Parkhill

NSR PERMIT NO. 4111-M2

APPLICATION FOR PERMIT MODIFICATION

SANDOVAL COUNTY PUBLIC WORKS

SANDOVAL COUNTY LANDFILL

Rio Rancho, New Mexico

March | 2023

Parkhill Project # 04011122

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		

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.

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

Acknowledgements:

☑ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
☑ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
☑ Check No.: **90747** in the amount of **$500.00**
☑ 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.
☑ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.
☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.72.219.D(1)(a) 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.): **3752**	Updating Permit/NOI #:**4111-M2**
1	Facility Name: **Sandoval County Landfill**	Plant primary SIC Code (4 digits): **4953**	
		Plant NAIC code (6 digits): **562212**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **2708 Iris Rd. NE, Rio Rancho, NM 87144**		
2	Plant Operator Company Name: **Sandoval County Landfill**	Phone/Fax: **505.867.0814/505.771.3323**	
a	Plant Operator Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**		
b	Plant Operator's New Mexico Corporate ID or Tax ID: **85-6000244**		

3	Plant Owner(s) name(s): **Sandoval County**	Phone/Fax: **505.867.0814/505.771.3323**
a	Plant Owner(s) Mailing Address(s): **2708 Iris Rd. NE, Rio Rancho, NM 87144**	
4	Bill To (Company): **Sandoval County Department of Public Works**	Phone/Fax: **505.867.0814/505.771.3323**
a	Mailing Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**	E-mail: **cperea@sandovalcountynm.gov**
5	☐ Preparer: ☑ Consultant: **Parkhill**	Phone/Fax: **505.867.6990/505.867.6991**
a	Mailing Address: **333 Rio Rancho Blvd NE, Suite 400, Rio Rancho, NM 87124**	E-mail: ayuhas@parkhill.com/ mkingsly@parkhill.com
6	Plant Operator Contact: **Christopher Perea, Landfill Manager**	Phone/Fax: **505.867.0814/505.771.3323**
a	Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**	E-mail: **cperea@sandovalcountynm.gov**
7	Air Permit Contact: **Christopher Perea**	Title: **Landfill Manager**
a	E-mail: **cperea@sandovalcountynm.gov**	Phone/Fax: **505.867.0814/505.771.3323**
b	Mailing Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☑ Yes ☐ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☑Yes ☐No ☐N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P-243L-R2**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **4111-M2**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

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: **33, 34**	Range: **3E**	Township: **13N**	County: **Sandoval**	Elevation (ft): **5313**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **352,220 m**			UTM N (in meters, to nearest 10 meters): **3,907,750 m**	
b	**AND** Latitude (deg., min., sec.): **35° 18' 07.41"**			Longitude (deg., min., sec.): **106° 37' 31.40"**	
3	Name and zip code of nearest New Mexico town: **Rio Rancho, NM 87144**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **The Sandoval County Landfill is located at 2708 Iris Road NE, Rio Rancho, NM. From I-25, take exit 242 (NM 550) west to NM 528 and travel south 3.6 miles to the intersection of NM 528 and Idalia Road, turn right and travel approximately 2.5 miles to the site entrance.**				
5	The facility is **five** miles **west** of **Bernalillo, NM**.				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☑ Other (specify) **Owned by Sandoval County**				
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: **Municipalities and counties within 10 miles include: Bernalillo County, City of Albuquerque, City of Rio Rancho, The Town of Bernalillo, Village of Corrales, Village of Los Ranchos de Albuquerque. Indian Lands (Pueblos or Reservations) within 10 miles± of the Facility include: Sandia (4 miles±); Santa Ana (5 miles±); Zia (7 miles±); San Felipe (9 miles±).**				
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/air-quality/modeling-publications/)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **N/A**				
9	Name nearest Class I area: **Bandelier National Monument**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **48.8 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **The nearest occupied structure is located approximately 65 meters from the facility property boundary.**				
12	Method(s) used to delineate the Restricted Area: **Continuous Fencing** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☑ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **9**	($\frac{\text{days}}{\text{week}}$): **6**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **2,745**		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **7:00**		☑AM PM	End: **4:00**		☐AM ☑PM
3	Month and year of anticipated start of construction: **N/A**					
4	Month and year of anticipated construction completion: **N/A**					
5	Month and year of anticipated startup of new or modified facility: **N/A**					
6	Will this facility operate at this site for more than one year? ☑ Yes ☐ No					

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☑ No If yes, specify:		
a	If yes, NOV date or description of issue: **N/A**		NOV Tracking No: **N/A**
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☑ No If Yes, provide the 1c & 1d info below:		
c	Document Title: **N/A**	Date: **N/A**	Requirement # (or page # and paragraph #):
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 ☐ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☐ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☐ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☐ **Minor** (☐ <10 tpy of any single HAP **AND** ☐ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☐ No		
a	If yes, include the name of company providing commercial electric power to the facility: _____ 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."	☑ 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.) **Mark Hatzenbuhler** (20.2.70.300.D.2 NMAC):		Phone: **505.771.8500**
a	R.O. Title: **Director of Public Works**	R.O. e-mail: **mhatzenbuhler@sandovalcountynm.gov**	
b	R. O. Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**		
2	Alternate Responsible Official **Christopher Perea** (20.2.70.300.D.2 NMAC):		Phone: 505.867.0814
a	A. R.O. Title: **Landfill Manager**	A. R.O. e-mail: **cperea@sandovalcountynm.gov**	
b	A. R. O. Address: **2708 Iris Rd. NE, Rio Rancho, NM 87144**		
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): **None**		
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: **Christopher Perea. 505.867.0814**		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: **Yes. Bernalillo County, Sandia Pueblo (6.4 km), Santa Ana Pueblo (8.0 km), Zia Pueblo (11.3 km), San Felipe Pueblo (14.5 km), Jemez Pueblo (29.0 km), Santo Domingo Pueblo (29.0 km), Laguna Pueblo (30.6 km), Cochiti Pueblo (38.6 km), Isleta Pueblo (38.6 km), and San Ildefonso Pueblo (78.9 km).**

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____, Email_____ Phone number _____.

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

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

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

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

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

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

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

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

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

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

Sandoval County Landfill
NSR
Application for Permit Modification

Table of Contents

Section 21: Addendum for Landfill Applications
Section 22: Certification Page

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer'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 Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Disposal Route and Access Roads	N/A	N/A	N/A	N/A	N/A	N/A[5] / N/A[5]	N/A / N/A	30502504	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit x To Be Modified ☐ To be Replaced	N/A	N/A
1	Auxiliary Roads	N/A	N/A	N/A	N/A	N/A	N/A[5] / N/A[5]	N/A / N/A	30502504	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit x To Be Modified ☐ To be Replaced	N/A	N/A
2	General Landfill Operations	N/A	N/A	N/A	N/A	N/A	N/A[5] / N/A[5]	N/A / N/A	30502504	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit x To Be Modified ☐ To be Replaced	N/A	N/A
3	Landfill Gas	N/A	N/A	N/A	N/A	N/A	N/A[5] / N/A[5]	N/A / N/A	50400201	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
4	Petroleum Hydrocarbon Landfarm	N/A	N/A	N/A	N/A	N/A	N/A[5] / 2006[6]	N/A / N/A	50410310	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5	Crusher/Shredder Operations[7]	N/A	N/A	N/A	80 Ton/HR	80 Ton/HR	2008 / 2009	N/A / N/A	30502003 50410513	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
6	Portable Rock Crusher (rental)[8]	Lokotrack	LT1213S	TBD	415 HP	415 HP	2019 / 2019	N/A / N/A	30502003	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		

[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
[5] Facility has operated with Emission Units 1, 2, and 3 since its construction in 1972.
[6] The operation of a Petroleum Hydrocarbon Landfarm has been approved with the facility's initial Title V Operating Permit (1/29/08), but the site has not accepted any contaminated soils to date.
[7] The Rock Crusher/Waste Shredder is defined by two different SCC codes: Aggregate Processing and Waste Shredding.
[8] The Portable rock Crusher is a temporary rental unit covered under the Technical Revision Rules described in 20.2.72.219.B(1)(b) NMAC.

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. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check One
2	Diesel Storage Tank	N/A	N/A	Vapor Pressure < 0.2 psi[1]	20.2.72.202.B.2.a NMAC	N/A	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Fuel Capacity < 25,000 gallons	IA List Item #8	N/A	
2	Cold Solvent Parts Washer (3 each)	ZEP	N/A	Vapor Pressure < 0.2 psi[1]	20.2.72.202.B.2.a NMAC	N/A	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Solvent Storage < 500 gallons	IA List Item #5	N/A	
2	Vehicle Maintenance	N/A	N/A	Vapor Pressure < 0.2 psi[1]	20.2.72.202.B.2.a NMAC	N/A	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Storage Volume < 500 gallons	IA List Item #5	N/A	
2	Waste Oil Storage	N/A	N/A	Vapor Pressure < 0.2 psi[1]	20.2.72.202.B.2.a NMAC	N/A	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Vapor Pressure < 0.2 psi[1]	IA List Item #5	N/A	
2	Waste Oil Heaters	N/A	N/A	Emissions << 0.5 tons/yr	20.2.72.202.B.2.a NMAC	N/A	x Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Design Rate < 1,000,000 Btu/hr	IA List Item #5	N/A	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	Watering	N/A	Fugitive Dust Emissions	1,2	60%	AQB Guidance
2	Pavement	N/A	Fugitive Dust Emissions	1	95%	AQB Guidance
3	Chip Seal / Cold Millings	N/A	Fugitive Dust Emissions	1	85%	AQB Guidance

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

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

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

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

Unit No.	NOx		CO		VOC[2,3,4,5]		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	-	-	-	-	-	-	-	-	221.52	242.86	59.80	65.56	5.98	6.56	-	-	-	-
2	6.85	4.54	1.48	0.98	0.14	0.59	0.45	0.30	114.18	52.41	31.14	14.37	4.08	2.21	-	-	-	-
3	-	-	-	-	0.33	1.44	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	5.23	22.92	-	-	-	-	-	-	-	-	-	-	-	-
5	5.71	4.34	1.23	0.93	4.91E-03	3.73E-03	0.38	0.29	4.28	2.87	1.66	1.16	0.80	0.60	-	-	-	-
6	0.27	0.06	2.39	0.52	0.13	0.028	-	-	8.40	2.42	3.09	0.89	3.09	0.89	-	-	-	-
Totals	**12.84**	**8.94**	**5.10**	**2.43**	**5.84**	**24.98**	**0.83**	**0.58**	**348.39**	**300.55**	**95.69**	**81.97**	**13.96**	**10.26**				

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

[2] Potential VOC emissions from Unit 2 represent evaporative losses from fuel storage and dispensing, and VOCs from diesel engine exhaust calculated in Section 6, Table 6.7.

[3] Potential VOC emissions from Unit 3 from landfill gas (LFG) generation are estimated for 2022 from waste deposited through December 31, 2021 (see Table 6.8).

[4] Potential VOC emissions from Unit 4 include HAP emissions (see Table 6.7)

[5] Potential VOC emissions from Unit 5 from diesel engine operation include HAP emissions (see Table 6.7).

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	-	-	-	-	-	-	-	-	61.43	67.29	16.58	18.17	1.66	1.82	-	-	-	-
2	6.85	4.54	1.48	0.98	0.14	0.59	0.45	0.30	46.15	21.96	12.80	6.18	1.93	1.10	-	-	-	-
3	-	-	-	-	0.33	1.44	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	5.23	22.9	-	-	-	-	-	-	-	-	-	-	-	-
5	5.71	4.34	1.23	0.93	4.91E-03	3.73E-03	0.38	0.29	4.28	2.87	1.66	1.16	0.80	0.60	-	-	-	-
6	0.27	0.059	2.39	0.52	0.13	0.028	-	-	0.98	0.21	0.39	0.085	0.082	0.018	-	-	-	-
Totals	**12.84**	**8.94**	**5.10**	**2.43**	**5.84**	**24.98**	**0.83**	**0.58**	**112.84**	**92.33**	**31.44**	**25.59**	**4.47**	**3.53**				

[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)

X This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scheduled 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

X 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)			
1	2	V	Yes	5.10	935.10	4.09	unk	unk	45.07	0.17
2	2	H	Yes	10.40	952.70	43.26	unk	unk	57.35	0.49
3	5	V	Yes	10.94	900.35	40.88	unk	unk	64.26	0.45
4	6	H	No	10.75	unk	unk	unk	unk	306.6	0.42

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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals:																			

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
2	No. 2 Diesel (Chipper)	Purchased Commercial	129,500 btu/gallon	11 gallon/hour	15,840 gallon/yr	< 0.0015	< 0.01
2	No. 2 Diesel (Compost Screen)	Purchased Commercial	129,500 btu/gallon	1 gallon/hour	48 gallon/yr	< 0.0015	< 0.01
5	No. 2 Diesel (Crusher/Shredder)	Purchased Commercial	129,500 btu/gallon	10 gallon/hour	15,200 gallon/yr	< 0.0015	< 0.01
6	No. 2 Diesel (Rental Crusher)	Purchased Commercial	129,500 btu/gallon	6.34 gallon/hour	2,738 gallon/yr	< 0.0015	< 0.01

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	20200306	Unleaded Gasoline	Unleaded Gasoline	6.10	68.00	55.15	3.60	55.59	3.60

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	2009	Unleaded Gasoline	N/A	FX	471	75	3.05	unk	Red	Red	Good	200,000	10.11

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

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

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

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

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

Table 2-N: CEM Equipment

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

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

Table 2-O: Parametric Emissions Measurement Equipment

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

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

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	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**	168.71	4.54	0.00	0.00	0.00									173.25	
	CO_2e	168.71	1,351.96	0.00	0.00	0.00										1,520.67
3	**mass GHG**	0.00	0.00	4,017.50	0.00	0.00									4,017.50	
	CO_2e	0.00	0.00	100,437.50	0.00	0.00										100,437.50
5	**mass GHG**	161.41	4.34	0.00	0.00	0.00									165.75	
	CO_2e	161.41	1,293.42	0.00	0.00	0.00										1,454.82
6	**mass GHG**	103.26	0.06	0.00	0.00	0.00									103.32	
	CO_2e	103.26	17.60	0.00	0.00	0.00										120.86
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO2e															
Total	**mass GHG**	433.39	8.94	4,017.50	0.00	0.00									4,459.82	
	CO_2e	433.39	2,662.97	100,437.50	0.00	0.00										103,533.86

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

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

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

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

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

Section 3

Application Summary

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

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

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

The Sandoval County Landfill (SCLF) currently operates under the Title V Permit No. P243L-R2 (issued 09/28/2018) and New Source Review Permit No. 4111-M2 (issued 01/15/2021). SCLF is submitting this Application for Significant Permit Revision of NSR Permit 4111-M2 in accordance with the provisions of 20.2.72.219.D NMAC.

The SCLF is a municipal solid waste and special waste landfill owned by Sandoval County, NM, and is operated by the Sandoval County Department of Public Works. The facility has been in operation as a landfill since at least 1972 and is permitted to dispose of municipal solid waste, construction and demolition (C&D) debris, wastewater treatment plant sludge, and petroleum contaminated soils. The facility also operates an in-vessel composting system for organic wastes and offers facilities for the collection of source-separated recyclable materials. The Landfill encompasses 178 ± acres, and the primary features of the site layout are defined as follows:

- Unit I includes the "old landfill" and perimeter zones, and this area will be closed in compliance with the currently approved Closure Plan.
- Unit II includes the lined landfill Cells 1, 2, and 3, as well as the Phase I composting area.
- Unit III includes lined landfill Cells 4, 5, 6, and 7, which represent the currently active disposal area.
- Unit IV includes 31 ± acres of lined landfill Cells. Operations in Unit IV are projected not to commence until after the 5-year term of the current SCLF Title V Permit.
- The landfill operations center includes a scalehouse, inbound/outbound scales, waste receiving facilities, a county vehicle fueling area, and a public convenience center.

On January 15, 2021, the New Mexico Environmental Department (NMED) Air Quality Bureau (AQB) issued New Source Review (NSR) Permit No. 4111-M2 to SCLF as a significant revision to include a Portable Rock Crusher (Rental), utilized for size reduction of concrete and/or asphalt delivered to the facility. The revised NSR Permit will be incorporated into the new Title V Operating Permit upon approval by AQB (i.e., P243LR3). A copy of current NSR Permit (No. 4111-M2) is provided as **Attachment 3.1**. The Portable Rock Crusher (Rental) is considered support equipment for air permitting purposes. The Portable Rock Crusher operates to recycle concrete and asphalt for the application of a base course on facility haul roads to control fugitive dust emissions. The unit is rented for short periods (2 months per year) and operated no more than 432 hours during the rental period. Also, as conditioned by NSR Permit 4111-M2, the Portable Rock Crusher (Rental) cannot be operated concurrently with the Unit 5 Crusher/Shredder or the Unit 2 Woodchipper. SCLF conducts waste acceptance operations at the landfill operations center, located at the northwest corner of the landfill property (**Figure 5.1, Section 5**).

The operations center is strategically located to reduce the distance traveled by commercial and private vehicles, thereby reducing emissions from vehicle traffic. The operations center consists of an inbound and outbound scale, a scalehouse/office, an employee lounge, and a public convenience center. The convenience center provides a suitable location for private citizens to dispose of wastes away from the active disposal area and consists of unloading positions for recyclable materials and a tipping floor for waste placement and compaction. Waste is pushed from the tipping floor pit into two 40 yd^3 roll-off containers, which are transported to the active disposal area when filled.

The following measures are taken to mitigate source emissions during startups, shutdowns, and emergencies for landfill operations that have the potential to emit pollutants of concern (e.g., particulates, NMOCs, HAPs, VOCs). Landfill operations associated with the emission of particulate matter (e.g., TSP, PM10, and PM2.5) consist of vehicle travel on paved and unpaved landfill roads, general landfill operations (e.g., heavy equipment operations, wind erosion), the Crusher/Shredder, and the Portable Rock Crusher (Rental) . The measures taken to mitigate excessive fugitive particulate emissions during startups, shutdowns, and emergencies include a CAT® 730C2 articulated water truck (6,000-gallon capacity) which serves as the site's primary water truck and is used daily when the landfill is operational. A GMC® water truck (2,000-gallon capacity) serves as a backup in the event the primary water truck is not operational.

ATTACHMENT 3.1

NSR Permit No. 4111-M2

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
Phone (505) 476-4300
Fax (505) 476-4375
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MICHELLE LUJAN GRISHAM
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JENNIFER J. PRUETT
DEPUTY SECRETARY

AIR QUALITY BUREAU
NEW SOURCE REVIEW PERMIT
Issued under 20.2.72 NMAC

Certified Mail No:
Return Receipt Requested

NSR Permit No:	4111-M2
Facility Name:	Sandoval County Landfill
Facility Owner/Operator:	Sandoval County
Mailing Address:	2708 Iris Road, NE Rio Rancho, NM 87144
TEMPO/IDEA ID No:	3752-PRN20200001
AIRS No:	35 0430055
Permitting Action:	Significant Permit Revision
Source Classification:	Minor, TV Major by rule
Facility Location:	352,220 m E by 3,907,750 m N, Zone 13; Datum WGS84
County:	Sandoval
Air Quality Bureau Contact	Urshula Bajracharya
Main AQB Phone No.	(505) 476-4300

Liz Bisbey-Kuehn
Bureau Chief
Air Quality Bureau

Date

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PART A FACILITY SPECIFIC REQUIREMENTS

A100 Introduction

A. This permit, NSR 4111-M2, supersedes all portions of Air Quality Permit 4111-M1, issued March 13, 2017, except portions requiring compliance tests. Compliance test conditions from previous permits, if not completed, are still in effect, in addition to compliance test requirements contained in this permit.

A101 Permit Duration (expiration)

A. The term of this permit is permanent unless withdrawn or cancelled by the Department.

A102 Facility: Description

A. The function of the facility is to dispose of municipal solid waste (MSW) and wastewater treatment plant sludge; process petroleum contaminated soils (PCS); shred logs, stumps, green waste, and woody construction and demolition debris for composting; crush scrap concrete and asphalt debris to produce road basecourse; and shred or crush MSW and other wastes to facilitate compaction within the landfill disposal cells.

B. This facility is located within the city limits of Rio Rancho, New Mexico, in Sandoval County. The facility is located off of Idalia Road, approximately 2.5 miles west of NM 528.

C. Public access shall be restricted at the landfill property boundary.

D. This modification consists of addition and operation of portable rock crusher for a limited annual duration of time. The facility is proposing to rent a rock crusher for a period not to exceed 432 hours per year from the date of issuance of this permit.

E. Table 102.A and Table 102.B show the total potential emission rates (PER) from this facility for information only. This is not an enforceable condition and excludes emissions from Minor NSR exempt activities per 20.2.72.202 NMAC.

Table 102.A: Total Potential Emission Rate (PER) from Entire Facility

Pollutant	Emissions (tons per year)
Nitrogen Oxides (NOx)	8.9
Carbon Monoxide (CO)	2.4
Volatile Organic Compounds (VOC) [1]	25.6
Sulfur Dioxide (SO_2)	0.6

Table 102.A: Total Potential Emission Rate (PER) from Entire Facility

Pollutant	Emissions (tons per year)
Particulate Matter 10 microns or less (PM_{10})	24.6
Particulate Matter (PM)[2]	88.5
Particulate Matter 2.5 microns or less ($PM_{2.5}$)	3.5
Non-methane Organic Compounds (NMOC in Mg/yr in 2022)	27.85
Greenhouse Gas (GHG) as CO_2e	76,943

1. VOC total includes emissions from Fugitives
2. PM is a regulated pollutant per 20.2.70 NMAC, Title V. No ambient air quality standards apply to PM.

Table 102.B: Total Potential Emissions Rate (PER) for *Hazardous Air Pollutants (HAPs) that exceed 1.0 ton per year

Pollutant	Emissions (tons per year)
Toluene	1.4
Total HAPs**	24.5

* HAP emissions are already included in the VOC emission total.

** The total HAP emissions may not agree with the sum of individual HAPs because only individual HAPs greater than 1.0 ton per year are listed here.

A103 Facility: Applicable Regulations

A. The permittee shall comply with all applicable sections of the requirements listed in Table 103.A.

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
20.2.1 NMAC General Provisions	X	Entire facility
20.2.3 NMAC Ambient Air Quality Standards	X	Entire facility
20.2.7 NMAC Excess Emissions	X	Entire facility
20.2.60 NMAC Open Burning	X	Entire facility
20.2.61 NMAC Smoke and Visible Emissions	X	2B, 2C, 5D and 6
20.2.64 NMAC Municipal Solid Waste Landfills	X	Entire Facility
20.2.70 NMAC Operating Permits	X	Entire facility
20.2.71 NMAC Operating Permit Emission Fees	X	Entire facility
20.2.72 NMAC Construction Permit	X	Entire facility
20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements	X	Entire facility
20.2.75 NMAC Construction Permit Fees	X	Entire facility
20.2.77 NMAC New Source Performance Standards	X	Units subject to 40 CFR 60
20.2.82 NMAC Maximum Achievable Control Technology Standards for Source Categories of HAPs	X	Units subject to 40 CFR 63
40 CFR 50 National Ambient Air Quality Standards	X	Entire facility

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
40 CFR 60, Subpart A, General Provisions	X	Entire facility
40 CFR 60, Subpart Cf and XXX	X	Entire facility
40 CFR 60, Subpart IIII	X	5D
40 CFR 63, Subpart A, General Provisions	X	Units subject to 40 CFR 63
40 CFR 63, Subpart CCCCCC	X	T1
40 CFR 63, Subpart ZZZZ	X	2B and 2C
40 CFR 82, Protection of Stratospheric Ozone	X	Entire Facility

A104 Facility: Regulated Sources

A. Table 104.A lists the emission units authorized for this facility. Emission units identified as exempt activities (as defined in 20.2.72.202 NMAC) and/or equipment not regulated pursuant to the Act are not included.

Table 104.A: Regulated Sources List

Unit No.	Source Description	Make	Model	Serial No.	Construction/ Reconstruction Date	Manufacture Date	Manufacturer Rated Capacity /Permitted Capacity
1	Fugitives - Disposal Route, Access and Auxiliary Roads	Not Applicable (NA)	NA	NA	1972	NA	2745 h/y
2A	General Landfill Operations	NA	NA	NA	1972	NA	2745 h/y
2B	Diesel Powered Compost Screen	Fecon	96	05231	01-JAN-06	01-JAN-06	48 hp / 48 hp
2C	Diesel Powered Wood Chipper	Morbark	3600 Wood Chipper	182-1124	18-JAN-05	01-JUN-04	455 hp / 455 hp
3	Landfill Gas Emissions[2]	NA	NA	NA	NA	NA	8760 h/y
4	Petroleum Hydrocarbon Landfarm (PCS)[3]	NA	NA	NA	TBD	NA	850 yd^3 / 850 yd^3
5A	Rock Crusher/ Waste Shredder Operations	NA	NA	NA	01-JAN-09	01-DEC-08	80 tons/h / 80 tons/h
5B	Front End Loader in Crusher Area	NA	NA	NA	NA	NA	80 tons/h / 80 tons/h
5C	Stockpiling for Crusher	NA	NA	NA	NA	NA	80 tons/h / 80 tons/h
5D	Diesel CI Engine	Doppstadt	DW3060SA	W09307324-823-D38048	01-JAN-09	01-DEC-08	430 hp / 430 hp
6	Portable Rock Crusher (Rental)	Lokotrack	LT1213S	TBD	2019	2019	415 hp / 415 hp

1. All TBD (to be determined) units and like-kind engine replacements must be evaluated for applicability to NSPS and MACT requirements.
2. The facility operates up to 2745 h/y (as shown in Unit 2A), but landfill gas emissions occur continuously.
3. The PCS landfarm has not accepted any waste at this time, so the volume is not known. The 850 yd^3 figure is an initial design assessment based on the Table 106.A. allowable limits for HAPs.

A105 Facility: Control Equipment

A. Table 105 lists all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application.

Table 105: Control Equipment List:

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit Number(s)[1]
Not required	Watering	Fugitive dust (particulate matter) emissions	1 and 2
Not required	Basecourse applications and watering	Fugitive dust (particulate matter) emissions to achieve 80% control	1 and 2A
Not required	Chip seal, sweeping, and watering	Fugitive dust (particulate matter) emissions to achieve 85% control	1 and 2A
Not required	Pavement and sweeping	Fugitive dust (particulate matter) emissions to achieve 95% control	1 and 2A

1. Control for unit number refers to a unit number from the Regulated Equipment List

A106 Facility: Allowable Emissions

A. The following Section lists the emission units and their allowable emission limits. (40 CFR 50; 40 CFR 60, Subparts A, IIII, Cf and XXX; 40 CFR 63, Subparts A, CCCCCC, and ZZZZ; and 20.2.72.210.A and B.1 NMAC).

Table 106.A: Allowable Emissions

Unit No.	NO_x[1] pph	NO_x[1] tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
1	-	-	-	-	-	-	-	-	14.5	16.1	1.5	1.6
2A	-	-	-	-	-	-	-	-	6.2	7.5	1.3	1.3
2C and 2B[3]	6.9	4.5	1.5	1.0	<	<	<	<	<	<	<	<
3	-	-	-	-	<	1.4	-	-	-	-	-	-

Unit No.	NO_x[1] pph	NO_x[1] tpy	CO pph	CO tpy	VOC pph	VOC tpy	SO_2 pph	SO_2 tpy	PM_{10} pph	PM_{10} tpy	$PM_{2.5}$ pph	$PM_{2.5}$ tpy
4	-	-	-	-	5.3	23.6	-	-	-	-	-	-
5A. 5B, 5C	-	-	-	-	-	-	-	-	1.4	1.0	<	<
5D	5.7	4.3	1.2	0.9	<	<	<	<	<	<	<	<
6	0.3	0.06	2.4	0.5	0.1	0.03	-	-	0.4	0.1	0.08	0.02

1 Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2

2 For Title V facilities, the Title V annual fee assessments are based on the sum of allowable tons per year emission limits in Sections A106 and A107.

3 Unit 2C emissions include 0.6 pph NO_2 from Unit 2B (Unit 2B is limited to 48 hours/year per Condition A706.A).
"-" indicates the application represented emissions of this pollutant are not expected.
"<" indicates that the application represented the uncontrolled mass emission rates are less than 1.0 pph or 1.0 tpy for this emissions unit and this air pollutant. The Department determined that allowable mass emission limits were not required for this unit and this pollutant.
"*" indicates hourly emission limits are not appropriate for this operating situation.

4 To report excess emissions for sources with no pound per hour and/or ton per year emission limits, see condition B110.F.

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions

A. Separate allowable SSM emission limits are not required for this facility since the SSM emissions are predicted to be less than the limits established in Table 106A. The permittee shall maintain records in accordance with Condition B109.C.

A108 Facility: Allowable Operations

A. Operating Hours.

Requirement: This facility, including all permitted equipment and related activities such as truck traffic involving movement of landfill materials, shall occur between the operational hours of 7:00 am and 4:00 pm, Monday through Saturday, for a maximum of 2745 hours/calendar year. Site maintenance and construction activities, including application of daily cover, may extend beyond the hours that the landfill is open to receive waste. In addition, the Landfill may operate outside scheduled operating hours to accommodate site preparation, inclement weather conditions, special projects, internal operations/projects, waste transfer operations, internal operations, monitoring, and other special conditions.
Monitoring: Daily, the permittee shall record the hours of operation of the facility.
Recordkeeping: Each month, the permittee shall calculate the monthly rolling 12-month total hours. The permittee shall record the start and end times on each day of operation.
Reporting: The permittee shall report in accordance with Section B110.

A109 Facility: Reporting Schedules

A. The permittee shall report according to the Specific Conditions and General Conditions of this permit.

A110 Facility: Fuel and Fuel Sulfur Requirements – Not Required

A111 Facility: 20.2.61 NMAC Opacity

A. 20.2.61 NMAC Opacity Limit (Units 2B, 2C, 5D, and 6**)**

Requirement: Visible emissions from all emission stacks of all compression ignition engines (Units 2B, 2C, 5D, and 6) shall not exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.110.A NMAC.
Monitoring: As compression ignition engines used for processing landfill materials, and as engines that operate on a limited basis, the permittee shall, at least once during any calendar year that the unit is operated and no less frequently than once every 5 years regardless of unit operation, measure opacity during steady state operation on each unit for a minimum of 10 minutes in accordance with the procedures of 40 CFR 60, Appendix A, Method 9. The permittee shall also measure opacity on a unit's emissions stack anytime when visible emissions are observed during steady state operation. (a) Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. (b) If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.
Recordkeeping: The permittee shall keep records in accordance with the requirements of Section B109 and as follows: (a) For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2. (b) For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.
Reporting: The permittee shall report in accordance with Section B110.

