0.000**
2	**Operations Area, Maintenance Area to Active Face, Borrow Areas, White Goods, Tires**						
	Waste Haulers	Area	PM_{30}	86.402	65.160	17.280	13.032
	Scraper			24.606	18.557	4.921	3.711
	Bulldozer			1.081	3.326	0.216	0.665
	Compactors			3.845	3.326	0.769	0.665
	Grader			4.111	12.649	0.822	2.530
	Wind Erosion			46.576	10.634	9.315	2.127
			Unit Total	**166.622**	**113.653**	**33.324**	**22.731**
	Waste Haulers	Area	PM_{10}	26.450	19.947	5.290	3.989
	Scraper			7.533	5.681	1.507	1.136
	Bulldozer			0.229	0.704	0.046	0.141
	Compactors			0.813	0.704	0.163	0.141
	Grader			0.995	3.060	0.199	0.612
	Wind Erosion			14.258	3.255	2.852	0.651
			Unit Total	**50.277**	**33.350**	**10.055**	**6.670**
	Waste Haulers	Area	$PM_{2.5}$	2.645	1.995	0.529	0.399
	Scraper			0.753	0.568	0.151	0.114
	Bulldozer			0.114	0.349	0.023	0.070
	Compactors			0.404	0.349	0.081	0.070
	Grader			0.127	0.392	0.025	0.078
	Wind Erosion			1.426	0.326	0.285	0.065
			Unit Total	**5.469**	**3.979**	**1.094**	**0.796**
3	**Landfill Gas**						
	Landfill Gas (Year 2020)	Area	NMOC	15.693	3.583	15.693	3.583
	Landfill Gas (Year 2020)	Area	HAP	8.208	1.874	8.208	1.874
			Unit Total	**23.901**	**5.457**	**23.901**	**5.457**
4	**PCS Landfarm**						
	PCS Landfarm	Area	HAP	0.001	0.000	0.001	0.000
			Unit Total	**0.001**	**0.000**	**0.001**	**0.000**

*SVDA = Small Vehicle Disposal Area

TITLE V PERMIT FLOWCHART

UNIT 1 Haul roads
UNIT 2 Operations
UNIT 3 Gas - NMOCs HAPS
UNIT 4 PCS Landfarm

INPUTS
Methane Generation Rate (affects ALL)
Potential Methane Generation Capacity (affects ALL)
NMOC Concentration (affects NMOCs)
Methane Content (% by volume)

Waste Acceptance Tons
Open/Close year
Which pollutants to analyze

A-P252-RRRLF2021-LandGEM.xlsm

LandGEM
User Inputs Tab

Inventory Tab
OUTPUTS
NMOC
Total Landfill Gas (CO2+Methane)
HAPS (select year)
VOCS (select year)

A-P252-RRRLF2021-03.doc

Green House Gases

Green House Gas calcs

2020 Inventory Tab | **GHG Tab** | **Emissions Tab**

A-P252-RRRLF2021-03-Emit.xlsx

INPUTS
Hrs of opr
Haul road len
Mitigation %
Vehicle wgts

2I Tab | **2P Tab** | **2D & 2E Tabs**

A-P252-RRRLF2021-02.xlsx

CalculationsTab
OUTPUTS

A-P252-RRRLF2021-02-Wgt.xlsx
Vehicle wgts, trips

Unit 1	Particulate Emissions	Waste Haulers	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Waste Haulers	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Scraper	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Cat D7R	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Compactors	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Grader	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 1	Particulate Emissions	Wind Erosion	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 2	Particulate Emissions	Wind Erosion	$PM_{2.5}$ PM_{10} PM_{30} (TSP)	Uncontrolled	Controlled (Mitigated)
Unit 1	Particulate Emissions	TOTALS			
Unit 2	Particulate Emissions	TOTALS			
Unit 4	PCS Landfarm max allowable concentrations				