EQUIPMENT SPECIFIC REQUIREMENTS

OIL AND GAS INDUSTRY

A200 Oil and Gas Industry – Not Required

CONSTRUCTION INDUSTRY - AGGREGATE

A300 Construction Industry – Aggregate – Not Required

CONSTRUCTION INDUSTRY – ASPHALT

A400 Construction Industry – Asphalt – Not Required

CONSTRUCTION INDUSTRY - CONCRETE

A500 Construction Industry – Concrete – Not Required

POWER GENERATION INDUSTRY

A600 Power Generation Industry – Not Required

SOLID WASTE DISPOSAL (LANDFILLS) INDUSTRY

A700 Solid Waste Disposal (Landfills) Industry– Not Required

A. This section has common equipment related to most Landfill Operations

A701 General Landfill Operations and NMOC Emissions

A. Setback Distance and Restriction on Moving Emission Sources: The permittee was required to reduce some haul road and other activities near the northern property boundary to meet the PM2.5 PSD increment to issue NSR permit number 4111-M1. Therefore, any change in the parameters used for this modeling, including moving regulated sources of air emissions, such as haul roads, shall be submitted to the Department for review. Upon the Department's request, the permittee shall submit

additional modeling for review by the Department. Results of that review may require a permit modification (20.2.72.210.A NMAC).

B. 40 CFR 60, Subparts XXX and Cf (Entire Facility)

Requirement: The landfill shall comply with all applicable requirements of Subpart A of 40 CFR 60 and all specific requirements in Subpart XXX of 40 CFR 60.760 through 40 CFR 60.769. The landfill shall also comply with any/all applicable specific requirements in Subpart Cf of 40 CFR 60.31f through 40 CFR 60.41f.
Monitoring: The permittee shall comply with the applicable monitoring requirements of 40 CFR 60.766 and 40 CFR 60.37f.
Recordkeeping: The permittee shall comply with the applicable recordkeeping requirements of 40 CFR 60.768 and 40 CFR 60.39f.
Reporting: The permittee shall comply with the reporting requirements of 40 CFR 60.767 and 40 CFR 60.38f.

C. Particulate Matter Control – Landfill (Entire Facility)

Requirement: Compliance with the allowable particulate matter emissions limits in Table 106.A shall be demonstrated by watering active areas of the landfill to control particulate matter emissions. The permittee shall control fugitive dust by spreading water onto the active areas of the landfill at least once a day during the landfill access hours, or as necessary to control fugitive dust emissions. This condition is pursuant to 20.2.70.302.A(1) NMAC. The frequency of water application may be reduced when precipitation, residual moisture, or freezing temperatures occur to the extent that these conditions suppress fugitive dust as effectively as the application of water.
Monitoring: The permittee shall watch for the presence of visible dust and monitor the frequency, quantity, and location(s) of the water application, or equivalent control measures.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the daily watering activities in accordance with Section B109 of this permit. The permittee shall make a daily record of each time the control activity is applied or if none is required due to precipitation, residual moisture, or freezing temperatures that eliminate the need for water application. The record shall include the date, time, name of the person making the entry, and the quantity and description of the control material that was applied and where.
Reporting: The permittee shall submit reports of the daily watering logs in accordance with Section B110 of this permit.

D. NMOC Emissions – Waste Acceptance Rates and Design Capacity (Unit 3)

Requirement: The permittee shall verify parameters used in the NMOC calculations. This condition is pursuant to 20.2.70.302.A(1) NMAC, 20.2.64 NMAC, and 40 CFR 60.762 (Subpart XXX, standards for air emissions).
Monitoring: The permittee shall monitor the waste acceptance rates and design capacity at the landfill.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the maximum design capacity, current amount of solid waste in-place, and the year-by-year waste acceptance

rate in accordance with Section B109 of this permit.
Reporting: The permittee shall meet any applicable reporting as required in 40 CFR 60, Subpart XXX (Condition A701.B).

E. NMOC Emission Rate (Unit 3)

Requirement The permittee shall recalculate the NMOC emission rate annually using the procedures specified in 40 CFR 60 Subpart 60.764 (Subpart XXX, test methods and procedures) until such time as the calculated NMOC emission rate is equal to or greater than 34 megagrams (Mg) per year or the landfill is closed. If the annual NMOC emission rate upon recalculation is equal to or greater than 34 Mg per year, the landfill owner/operator shall install a collection and control system in compliance with 40 CFR 60.762(b)(2) and notify the Air Quality Bureau Permitting Section. This condition is pursuant to 20.2.70.302.A(1) NMAC, 20.2.64 NMAC, and 40 CFR 60.762(b).
Monitoring: The permittee shall monitor and recalculate the NMOC emission rate annually.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the annual reports of NMOC calculated emissions in accordance with Section B109 of this permit.
Reporting: The permittee shall meet any applicable reporting as required in 40 CFR 60, Subpart XXX (Condition A701.B).

F. Crushing/Shredding Operations – Hours of Operation (Units 5A, 5B, and 5C)

Requirement: The crusher/shredder and associated activities, Units 5A, 5B, and 5C, are restricted to operate no more than 1520 hours per year. These hours shall reflect those as required for the diesel engine component of this unit (Unit 5D) per Condition A706.A. Any/all monitoring, recordkeeping, and reporting that overlaps (happens concurrently) with the requirements of Condition A706.A, shall be kept as one record.
Monitoring: The permittee shall monitor the on/off status of the crusher/shredder.
Recordkeeping: The permittee shall make a record of the on/off status of the crusher/shredder. At a minimum, the operator shall monitor and record the date, the time, and the on/off status of the crusher/shredder using the resettable hour meter installed on the crusher/shredder. Each calendar month, the permittee shall calculate the monthly total for the hours in which the crusher/shredder operates. The permittee shall calculate the monthly rolling 12-month total hours for the crusher/shredder.
Reporting: The permittee shall maintain a summary of the hours of operation for the crusher/shredder for each calendar day. At a minimum, the summary shall include the date, the production start and end time, and the total number of hours of operation. The permittee shall maintain the ability to provide information to the Department, in electronic or paper format, within 24 hours of the request, or longer if so authorized by the Department.

G. Crusher/Shredder (Unit 5A): The permittee shall keep documentation on site that shows the manufacturer's maximum rated throughput rate for the crusher/shredder in Unit 5A, under all configurations, does not exceed 80 tons per hour.

H. Storage Piles (Unit 5C): Stockpiles shall be maintained to minimize fugitive particulate matter emissions to the atmosphere. Water applications (Condition A701.C), use of

tarps or other physical devices and techniques, stockpile physical profile, stockpile placement (location) within the landfill boundaries, or other standard industry practices shall all be considered in minimizing fugitive dust. When requested by the Department, the permittee shall indicate what practices are being implemented.

I. Equipment: The permittee shall maintain a list of all equipment associated with this permit at all times. All changes to the list shall be reported to the Department by notifying the Department in accordance with the equipment substitution notification process (according to the General Conditions at B110.C). Substitution of non-combustion equipment is authorized provided the replacement equipment is functionally equivalent and has the same or lower process capacity as the piece of equipment it is replacing in the most recent permit. The Department shall be notified using the Equipment Substitution Form provided by the Department within fifteen (15) days of equipment substitutions (General Conditions at B110.C).

A702 Haul Road Operations

A. Unpaved Roads (Units 1 and 2A)

Requirement: Unpaved traffic areas and haul roads within the facility boundaries, including the landfill operations area shall be watered **or** treated by application of basecourse to control particulate emissions. The permittee shall control fugitive dust by spreading water onto unpaved truck traffic areas and haul roads at least once a day during the landfill access hours (54 hours per week), or as necessary to control fugitive dust emissions. The frequency of water application may be reduced when precipitation, residual moisture, or freezing temperatures occur to the extent that these conditions suppress fugitive dust as effectively as the application of water.
Monitoring: The permittee shall watch for the presence of visible dust and monitor the frequency, quantity, and location(s) of the water application or equivalent control measure.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the daily watering activities in accordance with Section B109 of this permit. The permittee shall make a daily record of each time the control activity is applied or if none is required due to precipitation, residual moisture, or freezing temperatures that eliminate the need for water application. The record shall include the date, time, name of the person making the entry, and the quantity and description of the control measure and where it is applied.
Reporting: The permittee shall submit reports of the daily watering logs in accordance with Section B110 of this permit.

B. Recycled Basecourse Roads (Units 1 and 2A)

Requirement: Traffic areas and haul roads within the facility boundaries, including landfill operations areas, where recycled basecourse has been applied, shall be watered to control particulate emissions. The permittee shall control fugitive dust by spreading water onto traffic areas and haul roads, where recycled basecourse has been applied, at least once a day during the landfill access hours (54 hours per week), or as necessary to control fugitive dust emissions. The frequency of water application may be reduced when precipitation, residual moisture, or

freezing temperatures occur to the extent that these conditions suppress fugitive dust as effectively as the application of water.
Monitoring: The permittee shall watch for the presence of visible dust and monitor the frequency, quantity, and location(s) of the water application.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the daily watering activities, including any road maintenance or repairs, in accordance with Section B109 of this permit. The permittee shall make a daily record of each time the control activity is applied or if none is required due to precipitation, residual moisture, or freezing temperatures that eliminate the need for water application. The record shall include the date, time, name of the person making the entry, and the quantity and description of the control measure and where it is applied.
Reporting: The permittee shall submit reports of the daily watering logs in accordance with Section B110 of this permit.

C. Chip Sealed Roads (Units 1 and 2A)

Requirement: Traffic areas and roads within the facility boundaries, including landfill operations areas, where chip seal (a mixture of asphalt cement and rock that form a hardened surface) has been applied, shall be swept and watered to control particulate emissions. If sweeping is not sufficient alone to control dust, watering shall be implemented to control dust as appropriate. The permittee shall control fugitive dust by cleaning chip seal roads as necessary during the landfill access hours (54 hours per week), to control fugitive dust emissions. The frequency of water application or sweeping may be reduced when precipitation, residual moisture, or freezing temperatures occur to the extent that these conditions suppress fugitive dust as effectively as the application of water or sweeping.
Monitoring: The permittee shall watch for the presence of visible dust and monitor the frequency and location(s) of the sweeping.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the cleaning activities, including any road maintenance or repairs, in accordance with Section B109 of this permit. The permittee shall make a daily record of each time the control activity is performed or if none is required due to precipitation, residual moisture, or freezing temperatures that eliminate the need for water application or sweeping. The record shall include the date, time, name of the person making the entry, and a description of the control measure and where it is applied.
Reporting: The permittee shall submit reports of the sweeping and watering activities in accordance with Section B110.

D. Paved Roads (Units 1 and 2A)

Requirement: Paved traffic areas and haul roads within the facility boundaries, including landfill operations areas, shall be swept to control particulate emissions. The permittee shall control fugitive dust by cleaning paved roads as necessary during the landfill access hours (54 hours per week), to control fugitive dust emissions. The frequency of sweeping may be reduced when precipitation, residual moisture, or freezing temperatures occur to the extent that these conditions suppress fugitive dust as effectively as sweeping.
Monitoring: The permittee shall watch for the presence of visible dust and monitor the

frequency and location(s) of the sweeping.
Recordkeeping: The permittee shall keep readily accessible, on-site records of the cleaning activities, including any road maintenance or repairs, in accordance with Section B109 of this permit. The permittee shall make a daily record of each time the control activity is performed or if none is required due to precipitation, residual moisture, or freezing temperatures that eliminate the need for sweeping. The record shall include the date, time, name of the person making the entry, and a description of the control measure and where it is applied.
Reporting: The permittee shall submit reports of the sweeping activity in accordance with Section B110 of this permit.

E. Traffic Limits – Refuse Delivery and Miscellaneous Vehicles (Units 1 and 2A)

Requirement: The cumulative daily distance traveled by refuse delivery vehicles and miscellaneous vehicular traffic using landfill disposal and operation routes shall not exceed the following cumulative vehicle miles traveled (VMT), used to determine particulate matter emissions: 1) 146.6 VMT per day (44,708 VMT per year) on unpaved roads; 2) 180.1 VMT per day (54,941 VMT per year) on chip seal roads; and 3) 83.1 VMT per day (25,343 VMT per year) on paved roads.
Monitoring: The permittee shall monitor the total number of VMT on the unpaved roads, on the chip seal roads, and on the paved roads of the disposal route and operation routes per day.
Recordkeeping: The permittee shall keep daily records of the total number of VMT on the unpaved roads, on the chip seal roads, and on the paved roads of the disposal route and operation routes per day in accordance with Section B109 of this permit.
Reporting: Maintain records on-site.

F. Traffic Limit - Front End Loader (Unit 5B)

Requirement: The cumulative daily distance traveled by the front end loader, Unit 5B, in the crusher/shredder area, shall not exceed 1.04 vehicle miles traveled (VMT) per day (318 VMT per year), used to determine particulate matter emissions.
Monitoring: The permittee shall monitor the total number of VMT for the front end loader per day.
Recordkeeping: The permittee shall keep daily records of the total number of VMT for the front end loader in accordance with Section B109 of this permit.
Reporting: Maintain records on-site.

A703 Landfill Gas Collection System – Not Required

A704 Enclosed Landfill Gas Flare (NMOC Emissions Control) – Not Required

A705 Petroleum Contaminated Soils Landfarm

A. Hazardous Air Pollutants (HAP) - The Petroleum Contaminated Soils (PCS) Landfarm (Unit 4) HAP emissions shall be less than 25 tons per year (tpy) of aggregate HAPs and 10 tpy of any individual HAP. PCS received by the landfill shall have a laboratory analysis for total petroleum hydrocarbon (TPH - Diesel, Motor Oil, and Gasoline Range Organics), and Benzene, Toluene, Ethyl benzene, and Xylene (BTEX).

B. Operations – Petroleum Contaminated Soils (PCS) Landfarm (Unit 4)

Requirement: The permittee shall not exceed the emission limits in Table 106.A and the limits in Condition A705.A.
Monitoring: The permittee shall monitor the total amount of PCS received and the associated concentration of TPH and BTEX based on the analytical analysis for each PCS profile. Profile is defined as an identification sheet for one specific remediation project that meets the landfill's acceptance criterion. PCS received may involve multiple truck loads or shipments. The permittee shall calculate semi-annually the HAP emissions from PCS consistent with the methodologies presented in Section 6 of the permit application. Calculations for individual BTEX emissions shall be based on the highest concentration of the individual HAP as determined from the analytical test results associated with the PCS profile. For PCS remediation projects with volumes less than 100 cubic yards, the results of the single laboratory sample will be considered the high concentration.
Recordkeeping: The permittee shall record the total amount (cubic yards or tons) of PCS received for each profile and the associated concentration (ppm or Mg/kg) of TPH and BTEX. For each PCS profile, the permittee shall maintain scale records documenting the amount of PCS deposited at the Landfarm and laboratory analytical results documenting the HAP concentrations. The permittee shall also maintain records of HAP emissions calculations. Records shall be maintained on-site and made available within 24 hours upon request. Scale records and Waste Profile Sheets with Laboratory Analysis are also subject to Department review and copying upon written notice and/or on-site inspection.
Reporting: As required by this facility's Title V permit, the permittee shall report semi-annually a summary of the HAP emissions calculations.

A706 Engines

A. Hours of Operation: Diesel Engines (Units 2C, 2B, and 5D)

Requirement: Compliance with the allowable emissions limits in Table 106.A shall be

demonstrated as follows: The diesel engines which power the wood chipper (Unit 2C), the compost screen (Unit 2B), and the crusher/shredder (Unit 5D), are restricted to operate no more than: 1) 1440 hours per year for Unit 2C, 2) 48 hours per year for Unit 2B, and 3) 1520 hours per year for Unit 5D, based on a monthly rolling 12-month total (for each engine), as specified in the permit application.
Monitoring: The permittee shall monitor the on/off status of each of Unit 2C, Unit 2B, and Unit 5D diesel engines by recording the startup time and subsequent shut-down time of each engine.
Recordkeeping: The permittee shall make a record of the on/off times for each diesel engine. Unit 5D (crusher/shredder engine): The operator shall utilize the hour meter installed on Unit 5D to facilitate the recording of date, time, and on/off status of Unit 5D. Each calendar month, the permittee shall calculate the monthly total for the hours in which each diesel engine operates. The permittee shall calculate the monthly rolling 12-month total hours for each diesel engine.
Reporting: The permittee shall maintain a summary of the hours of operation for each diesel engine for each calendar day. At a minimum, the summary shall include the date, the start and end time, and the total number of hours of operation. The permittee shall maintain the ability to provide information to the Department in electronic or paper format, within 24 hours of the request, or longer if so authorized by the Department.

B. 40 CFR 60, Subpart IIII (Unit 5D)

Requirement: The unit is subject to 40 CFR 60, Subparts A and IIII and shall comply with the notification requirements in Subpart A and the specific requirements of Subpart IIII, including the standards in §60.4204.
Monitoring: The permittee shall comply with all applicable monitoring requirements in 40 CFR 60, Subpart A and Subpart IIII, including but not limited to 60.4211.
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 60, Subpart A and Subpart IIII, including but not limited to 60.4214.
Reporting: The permittee shall comply with all applicable reporting requirements in 40 CFR 60, Subpart A and Subpart IIII, including but not limited to 60.4214.

C. 40 CFR 63, Subpart ZZZZ (Units 2B and 2C)

Requirement: The units are subject to 40 CFR 63, Subpart ZZZZ and the permittee shall comply with all applicable requirements of Subpart A and Subpart ZZZZ, including applicable emission limitations and operating limitations cited under §63.6603, including Table 2d. Unit 5D shall meet ZZZZ by meeting NSPS IIII (see Condition A706.B)
Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.

Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements of 40 CFR 63, Subpart A and Subpart ZZZZ, including but not limited to 63.6655 and 63.10.
Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 63, Subpart A and ZZZZ, including but not limited to 63.6645, 63.6650, 63.9, and 63.10.

D. Hours of Operation: Portable Diesel Engine (Unit 6)

Requirements: Compliance with the allowable emissions limits in Table 106.A shall be demonstrated as follows: 1) The Unit 6 engine shall be limited to operating for no more than a total of 432 hours per calendar year. The emissions in Table 106.A are based on Unit 6 operating 9 hours per day at 6 days per week for a period not to exceed 8 weeks in a calendar year. The total of 432 hours/calendar year shall not be exceeded; and 2) Units 2C and 5D shall not be operated simultaneously with Unit 6.
Monitoring: The permittee shall monitor the on/off status of Unit 6 by recording the startup time and subsequent shut-down time of the engine.
Recordkeeping: The permittee shall make a record of the on/off times for the diesel engine, using a Department-approved recording system or recordkeeping form, similar to that used for other facility engines (Condition A706.A). The records shall not indicate any simultaneous operation of Unit 6 with Unit 2C or with Unit 5D. The permittee shall keep a cumulative record of the total hours in which the engine operates until the 432 hour limit per calendar year has been reached.
Reporting: The permittee shall maintain a summary of the hours of operation for the engine for each calendar day. At a minimum, the summary shall include the date, the start and end time, and the total number of hours of operation. The permittee shall maintain the ability to provide information to the Department in electronic or paper format, within 24 hours of the request, or longer if so authorized by the Department.

A707 <u>Tanks:</u>

A. NESHAP (MACT) - 40 CFR 63 Subpart CCCCCC (Unit T-1)

Requirement: Unit T-1 is subject to the requirements in 40 CFR 63, Subparts A and CCCCCC, §63.11111(c) of as a Gasoline Dispensing Facility (GDF) with throughput of greater than 10,000 gal/month, but less than 100,000 gal / month. 1) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the requirements listed in §63.11111(c). 2) No notifications are required for Unit T-1, however, the permittee shall have records available within 24 hours of a request by the Administrator to document fuel throughput.
Monitoring: As required by Subparts A and CCCCCC.
Recordkeeping: The permittee shall maintain monthly fuel throughput records in accordance with §63.11117(d) of 40 CFR 63, Subpart CCCCCC, and in accordance with Section B109.
Reporting: The permittee shall report as required by 40 CFR 63, Subparts A and CCCCCC, and

in accordance with Section B110.

PART B GENERAL CONDITIONS (Attached)

PART C MISCELLANEOUS: Supporting On-Line Documents; Definitions; Acronyms (Attached)

AIR QUALITY BUREAU
NEW SOURCE REVIEW PERMIT
Issued under 20.2.72 NMAC

GENERAL CONDITIONS AND MISCELLANEOUS

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PART B GENERAL CONDITIONS

B100 Introduction

A. The Department has reviewed the permit application for the proposed construction/modification/revision and has determined that the provisions of the Act and ambient air quality standards will be met. Conditions have been imposed in this permit to assure continued compliance. 20.2.72.210.D NMAC, states that any term or condition imposed by the Department on a permit is enforceable to the same extent as a regulation of the Environmental Improvement Board.

B101 Legal

A. The contents of a permit application specifically identified by the Department shall become the terms and conditions of the permit or permit revision. Unless modified by conditions of this permit, the permittee shall construct or modify and operate the Facility in accordance with all representations of the application and supplemental submittals that the Department relied upon to determine compliance with applicable regulations and ambient air quality standards. If the Department relied on air quality modeling to issue this permit, any change in the parameters used for this modeling shall be submitted to the Department for review. Upon the Department's request, the permittee shall submit additional modeling for review by the Department. Results of that review may require a permit modification. (20.2.72.210.A NMAC)

B. Any future physical changes, changes in the method of operation or changes in restricted area may constitute a modification as defined by 20.2.72 NMAC, Construction Permits. Unless the source or activity is exempt under 20.2.72.202 NMAC, no modification shall begin prior to issuance of a permit. (20.2.72 NMAC Sections 200.A.2 and E, and 210.B.4)

C. Changes in plans, specifications, and other representations stated in the application documents shall not be made if they cause a change in the method of control of emissions or in the character of emissions, will increase the discharge of emissions or affect modeling results. Any such proposed changes shall be submitted as a revision or modification. (20.2.72 NMAC Sections 200.A.2 and E, and 210.B.4)

D. The permittee shall establish and maintain the property's Restricted Area as identified in plot plan submitted with the application. (20.2.72 NMAC Sections 200.A.2 and E, and 210.B.4)

E. Applications for permit revisions and modifications shall be submitted to:

Program Manager, Permits Section
New Mexico Environment Department

Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

F. The owner or operator of a source having an excess emission shall, to the extent practicable, operate the source, including associated air pollution control equipment, in a manner consistent with good air pollutant control practices for minimizing emissions. (20.2.7.109 NMAC). The establishment of allowable malfunction emission limits does not supersede this requirement.

B102 Authority

A. This permit is issued pursuant to the Air Quality Control Act (Act) and regulations adopted pursuant to the Act including Title 20, Chapter 2, Part 72 of the New Mexico Administrative Code (NMAC), (20.2.72 NMAC), Construction Permits and is enforceable pursuant to the Act and the air quality control regulations applicable to this source.

B. The Department is the Administrator for 40 CFR Parts 60, 61, and 63 pursuant to the delegation and exceptions of Section 10 of 20.2.77 NMAC (NSPS), 20.2.78 NMAC (NESHAP), and 20.2.82 NMAC (MACT).

B103 Annual Fee

A. The Department will assess an annual fee for this Facility. The regulation 20.2.75 NMAC set the fee amount at $1,500 through 2004 and requires it to be adjusted annually for the Consumer Price Index on January 1. The current fee amount is available by contacting the Department or can be found on the Department's website. The AQB will invoice the permittee for the annual fee amount at the beginning of each calendar year. This fee does not apply to sources which are assessed an annual fee in accordance with 20.2.71 NMAC. For sources that satisfy the definition of "small business" in 20.2.75.7.F NMAC, this annual fee will be divided by two. (20.2.75.11 NMAC)

B. All fees shall be remitted in the form of a corporate check, certified check, or money order made payable to the "NM Environment Department, AQB" mailed to the address shown on the invoice and shall be accompanied by the remittance slip attached to the invoice.

B104 Appeal Procedures

A. Any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for hearing before the Environmental Improvement Board. The petition shall be made in writing to the

Environmental Improvement Board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered and attach a copy of the permitting action for which review is sought. Unless a timely request for hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be sent to: (20.2.72.207.F NMAC)

For Mailing:
Administrator, New Mexico Environmental Improvement Board
P.O. Box 5469
Santa Fe, NM 87502-5469

For Hand Delivery:
Administrator, New Mexico Environmental Improvement Board
1190 St. Francis Drive, Harold Runnels Bldg.
Santa Fe, New Mexico 87505

B105 Submittal of Reports and Certifications

A. Stack Test Protocols and Stack Test Reports shall be submitted electronically to Stacktest.AQB@state.nm.us or as directed by the Department.

B. Excess Emission Reports shall be submitted as directed by the Department. (20.2.7.110 NMAC)

C. Routine reports shall be submitted to the mailing address below, or as directed by the Department:

Manager, Compliance and Enforcement Section
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

B106 NSPS and/or MACT Startup, Shutdown, and Malfunction Operations

A. If a facility is subject to a NSPS standard in 40 CFR 60, each owner or operator that installs and operates a continuous monitoring device required by a NSPS regulation shall comply with the excess emissions reporting requirements in accordance with 40 CFR 60.7(c), unless specifically exempted in the applicable subpart.

B. If a facility is subject to a NSPS standard in 40 CFR 60, then in accordance with 40 CFR 60.8(c), emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

C. If a facility is subject to a MACT standard in 40 CFR 63, then the facility is subject to the requirement for a Startup, Shutdown and Malfunction Plan (SSM) under 40 CFR 63.6(e)(3), unless specifically exempted in the applicable subpart.

B107 Startup, Shutdown, and Maintenance Operations

A. The establishment of permitted startup, shutdown, and maintenance (SSM) emission limits does not supersede the requirements of 20.2.7.14.A NMAC. Except for operations or equipment subject to Condition B106, the permittee shall establish and implement a plan to minimize emissions during routine or predictable start up, shut down, and scheduled maintenance (SSM work practice plan) and shall operate in accordance with the procedures set forth in the plan. (SSM work practice plan) (20.2.7.14.A NMAC)

B108 General Monitoring Requirements

A. These requirements do not supersede or relax requirements of federal regulations.

B. The following monitoring requirements shall be used to determine compliance with applicable requirements and emission limits. Any sampling, whether by portable analyzer or EPA reference method, that measures an emission rate over the applicable averaging period greater than an emission limit in this permit constitutes noncompliance with this permit. The Department may require, at its discretion, additional tests pursuant to EPA Reference Methods at any time, including when sampling by portable analyzer measures an emission rate greater than an emission limit in this permit; but such requirement shall not be construed as a determination that the sampling by portable analyzer does not establish noncompliance with this permit and shall not stay enforcement of such noncompliance based on the sampling by portable analyzer.

C. If the emission unit is shutdown at the time when periodic monitoring is due to be completed, the permittee is not required to restart the unit for the sole purpose of conducting the monitoring. Using electronic or written mail, the permittee shall notify the Department's Compliance and Enforcement Section of a delay in emission tests prior to the deadline for completing the tests. Upon recommencing operation, the permittee shall submit pre-test notification(s) to the Department's Compliance and Enforcement Section and shall complete the monitoring.

D. The requirement for monitoring during any monitoring period is based on the percentage of time that the unit has operated. However, to invoke the monitoring period exemption at B108.D(2), hours of operation shall be monitored and recorded.

(1) If the emission unit has operated for more than 25% of a monitoring period, then the permittee shall conduct monitoring during that period.

(2) If the emission unit has operated for 25% or less of a monitoring period then the monitoring is not required. After two successive periods without monitoring, the permittee shall conduct monitoring during the next period regardless of the time operated during that period, except that for any monitoring period in which a unit has operated for less than 10% of the monitoring period, the period will not be considered as one of the two successive periods.

(3) If invoking the monitoring **period** exemption in B108.D(2), the actual operating time of a unit shall not exceed the monitoring period required by this permit before the required monitoring is performed. For example, if the monitoring period is annual, the operating hours of the unit shall not exceed 8760 hours before monitoring is conducted. Regardless of the time that a unit actually operates, a minimum of one of each type of monitoring activity shall be conducted during any five-year period.

E. For all periodic monitoring events, except when a federal or state regulation is more stringent, three test runs shall be conducted at 90% or greater of the unit's capacity as stated in this permit, or in the permit application if not in the permit, and at additional loads when requested by the Department. If the 90% capacity cannot be achieved, the monitoring will be conducted at the maximum achievable load under prevailing operating conditions except when a federal or state regulation requires more restrictive test conditions. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the monitoring report.

F. When requested by the Department, the permittee shall provide schedules of testing and monitoring activities. Compliance tests from previous NSR and Title V permits may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions.

G. If monitoring is new or is in addition to monitoring imposed by an existing applicable requirement, it shall become effective 120 days after the date of permit issuance. For emission units that have not commenced operation, the associated new or additional monitoring shall not apply until 120 days after the units commence operation. All pre-existing monitoring requirements incorporated in this permit shall continue to apply from the date of permit issuance.

H. Unless otherwise indicated by Specific Conditions or regulatory requirements, all instrumentation used for monitoring in accordance with applicable requirements including emission limits, to measure parameters including but not limited to flow, temperature, pressure and chemical composition, or used to continuously monitor

emission rates and/or other process operating parameters, shall be subject to the following requirements:

(1) The owner or operator shall install, calibrate, operate and maintain monitoring instrumentation (monitor) according to the manufacturer's procedures and specifications and the following requirements.

(a) The monitor shall be located in a position that provides a representative measurement of the parameter that is being monitored.

(b) At a minimum, the monitor shall complete one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(c) At a minimum, the monitor shall be spanned to measure the normal range +/- 5% of the parameter that is being monitored.

(d) At least semi-annually, perform a visual inspection of all components of the monitor for physical and operational integrity and all electrical connections for oxidation and galvanic corrosion.

(e) Recalibrate the monitor in accordance with the manufacturer's procedures and specifications at the frequency specified by the manufacturer, or every two years, whichever is less.

(2) Except for malfunctions, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments), the permittee shall operate and maintain all monitoring equipment at all times that the emissions unit or the associated process is operating.

(3) The monitor shall measure data for a minimum of 90 percent of the time that the emissions unit or the associated process is in operation, based on a calendar monthly average.

(4) The owner or operator shall maintain records in accordance with Section B109 to demonstrate compliance with the requirements in B108H (1)-(3) above, as applicable.

B109 General Recordkeeping Requirements

A. The permittee shall maintain records to assure and verify compliance with the terms and conditions of this permit and any other applicable requirements that become effective after permit issuance. The minimum information to be included in these records is as follows:

(1) Records required for testing and sampling:

(a) equipment identification (include make, model and serial number for all tested equipment and emission controls)

(b) date(s) and time(s) of sampling or measurements

(c) date(s) analyses were performed

(d) the qualified entity that performed the analyses

(e) analytical or test methods used

(f) results of analyses or tests

(g) operating conditions existing at the time of sampling or measurement

(2) Records required for equipment inspections and/or maintenance required by this permit:

(a) equipment identification number (including make, model and serial number)

(b) date(s) and time(s) of inspection, maintenance, and/or repair

(c) date(s) any subsequent analyses were performed (if applicable)

(d) name of the person or qualified entity conducting the inspection, maintenance, and/or repair

(e) copy of the equipment manufacturer's or the owner or operator's maintenance or repair recommendations (if required to demonstrate compliance with a permit condition)

(f) description of maintenance or repair activities conducted

(g) all results of any required parameter readings

(h) a description of the physical condition of the equipment as found during any required inspection

(i) results of required equipment inspections including a description of any condition which required adjustment to bring the equipment back into compliance and a description of the required adjustments

B. Except as provided in the Specific Conditions, records shall be maintained on-site or at the permittee's local business office for a minimum of two (2) years from the time of recording and shall be made available to Department personnel upon request. Sources subject to 20.2.70 NMAC "Operating Permits" shall maintain records on-site for a minimum of five (5) years from the time of recording.

C. Unless otherwise indicated by Specific Conditions, the permittee shall keep the following records for malfunction emissions and routine or predictable emissions during startup, shutdown, and scheduled maintenance (SSM):

(1) The owner or operator of a source subject to a permit shall establish and implement a plan to minimize emissions during routine or predictable startup, shutdown, and scheduled maintenance through work practice standards and good air pollution control practices. This requirement shall not apply to any affected facility defined in and subject to an emissions standard and an equivalent plan under 40 CFR Part 60 (NSPS), 40 CFR Part 63 (MACT), or an equivalent plan under 20.2.72 NMAC - Construction Permits, 20.2.70 NMAC - Operating Permits, 20.2.74 NMAC -

Permits - Prevention of Significant Deterioration (PSD), or 20.2.79 NMAC - Permits - Nonattainment Areas. The permittee shall keep records of all sources subject to the plan to minimize emissions during routine or predictable SSM and shall record if the source is subject to an alternative plan and therefore, not subject to the plan requirements under 20.2.7.14.A NMAC.

(2) If the facility has allowable SSM emission limits in this permit, the permittee shall record all SSM events, including the date, the start time, the end time, a description of the event, and a description of the cause of the event. This record also shall include a copy of the manufacturer's, or equivalent, documentation showing that any maintenance qualified as scheduled. Scheduled maintenance is an activity that occurs at an established frequency pursuant to a written protocol published by the manufacturer or other reliable source. The authorization of allowable SSM emissions does not supersede any applicable federal or state standard. The most stringent requirement applies.

(3) If the facility has allowable malfunction emission limits in this permit, the permittee shall record all malfunction events to be applied against these limits. The permittee shall also include the date, the start time, the end time, and a description of the event. **Malfunction means** any sudden and unavoidable failure of air pollution control equipment or process equipment beyond the control of the owner or operator, including malfunction during startup or shutdown. A failure that is caused entirely or in part by poor maintenance, careless operation, or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.7.7.E NMAC) The authorization of allowable malfunction emissions does not supersede any applicable federal or state standard. The most stringent requirement applies. This authorization only allows the permittee to avoid submitting reports under 20.2.7 NMAC for total annual emissions that are below the authorized malfunction emission limit.

(4) The owner or operator of a source shall meet the operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup or shutdown. (20.2.72.203.A(5) NMAC)

B110 General Reporting Requirements

(20.2.72 NMAC Sections 210 and 212)

A. Records and reports shall be maintained on-site or at the permittee's local business office unless specifically required to be submitted to the Department or EPA by another condition of this permit or by a state or federal regulation. Records for unmanned sites may be kept at the nearest business office.

B. The permittee shall notify the Department's Compliance Reporting Section using the current Submittal Form posted to NMED's Air Quality web site under Compliance and Enforcement/Submittal Forms in writing of, or provide the Department with (20.2.72.212.A and B):

(1) the anticipated date of initial startup of each new or modified source not less than thirty (30) days prior to the date. Notification may occur prior to issuance of the permit, but actual startup shall not occur earlier than the permit issuance date;

(2) after receiving authority to construct, the equipment serial number as provided by the manufacturer or permanently affixed if shop-built and the actual date of initial startup of each new or modified source within fifteen (15) days after the startup date; and

(3) the date when each new or modified emission source reaches the maximum production rate at which it will operate within fifteen (15) days after that date.

C. The permittee shall notify the Department's Permitting Program Manager, in writing of, or provide the Department with (20.2.72.212.C and D):

(1) any change of operators or any equipment substitutions within fifteen (15) days of such change;

(2) any necessary update or correction no more than sixty (60) days after the operator knows or should have known of the condition necessitating the update or correction of the permit.

D. Results of emission tests and monitoring for each pollutant (except opacity) shall be reported in pounds per hour (unless otherwise specified) and tons per year. Opacity shall be reported in percent. The number of significant figures corresponding to the full accuracy inherent in the testing instrument or Method test used to obtain the data shall be used to calculate and report test results in accordance with 20.2.1.116.B and C NMAC. Upon request by the Department, CEMS and other tabular data shall be submitted in editable, MS Excel format.

E. The permittee shall submit reports of excess emissions in accordance with 20.2.7.110.A NMAC.

F. Allowable Emission Limits for Excess Emissions Reporting for Flares and Other Regulated Sources with No Pound per Hour (pph) and/or Ton per Year (tpy) Emission Limits.

(1) When a flare has no allowable pph and/or tpy emission limits in Sections A106 and/or A107, the authorized allowable emissions include only the combustion of pilot and/or purge gas. Compliance is demonstrated by limiting the gas stream to the flare to only pilot and/or purge gas.

(2) For excess emissions reporting as required by 20.2.7 NMAC, the allowable emission limits are 1.0 pph and 1.0 tpy for each regulated air pollutant (except for H2S) emitted by that source as follows:

(a) For flares, when there are no allowable emission limits in Sections A106 and/or A107.

(b) For regulated sources with emission limits in Sections A106 or A107 represented by the less than sign ("<").

(c) For regulated sources that normally would not emit any regulated air pollutants, including but not limited to vents, pressure relief devices, connectors, etc.

(3) For excess emissions reporting as required by 20.2.7 NMAC for H2S, the allowable limits are 0.1 pph and 0.44 tpy for each applicable scenario addressed in paragraph (2) above.

B111 General Testing Requirements

Unless otherwise indicated by Specific Conditions or regulatory requirements, the permittee shall conduct testing in accordance with the requirements in Sections B111A, B, C, D and E, as applicable.

A. Initial Compliance Tests

The permittee shall conduct initial compliance tests in accordance with the following requirements:

(1) Initial compliance test requirements from previous permits (if any) are still in effect, unless the tests have been satisfactorily completed. Compliance tests may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions. (20.2.72 NMAC Sections 210.C and 213)

(2) Initial compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.

(3) The default time period for each test run shall be **at least** 60 minutes and each performance test shall consist of three separate runs using the applicable test method. For the purpose of determining compliance with an applicable emission limit, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Department approval, be determined using the arithmetic mean of the results of the two other runs.

(4) Testing of emissions shall be conducted with the emissions unit operating at 90 to 100 percent of the maximum operating rate allowed by the permit. If it is not possible to test at that rate, the source may test at a lower operating rate

(5) Testing performed at less than 90 percent of permitted capacity will limit emission unit operation to 110 percent of the tested capacity until a new test is conducted.

(6) If conditions change such that unit operation above 110 percent of tested capacity is possible, the source must submit a protocol to the Department within 30 days of such change to conduct a new emissions test.

B. EPA Reference Method Tests

The test methods in Section B111.B(1) shall be used for all initial compliance tests and all Relative Accuracy Test Audits (RATAs), and shall be used if a permittee chooses to use EPA test methods for periodic monitoring. Test methods that are not listed in Section B111.B(1) may be used in accordance with the requirements at Section B111.B(2).

(1) All compliance tests required by this permit shall be conducted in accordance with the requirements of CFR Title 40, Part 60, Subpart A, General Provisions, and the following EPA Reference Methods as specified by CFR Title 40, Part 60, Appendix A:

(a) Methods 1 through 4 for stack gas flowrate

(b) Method 5 for particulate matter (PM)

(c) Method 6C SO_2

(d) Method 7E for NO_X (test results shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb-mol in all calculations (each ppm of NO/NO_2 is equivalent to 1.194 x 10-7 lb/SCF)

(e) Method 9 for visual determination of opacity

(f) Method 10 for CO

(g) Method 19 for particulate, sulfur dioxide and nitrogen oxides emission rates. In addition, Method 19 may be used in lieu of Methods 1-4 for stack gas flowrate. The permittee shall provide a contemporaneous fuel gas analysis (preferably on the day of the test, but no earlier than three months prior to the test date) and a recent fuel flow meter calibration certificate (within the most recent quarter) with the final test report.

(h) Method 7E or 20 for Turbines per §60.335 or §60.4400

(i) Method 22 for visual determination of fugitive emissions from material sources and smoke emissions from flares

(j) Method 25A for VOC reduction efficiency

(k) Method 29 for Metals

(l) Method 30B for Mercury from Coal-Fired Combustion Sources Using Carbon Sorbent Traps

(m) Method 201A for filterable PM_{10} and $PM_{2.5}$

(n) Method 202 for condensable PM

(o) Method 320 for organic Hazardous Air Pollutants (HAPs)

(2) Permittees may propose test method(s) that are not listed in Section B111.B(1). These methods may be used if prior approval is received from the Department.

C. Periodic Monitoring and Portable Analyzer Requirements for the Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters

Periodic emissions tests (periodic monitoring) shall be conducted in accordance with the following requirements:

(1) Periodic emissions tests may be conducted in accordance with EPA Reference Methods or by utilizing a portable analyzer. Periodic monitoring utilizing a portable analyzer shall be conducted in accordance with the requirements of the current version of ASTM D 6522. However, if a facility has met a previously approved Department criterion for portable analyzers, the analyzer may be operated in accordance with that criterion until it is replaced.

(2) The default time period for each test run shall be **at least** 20 minutes.

Each performance test shall consist of three separate runs. The arithmetic mean of results of the three runs shall be used to determine compliance with the applicable emission limit.

(3) Testing of emissions shall be conducted in accordance with the requirements at Section B108.E.

(4) During emissions tests, pollutant and diluent concentration shall be monitored and recorded. Fuel flow rate shall be monitored and recorded if stack gas flow rate is determined utilizing Reference Method 19. This information shall be included with the test report furnished to the Department.

(5) Stack gas flow rate shall be calculated in accordance with Reference Method 19 utilizing fuel flow rate (scf) determined by a dedicated fuel flow meter and fuel heating value (Btu/scf). The permittee shall provide a contemporaneous fuel gas analysis (preferably on the day of the test, but no earlier than three months prior to the test date) and a recent fuel flow meter calibration certificate (within the most recent quarter) with the final test report. Alternatively, stack gas flow rate may be determined by using EPA Reference Methods 1-4.

(6) The permittee shall submit a notification and protocol for periodic emissions tests upon the request of the Department.

D. Initial Compliance Test and RATA Procedures

Permittees required to conduct initial compliance tests and/or RATAs shall comply with the following requirements:

(1) The permittee shall submit a notification and test protocol to the Department's Program Manager, Compliance and Enforcement Section, at least thirty (30) days before the test date and allow a representative of the Department to be present at the test. Proposals to use test method(s) that are not listed in Section B111.B(1) (if applicable) shall be included in this notification.

(2) Contents of test notifications, protocols and test reports shall conform to the format specified by the Department's Universal Test Notification, Protocol and Report Form and Instructions. Current forms and instructions are posted to NMED's Air Quality web site under Compliance and Enforcement Testing.

(3) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment.

(4) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed

E. General Compliance Test Procedures

The following requirements shall apply to all initial compliance and periodic emissions tests and all RATAs:

(1) Equipment shall be tested in the "as found" condition. Equipment may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is complete.

(2) The stack shall be of sufficient height and diameter and the sample ports shall be located so that a representative test of the emissions can be performed in accordance with the requirements of EPA Reference Method 1 or the current version of ASTM D 6522, as applicable.

(3) Test reports shall be submitted to the Department no later than 30 days after completion of the test.

B112 Compliance

A. The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit. Required records shall be organized by date and subject matter and shall at all times be readily available for inspection. The permittee, upon verbal or written request from an authorized representative of the Department who appears at the facility, shall immediately produce for inspection or copying any records required to be maintained at the facility. Upon written request at other times, the permittee shall deliver to the Department paper or electronic copies of any and all required records maintained on site or at an off-site location. Requested records shall be copied and delivered at the permittee's expense within three business days from receipt of request unless the Department allows additional time. Required records may include records required by permit and other information necessary to

demonstrate compliance with terms and conditions of this permit. (NMSA 1978, Section 74-2-13)

B. A copy of the most recent permit(s) issued by the Department shall be kept at the permitted facility or (for unmanned sites) at the nearest company office and shall be made available to Department personnel for inspection upon request. (20.2.72.210.B.4 NMAC)

C. Emissions limits associated with the energy input of a Unit, i.e. lb/MMBtu, shall apply at all times unless stated otherwise in a Specific Condition of this permit. The averaging time for each emissions limit, including those based on energy input of a Unit (i.e. lb/MMBtu) is one (1) hour unless stated otherwise in a Specific Condition of this permit or in the applicable requirement that establishes the limit.

B113 Permit Cancellation and Revocation

A. The Department may revoke this permit if the applicant or permittee has knowingly and willfully misrepresented a material fact in the application for the permit. Revocation will be made in writing, and an administrative appeal may be taken to the Secretary of the Department within thirty (30) days. Appeals will be handled in accordance with the Department's Rules Governing Appeals From Compliance Orders.

B. The Department shall automatically cancel any permit for any source which ceases operation for five (5) years or more, or permanently. Reactivation of any source after the five (5) year period shall require a new permit. (20.2.72 NMAC)

C. The Department may cancel a permit if the construction or modification is not commenced within two (2) years from the date of issuance or if, during the construction or modification, work is suspended for a total of one (1) year. (20.2.72 NMAC)

B114 Notification to Subsequent Owners

A. The permit and conditions apply in the event of any change in control or ownership of the Facility. No permit modification is required in such case. However, in the event of any such change in control or ownership, the permittee shall notify the succeeding owner of the permit and conditions and shall notify the Department’s Program Manager, Permits Section of the change in ownership within fifteen (15) days of that change. (20.2.72.212.C NMAC)

B. Any new owner or operator shall notify the Department’s Program Manager, Permits Section, within thirty (30) days of assuming ownership, of the new owner’s or operator’s name and address. (20.2.73.200.E.3 NMAC)

B115 Asbestos Demolition

A. Before any asbestos demolition or renovation work, the permittee shall determine whether 40 CFR 61 Subpart M, National Emissions Standards for Asbestos applies. If required, the permittee shall notify the Department's Program Manager, Compliance and Enforcement Section using forms furnished by the Department.

B116 Short Term Engine Replacement

A. The following Alternative Operating Scenario (AOS) addresses engine breakdown or periodic maintenance and repair, which requires the use of a short term replacement engine. The following requirements do not apply to engines that are exempt per 20.2.72.202.B(3) NMAC. Changes to exempt engines must be reported in accordance with 20.2.72.202.B NMAC. A short term replacement engine may be substituted for any engine allowed by this permit for no more than 120 days in any rolling twelve month period per permitted engine. The compliance demonstrations required as part of this AOS are in addition to any other compliance demonstrations required by this permit.

(1) The permittee may temporarily replace an existing engine that is subject to the emission limits set forth in this permit with another engine regardless of manufacturer, model, and horsepower without modifying this permit. The permittee shall submit written notification to the Department within 15 days of the date of engine substitution according to condition B110.C(1).

(a) The potential emission rates of the replacement engine shall be determined using the replacement engine's manufacturer specifications and shall comply with the existing engine's permitted emission limits.

(b) The direction of the exhaust stack for the replacement engine shall be either vertical or the same direction as for the existing engine. The replacement engine's stack height and flow parameters shall be at least as effective in the dispersion of air pollutants as the modeled stack height and flow parameters for the existing permitted engine. The following equation may be used to show that the replacement engine disperses pollutants as well as the existing engine. The value calculated for the replacement engine on the right side of the equation shall be equal to or greater than the value for the existing engine on the left side of the equation. The permitting page of the Air Quality Bureau website contains a spreadsheet that performs this calculation.

EXISTING ENGINE REPLACMENT ENGINE

$$\frac{[(g) \times (h1)] + [(v1)^2/2] + [(c) \times (T1)]}{q1} <= \frac{[(g) \times (h2)] + [(v2)^2/2] + [(c) \times (T2)]}{q2}$$

Where
g = gravitational constant = 32.2 ft/sec^2
h1 = existing stack height, feet
v1 = exhaust velocity, existing engine, feet per second
c = specific heat of exhaust, 0.28 BTU/lb-degree F
T1 = absolute temperature of exhaust, existing engine = degree F + 460
q1 = permitted allowable emission rate, existing engine, lbs/hour
h2 = replacement stack height, feet
v2 = exhaust velocity, replacement engine, feet per second
T2 = absolute temperature of exhaust, replacement engine = degree F + 460
q2 = manufacturer's potential emission rate, replacement engine, lbs/hour

The permittee shall keep records showing that the replacement engine is at least as effective in the dispersion of air pollutants as the existing engine.

(c) Test measurement of NOx and CO emissions from the temporary replacement engine shall be performed in accordance with Section B111 with the exception of Condition B111A(2) and B111B for EPA Reference Methods Tests or Section B111C for portable analyzer test measurements. Compliance test(s) shall be conducted within fifteen (15) days after the unit begins operation, and records of the results shall be kept according to section B109.B. This test shall be performed even if the engine is removed prior to 15 days on site.

i. These compliance tests are not required for an engine certified under 40CFR60, subparts IIII, or JJJJ, or 40CFR63, subpart ZZZZ if the permittee demonstrates that one of these requirements causes such engine to comply with all emission limits of this permit. The permittee shall submit this demonstration to the Department within 48 hours of placing the new unit into operation. This submittal shall include documentation that the engine is certified, that the engine is within its useful life, as defined and specified in the applicable requirement, and shall include calculations showing that the applicable emissions standards result in compliance with the permit limits.

ii. These compliance tests are not required if a test was conducted by portable analyzer or by EPA Method test (including any required by 40CFR60, subparts IIII and JJJJ and 40CFR63, subpart ZZZZ) within the last 12 months. These previous tests are valid only if conducted at the same or lower elevation as the existing engine location prior to commencing operation as a temporary replacement. A copy of the test results shall be kept according to section B109.B.

(d) Compliance tests for NOx and CO shall be conducted if requested by the Department in writing to determine whether the replacement engine is in compliance with applicable regulations or permit conditions.

(e) Upon determining that emissions data developed according to B116.A.1(c) fail to indicate compliance with either the NOx or CO emission limits, the permittee shall notify the Department within 48 hours. Also within that time, the permittee shall implement one of the following corrective actions:

i. The engine shall be adjusted to reduce NOx and CO emissions and tested per B116.A.1(c) to demonstrate compliance with permit limits.

ii. The engine shall discontinue operation or be replaced with a different unit.

(2) Short term replacement engines, whether of the same manufacturer, model, and horsepower, or of a different manufacturer, model, or horsepower, are subject to all federal and state applicable requirements, regardless of whether they are set forth in this permit (including monitoring and recordkeeping), and shall be subject to any shield afforded by this permit.

(3) The permittee shall maintain a contemporaneous record documenting the unit number, manufacturer, model number, horsepower, emission factors, emission test results, and serial number of any existing engine that is replaced, and the replacement engine. Additionally, the record shall document the replacement duration in days, and the beginning and end dates of the short term engine replacement.

(4) The permittee shall maintain records of a regulatory applicability determination for each replacement engine (including 40CFR60, subparts IIII and JJJJ and 40CFR63, subpart ZZZZ) and shall comply with all associated regulatory requirements.

B. Additional requirements for replacement of engines at sources that are major as defined in regulation 20.2.74 NMAC, Permits – Prevention of Significant Deterioration, section 7.AG. For sources that are major under PSD, the total cumulative operating hours of the replacement engine shall be limited using the following procedure:

(1) Daily, the actual emissions from the replacement engine(s) of each pollutant regulated by this permit for the existing engine shall be calculated and recorded.

(2) The sum of the total actual emissions since the commencement of operation of the replacement engine(s) shall not equal or exceed the significant emission rates in Table 2 of 20.2.74 NMAC, section 502 for the time that the replacement engine is located at the facility.

C. All records required by this section shall be kept according to section B109.

PART C MISCELLANEOUS

C100 Supporting On-Line Documents

A. Copies of the following documents can be downloaded from NMED's web site under Compliance and Enforcement or requested from the Bureau.

(1) Excess Emission Form (for reporting deviations and emergencies)

(2) Universal Stack Test Notification, Protocol and Report Form and Instructions

C101 Definitions

A. **"Daylight"** is defined as the time period between sunrise and sunset, as defined by the Astronomical Applications Department of the U.S. Naval Observatory. (Data for one day or a table of sunrise/sunset for an entire year can be obtained at http://aa.usno.navy.mil/. Alternatively, these times can be obtained from a Farmer's Almanac or from http://www.almanac.com/rise/).

B. **"Decommission"** and **"Decommissioning"** applies to units left on site (not removed) and is defined as the complete disconnecting of equipment, emission sources or activities from the process by disconnecting all connections necessary for operation (i.e. piping, electrical, controls, ductwork, etc.).

C. **"Exempt Sources"** and **"Exempt Activities"** is defined as those sources or activities that are exempted in accordance with 20.2.72.202 NMAC. Note; exemptions are only valid for most 20.2.72 NMAC permitting actions.

D. **"Fugitive Emission"** means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

E. **"Insignificant Activities"** means those activities which have been listed by the department and approved by the administrator as insignificant on the basis of size, emissions or production rate. Note; insignificant activities are only valid for 20.2.70 NMAC permitting actions.

F. **"Malfunction"** for the requirements under 20.2.7 NMAC, means any sudden and unavoidable failure of air pollution control equipment or process equipment beyond the control of the owner or operator, including malfunction during startup or shutdown. A failure that is caused entirely or in part by poor maintenance, careless operation, or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.7.7.E NMAC)

G. **"Natural Gas"** is defined as a naturally occurring fluid mixture of hydrocarbons that contains 20.0 grains or less of total sulfur per 100 standard cubic feet (SCF) and is either composed of at least 70% methane by volume or has a gross calorific value of between 950 and 1100 Btu per standard cubic foot. (40 CFR 60.631)

H. **"Natural Gas Liquids"** means the hydrocarbons, such as ethane, propane, butane, and pentane, that are extracted from field gas. (40 CFR 60.631)

I. **"National Ambient air Quality Standards"** means, unless otherwise modified, the primary (health-related) and secondary (welfare-based) federal ambient air quality standards promulgated by the US EPA pursuant to Section 109 of the Federal Act.

J. **"Night"** is the time period between sunset and sunrise, as defined by the Astronomical Applications Department of the U.S. Naval Observatory. (Data for one day or a table of sunrise/sunset for an entire year can be obtained at http://aa.usno.navy.mil/. Alternatively, these times can be obtained from a Farmer's Almanac or from http://www.almanac.com/rise/).

K. **"Night Operation** or **Operation at Night"** is operating a source of emissions at night.

L. **"NO2"** or "Nitrogen dioxide" means the chemical compound containing one atom of nitrogen and two atoms of oxygen, for the purposes of ambient determinations. The term **"nitrogen dioxide,"** for the purposes of stack emissions monitoring, shall include nitrogen dioxide (the chemical compound containing one atom of nitrogen and two atoms of oxygen), nitric oxide (the chemical compound containing one atom of nitrogen and one atom of oxygen), and other oxides of nitrogen which may test as nitrogen dioxide and is sometimes referred to as NOx or NO_2. (20.2.2 NMAC)

M. "**NOx**" see NO_2

N. "**Paved Road**" is a road with a permanent solid surface that can be swept essentially free of dust or other material to reduce air re-entrainment of particulate matter. To the extent these surfaces remain solid and contiguous they qualify as paved roads: concrete, asphalt, chip seal, recycled asphalt and other surfaces approved by the Department in writing.

O. **"Potential Emission Rate"** means the emission rate of a source at its maximum capacity to emit a regulated air contaminant under its physical and operational design, provided any physical or operational limitation on the capacity of the source to emit a regulated air contaminant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its physical and operational design only if the limitation or the effect it would have on emissions is enforceable by the department pursuant to the Air Quality Control Act or the federal Act.

P. "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.

Q. **"Shutdown"** for requirements under 20.2.72 NMAC, means the cessation of operation of any air pollution control equipment, process equipment or process for any purpose, except routine phasing out of batch process units.

R. **"SSM"** for requirements under 20.2.7 NMAC, means routine or predictable startup, shutdown, or scheduled maintenance.

(1) **"Shutdown"** for requirements under 20.2.7 NMAC, means the cessation of operation of any air pollution control equipment or process equipment.

(2) **"Startup"** for requirements under 20.2.7 NMAC, means the setting into operation of any air pollution control equipment or process equipment.

S. **"Startup"** for requirements under 20.2.72 NMAC, means the setting into operation of any air pollution control equipment, process equipment or process for any purpose, except routine phasing in of batch process units.

C102 Acronyms

2SLB ..... 2-stroke lean burn
4SLB ..... 4-stroke lean burn
4SRB ..... 4-stroke rich burn
acfm ..... actual cubic feet per minute
AFR ..... air fuel ratio
AP-42 ..... EPA Air Pollutant Emission Factors
AQB ..... Air Quality Bureau
AQCR ..... Air Quality Control Region
ASTM ..... American Society for Testing and Materials
Btu ..... British thermal unit
CAA ..... Clean Air Act of 1970 and 1990 Amendments
CEM ..... continuous emissions monitoring
cfh ..... cubic feet per hour
cfm ..... cubic feet per minute
CFR ..... Code of Federal Regulation
CI ..... compression ignition
CO ..... carbon monoxides
COMS ..... continuous opacity monitoring system
EIB ..... Environmental Improvement Board
EPA ..... United States Environmental Protection Agency
gr/100 cf ..... grains per one hundred cubic feet
gr/dscf ..... grains per dry standard cubic foot
GRI ..... Gas Research Institute
HAP ..... hazardous air pollutant
hp ..... horsepower
H_2S ..... hydrogen sulfide
IC ..... internal combustion
KW/hr ..... kilowatts per hour

lb/hr.....pounds per hour
lb/MMBtu.....pounds per million British thermal unit
MACT.....Maximum Achievable Control Technology
MMcf/hr.....million cubic feet per hour
MMscf.....million standard cubic feet
N/A.....not applicable
NAAQS.....National Ambient Air Quality Standards
NESHAP.....National Emission Standards for Hazardous Air Pollutants
NG.....natural gas
NGL.....natural gas liquids
NMAAQS.....New Mexico Ambient Air Quality Standards
NMAC.....New Mexico Administrative Code
NMED.....New Mexico Environment Department
NMSA.....New Mexico Statues Annotated
NOx.....nitrogen oxides
NSCR.....non-selective catalytic reduction
NSPS.....New Source Performance Standard
NSR.....New Source Review
PEM.....parametric emissions monitoring
PM.....particulate matter (equivalent to TSP, total suspended particulate)
PM_{10}.....particulate matter 10 microns and less in diameter
$PM_{2.5}$.....particulate matter 2.5 microns and less in diameter
pph.....pounds per hour
ppmv.....parts per million by volume
PSD.....Prevention of Significant Deterioration
RATA.....Relative Accuracy Test Assessment
RICE.....reciprocating internal combustion engine
rpm.....revolutions per minute
scfm.....standard cubic feet per minute
SI.....spark ignition
SO_2.....sulfur dioxide
SSM.....Startup Shutdown Maintenance (see SSM definition)
TAP.....Toxic Air Pollutant
TBD.....to be determined
THC.....total hydrocarbons
TSP.....Total Suspended Particulates
tpy.....tons per year
ULSD.....ultra low sulfur diesel
USEPA.....United States Environmental Protection Agency
UTM.....Universal Transverse Mercator Coordinate system
UTMH.....Universal Transverse Mercator Horizontal
UTMV.....Universal Transverse Mercator Vertical
VHAP.....volatile hazardous air pollutant
VOC.....volatile organic compounds

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.

Five process flow sheets are included in this section. Each of these flow sheets corresponds to an emission unit at SCLF.

- Emission Unit No. 1: Disposal Routes, Access Roads, Auxiliary Roads
  - Emission Unit 1 is comprised of potential particulate emissions from vehicle travel on paved and unpaved landfill roads (disposal route, access roads, auxiliary roads), as well as vehicle travel on paved surfaces within the convenience center. **Figure 4.1** presents a process flow diagram for potential emissions from these operations.
- Emission Unit No. 2: General Landfill Operations
  - General landfill operations include activities associated with waste disposal, as well as potential fugitive emissions from wind erosion on actively disturbed areas. **Figure 4.2** presents a process flow diagram for potential emissions from landfill operations.
- Emission Unit No. 3: Landfill Gas
  - Uncontrolled emissions of non-methane organic compounds (NMOCs) may be generated due to anaerobic decomposition of municipal solid waste (MSW). **Figure 4.3** presents a process flow diagram for potential emissions of NMOCs.
- Emission Unit No. 4: Petroleum Hydrocarbon Land Farm
  - **Figure 4.4** presents a process flow diagram for potential emissions from the petroleum hydrocarbon land farm.
- Emission Unit No. 5: Crusher/Shredder Operations
  - **Figure 4.5** presents a process flow diagram for potential emissions from crusher/shredder operations.
- Emission Unit No. 6: Portable Rock Crusher Operations (Rental)
  - **Figure 4.6** presents a process flow diagram for potential emissions from Portable Rock Crusher (Rental) operations.

Figure 4.1
Disposal Route, Access Roads, and Auxiliary Roads Process Flow Diagram
(Emission Unit 1)

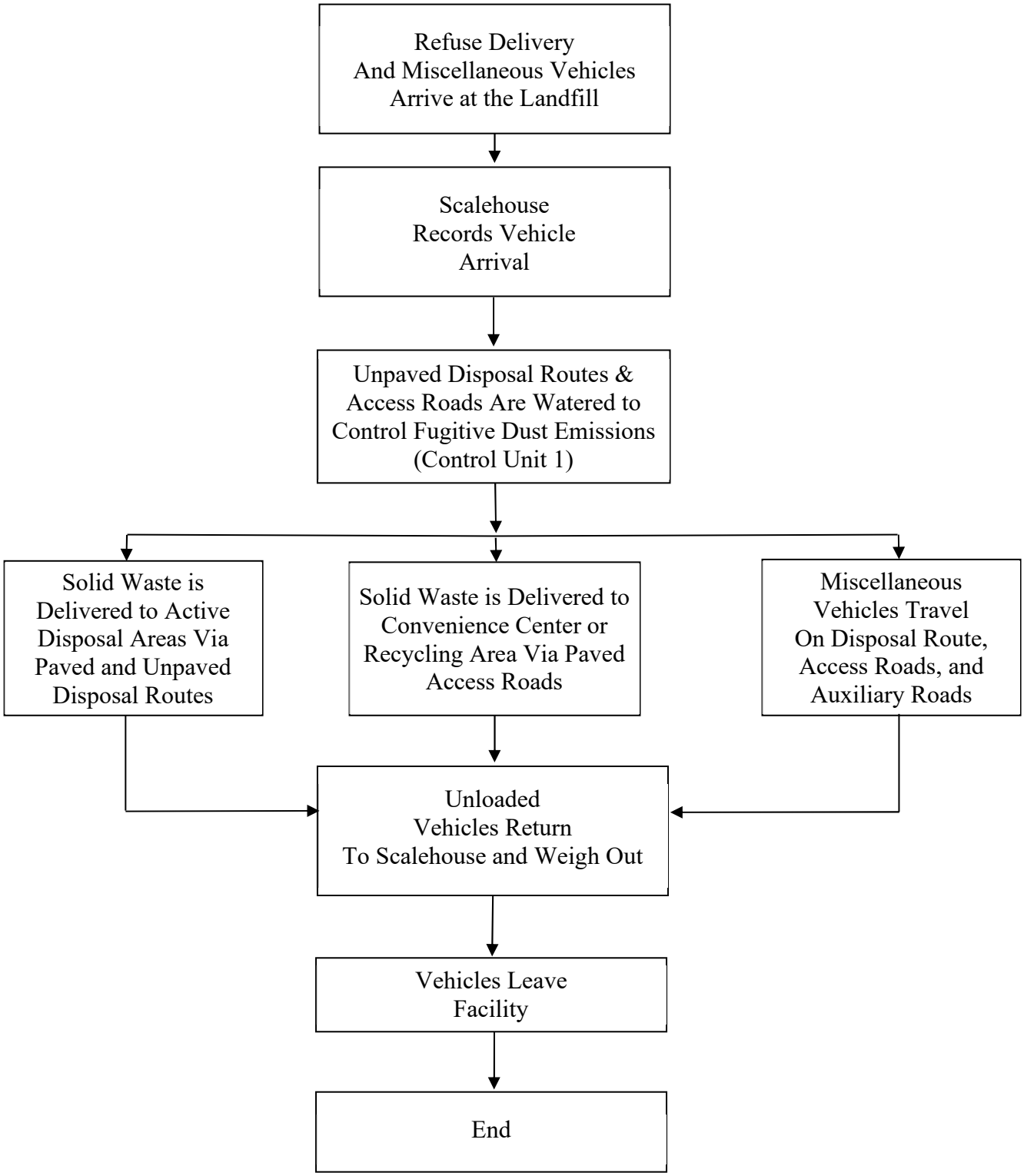


Figure 4.2
General Landfill Operations Process Flow Diagram
(Emission Unit 2)

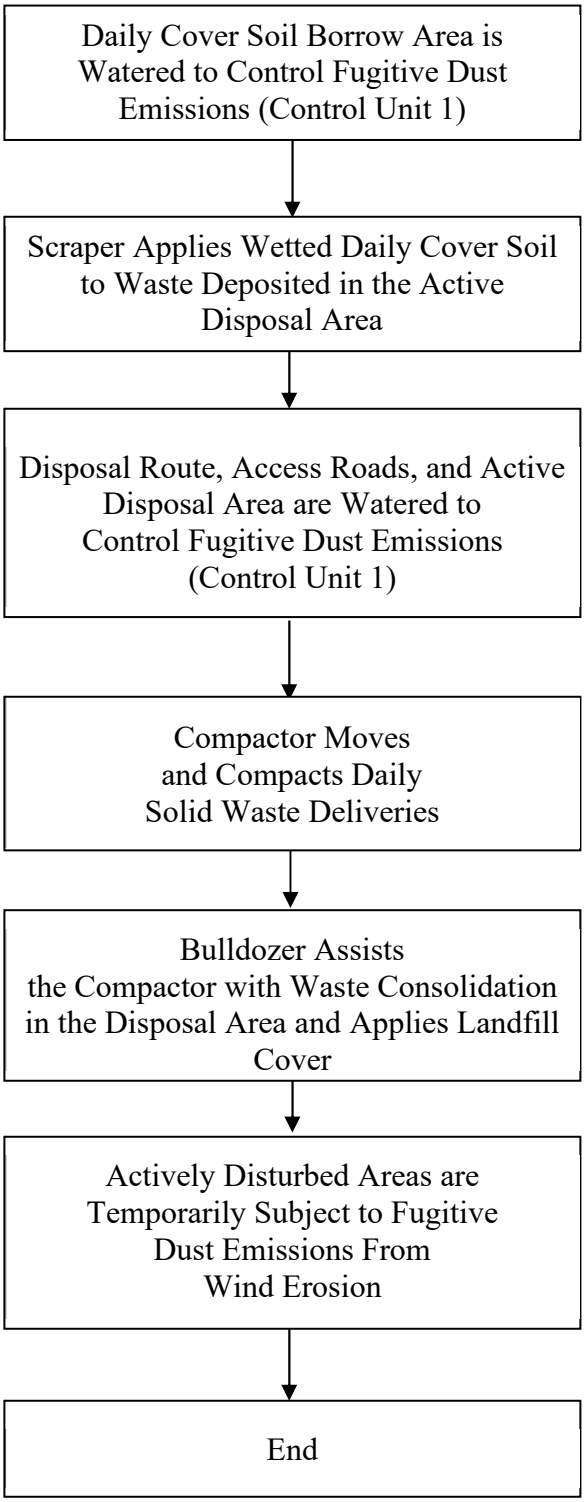


Figure 4.3
Landfill Gas Process Flow Diagram
(Emission Unit 3)

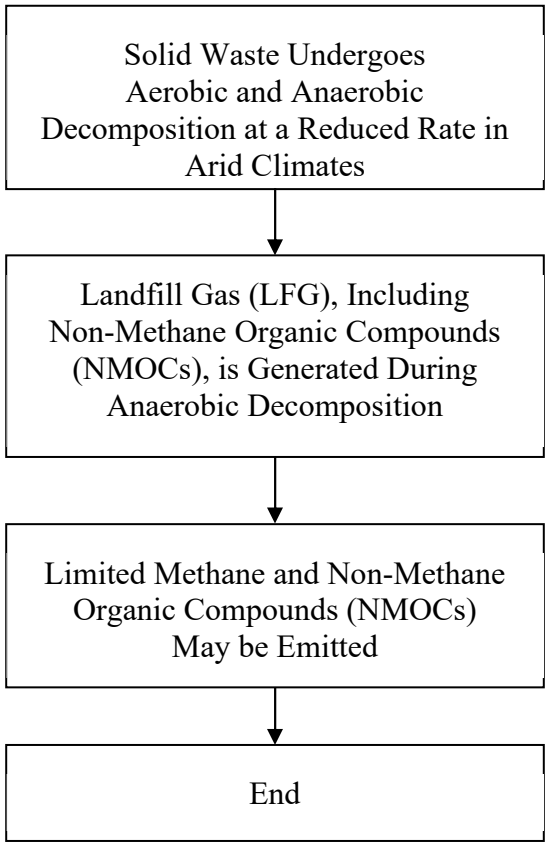


Figure 4.4
Petroleum Hydrocarbon Landfarm Process Flow Diagram
(Emission Unit 4 – Inactive)

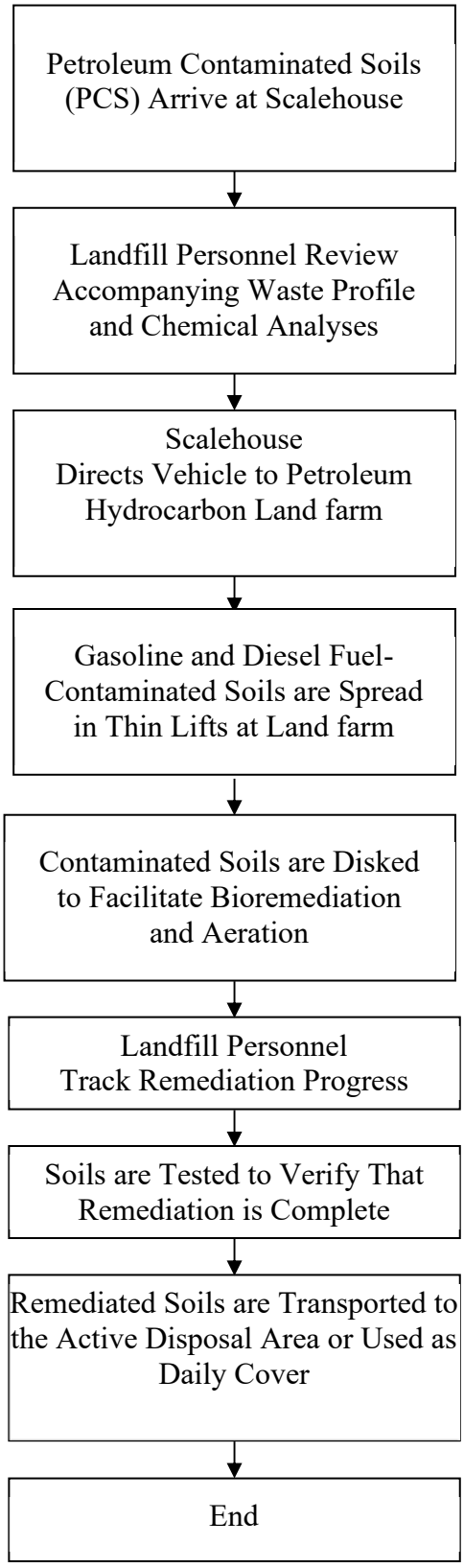


Figure 4.5
Crusher/ Shredder Process Flow Diagram
(Emission Unit 5)

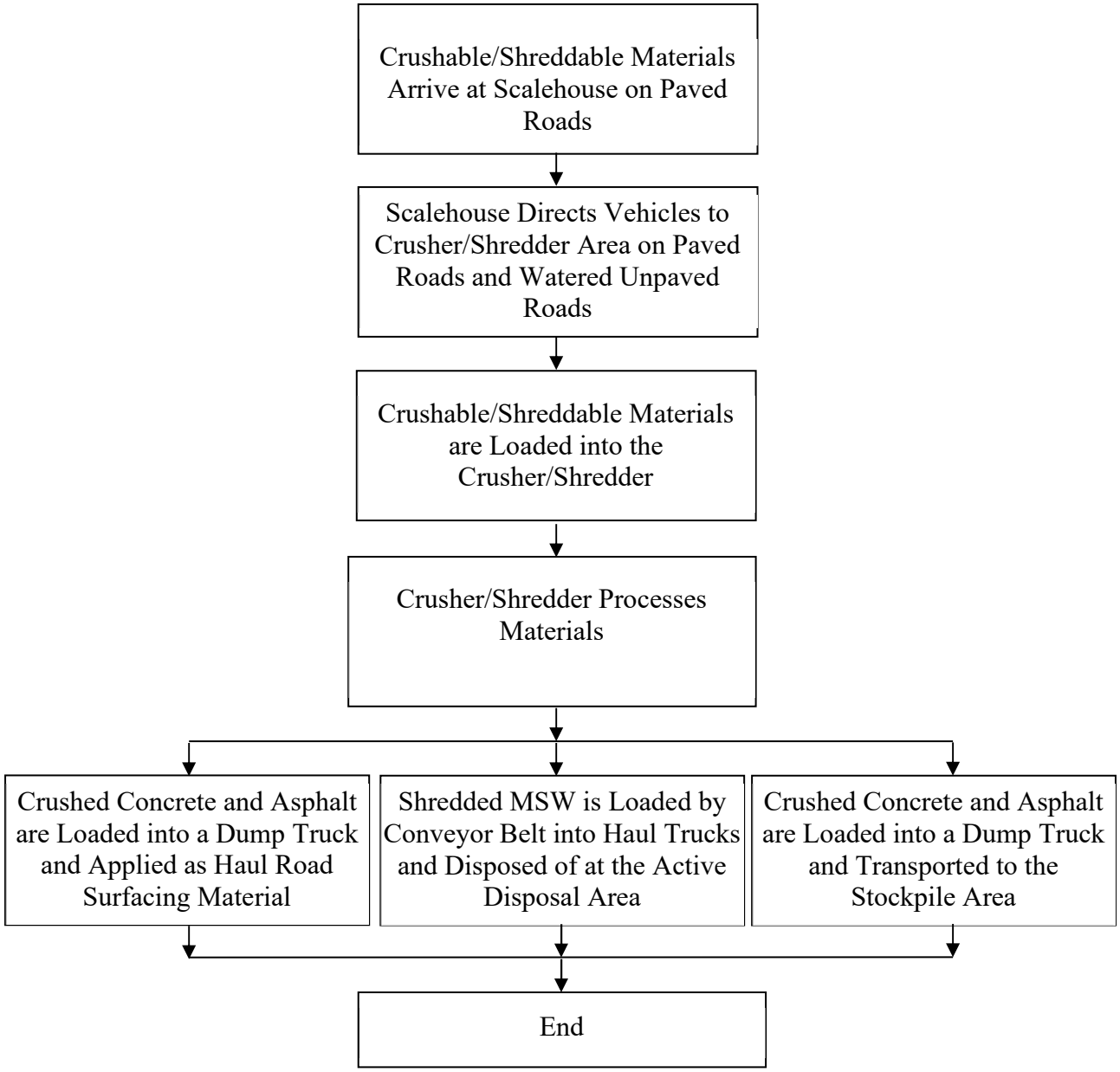
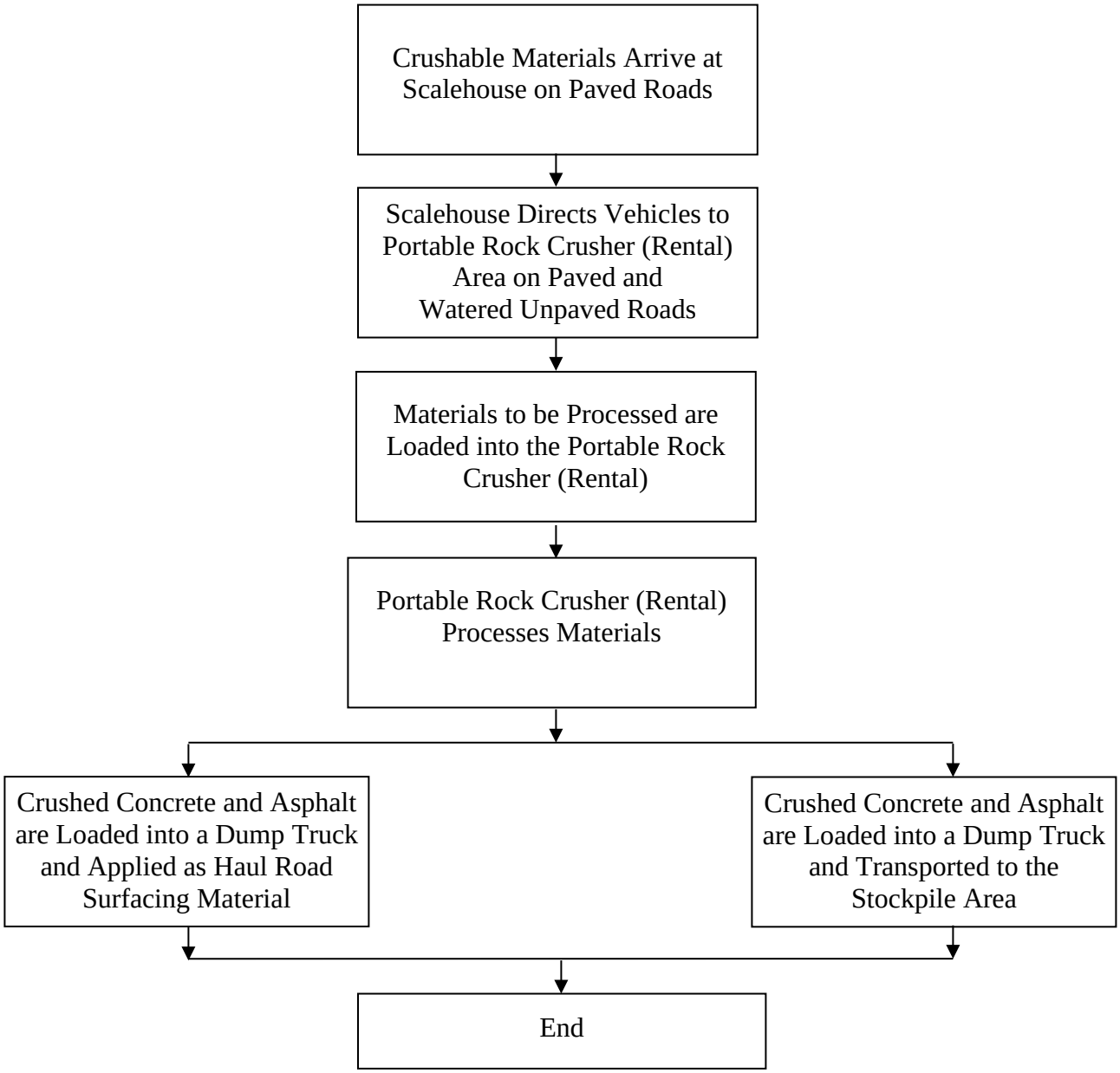


Figure 4.6
Portable Rock Crusher (Rental) Process Flow Diagram
(Emission Unit 6)

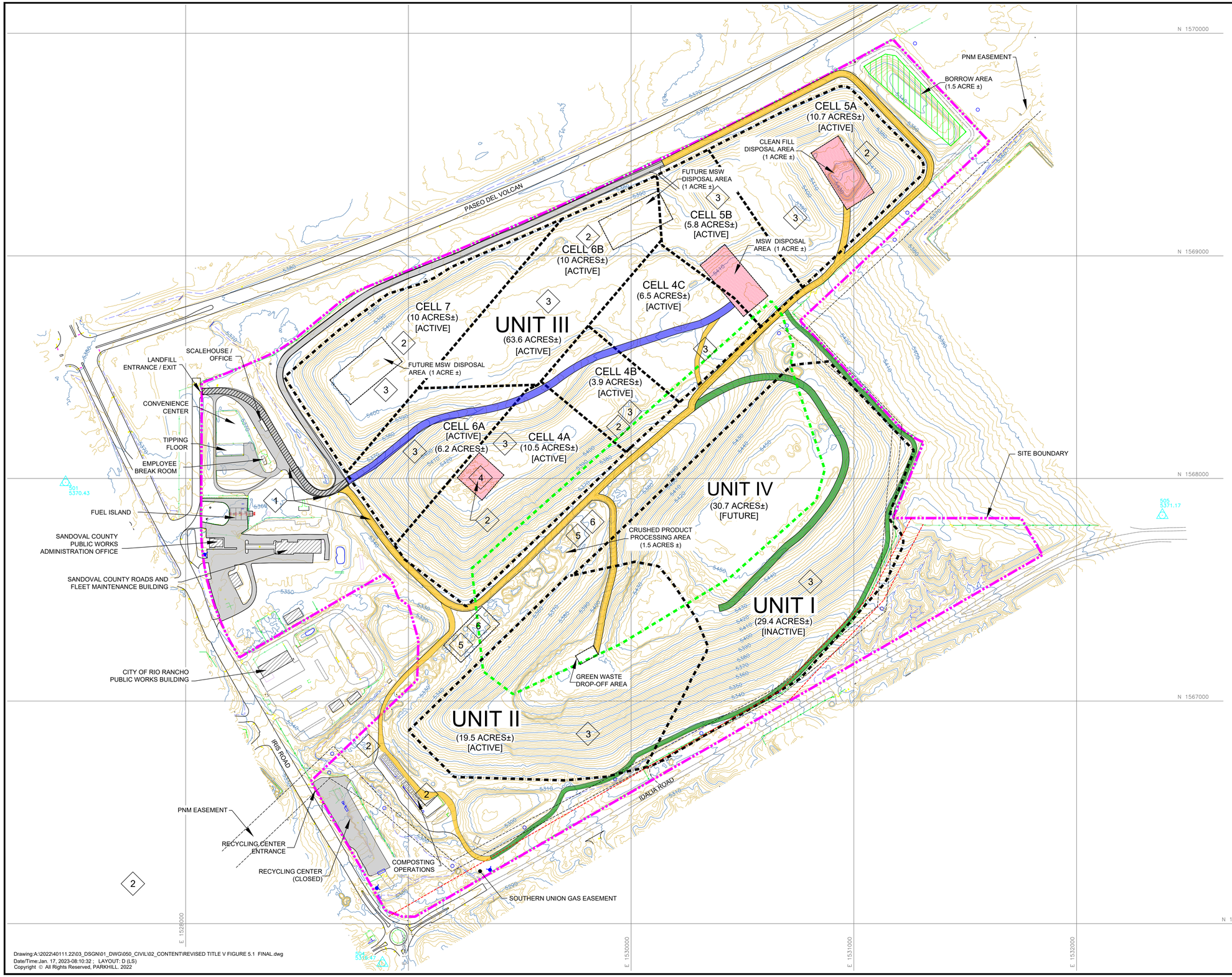


Section 5

Plot Plan Drawn To Scale

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

A scaled map (Plot Plan) of the Sandoval County Landfill is included in this section. It is designated as **Figure 5.1** and denotes the six emission units, fences, on-site roads, structures, property line, etc.



LEGEND

- PROPERTY LINE
- UNIT BOUNDARY (EXISTING)
- CELL BOUNDARY
- FENCE LINE
- PNM UTILITY EASEMENT BOUNDARY
- GAS CO. UTILITY EASEMENT BOUNDARY
- 5410 — 10' CONTOUR (EXISTING)
- 2' CONTOUR (EXISTING)
- EXISTING STRUCTURES
- ADDITIONAL AREAS SUBJECT TO WIND EROSION
- ASPHALT (95% CONTROL)
- AUXILIARY ROADS (0% CONTROL)
- UNPAVED DISPOSAL ROUTE (60% CONTROL)
- UNPAVED ACCESS ROADS (60% CONTROL)
- ASPHALT DISPOSAL ROUTE (95% CONTROL)
- 3 — EMISSIONS UNIT
- FIRE HYDRANT
- 505 5371.17 — CONTROL

EMISSION UNITS

1. DISPOSAL ROUTE, PAVED ROADS, AND ACCESS ROADS
2. GENERAL LANDFILL OPERATIONS: CELL CONSTRUCTION, FILL FACE OPERATIONS, WIND EROSION ON DISTURBED AREAS
3. LANDFILL GAS EMISSIONS FROM WASTE
4. PETROLEUM HYDROCARBON LANDFARM
5. CRUSHER/SHREDDER
6. PORTABLE ROCK CRUSHER (RENTAL)

NOTE:

SITE INFRASTRUCTURE AND TOPOGRAPHY BASED ON MAPPING COMPILED FROM AERIAL PHOTOGRAPHY ACQUIRED ON JANUARY 17TH, 2022.

NORTH

0 200' 400'

PLOT PLAN

SANDOVAL COUNTY LANDFILL
RIO RANCHO, NEW MEXICO

Parkhill
333 Rio Rancho Blvd. NE
Suite 400
Rio Rancho,New Mexico,
Phone: 505-867-6990
Fax: 505-867-6991

DATE: 01/17/2023	CAD: REVISED TITLE V FIG.dwg	PROJECT #: 40111.22
DRAWN BY: DMI	REVIEWED BY: ANY	FIGURE 5.1
APPROVED BY: MWK	www.parkhill.com	

Drawing:A:\2022\40111.22\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\REVISED TITLE V FIGURE 5.1 FINAL.dwg
Date/Time:Jan. 17, 2023-08:10:32 ; LAYOUT: D (LS)

Section 6
All Calculations

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

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

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/forms/) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowable 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 of if the applicant takes credit for the reduction in emissions. The applicant could 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.

6.0 Calculations

This Section describes the methods used to calculate potential fugitive emissions of particulate matter (TSP, PM_{10}, and $PM_{2.5}$), non-methane organic compounds (NMOCs), hazardous air pollutants (HAPs), and volatile organic compounds (VOCs) from each area source (Unit) at the Sandoval County Landfill (SCLF). **Table 6.1** summarizes fugitive dust emission rate estimates from landfill sources and activities, demonstrating that the site is not a major source for these emissions. Tables 6.5 – 6.7 summarize estimated NMOC, VOC and HAP emissions.

6.1 Disposal Routes, Access Roads, and Auxiliary Roads – Emission Unit No. 1

The disposal route, access roads, and auxiliary roads currently consist of paved areas and temporary graded roadways (**Figure 5.1, Section 5**). Vehicles traveling on these roads have the potential to generate fugitive dust emissions. Cumulatively, potential fugitive dust emissions from vehicular traffic have been designated as **Emission Unit 1**. Unpaved road surfaces are watered daily as a routine basis for dust control.

To account for anticipated increases in waste receipts, a conservative escalator of 5% per year was applied to the calculations used to estimate total vehicle miles traveled for refuse delivery, Green Waste delivery, and Convenience Center drop off vehicles. It is assumed that the flow of miscellaneous vehicles will remain constant. This Section provides emission rate estimates for the following categories:

1. Refuse Delivery Vehicles - Delivery of solid waste along the disposal route (i.e., from the site entrance to the active disposal area) typically occurs in one of three vehicle types:
    a. Light/medium vehicles (residential haulers)
    b. Large commercial vehicles (dump trucks, rear loaders, side loaders, front loaders, roll-offs, compactors)
    c. Semi-trucks (tractor trailers)

2. Green Waste Delivery Vehicles – Delivery of green waste along the green waste drop off route (i.e., from site entrance to Green Waste Drop off Area) typically occurs in large pickups with trailers.

3. Miscellaneous Vehicles – Employee vehicles (i.e., Public Works trucks, utility vehicles) travel on the disposal route, access roads, and auxiliary roads.

4. Convenience Center – The majority of incoming light/medium vehicles (i.e., residential haulers) are diverted to the Convenience Center (**Figure 5.1, Section 5**).

6.1.1 Emissions from Refuse Delivery Vehicles

Potential fugitive dust emissions from municipal solid waste (MSW) delivery vehicles can occur along the disposal route (**Figure 5.1, Section 5**). Vehicles that travel on the MSW disposal route include the three types of refuse delivery vehicles, as well as a CAT® 730C2 articulated water truck (6,000-gallon capacity). The water truck currently applies an average of 25,000 gallons of water per day to the unpaved disposal route, access roads, daily cover soil borrow area, and the active disposal area.

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

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

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

- The number of days per year with at least 0.01 inches of precipitation is 70 for the Rio Rancho, NM area (AP-42, Figure 13.2.2-1).
- The length of the disposal route is approximately 1.11 miles (round trip).
- The disposal route is comprised of approximately 902 feet (one-way) of pavement, approximately 2,025 feet (one-way) of unpaved road.
- There is an average of 154 round trips/day.
- The maximum operating days of 304 days/yr will occur during a leap year (e.g., 2024) containing 262 weekdays and 52 Saturdays minus ten holidays.
- The average refuse delivery vehicle weighs 15.21 tons (weighted average).

Detailed emissions calculations for refuse delivery vehicle travel on the paved and unpaved portions of the disposal route are provided in **Appendix 6.1**. **Table 6.1** shows the total estimated amount of refuse delivery vehicle emissions, both controlled and uncontrolled. **Table 6.2** presents an example of the methodology used to develop the "average" delivery vehicle for the three types of refuse delivery vehicles, as well as the water truck for the paved portion of the disposal route. This information was used to calculate the potential uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions for the "average" vehicle traveling on the disposal route. The same methodology was used to calculate the potential uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions for the "average" vehicle traveling on the Unit I, Unit II, green waste, convenience center, recycling center and miscellaneous vehicle. Detailed information for vehicles traveling on each route is provided in **Appendix 6.1**.

TABLE 6.1 - Summary of Potential Fugitive Dust Emission

Sandoval County Landfill

Emission Unit No.	Description	Source Type	Pollutant	Maximum/Uncontrolled Air Pollutant Emission Rate		Actual/Controlled Air Pollutant Emission Rate[1]	
				(tons/year)	(lbs/hr)	(tons/year)	(lbs/hr)
1	**Disposal Route, Access Roads, and Auxiliary Roads**						
	Refuse Delivery Vehicles (Paved)	Area	TSP	56.83	51.40	2.84	2.57
	MSW Refuse Delivery Vehicles (Unpaved)			127.09	114.95	50.84	45.98
	Green Waste Drop-Off Area Vehicle Operations (Paved)			6.89	6.24	0.34	0.31
	Green Waste Drop-Off Area Vehicle Operations (Unpaved)			20.92	18.92	8.37	7.57
	Convenience Center Vehicles (Paved)			18.75	16.96	0.94	0.85
	Miscellaneous Vehicles (Paved)			3.34	3.54	0.17	0.18
	Miscellaneous Vehicles (Access Roads - Unpaved)			8.73	9.25	3.49	3.70
	Miscellaneous Vehicles (Auxiliary Roads - Unpaved)			0.30	0.27	0.30	0.27
			Unit Total	**242.86**	**221.52**	**67.29**	**61.43**
	Refuse Delivery Vehicles (Paved)	Area	PM_{10}	15.34	13.88	0.77	0.69
	MSW Refuse Delivery Vehicles (Unpaved)			34.31	31.03	13.72	12.41
	Green Waste Drop-Off Area Vehicle Operations (Paved)			1.86	1.68	0.093	0.084
	Green Waste Drop-Off Area Vehicle Operations (Unpaved)			5.65	5.11	2.26	2.04
	Convenience Center Vehicles (Paved)			5.06	4.58	0.25	0.23
	Miscellaneous Vehicles (Paved)			0.90	0.95	0.045	0.048
	Miscellaneous Vehicles (Access Roads - Unpaved)			2.36	2.50	0.94	1.00
	Miscellaneous Vehicles (Auxiliary Roads - Unpaved)			0.08	0.074	0.08	0.074
			Unit Total	**65.56**	**59.80**	**18.17**	**16.58**
	Refuse Delivery Vehicles (Paved)	Area	$PM_{2.5}$	1.53	1.39	0.077	0.069
	MSW Refuse Delivery Vehicles (Unpaved)			3.43	3.10	1.37	1.24
	Green Waste Drop-Off Area Vehicle Operations (Paved)			0.19	0.17	0.009	0.008
	Green Waste Drop-Off Area Vehicle Operations (Unpaved)			0.56	0.51	0.23	0.20
	Convenience Center Vehicles (Paved)			0.51	0.46	0.025	0.023
	Miscellaneous Vehicles (Paved)			0.090	0.095	0.0045	0.0048
	Miscellaneous Vehicles (Access Roads - Unpaved)			0.24	0.25	0.09	0.10
	Miscellaneous Vehicles (Auxiliary Roads - Unpaved)			0.008	0.007	0.008	0.007
			Unit Total	**6.56**	**5.98**	**1.82**	**1.66**
2	**General Landfill Operations**						
	Scraper[2]	Area	TSP	39.89	105.93	15.95	42.37
	Compactor			4.31	3.15	1.72	1.26
	Bulldozer			1.44	3.15	0.57	1.26
	Wind Erosion			6.45	1.47	3.38	0.77
	Diesel Exhaust Particulate Emissions[4]			0.32	0.48	0.32	0.48
			Unit Total	**52.41**	**114.18**	**21.96**	**46.15**
	Scraper[2]	Area	PM_{10}	10.93	28.96	4.37	11.58
	Compactor			0.85	0.62	0.34	0.25
	Bulldozer			0.28	0.62	0.11	0.25
	Wind Erosion			1.98	0.45	1.04	0.24
	Diesel Exhaust Particulate Emissions[4]			0.32	0.48	0.32	0.48
			Unit Total	**14.37**	**31.14**	**6.18**	**12.80**
	Scraper[2]	Area	$PM_{2.5}$	1.09	2.90	0.44	1.16
	Compactor			0.45	0.33	0.18	0.13
	Bulldozer			0.15	0.33	0.060	0.13
	Wind Erosion			0.20	0.045	0.104	0.024
	Diesel Exhaust Particulate Emissions[4]			0.32	0.48	0.32	0.48
			Unit Total	**2.21**	**4.08**	**1.10**	**1.93**

TABLE 6.1 (cont.) - Summary of Potential Fugitive Dust Emission

Sandoval County Landfill

Emission Unit No.	Description	Source Type	Pollutant	Maximum/Uncontrolled Air Pollutant Emission Rate		Actual/Controlled Air Pollutant Emission Rate[1]	
				(tons/year)	(lbs/hr)	(tons/year)	(lbs/hr)
5	**Crusher/Shredder**						
	Front End Loader	Area	TSP	1.64	2.66	1.64	2.66
	Crusher/Shredder Operations[3]			0.53	0.69	0.53	0.69
	Crushed Product Stockpiling			0.40	0.53	0.40	0.53
	Diesel Exhaust Particulate Emissions[4]			0.31	0.40	0.31	0.40
			Unit Total	**2.87**	**4.28**	**2.87**	**4.28**
	Front End Loader	Area	PM_{10}	0.44	0.72	0.44	0.72
	Crusher/Shredder Operations[3]			0.22	0.29	0.22	0.29
	Crushed Product Stockpiling			0.19	0.25	0.19	0.25
	Diesel Exhaust Particulate Emissions[4]			0.31	0.40	0.31	0.40
			Unit Total	**1.16**	**1.66**	**1.16**	**1.66**
	Front End Loader	Area	$PM_{2.5}$	0.044	0.072	0.044	0.072
	Crusher/Shredder Operations[3]			0.22	0.29	0.22	0.29
	Crushed Product Stockpiling			0.029	0.038	0.029	0.038
	Diesel Exhaust Particulate Emissions[4]			0.31	0.40	0.31	0.40
			Unit Total	**0.60**	**0.80**	**0.60**	**0.80**
6	**Rental Crusher**						
	Diesel Exhaust Particulate Emissions[4]	Area	TSP	0.0030	0.014	0.0030	0.014
	Total Fugitives for Crushing, Screening, and Truck Loading			2.41	8.39	0.21	0.96
			Unit Total	**2.42**	**8.40**	**0.21**	**0.98**
	Diesel Exhaust Particulate Emissions[4]	Area	PM_{10}	0.0030	0.014	0.0030	0.014
	Total Fugitives for Crushing, Screening, and Truck Loading			0.89	3.08	0.082	0.38
			Unit Total	**0.89**	**3.09**	**0.085**	**0.39**
	Diesel Exhaust Particulate Emissions[4]	Area	$PM_{2.5}$	0.0030	0.014	0.0030	0.014
	Total Fugitives for Crushing, Screening, and Truck Loading			0.89	3.08	0.015	0.069
			Unit Total	**0.89**	**3.09**	**0.018**	**0.082**

Notes:

(1) Fugitive dust emissions from Emission Units 1 and 2 are controlled consistent with the following AQB-approved control efficiencies:

- Pavement - 95% control
- Water - 60% control
- Water & Basecourse - 80% control

(2) Includes Scraper Travel, Loading, and Unloading

(3) Includes Loading, Crushing, Conveyor Transport, and Truck Loading

(4) Diesel exhaust particulate emissions calculated using AP-42 Chapter 3, Section 3.3, Table 3.3-1. Data obtained from **Table 6.7.** AP-42 does not provide guidance for calculating TSP and $PM_{2.5}$ emissions from diesel exhaust. Therefore, as noted in **Table 6.7**, all exhaust particulate matter is assumed to be $\leq 1\mu m$ in size. Consistent with the previous AQB-approved Permit Application, emissions estimates for TSP and $PM_{2.5}$ are assumed equal to those for PM_{10}.

Table 6.2 – Refuse Delivery Vehicle Specifications
Sandoval County Landfill

Vehicle Type	Vehicle Weight (tons)	Proportion of Average Round Trips (Per Day)	Applied Vehicle Weight (tons)
Large Pickup	1.9	9.5%	0.18
Pickup w/ Trailer	2.7	25.6%	0.69
Dump Truck Single Axle	9.6	6.9%	0.66
Dump Truck Dual Axle	19.4	2.6%	0.51
Roll Off	19.4	30.2%	5.85
Side Loader	21.6	0.2%	0.042
Rear Loader	22.2	5.7%	1.25
Front Loader	21.6	2.2%	0.47
Compactor	21.6	1.7%	0.36
20' Semi-truck	25.5	0.004%	0.0011
25 ' Semi-truck	26.7	3.0%	0.79
28' Semi-truck	27.1	0.0%	0.0023
40' Semi-truck	33.8	0.55%	0.19
42' Semi-truck	34.3	5.53%	1.90
48' Semi-truck	36.8	0.10%	0.035
Water Truck	38.6	6.3%	2.29
Total (weighted average)		100.0%	15.21

6.1.2 Emissions from Convenience Center Vehicles

The purpose of the Convenience Center is to provide a suitable location for self-haulers to dispose of waste, and to reduce the amount of fugitive dust emissions generated by these vehicles on the disposal route. The Convenience Center consists of unloading positions for customer vehicles, a 2’ deep concrete tipping floor onto which self-haul waste is placed and compacted, and two 40 yd^3 roll-off containers located at the end of the tipping floor. Self-haul waste is first placed on the tipping floor by customers as directed by landfill personnel. The waste is then compacted and pushed from the tipping floor by a front-end loader into 40 yd^3 roll-off containers positioned in a partial tunnel located at the end of the push-pit. As the roll-off containers are filled, they are transported to the active disposal area.

Emissions from Convenience Center vehicles were calculated separately because all traffic to and from the Convenience Center travels exclusively over paved surfaces. The traffic to the Convenience Center is comprised solely of residential vehicles, weighing approximately 1.83 tons (average), apart from the roll-off transport trucks which are accounted for in the refuse delivery vehicles traffic. The equations used to estimate emissions from these vehicles are obtained from AP-42, Section 13.2.2, Unpaved Roads (November 2006). The volume of traffic diverted to the Convenience Center is recorded daily at the Scalehouse as vehicles arrive

at the landfill daily. The information below contains data provided by SCLF, as well as conservative assumptions that were made to perform representative calculations:

- The number of days per year with at least 0.01 inches of precipitation is 70 for the Rio Rancho, NM area (AP-42, Figure 13.2.2-1).
- The average round trip distance for a Convenience Center vehicle is approximately 0.32 miles.
- Approximately 42,911 vehicles use the Convenience Center annually.
- All travel to/from the Convenience Center is on pavement.
- The average Convenience Center delivery vehicle weighs 1.83 tons.
- The average operating year consists of 304 days.
- The Convenience Center operates for 9 hours/day Monday – Saturday.

Detailed emissions calculations for Convenience Center vehicle travel on paved surfaces are provided in **Appendix 6.1. Table 6.1** shows the total amount of Convenience Center vehicle emissions, both controlled and uncontrolled.

6.1.3 Emissions from Miscellaneous Vehicles

Additional vehicles that travel on the disposal route, paved roads, access roads, and auxiliary roads include miscellaneous vehicles such as landfill utility vehicles and public works trucks. The equations used for estimating potential fugitive dust emissions from these vehicles are the same equations used for refuse delivery vehicles. As with refuse delivery vehicles, an "average" miscellaneous vehicle was developed based on the different types of miscellaneous vehicles that travel on landfill roads and their frequency of travel. The information below contains data provided by SCLF, as well as conservative assumptions that were made in order to perform representative calculations:

- The number of days per year with at least 0.01 inches of precipitation is 70 for the Rio Rancho, NM area (AP-42, Figure 13.2.2-1).
- The weighted average round trip for the "average" miscellaneous vehicle on pavement is approximately 1.53 miles.
- The weighted average round trip for the "average" miscellaneous vehicle on the unpaved access roads is approximately 4.00 miles.
- The average travel distance for a Public Works truck, a miscellaneous vehicle, on the unpaved auxiliary roads is approximately 1.07 miles.
- There is an average of 9 round trips/day for the "average" miscellaneous vehicle.
- The average operating year consists of 304 days.
- The average miscellaneous vehicle weight is 1.06 tons (weighted average).

Table 6.3 presents projected data for the two typical types of miscellaneous vehicles. This information was used to calculate the uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions for the average miscellaneous vehicle traveling on landfill access roads. Detailed emissions calculations for miscellaneous vehicle travel on the paved and unpaved portions of the disposal route, landfill access roads, and auxiliary roads are provided in

Appendix 6.1. Table 6.1 shows the total amount of miscellaneous vehicle emissions, both controlled and uncontrolled.

Table 6.3 – Miscellaneous Vehicle Specifications
Sandoval County Landfill

Vehicle Type	Vehicle Weight (tons)	Proportion of Average Round Trips (Per Day)	Applied Vehicle Weight (tons)
Utility Vehicles	1.0	88.9%	0.89
Public Works Trucks	1.5	11.1%	0.17
	2.5	100.0%	1.06

6.1.4 Fugitive Dust Control Measures

During routine operations, the Landfill typically applies over 700,000 gallons of water per month on average in order to reduce the amount of fugitive dust emissions. A CAT® 730C2 articulated water truck (6,000-gallon capacity) makes an average of 9 trips per day and applies over 25,000 gallons of water per day on average to the unpaved portions of landfill roads, the daily cover soil borrow area, and the active disposal area. Consistent with existing New Mexico Environment Department (NMED) Air Quality Bureau (AQB) policy, an overall water control efficiency of 60% was applied to unpaved roads, a watered control efficiency of 80% may be applied to roads which have had cold millings (recycled basecourse) applied (when utilized), a swept and watered control efficiency of 85% may be applied to roads which are constructed of chip seal (when utilized). No control efficiency was applied to vehicle travel on auxiliary roads. Detailed calculations for fugitive dust control efficiencies applied to the disposal route and access roads are provided in **Appendix 6.2**.

6.2 General Landfill Operations – Emission Unit 2

General landfill operations have been designated as Emission Unit 2. General landfill operations include solid waste disposal at the active disposal area (see **Figure 5.1, Section 5**) and daily cover application. Emission rate estimates from each of these activities/processes are detailed below.

6.2.1 Disposal Area and Daily Cover Operations

Potential fugitive dust emissions from disposal area operations result primarily from the daily operations of heavy equipment such as scrapers, compactors, and bulldozers. Scrapers are used to excavate soil to deliver soil to the active disposal area for daily cover. Compactors consolidate waste at the active disposal area. Bulldozers assist the compactors by positioning waste so it can be easily consolidated, and apply cover material. Heavy equipment operations emissions were calculated using SCLF operating logs for each piece of equipment. Where applicable, running time hours (operating hours plus idle time) were converted to actual operating hours (i.e., hours that the vehicle has the potential to create fugitive emissions) by applying an operating efficiency to the running time of each piece of equipment. Average scraper weights and capacities were obtained from the Caterpillar® Performance Handbook, Edition 48 (Caterpillar® 2019).

6.2.1A Scraper Operations

Scraper operations involve scraper travel to and from loading (daily cover soil borrow area) and unloading locations (active disposal area), as well as the loading and unloading processes themselves. Each of these

three processes is a potential source of fugitive dust emissions. Guidance for estimating emission rates for these processes was obtained from AP-42, Sections 13.2.2, 11.9, and 13.2.4.

The scraper travels between the daily cover soil borrow area and the disposal area (see **Figure 5.1, Section 5**). Due to the dynamic nature of the active disposal area, the maximum travel distance is conservatively used for emissions calculations. Emissions from scraper travel are estimated using the same equations for vehicle travel on the disposal route (**Section 6.1.1**) and utilize the following information:

- The number of days per year with at least 0.01 inches of precipitation is 70 for the Rio Rancho, NM area (AP-42, Figure 13.2.2-1).
- The maximum scraper round trip is distance is approximately 1.32 miles.
- There is an average of 20 round trips/day.
- The average operating year consists of 304 days.
- The average scraper weight (loaded and unloaded) is 47.92 tons.

Detailed emissions calculations for scraper travel are provided in **Appendix 6.3. Table 6.1** shows the total amount of emissions from scraper travel, both controlled and uncontrolled.

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

- PM_{10} Emission Factor (EPM_{10}) = (kPM10/kTSP) x (ETSP) = (1.5/4.9) x (0.058 lbs/ton)
- PM_{10} Emission Factor (EPM_{10}) = (0.31) x (0.058 lbs/ton) = 0.02 lbs/ton
- $PM_{2.5}$ Emission Factor ($EPM_{2.5}$) = (kPM2.5/kTSP) x (ETSP) = (0.15/4.9) x (0.058 lbs/ton)
- $PM_{2.5}$ Emission Factor ($EPM_{2.5}$) = (0.031) x (0.058 lbs/ton) = 0.002 lbs/ton

The TSP, PM_{10}, and $PM_{2.5}$ emission factors were then applied to the total calculated mass of soil moved per year. These calculations were performed using information provided by SCLF, including an estimate of 20 scraper trips/day (loads/day), an average scraper capacity of 20.7 yd^3, and an operating year of 304 days. The total mass of soil loaded per year is estimated to be 151,027 tons. The controlled and uncontrolled emissions from scraper loading are provided in **Table 6.1**, and detailed emissions calculations for scraper loading are provided in **Appendix 6.3.**

Emissions from scraper unloading at the disposal area were estimated using guidance provided by AP-42, Section 13.2.4, Aggregate Handling and Storage Piles (November 2006). These calculations were performed using the same information provided by SCLF for scraper loading and an operating year of 304 days. The total mass of soil unloaded per year is the same as the mass of soil loaded (151,027 tons). The controlled and uncontrolled emissions from scraper unloading are provided in **Table 6.1**. Detailed emissions calculations for scraper unloading, as well as the cumulative emissions from all scraper operations, are provided in **Appendix 6.3**.

6.2.1B Compactor Operations

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

- The average operating year consists of 304 days.
- The average operating day is 9 hours/day.

The controlled and uncontrolled emissions from compactor operations are provided in **Table 6.1**, and detailed compactor emissions calculations are provided in **Appendix 6.3**.

6.2.1.C Bulldozer Operations

Bulldozer operations involve assisting the compactor at the active disposal area by positioning waste for the compactor and assisting with landfill cover application. Potential fugitive dust emissions from bulldozer operations were calculated using an equation in AP-42, Table 11.9-1. Calculated emission factors were then applied to the total annual operating hours for the bulldozer. Calculations were performed using the following information:

- The average operating year consists of 304 days.
- The average operating day is 3 hours/day.

The controlled and uncontrolled emissions from bulldozer operations are provided in **Table 6.1**, and detailed bulldozer emissions calculations are provided in **Appendix 6.3**.

6.2.2 Fugitive Dust Control Measure

Fugitive dust control measures are employed during the operating day in order reduce emissions during normal operations. A control efficiency of 60% was applied to scraper travel on roads that have water applied daily. The bulldozer and compactor operate 100% of the time within the active disposal area, which is watered regularly. Water is also applied to the daily cover soil borrow area during scraper loading. The control efficiency for operations occurring in the active disposal area and daily cover soil stockpile area is 60%. **Table 6.1** summarizes the controlled/uncontrolled fugitive dust emissions resulting from heavy equipment operation during active disposal area operations and daily cover application. Detailed calculations for fugitive dust control efficiencies applied to these operations are provided in **Appendix 6.2**.

6.2.3 Dust Emissions from Wind Erosion on Disturbed Areas

Based on guidance provided in AP-42, Section 13.2.5, Industrial Wind Erosion (November 2006), only those areas of the Landfill actively disturbed by facility operations (e.g., disposal routes, access roads, auxiliary roads, active disposal area, daily cover soil borrow area, and crushed material stockpile) were included in the acreage for which potential fugitive dust emissions attributable to wind erosion were calculated. Wind erosion emissions from approximately 16.99± acres of actively disturbed areas were estimated. A control efficiency of 60% for fugitive dust emissions due to wind erosion was applied to the unpaved portion of the MSW disposal route, landfill access roads, daily cover soil borrow area, and the active disposal area. For the purposes of wind erosion estimates, auxiliary roads, the petroleum

hydrocarbon soils landfarm, crushing/shredding area, clean fill area, and green waste area (**Figure 5.1, Section 5**) are conservatively assumed to have a control efficiency of zero.

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

- PM_{10} Emission Factor (EPM_{10}) = (kPM_{10}/kTSP) x (ETSP) = (1.5/4.9) x (0.38 tons/acre/yr).
- PM_{10} Emission Factor (EPM_{10}) = (0.31) x (0.38 tons/acre/yr) = 0.12 tons/acre/yr.
- $PM_{2.5}$ Emission Factor ($EPM_{2.5}$) = ($kPM_{2.5}$/kTSP) x (ETSP) = (0.15/4.9) x (0.38 tons/acre/yr).
- $PM_{2.5}$ Emission Factor ($EPM_{2.5}$) = (0.031) x (0.38 tons/acre/yr) = 0.012 tons/acre/yr.

The total uncontrolled and controlled fugitive dust emissions due to wind erosion are summarized in **Table 6.1**. Detailed calculations for fugitive dust emissions due to wind erosion, as well as applied control efficiencies, are provided in **Appendix 6.4**.

6.3 Landfill Gas Generation

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

The EPA model LandGEM (Landfill Gas Emissions Model), Version 3.03 (USEPA, June 2020) was used to calculate total LFG and NMOC emission rates for the Landfill. The Model estimates emissions resulting from the biodegradation of refuse in landfills and is recommended by EPA for use in developing estimates for state inventories. The Model uses a first-order decay rate equation, and estimates annual emissions over any period specified by the user. The period specified for SCLF is 1972 (the first year of waste acceptance) through 2028, end of proposed Title V permit applicability.

The Model contains default values for the potential methane generation capacity of the refuse (Lo) and the methane generation rate constant (k) that, in the absence of site-specific data, are intended to reflect typical landfill emissions. The Model also contains a default value for NMOC concentrations (CNMOC) for landfills both with and without codisposal of hazardous waste. All Model parameters may also be set to user-specified values. The following values were input into LandGEM to estimate total LFG generation rates and emissions of NMOCs from the landfill:

- Methane Generation Rate Constant, k = 0.02 yr^{-1} (CAA default for arid regions).
- Potential Methane Generation Capacity of Refuse, Lo = 170 m^3/Mg refuse (CAA default).
- NMOC Concentration, CNMOC = 4,000 ppm_v as hexane (CAA default).
- Landfill Type = No codisposal (i.e., no landfilling of hazardous waste).
- The site is treated as active (i.e., accepting waste) for the years 1972 – 2028.
- The composition of LFG is modeled as 50% methane and 50% carbon dioxide (CAA defaults).

Wastes received at SCLF are comprised of degradable and non-degradable portions (e.g., construction & demolition debris). No waste screening data (i.e., type and volume) are available for 1972-1990, and 1992-1993. Based on information provided by SCLF, the waste types included in the incoming waste stream for 1991 and 1994-2009 were indicative of waste accepted for disposal from 1972-1990 and from 1992-1993. Therefore, an average non-degradable waste acceptance rate of approximately 80% (see **Table 6.4**) by volume was calculated for 1991 and 1994 – 2009, and then applied to the calculated average waste acceptance rate for 1972-1990 and 1992-1993.

Since January 1, 2005, source-separated green wastes have been diverted from the incoming solid waste stream for processing at the site's in-vessel composting operation. As allowed by NSPS, actual waste screening data were used to subtract the non-degradable portion (i.e., construction and demolition debris) from the waste stream for years 1991 and 1994 – 2021. Green waste diverted for composting was subtracted from the degradable portion of the waste stream for years 2005-2021.

LFG emissions for the years 2022 through 2028 were estimated based upon projected waste acceptance rates through the end of 2028. To produce conservative results, projected waste acceptance rates were calculated by applying a 5% annual escalator to the annual average waste receipts between 2016 and 2021. Modeling output for NMOC emission rates is provided in **Appendix 6.5**. The Model indicates that the NMOC emission rate in 2028 from waste deposited through 2028 is approximately 28.48 Mg/yr (31.39 tons/yr). This NMOC emission rate is also provided in **Section 21, Part 21-B**.

Table 6.4 – Documented Annual Waste Acceptance Rates
Sandoval County Landfill

Year	Total Receipts (Gate Yards)	Putrescible Waste (Gate Yards)	Non-putrescible/ Diverted Waste (Gate Yards)	Megagrams Putrescible Waste (calculated)
1991	278,853	39,085	239,768	4,191
1994	330,000	74,500	255,500	6,759
1995	346,915	54,557	292,358	8,910
1996	385,394	132,806	252,588	20,156
1997	393,935	57,963	335,972	7,724
1998	432,270	60,302	371,967	6,933
1999	396,900	81,923	314,978	9,020
2000	467,016	83,728	383,288	9,548
2001	171,218	97,561	73,658	11,827
2002	541,872	93,812	448,060	12,756
2003	484,276	105,085	379,191	13,948
2004	510,760	105,655	405,105	13,497
2005	479,566	41,607	437,959	7,934
2006	684,678	52,489	632,189	10,251
2007	803,588	80,642	722,946	13,717
2008	652,397	67,637	584,760	12,095
2009	474,221	56,129	418,092	11,012
Totals	**7,833,859**	**1,285,481**	**6,548,379**	**180,278**
Year	**Total Receipts (Short tons)**	**Total Receipts (Megagrams)**	**Non-putrescible/ Diverted Waste (Megagrams)**	**Putrescible Waste (Megagrams)**
2010	120,638	109,441	84,095	25,346
2011	108,963	98,849	89,425	9,424
2012	121,718	110,421	101,953	8,468
2013	117,193	106,316	83,710	22,606
2014	123,449	111,991	106,762	5,229
2015	125,099	113,488	108,033	5,455
2016	187,730	170,306	162,337	7,969
2017	165,947	150,545	142,465	8,080
2018	189,593	171,996	161,860	10,136
2019	187,238	169,860	159,177	10,683
2020	196,456	178,222	166,931	11,292
2021	190,408	172,735	163,053	9,682
Total	**1,834,432**	**1,664,170**	**1,529,801**	**134,370**
			Site Total	**314,648**

A summary of Model output, representing the projected annual LFG and uncontrolled NMOC emission rates for years 2022 through 2028, is presented in **Table 6.5**. For emissions inventory purposes, the data in **Table 6.5** are presented under the conservative assumption that all LFG generated is emitted, and that no LFG controls (i.e., a collection system with LFG routed to a flare) are operational.

Table 6.5 – Projected Annual Landfill Gas and NMOC Generation Rates
Emission Unit 3
Sandoval County Landfill

Year	Estimated Total LFG Emissions (scfm)	Estimated NMOC Emissions (Mg/yr)	Estimated NMOC Emissions (tons/yr)	Estimated NMOC Emissions (lb/hr)
2022	115.8	24.7	27.2	6.21
2023	118.2	25.2	27.8	6.35
2024	120.9	25.8	28.4	6.48
2025	123.7	26.4	29.0	6.62
2026	126.7	27.0	29.7	6.78
2027	130.0	27.7	30.5	6.96
2028	133.5	28.5	31.3	7.15

6.4 Petroleum Hydrocarbon Landfarm – Emission Unit 4

SCLF is permitted to accept petroleum contaminated soils (PCS) for treatment via landfarming. The petroleum hydrocarbon landfarm has been designated as Emission Unit 4. The PCS accepted for treatment would be transported to a designated area at the site (see **Figure 5.1, Section 5**), applied as a thin layer and disked to enhance bioremediation.

Consistent with the requirements of 20.9.8.15 NMAC of the New Mexico Solid Waste Rules, PCS require bioremediation prior to disposal or beneficial use as daily cover. Benzene, toluene, ethyl benzene, and xylene (BTEX) are the main constituents of concern in PCS that have the potential to volatilize, and are considered volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). PCS samples are required to be collected at a frequency of one sample per 100 yd^3 and analyzed for total petroleum hydrocarbon (TPH) using EPA Method 8015 and BTEX via EPA Method 8021 (or approved equivalents).

Each shipment of PCS must be approved by SCLF and issued an approved profile number prior to acceptance. Each shipment must be accompanied by a non-hazardous waste manifest (or approved equivalent) containing the approved profile number and the corresponding laboratory analytical data. **Section 6.6.4** of this Application provides additional discussion and example calculations for potential HAP emissions from PCS remediation.

6.5 Crusher/Shredder Operations – Emission Unit 5

Crusher/Shredder operations have been designated as Emission Unit 5, and include loading of the Crusher/Shredder, processing of the loaded material, and unloading of the material into 28-foot semi-trucks using an attached conveyor belt. Crusher/Shredder operations also include application and stockpiling of the crushed material for future use, and emissions from the diesel engine that powers the Crusher/Shredder. Emission rate estimates from each of these activities/processes are detailed below.

6.5.1 Crusher/Shredder Loading, Materials Processing, and Unloading

Potential fugitive dust emissions from crushing/shredding operations result primarily from the daily operations of heavy equipment such as front-end loaders and 28-foot semi-trucks. The front-end loader is used to load the materials to be processed into the Crusher/Shredder, and the 28-foot semi-trucks haul these materials for disposal or application to facility roads for maintenance and dust control. Emissions are estimated using the maximum hourly throughput capabilities of the Crusher/Shredder (i.e., 80 tons/hour).

The Crusher/Shredder is loaded by a front-end loader at one of the three projected operations areas (see **Figure 5.1, Section 5**). Emissions from Crusher/Shredder loading are estimated using values from AP-42, section 11.19.2, Table 11.19.2-2, and utilize the following information:

- The Crusher/Shredder has a maximum throughput rate of 80 tons/hour.
- The Crusher/Shredder operates an average of 5 hours/day.
- The average operating year consists of 304 days.

The uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions from Crusher/Shredder loading are provided in **Table 6.1**. Detailed emissions calculations for Crusher/Shredder Unloading are provided in **Appendix 6.6**.

Emissions from materials processing (i.e., crushing) are estimated using guidance provided in AP-42, Section 11.19.2 Crushed Stone Processing and Pulverized Minerals Processing (August 2004). The emission factor for TSP emissions during crushing is listed in Table 11.19.2-2 as 0.0054 lbs/ton, and PM_{10} emissions are listed at 0.0024 lb/ton. A $PM_{2.5}$ emissions factor is not provided in this section of AP-42. However, as previously approved by NMED AQB, in the absence of a published $PM_{2.5}$ emissions factor in AP-42, a factor equal to the factor provided for PM_{10} is used for $PM_{2.5}$.

The TSP, PM_{10}, and $PM_{2.5}$ emission factors were then applied to the maximum throughput of 80 tons/hour. The uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions from materials processing operations are provided in **Table 6.1**, and detailed emissions calculations for Materials Processing are provided in **Appendix 6.6**.

Emissions from Crusher/Shredder Unloading consist of conveyor belt transport and dump truck loading. These emissions are estimated using guidance provided by AP-42, Section 11.19.2, Crushed Stone Processing and Pulverized Minerals Processing (August 2004). These calculations are based on a maximum throughput of 80 tons/hour. The uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions from Crusher/Shredder Unloading are provided in **Table 6.1**. Detailed emissions calculations for Crusher/Shredder Unloading are provided in **Appendix 6.6.**

6.5.2 Crushed Product Stockpiling

Emissions from crushed material stockpiling at the Crushed Product Processing Area (**Figure 5.1, Section 5**) are estimated using guidance provided in AP-42, Section 13.2.4, "Aggregate Handling and Storage Piles" (November 2006). These calculations are based on information provided by SCLF, including an estimate of approximately 5 hours of operation per day, maximum throughput of 80 tons/hour, and an operating year of 304 days. The maximum total mass of stockpiled crushed product is estimated to be approximately 121,600 tons/year.

The uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions from crushed material stockpiling are provided in **Table 6.1**. Detailed emissions calculations for Crusher/Shredder Stockpiling, as well as the cumulative uncontrolled emissions from all Crusher/ Shredder operations, are provided in **Appendix 6.6**.

6.5.3 Front-End Loader Operations

Front-End Loader (FEL) operations involve transport and loading of materials to be processed into the Crusher/Shredder. Guidance provided in AP-42, Section 13.2.2, Unpaved Roads (November 2006) were used to determine total fugitive dust emissions produced per mile of FEL travel (to calculate an emissions factor). Calculated emission factors were then applied to the total annual distance traveled by the FEL. Calculations are performed using the following information:

- The average operating year consists of 304 days.
- The average operating day is approximately 5 hours/day.
- The FEL has a bucket capacity of 4 yd^3.
- The FEL travel distance is approximately 200 feet/round trip
- The FEL travels approximately 576 miles/year.

The uncontrolled TSP, PM_{10}, and $PM_{2.5}$ emissions from FEL operations are provided in **Table 6.1**, and detailed FEL emissions calculations are provided in **Appendix 6.6**.

6.6 Portable Rock Crusher (Rental) Material Processing and Unloading Operations

Potential fugitive dust emissions from the Portable Rock Crusher (Rental) operations result primarily from the crushing and screening functions of the Unit. Emissions are estimated using the maximum hourly throughput capabilities of the Portable Rock Crusher (Rental) (i.e., 275 tons/hour). The Portable Rock Crusher is also equipped with a wet suppression system, and both controlled and uncontrolled emission factors are utilized to estimate total emissions.

The Portable Rock Crusher (Rental) is operated at one of the three projected operations areas (**Figure 5.1**, **Section 5**). Emissions from the Portable Rock Crusher (Rental) operation, screening and unloading are estimated using values from AP-42, section 11.19.2, Table 11.19.2-2, and utilize the following information:

- The Portable Rock Crusher (Rental) has a maximum throughput rate of 275 tons/hour.
- The Portable Rock Crusher (Rental) operates an average of 9 hours/day, 6 days/week for an 8-week period, and not to exceed 432 operating hours per year.

The uncontrolled and controlled TSP, PM_{10}, and $PM_{2.5}$ emissions from the Portable Rock Crusher (Rental) are provided in **Table 6.1** and detailed emission calculations are provided in **Appendix 6.6**.

Emissions from materials processing (i.e., crushing and screening) are estimated using guidance provided in AP-42, Section 11.19.2 Crushed Stone Processing and Pulverized Minerals Processing (August 2004). The TSP, PM_{10}, and $PM_{2.5}$ emission factors for tertiary crushing and screening were then applied to the maximum throughput of 275 tons/hour. The uncontrolled and controlled TSP, PM_{10}, and $PM_{2.5}$ emissions from materials processing operations from the Portable Rock Crusher (Rental) are provided in **Table 6.1**, and detailed emissions calculations for materials Processing are provided in **Appendix 6.6**.

6.7 Hazardous Air Pollutant (HAP) Sources

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

6.7.1 Potential HAP Emissions from Landfill Gas

On March 26, 2020, the EPA published a Final Rule for a maximum achievable control technology (MACT) standard for municipal solid waste landfills that applies to both major HAP sources and area sources (Federal Register, Vol. 85, No. 59). Section 112(a) of the CAA defines a major source as "any stationary source or group of stationary sources that emits or has the potential to emit, considering controls, in the aggregate, 10 tons per year or more of any individual hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants." Section 112(a) of the CAA also defines an area source as "any stationary source of hazardous air pollutants that is not a major source."

The MACT standard for landfills is published in 40 CFR 63 Subpart AAAA, [National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills] March 26, 2020. NESHAP applies to area source landfills if they:

- Have accepted waste since November 8, 1987 (or have additional capacity for waste deposition), and.
- Are a major source of HAP, or
- Are collocated with a major source of HAP, or
- Have a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and have estimated uncontrolled emissions of 50 Mg/yr NMOC or more.
- Include a bioreactor.

Although SCLF meets the design capacity criteria, calculated NMOC emission rates are well below the 50 Mg/yr threshold identified in the NESHAP, the facility does not operate a bioreactor, is not a major source, and is not collocated with a major source. The EG/NSPS require landfills that meet the design capacity criteria to periodically calculate uncontrolled NMOC emissions. If an area source landfill that currently has estimated uncontrolled emissions less than 50 Mg/yr increases to 50 Mg/yr in the future, it will become subject to the NESHAP at that time."

Potential NMOC emissions calculated by EPA LandGEM Model (Version 3.03) are estimated to be less than 28.5 Mg/yr through the year 2028, end of proposed Title V permit applicability (see **Appendix 6.5**).

The LandGEM Model also estimates emissions of 27 hazardous air pollutants (HAPs), which are a subset of NMOCs, and are potentially present in landfill gas. The user defined data input into the Model generates a concentration output for each individual landfill HAP (**Appendix 6.7**). **Table 6.6** presents a summary of the projected uncontrolled emissions of the 27 HAPs (as calculated by LandGEM) in year 2028 for projected waste deposited through 2027. As shown in **Table 6.6**, total (cumulative) HAP emissions of 0.96 tons/year from landfill gas are considerably less than even the MACT standard of 10 tons/year for any individual HAP. Pursuant to the instructions provided for **Table 2-I**, HAP emissions from landfill gas were not provided because no individual HAP exceeded its associated "deminimus" threshold value listed in part 112(g) of the CAA.

Table 6.6 – 2028 Estimated Landfill Gas HAP Emissions
Emission Unit 3
Sandoval County Landfill

HAP	Uncontrolled Emissions (tons/yr)
1,1,1-Trichloroethane (methyl chloroform) - HAP	5.82E-03
1,1,2,2-Tetrachloroethane - HAP/VOC	1.68E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.16E-02
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	1.76E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	3.69E-03
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	1.85E-03
Acrylonitrile - HAP/VOC	3.04E-02
Benzene - No or Unknown Co-disposal - HAP/VOC	1.35E-02
Carbon disulfide - HAP/VOC	4.01E-03
Carbon tetrachloride - HAP/VOC	5.59E-05
Carbonyl sulfide - HAP/VOC	2.67E-03
Chlorobenzene - HAP/VOC	2.56E-03
Chloroethane (ethyl chloride) - HAP/VOC	7.62E-03
Chloroform - HAP/VOC	3.25E-04
Dichlorobenzene - (HAP for para isomer/VOC)	2.81E-03
Dichloromethane (methylene chloride) - HAP	1.08E-01
Ethylbenzene - HAP/VOC	4.44E-02
Ethylene dibromide - HAP/VOC	1.71E-05
Hexane - HAP/VOC	5.17E-02
Mercury (total) - HAP	5.29E-06
Methyl ethyl ketone - HAP/VOC	4.65E-02
Methyl isobutyl ketone - HAP/VOC	1.73E-02
Perchloroethylene (tetrachloroethylene) - HAP	5.58E-02
Toluene - No or Unknown Co-disposal - HAP/VOC	3.27E-01
Trichloroethylene (trichloroethene) - HAP/VOC	3.34E-02
Vinyl chloride - HAP/VOC	4.15E-02
Xylenes - HAP/VOC	1.16E-01
Total HAP Emissions	**0.96**

Notes:
Adapted from LandGEM output provided in **Appendix 6.7**
HAP emissions are likely overestimates for New Mexico (arid) landfills

6.7.2 Potential HAP Emissions from General Landfill Operations

Equipment in Unit 2 (General Landfill Operations) is used as part of routine Landfill operations to facilitate waste reduction and green waste recovery. A Morbark 3600® portable woodchipper is used to grind woody feedstocks to a compostable size. A portable, 9-foot-diameter Fecon® screen is used on an as-needed basis to separate the larger portions of finished (digested) compost from marketable material. The woodchipper and compost screen are designed to be towed about the site as-needed; and are powered by 455-and 48-hp diesel engines, respectively.

Long and short-term HAP emissions from the exhaust produced by the diesel engines that power the woodchipper and compost screen are calculated using a "pounds per million Btu" (lb/MMBtu) factor. The lower heating value of No. 2 diesel (129,500 Btu/gallon) entered into **Table 2-J** is multiplied by the fuel usage per hour of the woodchipper and compost screen, and then multiplied by the number of hours each is operated per year. The factors used for this calculation are obtained from AP-42, Table 3.3-2.

According to AP-42, the short-term (lb/hr) HAP emissions factor is derived from only two test engines, and should be used for order of magnitude comparison only. **Table 6.7** provides estimated HAP emissions from each diesel-fueled engine at SCLF. Pursuant to the instructions provided in **Table 2-I**, HAP emissions from these engines were not provided because they did not exceed their respective deminimus threshold values listed in part 112(g) of the CAA for individual HAPs.

Table 6.7 – Estimated Diesel-Powered Equipment Emissions
Emission Units 2 and 5
Sandoval County Landfill

		Unit 2				Unit 5	
Source		**Compost Screen**		**Wood Chipper**		**Crusher/Shredder**	
Operating Hours/Year (max)		48		1,440		1,520	
Gallons/hour		1		11		10	
MMBtu/Gallon[1,2]		0.1295		0.1295		0.1295	
Pollutant	**Emiss. Factor (lb/MMBtu)**[3]	**lb/hr**	**tpy**[4]	**lb/hr**	**tpy**[4]	**lb/hr**	**tpy**[4]
NOx	4.41	0.571	0.014	6.28	4.52	5.71	4.34
CO	0.950	0.123	0.003	1.35	0.97	1.23	0.935
SO_x	0.290	0.038	0.001	0.413	0.30	0.376	0.285
PM_{10}	0.310	0.040	0.001	0.442	0.32	0.401	0.305
CO_2	164	21.238	0.510	233.62	168.20	212.38	161.41
HAP[7,8]	**Emiss. Rate (lb/MMBtu)**[5]	**lb/hr**	**tpy**[4]	**lb/hr**	**tpy**[4]	**lb/hr**	**tpy**[4]
Benzene (HAP/VOC)	9.33E-04	1.21E-04	2.90E-06	1.33E-03	9.57E-04	1.21E-03	9.18E-04
Toluene (HAP/VOC)	4.09E-04	5.30E-05	1.27E-06	5.83E-04	4.19E-04	5.30E-04	4.03E-04
Xylenes (HAP/VOC)	2.85E-04	3.69E-05	8.86E-07	4.06E-04	2.92E-04	3.69E-04	2.80E-04
Total BTEX		**2.11E-04**	**5.06E-06**	**2.32E-03**	**1.67E-03**	**2.11E-03**	**1.60E-03**
1,3-Butadiene (HAP)	3.91E-05	5.06E-06	1.22E-07	5.57E-05	4.01E-05	5.06E-05	3.85E-05
Formaldehyde (HAP)	1.18E-03	1.53E-04	3.67E-06	1.68E-03	1.21E-03	1.53E-03	1.16E-03
Acetaldehyde (HAP)	7.67E-04	9.93E-05	2.38E-06	1.09E-03	7.87E-04	9.93E-04	7.55E-04
Acrolein (HAP)	9.25E-05	1.20E-05	2.87E-07	1.32E-04	9.49E-05	1.20E-04	9.10E-05
Naphthalene (HAP)	8.48E-05	1.10E-05	2.64E-07	1.21E-04	8.70E-05	1.10E-04	8.35E-05
Total HAPs		**4.91E-04**	**1.18E-05**	**5.40E-03**	**3.89E-03**	**4.91E-03**	**3.73E-03**

NOTES:
As directed by AP-42, Section 3.3, assessment of diesel combustion emissions is best performed based on fuel used (lb/MMBtu/hr)
1. Lower heating value for low-sulfur diesel is 129,500 Btu/gallon = 0.1295 MMBtu/gallon
2. MMBtu = Million Metric British Thermal Units = 1,000,000 Btu
3. lb/MMBtu/hr emissions factors published in AP-42, Section 3.3, Table 3.3.1
4. Tons/year emissions determined by multiplying hourly emissions by hours of operation/year and dividing by 2000
5. lb/MMBtu/hr emissions factors published in AP-42, Section 3.3, Table 3.3.2
6. PM_{10} = particulate matter less than or equal to 10µm aerodynamic diameter. All particulate matter is assumed to be ≤ 1µm.
7. Factors based on uncontrolled levels of 2 diesel engines
8. Hazardous Air Pollutant listed in section 112(g) of the Act

Compost feedstocks (chipped green waste, woody C&D debris, horse manure, dewatered sludge) are mixed using a truck-mounted EnviroPro EP-26® compost mixer prior to placement in composting digesters. The mixer itself does not have a combustion source; it is driven by a power-take-off (PTO) drive attached to a Mack AMI 300-hp diesel yard jockey, which is used on an as-needed basis to mix feedstocks for composting, and to position equipment/materials within the Composting Operations Area (**Figure 5.1, Section 5**). The exhaust emissions from this vehicle are considered trivial combustion emissions from a mobile source and are not required to be provided in this Application (Trivial Activities List, Item #4).

6.7.3 Potential HAP Emissions from Crusher/Shredder and Portable Rock Crusher (Rental) Operations – Emission Units 5 and 6

The Crusher/Shredder (Emission Unit 5) is designed to be towed about the site as needed and is powered by a 430 hp diesel engine. Using AP-42 emissions factors for NOx, SOx, CO, CO2, PM_{10} and HAP, emissions from this diesel-powered engine were calculated and included in **Table 6.7**.

Long and short-term HAP emissions from the exhaust produced by the diesel engine that powers the Crusher/Shredder are calculated using a "pounds per million Btu" (lb/MMBtu) factor. The lower heating value of No. 2 diesel (129,500 btu/gallon) in **Table 2-J** is multiplied by the fuel usage per hour of the Crusher/Shredder, and then multiplied by the number of hours the Crusher/Shredder is operated per year. The factors used for this calculation are provided in AP-42, Table 3.3-2. According to AP-42, the short-term (lbs/hr) HAP emissions factor is derived from only two test engines, and should be used for order of magnitude comparison only. Pursuant to the instruction provided for **Table 2.I**, HAP/VOC emissions from Crusher/Shredder activity were not provided because they do not exceed their respective deminimus threshold values listed in part 112(g) of the CAA.

The facility has obtained a modification to New Source Review (NSR) permit Number 4111-M1 (as NSR Permit 4111-M2) to operate a Portable Rock Crusher (Rental) on a periodic annual basis. The unit is permitted for use on-site for a period not to exceed: 9 hours per day, 6 days per week, and 8 weeks in a year.

The Portable Rock Crusher (Rental) (Emission Unit 6) is also designed to be towed about the site as needed. HAP emissions from the exhaust produced by the Rental Rock Crusher diesel engine are calculated using EPA's Tier 4 Exhaust Emission Standards for a 415hp/310kW diesel-powered engine. Emission factors (g/kW-hr) for VOCs/HAPs, NOx, and CO, based off No. 2 diesel, are multiplied by engine power rating for the Portable Rock Crusher (Rental) and multiplied by annual operating hours. A conservative HAP emission was calculated assuming all non-methane hydrocarbon emissions are considered HAPs for the purpose of this section. Using EPA's Tier 4 Emission Standards for NOx, CO, VOCs/HAPs and PM_{10}, emissions from the Portable Rock Crusher (Rental) engine were calculated and are provided as **Table 6.8**.

Table 6.8 – Estimated Diesel-Powered Portable Rock Crusher (Rental) Emissions
Emission Unit 6
Sandoval County Landfill

Portable Rock Crusher (Rental) (Metso LT1213S)						
Parameter	**Emission Factor (g/kW-hr)**	**Rated Power Class[1]**	**Engine Power Rating (kW)**	**hr/yr[2]**	**Emissions (lb/hr)**	**Emissions (tons/yr)**
Hydrocarbons (VOCs)	0.19	130 ≤ kW < 560	310	432	0.13	0.028
NOx	0.4				0.27	0.059
CO	3.5				2.39	0.52
PM (TSP, PM_{10}, and $PM_{2.5}$)	0.02				0.014	0.003
CO_2 [1]	699.5				478.07	103.26
Individual HAPs	**Emission Factor (lb/MMBtu/hr)**	**Gallons/hour[4]**	**MMBtu/gal**	**hr/yr[2]**	**Emissions (lb/hr)**	**Emissions (tons/yr)**
Benzene (HAP/VOC)	9.33E-04	6.34	0.1295	432	7.66E-04	1.65E-04
Toluene (HAP/VOC)	4.09E-04				3.36E-04	7.25E-05
Xylenes (HAP/VOC)	2.85E-04				2.34E-04	5.05E-05
1,3-Butadene (HAP)	3.91E-05				3.21E-05	6.93E-06
Formaldehyde (HAP)	1.18E-03				9.69E-04	2.09E-04
Acetaldehyde (HAP)	7.67E-04				6.30E-04	1.36E-04
Acrolein (HAP)	9.25E-05				7.59E-05	1.64E-05
Naphthalene (HAP)	8.48E-05				6.96E-05	1.50E-05
Total HAPs					**3.11E-03**	**6.72E-04**

NOTES:
g = grams
kW = kilowatt
[1] As defined in 40 CFR 1039.101 Table 2
[2] The Portable rRock cCrusher (Rental) is intended to be operated no greater than 9 hours per day, 6 days a week (equal to operating hours) for a period not to exceed 8 weeks (2 months) and cannot operate concurrently with Unit 5 Crusher/Shredder.
[3] Emission factor from AP-42 Section 3.3. CO^2 not listed in Tier 4 Exhaust Emission Standards.
[4] As specified in Metso Lokotrack product specifications.

6.7.4 Potential HAP Emissions from Petroleum Contaminated Soils

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

For Total HAPs

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

where:

M_{HAPs} = mass of HAPs emitted from each PCS shipment

C_{TOT} = sum of highest individual BTEX concentrations in remediation project

M_{PCS} = mass of PCS in each shipment

V_{LF} = % of HAPs volatilized during landfarm treatment = 100% = 1

1×10^6 = conversion factor

For Individual HAPs

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

where:

M_{HAPs} = mass of HAPs emitted from each PCS shipment

C_s = the highest individual BTEX concentrations for the remediation project from the laboratory samples provided

M_{PCS} = mass of PCS in each shipment

V_{LF} = % of HAPs volatilized during landfarm treatment = 100% = 1

1×10^6 = conversion factor

SCLF will electronically track the highest individual BTEX parameter concentrations from each remediation project and mass of each inbound PCS shipment using the above methodology. This AQB-approved approach provides a very conservative indicator of HAP emissions; and SCLF will track the accumulated daily volume of PCS accepted, by approved profile number, by using a spreadsheet similar to the one provided as **Appendix 6.8**. These potential emissions are not included in **Table 2-I**, as they do not have the potential to exceed their individual threshold values identified in Section 112(g) of the Act. SCLF will track total HAP emissions from PCS such that, on an annual basis, emissions do not exceed 10 tons/year for any individual HAP; or 25 tons/year of aggregate HAPs on a site-wide basis. This includes HAP emissions from landfill gas (Unit 3), diesel exhaust emissions (Units 2, 5, and 6), and evaporative fuel tank losses (Unit 2), which are considered constant, and account for 1.57 tons/year of HAP emissions (Appendix 6.8). A cumulative HAP emission rate of 22.92 tons/year has been conservatively estimated for emissions from remediation of PCS, bringing the maximum estimated site-wide HAP emission rate to 24.5 tons/year.

Total potential cumulative HAP emissions from SCLF are:

- General Landfill Operations (Unit 2): **0.586** tons/year
- Landfill Gas (Unit 3): **0.960** tons/year
- Remediation of PCS (Unit 4): up to **22.92** tons/year
- Crusher/Shredder Operations (Unit 5): **0.004** tons/year
- Portable Rock Crusher (Rental) (Unit 6) **0.028** tons/year
- **Total potential HAP emissions estimate**: **24.5** tons/year

Based on the data provided in **Table 6.6 - Table 6.8**, and the above discussion, SCLF is not a major source for HAPs (either individually or in the aggregate), as defined in Section 112(r) of the Clean Air Act.

6.8 Potential Volatile Organic Compound (VOC) Emissions

Potential VOC emissions at SCLF occur from fuel storage and dispensing, landfill gas generation, remediation of petroleum contaminated soils (PCS), and diesel engine exhaust.

6.8.1 Potential VOC Emissions from Fuel Storage and Dispensing

Gasoline and diesel storage and vehicle fueling activities are conducted at SCLF for on-site and County-owned vehicles. Emissions from diesel storage and dispensing are negligible, as the vapor pressures associated with No. 2 diesel fuel are very low (< 0.2 psi), and are exempt from calculations requirements under item #5 of AQB's List of Insignificant Activities. Evaporative losses from the storage and dispensing of unleaded gasoline for use in County-owned fleet vehicles have been estimated using EPA's most recent version of software (Ver. 4.0.9d). To maintain the conservative nature of this Application, the total evaporative losses produced by these calculations are included in the total VOC emission rate estimates for Unit 2 (General Landfill Operations), as the evaporative losses are not speciated by TANKS. Potential VOC emissions from fueling at SCLF are estimated to be 0.582 tons/year using a conservative fuel throughput of 200,000 gallons/year. This throughput volume subjects the SCLF fueling operation to the requirements of 40 CFR 63 subpart CCCCCC (§63.11111(c)). EPA and NMED AQB have been provided notice of the compliance status of the fueling operation in compliance with §63.11124(a). A copy of this notice is provided as **Appendix 6.9**, and the output generated by TANKS is included as **Appendix 6.10**.

6.8.2 Potential VOC Emissions from Landfill Gas

The LandGEM model used to calculate potential HAP and NMOC emissions at SCLF from landfill gas also estimates total potential VOC emissions from the facility. Total potential VOC emissions in 2028, produced by projected waste deposited in the landfill through 2027, are estimated to be 1.44 tons/year. The individual VOCs potentially emitted are summarized in **Table 6.9**.

Table 6.9 – Estimated Landfill Gas VOC Emissions for 2028
Emission Unit 3
Sandoval County Landfill

VOC	Uncontrolled Emissions (tons/yr)
1,1,2,2-Tetrachloroethane – HAP/VOC	1.68E-02
1,1-Dichloroethane (ethylidene dichloride) – HAP/VOC	2.16E-02
1,1-Dichloroethene (vinylidene chloride) – HAP/VOC	1.76E-03
1,2-Dichloroethane (ethylene dichloride) – HAP/VOC	3.69E-03
1,2-Dichloropropane (propylene dichloride) – HAP/VOC	1.85E-03
2-Propanol (isopropyl alcohol) - VOC	2.73E-01
Acrylonitrile – HAP/VOC	3.04E-02
Benzene – No or Unknown Co-disposal – HAP/VOC	1.35E-02
Bromodichloromethane - VOC	4.62E-02
Butane - VOC	2.64E-02
Carbon disulfide – HAP/VOC	4.01E-03
Carbon tetrachloride – HAP/VOC	5.59E-05
Carbonyl sulfide – HAP/VOC	2.67E-03
Chlorobenzene – HAP/VOC	2.56E-03
Chloroethane (ethyl chloride) – HAP/VOC	7.62E-03
Chloroform – HAP/VOC	3.25E-04
Chloromethane - VOC	5.51E-03
Dichlorobenzene – (HAP for para isomer/VOC)	2.81E-03
Dichlorofluoromethane - VOC	2.43E-02
Dimethyl sulfide (methyl sulfide) - VOC	4.40E-02
Ethanol - VOC	1.13E-01
Ethyl mercaptan (ethanethiol) - VOC	1.30E-02
Ethylbenzene – HAP/VOC	4.44E-02
Ethylene dibromide – HAP/VOC	1.71E-05
Fluorotrichloromethane - VOC	9.49E-03
Hexane – HAP/VOC	5.17E-02
Methyl ethyl ketone – HAP/VOC	4.65E-02
Methyl isobutyl ketone – HAP/VOC	1.73E-02
Methyl mercaptan - VOC	1.09E-02
Pentane - VOC	2.16E-02
Propane - VOC	4.41E-02
t-1,2-Dichloroethene - VOC	2.47E-02
Toluene – No or Unknown Co-disposal – HAP/VOC	3.27E-01
Trichloroethylene (trichloroethene) – HAP/VOC	3.34E-02
Vinyl chloride – HAP/VOC	4.15E-02
Xylenes – HAP/VOC	1.16E-01
Total Potential VOC Emissions	**1.44**

NOTES:
Adapted from LandGEM output provided in **Appendix 6.7**
VOC emissions are likely overestimates for New Mexico (arid) landfills

6.8.3 Potential VOC Emissions from Diesel Engine Operations

Potential VOC emissions from the Crusher/Shredder (Unit 5), Portable Rock Crusher (Rental) (Unit 6), woodchipper, and compost screen activity (Unit 2) are produced by the diesel engines that power these pieces of equipment. These emissions have been identified as HAPs, but are not included in **Table 2-I**, as they do not exceed their individual threshold values listed in Section 112(g) of the Clean Air Act. General landfill operations (Unit 2) include the woodchipper and compost screen included in **Table 6.7**, and the fuel tank discussed in section **6.7.1**. The on-site Crusher/Shredder (Unit 5) VOC emissions are included in **Table 6.7**, and the Portable Rock Crusher (Rental) (Unit 6) VOC emissions are included in **Table 6.8**.

6.8.4 Potential VOC Emissions from PCS Remediation

Potential VOC emissions from the remediation of petroleum contaminated soils are emitted during the volatilization of hydrocarbons from the contaminated soils. Total VOC emissions from PCS remediation will not exceed 22.92 tons/year and SCLF will track the accumulated daily volume of PCS accepted, by approved profile number, by using a spreadsheet like the one provided as **Appendix 6.8**. VOC emissions from the remediation of PCS at SCLF consist of Benzene, Toluene, Ethylbenzene and Xylene.

The potential VOC emissions from SCLF are:

- General Landfill Operations (Unit 2): **0.586** tons/year
- Landfill Gas (Unit 3): **1.44** tons/year
- Remediation of PCS (Unit 4): up to **22.92** tons/year
- Crusher/Shredder Operations (Unit 5): **0.002** tons/year
- Portable Rock Crusher (Rental) (Unit 6) **0.028** tons/year
- **Total potential VOC emissions estimate**: **24.98** tons/year

These VOC emission estimates are also included in **Section 2, Tables 2-D and 2-E**.

6.9 Additional Emissions During Startup, Shutdown, and Routine Maintenance

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

6.9.1 Particulates

Landfill operations associated with the emission of particulate matter (e.g., TSP, PM_{10}, and $PM_{2.5}$) consist of vehicle travel on paved and unpaved landfill roads, and general landfill operations (e.g., heavy equipment operations, wind erosion). The measures taken to mitigate excessive fugitive particulate emissions during startups, shutdowns, and emergencies consist of a backup water truck that is available on-site. A CAT® 730C2 articulated water truck (6,000-gallon capacity) serves as the site's primary dust suppression mode and is used daily when the landfill is operational. A GMC® water truck (2,000-gallon capacity) serves as a backup in the event the primary water truck is not operational.

6.9.2 NMOCs

Municipal solid waste (MSW) decomposition produces landfill gas (LFG), which typically contains a small amount (i.e. <0.04%) of non-methane organic compounds (NMOCs). Currently, there is no provision to mitigate NMOC emissions during startup, shutdown, or emergencies. NMOC generation from MSW decomposition is a continual process that is not subject to "malfunction", and is not started up or shut down at will.

6.9.3 VOC/HAP Emissions

Emissions of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) could potentially occur from the landfarming of petroleum contaminated soils (PCS), the decomposition of municipal solid waste (MSW), fuel storage activities, and from the operation of diesel-powered equipment. The Sandoval County Landfill is permitted to accept PCS impacted with diesel and gasoline residues for treatment via landfarming. At this time, there is no provision to mitigate VOC/HAP emissions from PCS remediation during startup, shutdown, or emergencies, as remediation is a continual process that cannot be started up or shut down at will.

Municipal solid waste (MSW) decomposition produces landfill gas (LFG), which typically contains a small amount VOCs/HAPs. At this time, there is no provision to mitigate VOC/HAP emissions during startup, shutdown, or emergencies, as MSW decomposition is a continual process that does not malfunction, and is not started up or shut down at will.

The operation of diesel-powered equipment at SCLF is performed on an as-needed basis, and equipment is shut down when not in use or undergoing maintenance. The internal emissions control equipment installed on the powerplants of this equipment is designed to function while the equipment is running, and is not necessary when it is not being used. Potential excess HAP emissions from diesel powered portable equipment are possible if a malfunction were to occur in the individual engine. In the event of malfunction, a backup piece of equipment would be used, or specific operations suspended while the malfunctioning unit was being repaired.

6.9.4 Fuel Storage and Dispensing Activities

Gasoline and diesel storage and vehicle fueling activities are conducted at SCLF for on-site and County owned vehicles. Emissions from diesel storage and dispensing are negligible, as the vapor pressures associated with No. 2 diesel fuel are very low (< 0.2 psi), and are exempt from calculations requirements by Insignificant Activities List Item #5 (**Attachment 7.3**). Evaporative losses from the storage and dispensing of unleaded gasoline for use in County owned fleet vehicles have been estimated using EPA's most recent version of TANKS software (Ver. 4.0.9d). Excess emissions during filling of the fuel tanks are accounted for by TANKS, and in the event of an on-site emergency, the fueling operation will be temporarily shut down. The output generated by TANKS for calendar year 2021 using actual fuel throughput is included as **Appendix 6.10**.

6.10 References

Caterpillar® Performance Handbook, Edition 49, Caterpillar®, Inc., Peoria, Illinois, 2019.

Metso Corporation Lokotrack Product Specifications, Metso Corporation, Tampere, Finland, 2019.

LandGEM (Landfill Gas Emissions Model), Version 3.03, Control Technology Center, US Environmental Protection Agency, Research Triangle Park, NC, 27711, and Office of Research and Development, Washington, DC 20460, May 2005.

AP-42: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, Office of Air Quality Planning and Standards/Office of Air and Radiation, US Environmental Protection Agency, Research Triangle Park, NC 27711, December 2003; September, October, and November 1998; January 1995; and September 1991, November 2006.

Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, EPA – 450/2 – 92 – 004, Office of Air Quality Planning and Standards, US Environmental Protection Agency, Research Triangle Park, NC, September 1992.

Heating Values of Hydrogen and Fuels, Essom Co. Ltd, (http://www.essom.com/backend/data-file/engineer/engin21_1.pdf)

Emissions Testing of Volatile Organic Compounds from the Greenwaste Composting at the Modesto Compost Facility in the San Joaquin Valley, California Integrated Waste Management Board, October 31, 2007 (Updated May, 2008), Publication #442-07-009

APPENDIX 6.1

UNCONTROLLED EMISSIONS

EMISSION UNIT 1

Refuse Delivery Vehicles

Green Waste Drop-Off Vehicles

Convenience Center Vehicles

Miscellaneous Vehicles

LANDFILL OPERATING HOURS

Purpose:

Total Operating Days Per Week:

Total operating days per week (Monday through Saturday) =	**6**	days/week

Operating Days Per Year (2021):

The number of operational weekdays =	**262**	days/yr
Number of operational Saturdays =	**52**	days/yr
Total number of holidays per year =	**10**	days/yr (based on Landfill Data)
Total operating days per year (actual) = (total number of weekdays per year) + (total number of Saturdays per year)		
Total operating days per year (actual) = 250 + 52=	**304**	days/yr

Actual Operating Hours Per Year (2021):

Operating hours per day (Monday through Saturday: 7:00 a.m. to 4:00 p.m.) =	**9**	hrs/day
Maximum operating hours per year = (total operating days per year) x (Operating hours per day) =	**2,736**	hrs/yr

REFUSE DELIVERY VEHICLE OPERATIONS (DISPOSAL ROUTE - PAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Refuse Delivery Vehicle travel on the paved portion of the Disposal Route. This item covers traffic from the Landfill Entrance to the beginning of the watered dirt MSW Haul route **en-route to the working face**.

Methodology: According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006), the emission estimate equations are not intended to be used to calculate a separate emission factor for each type of vehicle. Therefore, an "average" Refuse Delivery Vehicle has been calculated based on the different types of Refuse Delivery Vehicles that travel on the Disposal Route and the frequency of travel.

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Disposal Route Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Cumulative Traffic Count[1] (round trips per year)	Average Round Trips Per Day[2]
Light Auto	304	0	0.00
Large Pickup		4,450	14.6
Auto w/ Trailer		0	0.00
Van w/ Trailer		0	0.00
Pickup w/ Trailer		11,968	39.37
Dump Truck Single Axle		3,209	10.56
Dump Truck Dual Axle		1,228	4.04
Roll Off		14,119	46.44
Side Loader		90	0.30
Rear Loader		2,645	8.70
Front Loader		1,010	3.32
Compactor		777	2.56
20' Semi-truck		2	0.007
25' Semi-truck		1,381	4.54
28' Semi-truck		4	0.013
40' Semi-truck		259	0.85
42' Semi-truck		2,581	8.49
45' Semi-truck		45	0.15
Water Truck		2,928	9.63
TOTAL	--	46,696	153.61

Notes:

[1] Based on SCLF 2021 traffic monitoring records

[2] Average Round Trips Per Day = (cumulative traffic count)/(operating days per year)

Cumulative Traffic Count (round trips per year) = **46,696** round trips/year

Average number of Disposal Route round trips per day = **154** round trips/day

Weighted Average Vehicle Weight (W):

(based on the proportion of average round trips per day)

Vehicle Type	Vehicle Weight[1] (tons)	Proportion of Average Round Trips Per Day[2]	Applied Vehicle Weight[3] (tons)
Large Pickup	1.9	9.5%	0.18
Pickup w/ Trailer	2.7	25.6%	0.69
Dump Truck Single Axle	9.6	6.9%	0.66
Dump Truck Dual Axle	19.4	2.6%	0.51
Roll Off	19.4	30.2%	5.85
Side Loader	21.6	0.2%	0.042
Rear Loader	22.2	5.7%	1.25
Front Loader	21.6	2.2%	0.47
Compactor	21.6	1.7%	0.36
20' Semi-truck	25.5	0.004%	0.0011
25 ' Semi-truck	26.7	3.0%	0.79
28' Semi-truck	27.1	0.0%	0.0023
40' Semi-truck	33.8	0.55%	0.19
42' Semi-truck	34.3	5.53%	1.90
48' Semi-truck	36.8	0.10%	0.035
Water Truck [4]	38.6	6.3%	2.42
TOTAL	--	100.0%	15.34

Notes:

[1] Based on Landfill data

[2] Proportion of Average Round Trips Per Day = [(cumulative traffic count)/(total)] X [100%]

[3] Applied Vehicle Weight = (vehicle weight)(proportion of average number of round trips per day)

[4] Water Truck vehicle weight = (vehicle empty weight) + [(0.5)(density water)(capacity)/ (2,000 lbs/ton)]

Vehicle empty weight (CAT®730C2) = **26.15** tons (Caterpillar® Handbook, June 2019)

Density water = **8.30** lbs/gal

Water Truck capacity = **6000** gals

Water Truck Vehicle Weight = **38.60** tons

Weighted average vehicle weight (W) = **15.34** tons

Total Vehicle Miles Traveled (VMT) Per Year:

One-way Disposal Route length (from Landfill Entrance to edge of pavement) = **902** feet

One-way Disposal Route length (from Landfill Entrance to edge of pavement) = **0.17** miles

Miles per round trip = (2)(one-way Disposal Route length) = **0.34** mi/round trip

Cumulative Traffic Count = **46,696** round trips/yr

Total VMT per year = (miles per round trip)(cumulative traffic count) = **15,954** VMT/yr

In order to account for anticipated increases in Refuse Delivery Vehicle traffic over a 6-year period, a conservative escalator of 5% per year was applied to the total VMT per year via the following method:

Estimated percent annual increase in total VMT= **5.00** %/yr

Estimated total VMT per year = $(1.05)^6$(total VMT per year) **21,381** VMT/yr

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

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

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

E_{ext} = $[(k)(s/12)^a(W/3)^b]\ [(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

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TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	15.34	W =	15.34	W =	15.34
p =	70.00	p =	70.00	p =	70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(15.4/3)^{0.45}]\ [(365-70)/365]$ = **5.32** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(15.4/3)^{0.45}]\ [(365-70)/365]$ = **1.44** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(15.4/3)^{0.45}]\ [(365-70)/365]$ = **0.14** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **113,656.53** lbs/yr

$E_{TSP(tons/yr)}$ = ($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) = **56.83 tons/yr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (E_{PM10})(estimated total VMT/yr) = **30,682.40** lbs/yr

$E_{PM10(tons/yr)}$ = ($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) = **15.34 tons/yr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(estimated total VMT/yr) = **3,068.24** lbs/yr

$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) = **1.53 tons/yr (uncontrolled)**

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

Short term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) was used to estimate short-term emissions:

Short-Term Emissions Equation:

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

Where:

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

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	15.34	W =	15.34	W =	15.34

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

E_{TSP} = $(4.9)(6.4/12)^{0.7}(11.6/3)^{0.45}$ = **6.58** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(11.6/3)^{0.45}$ = **1.78** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(11.6/3)^{0.45}$ = **0.18** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **140,625.87** lbs/yr

$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **51.40 lbs/hr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (E_{PM10})(estimated total VMT/yr) = **37,962.97** lbs/yr

$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **13.88 lbs/hr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(estimated total VMT/yr) = **3,796.30** lbs/yr

$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **1.39 lbs/hr (uncontrolled)**

REFUSE DELIVERY VEHICLE OPERATIONS (MSW DISPOSAL ROUTE - UNPAVED)

Purpose:

The purpose of this calculation is to estimate the potential fugitive dust emissions from Refuse Delivery Vehicle travel on the unpaved portion of the Disposal Route. The unpaved portion of the Disposal Route extends from the end of paved MSW Disposal Route to the active Disposal Area in Cell 4C, and is watered on a regular basis.

Methodology:

According to guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006), the emission estimate equations are not intended to be used to calculate a separate emission factor for each type of vehicle. Therefore, an "average" MSW Refuse Delivery Vehicle has been calculated based on the different types of MSW Refuse Delivery Vehicles that travel on the MSW Disposal Route and the frequency of travel.

The following data and information were used to estimate long-term and short-term emissions:

Average Number of MSW Disposal Route Round Trips Per Day:

Vehicle Type	Operating Days For This Route	Cumulative Traffic Count[1] (round trips along this route)	Average Round Trips Per Day[2]
Light Auto	304	0	0.00
Large Pickup		4,450	14.64
Auto w/ Trailer		0	0.00
Van w/ Trailer		0	0.00
Pickup w/ Trailer		11,968	39.37
Dump Truck Single Axle		3,209	10.56
Dump Truck Dual Axle		1,228	4.04
Roll Off		14,119	46.44
Side Loader		90	0.30
Rear Loader		2,645	8.70
Front Loader		1,010	3.32
Compactor		777	2.56
20' Semi-truck		2	0.007
25' Semi-truck		1,381	4.54
28' Semi-truck		4	0.013
40' Semi-truck		259	0.85
42' Semi-truck		2,581	8.49
45' Semi-truck		45	0.15
Water Truck		2,928	9.63
TOTAL	--	46,696	153.61

Notes:

[1] Based on SCLF 2021 traffic monitoring records

[2] Average Round Trips Per Day = (cumulative traffic count)/(operating days on this route)

Cumulative Traffic Count (round trips in 2021 along this route) = **46,696** round trips/year

Average number of MSW Disposal Route round trips per day = **154** round trips/day

Weighted Average Vehicle Weight (W):

(based on the proportion of average round trips per day)

Vehicle Type	Vehicle Weight[1] (tons)	Proportion of Average Round Trips Per Day[2]	Applied Vehicle Weight[3] (tons)
Large Pickup	1.9	9.5%	0.18
Pickup w/ Trailer	2.7	25.6%	0.69
DT Single Axel	9.6	6.9%	0.66
DT Dual Axel	19.4	2.6%	0.51
Roll Off	19.4	30.2%	5.85
Side Loader	21.6	0.2%	0.042
Rear Loader	22.2	5.7%	1.25
Front Loader	21.6	2.2%	0.47
Compactor	21.6	1.7%	0.36
20' Semi-truck	25.5	0.004%	0.0011
25 ' Semi-truck	26.7	3.0%	0.790
28' Semi-truck	27.1	0.009%	0.0023
40' Semi-truck	33.8	0.55%	0.19
42' Semi-truck	34.3	5.53%	1.90
48' Semi-truck	36.8	0.10%	0.035
Water Truck [4]	36.5	6.3%	2.29
TOTAL	--	100.0%	15.21

Notes:

[1] Based on Landfill data

[2] Proportion of Average Round Trips Per Day = [(cumulative traffic count)/(total)] X [100%]

[3] Applied Vehicle Weight = (vehicle weight)(proportion of average round trips per day)

[4] Water Truck vehicle weight = (vehicle empty weight) + [(0.5)(density water)(capacity)/ (2,000 lbs/ton)]

Vehicle empty weight (CAT®730C2) = **26.15** tons (Caterpillar® Handbook, June 2019)

Density water = **8.30** lbs/gal

Water Truck capacity = **5,000** gals

Water Truck Vehicle Weight = **36.53** tons

Weighted average vehicle weight (W) = **15.21** tons

Total Vehicle Miles Traveled (VMT) Per Year:

Total one-way MSW Disposal Route length (from paved disposal route to MSW Disposal Area) = **2,025** feet

Total one-way MSW Disposal Route length (from paved disposal route to MSW Disposal Area) = **0.38** miles

Miles per round trip = (2)(distance from edge of pavement to MSW Disposal Area) = **0.77** mi/round trip

Cumulative Traffic Count = **46,696** round trips/yr

Total VMT per year = (miles per round trip)(cumulative traffic count) = **35,818** VMT/yr

In order to account for anticipated increases in MSW Refuse Delivery Vehicle traffic over a 6-year period, a conservative escalator of 5% per year was applied to the total VMT per year via the following method:

Estimated percent annual increase in total VMT= **5.00** %/yr

Estimated total VMT per year = $(1.05)^6$(total VMT per year) **47,999** VMT/yr

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

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

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

E_{ext} = $[(k)(s/12)^a(W/3)^b]\ [(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	15.21	W =	15.21	W =	15.21
p =	70.00	p =	70.00	p =	70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(14.7/3)^{0.45}]\ [(365-70)/365]$ = **5.30** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(14.7/3)^{0.45}]\ [(365-70)/365]$ = **1.43** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(14.7/3)^{0.45}]\ [(365-70)/365]$ = **0.14** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(estimated total VMT/yr) =	**254,184.17** lbs/yr
$E_{TSP(tons/yr)}$ =	$(E_{TSP(lbs/yr)})$/(2,000 lbs/ton) =	**127.09 tons/yr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(EPM_{10})(estimated total VMT/yr) =	**68,618.85** lbs/yr
$E_{PM10(tons/yr)}$ =	$(E_{PM10(lbs/yr)})$/(2,000 lbs/ton) =	**34.31 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(EPM_{2.5})$(estimated total VMT/yr) =	**6,861.88** lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})$/(2,000 lbs/ton) =	**3.43 tons/yr (uncontrolled)**

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

Short term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) was used to estimate short-term emissions:

Short-Term Emissions Equation:

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

Where:

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

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	15.21	W =	15.21	W =	15.21

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

E_{TSP} = $(4.9)(6.4/12)^{0.7}(14.7/3)^{0.45}$ = **6.55** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(14.7/3)^{0.45}$ = **1.77** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(14.7/3)^{0.45}$ = **0.18** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(estimated total VMT/yr) =	**314,499.06** lbs/yr
$E_{TSP(lbs/hr)}$ =	$(E_{TSP(lbs/yr)})$/(operating hours/yr) =	**114.95 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(EPM_{10})(estimated total VMT/yr) =	**84,901.29** lbs/yr
$E_{PM10(lbs/hr)}$ =	$(E_{PM10(lbs/yr)})$/(operating hours/yr) =	**31.03 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(EPM_{2.5})$(estimated total VMT/yr) =	**8,490.13** lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})$/(operating hours/yr) =	**3.10 lbs/hr (uncontrolled)**

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - Paved)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Green Waste Delivery Vehicle travel on the Paved entryway and paved portion of the Green Waste Drop Off Route. The paved portion of the Green Waste Drop Off Route extends from the facility entrance to the edge of pavement, is paved, and is swept as necessary.

Methodology: The vehicles that utilize the Green Waste Drop Off Route range from light autos to large pickups with trailers. An "average" Green Waste Delivery Vehicle weight has been conservatively estimated as the weight of the heaviest vehicle traveling (e.g., large pickup with trailer) on the Green Waste Drop Off Route. Emissions calculations are based on guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Disposal Route Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Cumulative Traffic Count[1] (round trips per year)	Average Round Trips Per Day[2]
Large Pickup	304	0	0.00
Pickup w/ Trailer		12,720	41.84
TOTAL	--	12,720	41.84

Notes:

[1] Based on SCLF 2021 traffic monitoring records

[2] Average Round Trips Per Day = (cumulative traffic count)/(operating days per year)

Cumulative Traffic Count (round trips per year) = **12,720** round trips/year

Average number of Green Waste Drop Off Route round trips per day = **42** round trips/day

Weighted Average Vehicle Weight:

Vehicle Type	Vehicle Weight[1] (tons)	Proportion of Average Round Trips Per Day[2]	Applied Vehicle Weight[3] (tons)
Large Pickup	1.9	0.0%	0.00
Pickup w/ Trailer	2.7	100.0%	2.70
TOTAL	--	100.0%	2.70

Average vehicle weight (W) = **2.70** tons (based on Landfill data)

Total Vehicle Miles Traveled (VMT) Per Year (Green Waste Drop Off Route):

Total one-way Disposal Route length (from landfill entrance to the edge of unpaved access road) = **878** feet

Total one-way Disposal Route length (from landfill entrance to the edge of unpaved access road)) = **0.17** miles

Miles per round trip = (2)(distance from landfill entrance to the edge of unpaved access road)) = **0.33** mi/round trip

Cumulative Traffic Count = **12,720** round trips/yr

Total VMT per year = (miles per round trip)(cumulative traffic count) = **4,230** VMT/yr

In order to account for anticipated increases in Green Waste Drop Off Area Vehicle traffic over a 6-year period, a conservative escalator of 5% per year was applied to the total VMT per year via the following method:

Estimated percent annual increase in total VMT= **5.00** %/yr

Estimated total VMT per year = $(1.05)^6$(total VMT per year) **5,669** VMT/yr

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - Paved)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

$E_{ext} = [(k)(s/12)^a(W/3)^b] [(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	2.70	W =	2.70	W =	2.70
p =	70.00	p =	70.00	p =	70.00

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

$E_{TSP} = [(4.9)(6.4/12)^{0.7}(2.7/3)^{0.45}] [(365-70)/365]$ = **2.43** lbs/VMT

$E_{PM10} = [(1.5)(6.4/12)^{0.9}(2.7/3)^{0.45}] [(365-70)/365]$ = **0.66** lbs/VMT

$E_{PM2.5} = [(0.15)(6.4/12)^{0.9}(2.7/3)^{0.45}] [(365-70)/365]$ = **0.07** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **13,789.45** lbs/yr

$E_{TSP(tons/yr)}$ = ($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) = **6.89 tons/yr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (EPM_{10})(estimated total VMT/yr) = **3,722.56** lbs/yr

$E_{PM10(tons/yr)}$ = ($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) = **1.86 tons/yr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = ($EPM_{2.5}$)(estimated total VMT/yr) = **372.26** lbs/yr

$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) = **0.19 tons/yr (uncontrolled)**

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - Paved)
(Uncontrolled Short-Term Emissions)

Short term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) was used to estimate short-term emissions:

Short-Term Emissions Equation:

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

Where:

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	2.70	W =	2.70	W =	2.70

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(2.7/3)^{0.45}$ = **3.01** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(2.7/3)^{0.45}$ = **0.81** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(2.7/3)^{0.45}$ = **0.081** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **17,061.52** lbs/yr
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **6.24 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (EPM_{10})(estimated total VMT/yr) = **4,605.88** lbs/yr
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **1.68 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($EPM_{2.5}$)(estimated total VMT/yr) = **460.59** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **0.17 lbs/hr (uncontrolled)**

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - UNPAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Green Waste Delivery Vehicle travel on the unpaved portion of the Green Waste Drop Off Route. The unpaved portion of the Green Waste Drop Off Route extends from the edge of basecourse to the Green Waste Drop Off Area and is watered on a regular basis.

Methodology: The vehicles that utilize the Green Waste Drop Off Route range from light autos to large pickups with trailers. An "average" Green Waste Delivery Vehicle weight has been conservatively estimated as the weight of the heaviest vehicle traveling (e.g., large pickup with trailer) on the Green Waste Drop Off Route. Emissions calculations are based on guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November 2006).

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Disposal Route Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Cumulative Traffic Count[1] (round trips per year)	Average Round Trips Per Day[2]
Large Pickup	304	0	0.00
Pickup w/ Trailer		12,720	41.84
TOTAL	--	12,720	41.84

Notes:

[1] Based on SCLF 2021 traffic monitoring records

[2] Average Round Trips Per Day = (cumulative traffic count)/(operating days per year)

Cumulative Traffic Count (round trips per year) = **12,720** round trips/year

Average number of Green Waste Drop Off Route round trips per day = **41.84** round trips/day

Weighted Average Vehicle Weight:

Vehicle Type	Vehicle Weight[1] (tons)	Proportion of Average Round Trips Per Day[2]	Applied Vehicle Weight[3] (tons)
Large Pickup	1.9	0.0%	0.00
Pickup w/ Trailer	2.7	100.0%	2.70
TOTAL	--	100.0%	2.70

Average vehicle weight (W) = **2.70** tons (based on Landfill data)

Total Vehicle Miles Traveled (VMT) Per Year (Green Waste Drop Off Route):

Total one-way Disposal Route length (from edge of pavement to Green Waste Drop Off Area) = **2,664** feet

Total one-way Disposal Route length (from edge of pavement to Green Waste Drop Off Area) = **0.50** miles

Miles per round trip = (2)(distance from edge of pavement to Green Waste Drop Off Area) = **1.01** mi/round trip

Cumulative Traffic Count = **12,720** round trips/yr

Total VMT per year = (miles per round trip)(cumulative traffic count) = **12,836** VMT/yr

In order to account for anticipated increases in Green Waste Drop Off Area Vehicle traffic over a 6-year period, a conservative escalator of 5% per year was applied to the total VMT per year via the following method:

Estimated percent annual increase in total VMT= **5.00** %/yr

Estimated total VMT per year = $(1.05)^6$(total VMT per year) **17,201** VMT/yr

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - UNPAVED)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

E_{ext} = $[(k)(s/12)^a(W/3)^b]$ $[(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

k = particle size multiplier (dimensionless)

s = surface material silt content (%) AP-42, Table 13.2.2-1

a = empirical constant (dimensionless)

b = empirical constant (dimensionless)

W = mean vehicle weight (tons)

p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	2.70	W =	2.70	W =	2.70
p =	70.00	p =	70.00	p =	70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(2.7/3)^{0.45}]$ $[(365-70)/365]$ = **2.43** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(2.7/3)^{0.45}]$ $[(365-70)/365]$ = **0.66** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(2.7/3)^{0.45}]$ $[(365-70)/365]$ = **0.066** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **41,839.52** lbs/yr

$E_{TSP(tons/yr)}$ = $(E_{TSP(lbs/yr)})$/(2,000 lbs/ton) = **20.92 tons/yr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (EPM_{10})(estimated total VMT/yr) = **11,294.88** lbs/yr

$E_{PM10(tons/yr)}$ = $(E_{PM10(lbs/yr)})$/(2,000 lbs/ton) = **5.65 tons/yr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = $(EPM_{2.5})$(estimated total VMT/yr) = **1,129.49** lbs/yr

$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})$/(2,000 lbs/ton) = **0.56 tons/yr (uncontrolled)**

GREEN WASTE DELIVERY VEHICLE OPERATIONS (GREEN WASTE DROP OFF ROUTE - UNPAVED)
(Uncontrolled Short-Term Emissions)

Short term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) was used to estimate short-term emissions:

Short-Term Emissions Equation:

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

Where:

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	2.70	W =	2.70	W =	2.70

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(2.7/3)^{0.45} =$ **3.01** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(2.7/3)^{0.45} =$ **0.81** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(2.7/3)^{0.45} =$ **0.081** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **51,767.54** lbs/yr
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **18.92 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (EPM_{10})(estimated total VMT/yr) = **13,975.02** lbs/yr
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **5.11 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($EPM_{2.5}$)(estimated total VMT/yr) = **1,397.50** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **0.51 lbs/hr (uncontrolled)**

CONVENIENCE CENTER VEHICLE OPERATIONS (PAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Convenience Center Vehicle travel on the paved road leading from the Landfill Entrance to the Convenience Center, and out the Landfill Exit.

Methodology: As with Refuse Delivery Vehicles, a "weighted average" Convenience Center Vehicle weight has been calculated based on the different types of Convenience Center Vehicles that travel on paved surfaces within the Landfill Operations Area and the frequency of travel.

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Cumulative Traffic Count[(1)] (round trips per year)	Average Round Trips Per Day[(2)]
Light Auto	304	3,949	12.99
Large Pickup		38,673	127.21
Auto w/ Trailer		289	0.95
Van w/ Trailer		0	0.00
Pickup w/ Trailer		0	0.00
TOTAL	--	42,911	141.15

Notes:

(1) Based on SCLF 2021 traffic monitoring records

(2) Average Round Trips Per Day = (Convenience Center Traffic Count)/(operating days per year)

Convenience Center Traffic Count (round trips per year) = **42,911** round trips/yr

Average number of Convenience Center round trips per day = **141** round trips/day

Weighted Average Vehicle Weight (W):

(based on the proportion of average round trips per day)

Vehicle Type	Vehicle Weight[(1)] (tons)	Proportion of Average Round Trips Per Day[(2)]	Applied Vehicle Weight[(3)] (tons)
Light Auto	1.225	9.2%	0.11
Large Pickup	1.9	90.1%	1.71
Auto w/ Trailer	1.45	0.7%	0.010
TOTAL	--	100.0%	1.83

Notes:

(1) Based on Landfill data

(2) Proportion of Average Round Trips Per Day = [(convenience center traffic count)/(total)] X [100%]

(3) Applied Vehicle Weight = (vehicle weight)(proportion of average round trips per day)

Weighted Average Vehicle Weight (W) = **1.83** tons

Total Vehicle Miles Traveled (VMT) Per Year:

Miles per round trip = (from Landfill Entrance to Convenience Center, and out Landfill Exit) = **0.32** mi/round trip

Total VMT per year = (miles per round trip)(convenience center traffic count) = **13,686** VMT/yr

In order to account for anticipated increases in Convenience Center traffic over a 5-year period, a conservative escalator of 5% per year was applied to the total VMT per year via the following method:

Estimated percent annual increase in total VMT = **5.00** %/yr

Estimated total VMT per year = $(1.05)^6$(Total VMT per year) = **18,341** VMT/yr

Operating Hours per Year:

Operating Hours = **9** hours/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

CONVENIENCE CENTER VEHICLE OPERATIONS (PAVED)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

E_{ext} = $[(k)(s/12)^a(W/3)^b]$ $[(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.90	k = 1.50	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.40	s = 6.40	s = 6.40
a = empirical constant (dimensionless)	a = 0.70	a = 0.90	a = 0.90
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 1.83	W = 1.83	W = 1.83
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 70.00	p = 70.00	p = 70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(1.8./3)^{0.45}]$ $[(365-70)/365]$ = **2.04** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(1.8/3)^{0.45}]$ $[(365-70)/365]$ = **0.55** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(1.8/3)^{0.45}]$ $[(365-70)/365]$ = **0.055** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **37,493.22** lbs/yr

$E_{TSP(tons/yr)}$ = $(E_{TSP(lbs/yr)})/(2,000$ lbs/ton) = **18.75 tons/yr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (E_{PM10})(estimated total VMT/yr) = **10,121.56** lbs/yr

$E_{PM10(tons/yr)}$ = $(E_{PM10(lbs/yr)})/(2,000$ lbs/ton) = **5.06 tons/yr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = $(E_{PM2.5})$(estimated total VMT/yr) = **1,012.16** lbs/yr

$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})/(2,000$ lbs/ton) = **0.51 tons/yr (uncontrolled)**

CONVENIENCE CENTER VEHICLE OPERATIONS (PAVED)
(Uncontrolled Short-Term Emissions)

Short-term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) is used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	1.83	W =	1.83	W =	1.83

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

E_{TSP} = $(4.9)(6.4/12)^{0.7}(1.8/3)^{0.45}$ = **2.53** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(1.8/3)^{0.45}$ = **0.68** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(1.8/3)^{0.45}$ = **0.068** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(estimated total VMT/yr) = **46,389.91** lbs/yr
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **16.96 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(estimated total VMT/yr) = **12,523.29** lbs/yr
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **4.58 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(estimated total VMT/yr) = **1,252.33** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **0.46 lbs/hr (uncontrolled)**

MISCELLANEOUS VEHICLE OPERATIONS (DISPOSAL ROUTE - PAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Miscellaneous Vehicle travel on the paved portion of the Disposal Route.

Methodology: As with Refuse Delivery Vehicles, a "weighted average" Miscellaneous Vehicle weight has been calculated based on the different types of Miscellaneous Vehicles that travel on the paved portion of the Disposal Route and the frequency of travel.

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Disposal Route Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Average Round Trips Per Day[(1)]
Utility Vehicles	304	8
Public Works Trucks		1
TOTAL	--	9

Note:
[(1)] Based on Landfill data

Total round trips per day = **9** round trips/day

Weighted Average Vehicle Weight:
(based on the proportion of average round trips per day)

	Vehicle Weight[(1)] (tons)	Proportion of Average Round Trips Per Day[(2)]	Applied Vehicle Weight[(3)] (tons)
Utility Vehicles	1.0	88.9%	0.89
Public Works Trucks	1.5	11.1%	0.17
	2.5	100.0%	1.06

Notes:
[(1)] Based on Landfill data
[(2)] Proportion of Average Round Trips Per Day = [(average round trips per day)/(total round trips per day)] X [100%]
[(3)] Applied Vehicle Weight = (vehicle weight)(proportion of average round trips per day)

Weighted average vehicle weight (W) = **1.06** tons

Weighted Average Round Trip Distance:
Utility Vehicle one-way travel distance on pavement = **4,040** feet
Public Works Truck one-way travel distance on pavement = **0.77** miles
Utility Vehicle round trip travel distance on pavement = **8,080** feet
Public Works Truck round trip travel distance on pavement = **1.53** miles

Vehicle Type	Average Round Trips Per Day	Proportion of Average Round Trips Per Day	Distance Traveled Per Round Trip (mi)	Weighted Average Round Trip Distance[(1)] (mi)
Utility Vehicles	8	88.9%	1.53	1.36
Public Works Trucks	1	11.1%	1.53	0.170
TOTAL	9	100.0%	--	1.53

Notes:
[(1)] Weighted average round trip distance = (proportion of round trips per day)(distance traveled per round trip)

Weighted average round trip distance = **1.53** miles/trip

Operating Hours Per Year:
Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day
Operating days per year = **304** days/yr
Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

Total Vehicle Miles Traveled (VMT) Per Year:
Total VMT per year = (operating days per year)(total round trips per day)(weighted average round trip distance)
Total VMT per year = **4,187** VMT/yr

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

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

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

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	1.06	W =	1.06	W =	1.06
p =	70.00	p =	70.00	p =	70.00

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

$E_{TSP} = [(4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}]$ [(365-70)/365] = **1.59** lbs/VMT

$E_{PM10} = [(1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ [(365-70)/365] = **0.43** lbs/VMT

$E_{PM2.5} = [(0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ [(365-70)/365] = **0.04** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **6,673.90** lbs/yr
$E_{TSP(tons/yr)}$ = ($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) = **3.34 tons/yr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **1,801.67** lbs/yr
$E_{PM10(tons/yr)}$ = ($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) = **0.90 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(total VMT/yr) = **180.17** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) = **0.090 tons/yr (uncontrolled)**

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

Short-term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) is used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	1.50	W =	1.50	W =	1.50

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}$ = **2.31** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.62** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.062** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **9,672.20** lbs/yr
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **3.54 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **2,611.08** lbs/yr
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **0.95 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(total VMT/yr) = **261.11** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **0.095 lbs/hr (uncontrolled)**

MISCELLANEOUS VEHICLE OPERATIONS (ACCESS ROADS - UNPAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Miscellaneous Vehicle travel on the unpaved Access Roads which are watered on a regular basis.

Methodology: As with Refuse Delivery Vehicles, a "weighted average" Miscellaneous Vehicle weight has been calculated based on the different types of Miscellaneous Vehicles that travel on the unpaved Access Roads and the frequency of travel.

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Access Road Round Trips Per Day:

Vehicle Type	Operating Days Per Year	Average Round Trips Per Day[1]
Utility Vehicles	304	8
Public Works Trucks		1
TOTAL	--	9

Note:
[1] Based on Landfill data

Total round trips per day = **9** round trips/day

Weighted Average Vehicle Weight:
(based on the proportion of average round trips per day)

	Vehicle Weight[1] (tons)	Proportion of Average Round Trips Per Day[2]	Applied Vehicle Weight (tons)
Utility Vehicles	1.0	88.9%	0.89
Public Works Trucks	1.5	11.1%	0.17
	2.5	100.0%	1.06

Notes:
[1] Based on Landfill data
[2] Proportion of Average Round Trips Per Day = [(average round trips per day)/(total round trips per day)] X [100%]
[3] Applied Vehicle Weight = (vehicle weight)(proportion of average round trips per day)

Weighted average vehicle weight (W) = **1.1** tons

Weighted Average Round Trip Distance:
Utility Vehicle one-way travel distance = **10,573** feet
Public Works Truck one-way travel distance = **2.00** miles
Utility Vehicle round trip travel distance = **21,146** feet
Public Works Truck round trip travel distance = **4.00** miles

Vehicle Type	Average Round Trips Per Day	Proportion of Average Round Trips Per Day	Distance Traveled Per Round Trip (mi)	Weighted Average Trip Distance[1] (mi)
Utility Vehicles	8	88.9%	4.00	3.56
Public Works Trucks	1	11.1%	4.00	0.44
TOTAL	9	100.0%	--	4.00

Notes:
[1] Weighted average round trip distance = (proportion of round trips per day)(distance traveled per round trip)

Operating Hours Per Year:
Average operating hours per day (see "Landfill Operating Hours") = **9** hrs/day
Operating days per year = **304** days/yr
Operating hours per year = (average operating hrs/day)(operating days/year) = **2,736** hrs/yr

Total Vehicle Miles Traveled (VMT) Per Year:
Total VMT per year = (operating days per year)(average round trips per day)(weighted average round trip distance)
Total VMT per year = **10,957** VMT/yr

MISCELLANEOUS VEHICLE OPERATIONS (ACCESS ROADS - UNPAVED)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

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

E_{ext} = annual size-specific emiss. factor extrapolated for natural mitigation (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	1.06	W =	1.06	W =	1.06
p =	70.00	p =	70.00	p =	70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **1.59** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **0.43** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **0.043** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **17,466.13** lbs/yr
$E_{TSP(tons/yr)}$ = $(E_{TSP(lbs/yr)})/(2{,}000$ lbs/ton) = **8.73 tons/yr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **4,715.11** lbs/yr
$E_{PM10(tons/yr)}$ = $(E_{PM10(lbs/yr)})/(2{,}000$ lbs/ton) = **2.36 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = $(EPM_{2.5})$(total VMT/yr) = **471.51** lbs/yr
$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})/(2{,}000$ lbs/ton) = **0.24 tons/yr (uncontrolled)**

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

Short-term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) is used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

	TSP	PM_{10}	$PM_{2.5}$
k =	4.90	1.50	0.15
s =	6.40	6.40	6.40
a =	0.70	0.90	0.90
b =	0.45	0.45	0.45
W =	1.50	1.50	1.50

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}$ = **2.31** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.62** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.062** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **25,312.91** lbs/yr
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hours/yr) = **9.25 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **6,833.40** lbs/yr
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hours/yr) = **2.50 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(total VMT/yr) = **683.34** lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hours/yr) = **0.25 lbs/hr (uncontrolled)**

MISCELLANEOUS VEHICLE OPERATIONS (AUXILIARY ROADS - UNPAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Public Works Truck travel on unpaved Auxiliary Roads.

Methodology: The Auxiliary Roads are only driven upon by Public Works Trucks. These roads are unpaved and no dust control is applied. Emissions calculations are based on guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006).

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Auxiliary Road Round Trips Per Day:

Average round trips per day = **1** round trips/day (based on Landfill data)

Weighted Average Vehicle Weight:

Average vehicle weight (W) = **1.50** tons (based on Landfill data)

Travel Distance:

Travel distance =	**5,650**	feet
Travel distance =	**1.07**	miles
Utility Vehicle round trip travel distance =	**11,300**	feet
Public Works Truck round trip travel distance =	**2.14**	miles

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") =	**9**	hrs/day
Operating days per year =	**304**	days/yr
Operating hours per year = (average operating hrs/day)(operating days/year) =	**2,736**	hrs/yr

Total Vehicle Miles Traveled (VMT) Per Year:

Total VMT per year = (operating days per year)(average round trips per day)(round trip distance)

Total VMT per year = **325** VMT/yr

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

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

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

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

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	4.90	1.50	0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	6.40	6.40	6.40
a = empirical constant (dimensionless)	0.70	0.90	0.90
b = empirical constant (dimensionless)	0.45	0.45	0.45
W = mean vehicle weight (tons)	1.50	1.50	1.50
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	70.00	70.00	70.00

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

E_{TSP} = $[(4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **1.87** lbs/VMT

E_{PM10} = $[(1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **0.50** lbs/VMT

$E_{PM2.5}$ = $[(0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}]$ $[(365-70)/365]$ = **0.050** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(total VMT/yr) =	**607.36** lbs/yr
$E_{TSP(tons/yr)}$ =	$(E_{TSP(lbs/yr)})$/(2,000 lbs/ton) =	**0.30 tons/yr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(total VMT/yr) =	**163.96** lbs/yr
$E_{PM10(tons/yr)}$ =	$(E_{PM10(lbs/yr)})$/(2,000 lbs/ton) =	**0.08 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(EPM_{2.5})$(total VMT/yr) =	**16.40** lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})$/(2,000 lbs/ton) =	**0.008 tons/yr (uncontrolled)**

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

Short-term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) is used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	1.50	W =	1.50	W =	1.50

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(1.5/3)^{0.45}$ = **2.31** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.62** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(1.5/3)^{0.45}$ = **0.062** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **751.48** lbs/yr
$E_{TSP(lbs/hr)}$ = $(E_{TSP(lbs/yr)})$/(operating hours/yr) = **0.27 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **202.87** lbs/yr
$E_{PM10(lbs/hr)}$ = $(E_{PM10(lbs/yr)})$/(operating hours/yr) = **0.074 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = $(EPM_{2.5})$(total VMT/yr) = **20.29** lbs/yr
$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})$/(operating hours/yr) = **0.007 lbs/hr (uncontrolled)**

APPENDIX 6.2

CONTROLLED EMISSIONS

EMISSION UNITS 1, 2, 5, AND 6

APPENDIX 6.2
Itemized Summary of Vehicle Emissions

Purpose:

Controlled fugitive dust emissions have been estimated by using the following equation:
Controlled emissions = (uncontrolled emissions)(1 - control efficiency)

Emissions	Uncontrolled		Control Efficiency (%)	Actual/Controlled	
	tons/yr	lbs/hr		tons/yr	lbs/hr
Refuse Delivery Vehicle Operations (Disposal Route - Paved)					
TSP Long-Term Emissions	56.83		95	2.84	
TSP Short-Term Emissions		51.40	95		2.57
PM_{10} Long-Term Emissions	15.34		95	0.77	
PM_{10} Short-Term Emissions		13.88	95		0.69
$PM_{2.5}$ Long-Term Emissions	1.53		95	0.077	
$PM_{2.5}$ Short-Term Emissions		1.39	95		0.069
MSW Refuse Delivery Vehicle Operations (Disposal Route - Unpaved)					
TSP Long-Term Emissions	127.09		60	50.84	
TSP Short-Term Emissions		114.95	60		45.98
PM_{10} Long-Term Emissions	34.31		60	13.72	
PM_{10} Short-Term Emissions		31.03	60		12.41
$PM_{2.5}$ Long-Term Emissions	3.43		60	1.37	
$PM_{2.5}$ Short-Term Emissions		3.10	60		1.24
Green Waste Drop-Off Area Vehicle Operations (Disposal Route - Paved)					
TSP Long-Term Emissions	6.89		95	0.34	
TSP Short-Term Emissions		6.24	95		0.31
PM_{10} Long-Term Emissions	1.86		95	0.093	
PM_{10} Short-Term Emissions		1.68	95		0.084
$PM_{2.5}$ Long-Term Emissions	0.19		95	0.0093	
$PM_{2.5}$ Short-Term Emissions		0.17	95		0.0084
Green Waste Drop-Off Area Vehicle Operations (Disposal Route - Unpaved)					
TSP Long-Term Emissions	20.92		60	8.37	
TSP Short-Term Emissions		18.92	60		7.57
PM_{10} Long-Term Emissions	5.65		60	2.26	
PM_{10} Short-Term Emissions		5.11	60		2.04
$PM_{2.5}$ Long-Term Emissions	0.56		60	0.23	
$PM_{2.5}$ Short-Term Emissions		0.51	60		0.20

APPENDIX 6.2 (continued)
Itemized Summary of Vehicle Emissions
Sandoval County Landfill

Emissions	Uncontrolled		Control Efficiency	Actual/Controlled	
	tons/yr	lbs/hr		tons/yr	lbs/hr
Convenience Center Vehicle Operations (Paved)					
TSP Long-Term Emissions	18.75		95	0.94	
TSP Short-Term Emissions		16.96	95		0.85
PM_{10} Long-Term Emissions	5.06		95	0.25	
PM_{10} Short-Term Emissions		4.58	95		0.23
$PM_{2.5}$ Long-Term Emissions	0.51		95	0.025	
$PM_{2.5}$ Short-Term Emissions		0.46	95		0.023
Miscellaneous Vehicle Operations (Disposal Route - Paved)					
TSP Long-Term Emissions	3.34		95	0.167	
TSP Short-Term Emissions		3.54	95		0.177
PM_{10} Long-Term Emissions	0.90		95	0.045	
PM_{10} Short-Term Emissions		0.95	95		0.048
$PM_{2.5}$ Long-Term Emissions	0.090		95	0.0045	
$PM_{2.5}$ Short-Term Emissions		0.095	95		0.0048
Miscellaneous Vehicle Operations (Access Roads - Unpaved)					
TSP Long-Term Emissions	8.73		60	3.49	
TSP Short-Term Emissions		9.25	60		3.70
PM_{10} Long-Term Emissions	2.36		60	0.94	
PM_{10} Short-Term Emissions		2.50	60		1.00
$PM_{2.5}$ Long-Term Emissions	0.24		60	0.09	
$PM_{2.5}$ Short-Term Emissions		0.25	60		0.100
Miscellaneous Vehicle Operations (Auxiliary Roads - Unpaved)					
TSP Long-Term Emissions	0.30		0	0.30	
TSP Short-Term Emissions		0.27	0		0.27
PM_{10} Long-Term Emissions	0.08		0	0.08	
PM_{10} Short-Term Emissions		0.074	0		0.074
$PM_{2.5}$ Long-Term Emissions	0.008		0	0.008	
$PM_{2.5}$ Short-Term Emissions		0.0074	0		0.0074

APPENDIX 6.2 (continued)
Itemized Summary of Vehicle Emissions
Sandoval County Landfill

Emissions	Uncontrolled		Control Efficiency	Actual/Controlled	
	tons/yr	lbs/hr		tons/yr	lbs/hr
Scraper Travel Emissions (Disposal Route - Unpaved)					
TSP Long-Term Emissions	35.48		60	14.19	
TSP Short-Term Emissions		96.27	60		38.51
PM_{10} Long-Term Emissions	9.58		60	3.83	
PM_{10} Short-Term Emissions		25.99	60		10.40
$PM_{2.5}$ Long-Term Emissions	0.96		60	0.38	
$PM_{2.5}$ Short-Term Emissions		2.60	60		1.04
Scraper Loading Emissions					
TSP Long-Term Emissions	4.38		60	1.75	
TSP Short-Term Emissions		9.60	60		3.84
PM_{10} Long-Term Emissions	1.34		60	0.54	
PM_{10} Short-Term Emissions		2.94	60		1.18
$PM_{2.5}$ Long-Term Emissions	0.13		60	0.05	
$PM_{2.5}$ Short-Term Emissions		0.29	60		0.12
Scraper Unloading Emissions					
TSP Long-Term Emissions	0.025		60	0.0100	
TSP Short-Term Emissions		0.055	60		0.022
PM_{10} Long-Term Emissions	0.012		60	0.0047	
PM_{10} Short-Term Emissions		0.026	60		0.010
$PM_{2.5}$ Long-Term Emissions	0.0018		60	0.00072	
$PM_{2.5}$ Short-Term Emissions		0.0039	60		0.0016
Compactor Operations					
TSP Long-Term Emissions	4.31		60	1.72	
TSP Short-Term Emissions		3.15	60		1.26
PM_{10} Long-Term Emissions	0.854		60	0.34	
PM_{10} Short-Term Emissions		0.62	60		0.25
$PM_{2.5}$ Long-Term Emissions	0.452		60	0.18	
$PM_{2.5}$ Short-Term Emissions		0.33	60		0.13
Bulldozer Operations					
TSP Long-Term Emissions	1.44		60	0.57	
TSP Short-Term Emissions		3.15	60		1.26
PM_{10} Long-Term Emissions	0.28		60	0.11	
PM_{10} Short-Term Emissions		0.62	60		0.25
$PM_{2.5}$ Long-Term Emissions	0.15		60	0.060	
$PM_{2.5}$ Short-Term Emissions		0.33	60		0.13

APPENDIX 6.2 (continued)
Itemized Summary of Vehicle Emissions
Sandoval County Landfill

Emissions	Uncontrolled		Control Efficiency	Actual/Controlled	
	tons/yr	lbs/hr		tons/yr	lbs/hr
Front End Loader					
TSP Long-Term Emissions	1.64		0	1.64	
TSP Short-Term Emissions		2.66	0		2.66
PM_{10} Long-Term Emissions	0.44		0	0.44	
PM_{10} Short-Term Emissions		0.72	0		0.72
$PM_{2.5}$ Long-Term Emissions	0.044		0	0.044	
$PM_{2.5}$ Short-Term Emissions		0.072	0		0.072
Crusher/Shredder Loading, Crushing, Conveyor Transport, and Truck Loading					
TSP Long-Term Emissions	0.53		0	0.53	
TSP Short-Term Emissions		0.69	0		0.69
PM_{10} Long-Term Emissions	0.22		0	0.22	
PM_{10} Short-Term Emissions		0.29	0		0.29
$PM_{2.5}$ Long-Term Emissions	0.22		0	0.22	
$PM_{2.5}$ Short-Term Emissions		0.29	0		0.29
Crushed Product Stockpiling					
TSP Long-Term Emissions	0.40		0	0.40	
TSP Short-Term Emissions		0.53	0		0.53
PM_{10} Long-Term Emissions	0.19		0	0.19	
PM_{10} Short-Term Emissions		0.25	0		0.25
$PM_{2.5}$ Long-Term Emissions	0.029		0	0.029	
$PM_{2.5}$ Short-Term Emissions		0.038	0		0.038
Rental Crusher Fugitive Emissions					
TSP Long-Term Emissions	2.41		Controlled Emission Factors Prescribed by AP-42, Section 11.19.2	0.21	
TSP Short-Term Emissions		8.39			0.96
PM_{10} Long-Term Emissions	0.89			0.082	
PM_{10} Short-Term Emissions		3.08			0.38
$PM_{2.5}$ Long-Term Emissions	0.89			0.015	
$PM_{2.5}$ Short-Term Emissions		3.08			0.069

APPENDIX 6.3

UNCONTROLLED EMISSIONS

EMISSION UNIT 2

Scraper

Compactor

Bulldozer

SCRAPER OPERATIONS (ACCESS ROAD - UNPAVED)

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

- Scraper Travel along the Disposal Route between the Daily Cover Soil Borrow Area and the Disposal Area.
- Scraper Loading at the Daily Cover Soil Borrow Area
- Scraper Unloading at the Disposal Area

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

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

The following data and information were used to estimate long-term and short-term emissions from Scraper Travel on the Disposal Route.

Vehicle Miles Traveled (VMT) Per Round Trip on Disposal Route:

Average number of round trips per day =	**20**	round trips/day (based on Landfill data)
One-way trip distance =	**3,472**	feet (From borrow area to disposal area)
One-way trip distance =	**0.66**	miles
Miles per round trip = (2)(one-way trip distance) =	**1.32**	mi/round trip

Total Vehicle Miles Traveled (VMT) Per Year:

Operating days per year =	**304**	days/yr
Total VMT per year =		
(average number of round trips/day)(miles/round trip)(operating days per year) =	**7,996**	VMT/yr

Mean Vehicle Weight (W):

Scraper weight includes average empty average weight of Scraper + 1/2 weight of soil (Scraper is empty for 1/2 of round trip)

Scraper average empty weight (CAT 623G, CAT 615C, CAT 623F scrapers used one at a time)=	**35.50**	tons (Caterpillar® Handbook, 2019)
Average Scraper soil load =	**20.70**	yd^3 (Caterpillar® Handbook, 2019)
Soil density =	**1.20**	$tons/yd^3$ (Material Densities standards)
Soil weight per Scraper load = (average Scraper load)(soil density) =	**24.84**	tons
Mean vehicle weight = (Scraper empty weight) + (0.5)(soil weight per Scraper load) =	**47.92**	tons

Operating Hours Per Year:

Operating efficiency =	**100%**	(based on Landfill data)
Operating hours per day =	**3**	hrs/day (based on Landfill data)
Operating days per year =	**304**	days/yr
Operating hours per year = (operating efficiency)(operating hrs/day)(operating days/yr) =	**912**	hrs/yr

SCRAPER TRAVEL (ACCESS ROAD - UNPAVED)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). The Scraper collects soil at the Daily Cover Soil Borrow Area and deposits it at the Disposal Area for use as daily cover. Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

$E_{ext} = [(k)(s/12)^a(W/3)^b][(365-p)/365]$ (AP-42, 13.2.2, equation (2))

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

Where:

	TSP	PM_{10}	$PM_{2.5}$
k = particle size multiplier (dimensionless)	k = 4.90	k = 1.50	k = 0.15
s = surface material silt content (%) AP-42, Table 13.2.2-1	s = 6.40	s = 6.40	s = 6.40
a = empirical constant (dimensionless)	a = 0.70	a = 0.90	a = 0.90
b = empirical constant (dimensionless)	b = 0.45	b = 0.45	b = 0.45
W = mean vehicle weight (tons)	W = 47.92	W = 47.92	W = 47.92
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)	p = 70.00	p = 70.00	p = 70.00

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

$E_{TSP} = [(4.9)(6.4/12)^{0.7}(45.8/3)^{0.45}][(365-70)/365]$ = **8.87** lbs/VMT

$E_{PM10} = [(1.5)(6.4/12)^{0.9}(45.8/3)^{0.45}][(365-70)/365]$ = **2.40** lbs/VMT

$E_{PM2.5} = [(0.15)(6.4/12)^{0.9}(45.8/3)^{0.45}][(365-70)/365]$ = **0.24** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(total VMT/yr) =	**70,962.96** lbs/yr
$E_{TSP(tons/yr)}$ =	($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) =	**35.48 tons/yr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(total VMT/yr) =	**19,156.96** lbs/yr
$E_{PM10(tons/yr)}$ =	($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) =	**9.58 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	($E_{PM2.5}$)(total VMT/yr) =	**1,915.70** lbs/yr
$E_{PM2.5(tons/yr)}$ =	($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) =	**0.96 tons/yr (uncontrolled)**

SCRAPER TRAVEL (ACCESS ROAD - UNPAVED)
(Uncontrolled Short-Term Emissions)

Short-term (lbs/hr) fugitive dust emissions were estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) was used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	47.92	W =	47.92	W =	47.92

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

E_{TSP} = $(4.9)(6.4/12)^{0.7}(45.8/3)^{0.45}$ = **10.98** lbs/VMT

E_{PM10} = $(1.5)(6.4/12)^{0.9}(45.8/3)^{0.45}$ = **2.96** lbs/VMT

$E_{PM2.5}$ = $(0.15)(6.4/12)^{0.9}(45.8/3)^{0.45}$ = **0.30** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(total VMT/yr) =	**87,801.63**	lbs/yr
$E_{TSP(lbs/hr)}$ =	$(E_{TSP(lbs/yr)})$/(operating hours/yr) =	**96.27**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(total VMT/yr) =	**23,702.68**	lbs/yr
$E_{PM10(lbs/hr)}$ =	$(E_{PM10(lbs)})$/(operating hours/yr) =	**25.99**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(E_{PM2.5})$(total VMT/yr) =	**2,370.27**	lbs/yr
$E_{PM12.5lbs/hr)}$ =	$(E_{PM2.5(lbs)})$/(operating hours/yr) =	**2.60**	**lbs/hr (uncontrolled)**

SCRAPER LOADING
(Uncontrolled Emissions)

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

The uncontrolled fugitive dust emissions for Scraper Loading at the Daily Cover Soil Borrow Area was estimated through application of emission factors presented in AP-42, Section 11.9, Western Surface Coal Mining (October, 1998), Table 11.9-4, under the source heading "Topsoil Removal By Scraper".

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

The emission factors for PM_{10} and $PM_{2.5}$ were calculated by applying the ratio of the $PM_{10,}$ $PM_{2.5}$ and TSP particle size multiplier (k) values, obtained from AP-42, Table 13.2.2-2, to the TSP emission factor of 0.058 lbs/ton of soil loaded.

E_{PM10} = $(1.5/4.9)(E_{TSP}) = (.31)(0.058)$ = **0.02** lbs/ton of soil loaded
$E_{PM2.5}$ = $(0.15/4.9)(E_{TSP}) = (.031)(0.058)$ = **0.002** lbs/ton of soil loaded

Mass of Soil Loaded Per Year:

Number of Scraper loads per day = **20** loads/day (based on Landfill data)
Scraper capacity = **20.70** yd^3/load (based on Landfill data)
Soil density = **1.20** tons/yd^3 (Material Densities standards)
Mass of soil loaded per day = (number of Scraper loads/day)(Scraper capacity)(soil density)
Mass of soil loaded per day = **497** tons/day
Operating days per year = **304** days/yr
Mass of soil loaded per year = (mass of soil loaded/day)(operating days/yr) = **151,027** tons/yr

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(mass of soil loaded/yr) =	**8,759.58**	lbs/yr
$E_{TSP(tons/yr)}$ =	$(E_{TSP(lbs/yr)})$/(2,000 lbs/ton) =	**4.38**	**tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ =	$(E_{TSP(lbs/yr)})$/(operating hrs/yr) =	**9.60**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(mass of soil loaded/yr) =	**2,681.50**	lbs/yr
$E_{PM10(tons/yr)}$ =	$(E_{PM10(lbs/yr)})$/(2,000 lbs/ton) =	**1.34**	**tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ =	$(E_{PM10(lbs/yr)})$/(operating hrs/yr) =	**2.94**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(E_{PM2.5})$(mass of soil loaded/yr) =	**268.15**	lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})$/(2,000 lbs/ton) =	**0.13**	**tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ =	$(E_{PM2.5(lbs/yr)})$/(operating hrs/yr) =	**0.29**	**lbs/hr (uncontrolled)**

SCRAPER UNLOADING
(Uncontrolled Emissions)

AP-42, Section 13.2.4, Aggregate Handling and Storage Piles (November, 2006) provides guidance for batch drop operations for Scraper Unloading at the Soil Stockpile Area or Disposal Area. Equation (1) from Section 13.2.4 is used to calculate TSP, PM_{10}, and $PM_{2.5}$.

Emissions Equation:

$$E = \frac{(k)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}}$$ (AP-42,13.2.4.3, equation (1))

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

k = particle size multiplier (dimensionless):	k_{TSP} =	**0.74**	(AP-42, 13.2.4.3)
	k_{PM10} =	**0.35**	(AP-42, 13.2.4.3)
	$k_{PM2.5}$ =	**0.053**	(AP-42, 13.2.4.3)

Where:

U = mean wind speed (mph) =	**7.58**	(Albuquerque International Sunport, 2008-2015 Average)
M = soil moisture content (%) =	**12.00**	(AP-42, Table 13.2.4-1 value for MSW Landfill Cover material)

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

$$E_{TSP} = \frac{(0.74)(0.0032)(11.0/5)^{1.3}}{(12/2)^{1.4}} =$$ **0.00033** lbs/ton of soil unloaded

$$E_{PM10} = \frac{(0.35)(0.0032)(11.0/5)^{1.3}}{(12/2)^{1.4}} =$$ **0.00016** lbs/ton of soil unloaded

$$E_{PM2.5} = \frac{(0.053)(0.0032)(11.0/5)^{1.3}}{(12/2)^{1.4}} =$$ **0.000024** lbs/ton of soil unloaded

Assumption:

Mass of soil unloaded/yr = mass of soil loaded/yr = **151,027** tons/yr

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(mass of soil unloaded/yr) =	**49.95**	lbs/yr
$E_{TSP(tons/yr)}$ =	($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) =	**0.025**	**tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ =	($E_{TSP(lbs/yr)}$)/(operating hrs/yr) =	**0.055**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(mass of soil unloaded/yr) =	**23.63**	lbs/yr
$E_{PM10(tons/yr)}$ =	($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) =	**0.012**	**tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ =	($E_{PM10(lbs/yr)}$)/(operating hrs/yr) =	**0.026**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	($E_{PM2.5}$)(mass of soil unloaded/yr) =	**3.58**	lbs/yr
$E_{PM2.5(tons/yr)}$ =	($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) =	**0.0018**	**tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ =	($E_{PM2.5(lbs/yr)}$)/(operating hrs/yr) =	**0.0039**	**lbs/hr (uncontrolled)**

SCRAPER OPERATIONS EMISSIONS SUMMARY

(Total Uncontrolled TSP, PM_{10}, and $PM_{2.5}$ Emissions)

Scraper Travel Emissions (Disposal Route - Recycled Basecourse):	
TSP Long-Term Emissions	**35.48 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**96.27 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**9.58 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**25.99 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.96 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**2.60 lbs/hr (uncontrolled)**
Total Scraper Loading Emissions:	
TSP Long-Term Emissions	**4.38 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**9.60 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**1.34 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**2.94 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.13 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.29 lbs/hr (uncontrolled)**
Total Scraper Unloading Emissions:	
TSP Long-Term Emissions	**0.025 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.055 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.012 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.026 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.002 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.004 lbs/hr (uncontrolled)**
Total Scraper Emissions:	
TSP Long-Term Emissions	**39.89 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**105.93 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**10.93 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**28.96 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**1.09 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**2.90 lbs/hr (uncontrolled)**

COMPACTOR OPERATIONS
(Uncontrolled Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Compactor operations within the Disposal Area.

Methodology: According to AP-42, Section 13.2.3, Heavy Construction Operations (January 1995), Table 13.2.3-1, emissions for TSP and PM_{10} are to be estimated by use of the bulldozer emission factor equations provided in AP-42, Section 11.9, Western Surface Coal Mining (October 1998), Table 11.9-1:

DISPOSAL AREA OPERATIONS

Emissions Equations:

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

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

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

$E_{PM10} = \frac{(0.75)(s)^{1.5}}{(M)^{1.4}}$

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

Where:
E = size-specific emission factor (lbs/hr of operation)

s = material silt content (%) =	**9.00**	% (assumed for MSW cover AP-42, Table 13.2.4-1)
M = material moisture content (%) =	**12.00**	% (assumed for MSW cover AP-42, Table 13.2.4-1)

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

E_{TSP} = $[(5.7)(9)^{1.2}]/[(12)^{1.3}]$ =	**3.15**	lbs/hr
E_{PM10} = $[(0.75)(9)^{1.5}]/[(12)^{1.4}]$ =	**0.62**	lbs/hr
$E_{PM2.5}$ = $(0.105)[(5.7)(9)^{1.2}]/[(12)^{1.3}]$ =	**0.33**	lbs/hr

Operating Hours Per Year:

Operating efficiency =	**100%**	(based on Landfill data)
Operating hours/day =	**9**	hrs/day (based on Landfill data)
Operating days per year =	**304**	days/yr
Operating hours per year = (operating efficiency)(operating hrs/day)(operating days/yr)		
Operating hours per year =	**2,736**	hrs/yr

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(operating hours per year) =	**8,612.84**	lbs/yr
$E_{TSP(tons/yr)}$ = $(E_{TSP(lbs/yr)})/(2{,}000$ lbs/ton) =	**4.31**	**tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ = $(E_{TSP(lbs/yr)})/$(operating hrs/yr) =	**3.15**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(operating hours per year) =	**1,708.78**	lbs/yr
$E_{PM10(tons/yr)}$ = $(E_{PM10(lbs/yr)})/(2{,}000$ lbs/ton) =	**0.85**	**tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ = $(E_{PM10(lbs/yr)})/$(operating hrs/yr) =	**0.62**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = $(E_{PM2.5})$(operating hours per year) =	**904.35**	lbs/yr
$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})/(2{,}000$ lbs/ton) =	**0.45**	**tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ = $(E_{PM2.5(lbs/yr)})/$(operating hrs/yr) =	**0.33**	**lbs/hr (uncontrolled)**

BULLDOZER OPERATIONS
(Uncontrolled Emissions)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from bulldozer operations:

► Disposal Area Operations - The bulldozer assists the compactor within the Disposal Area by positioning waste such that it can be easily accessed by the compactor. Based on Landfill data, this operation is performed for 3 hrs/day.

Methodology: Emissions for TSP and PM_{10} from bulldozer operations were estimated by use of the emission factor equations provided in AP-42, Section 11.9, Western Surface Coal Mining (October 1998), Table 11.9-1:

DISPOSAL AREA OPERATIONS

Emissions Equations:

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

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

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

$$E_{PM10} = \frac{(0.75)(s)^{1.5}}{(M)^{1.4}}$$

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

Where:

E = size-specific emission factor (lbs/hr of operation)

s = material silt content (%) = **9.00** % (assumed for MSW cover AP-42, Table 13.2.4-1)

M = material moisture content (%) = **12.00** % (assumed for MSW cover AP-42, Table 13.2.4-1)

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

$E_{TSP} = [(5.7)(9)^{1.2}]/[(12)^{1.3}]$ = **3.15** lbs/hr

$E_{PM10} = [(0.75)(9)^{1.5}]/[(12)^{1.4}]$ = **0.62** lbs/hr

$E_{PM2.5} = (0.105)[(5.7)(9)^{1.2}]/[(12)^{1.3}]$ = **0.33** lbs/hr

Operating Hours Per Year:

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

Operating hours/day = **3** hrs/day (based on Landfill data)

Operating days per year = **304** days/yr

Operating hours per year = (operating efficiency)(operating hrs/day)(operating days)

Operating hours per year = **912** hrs/yr

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(operating hours per year) =	**2,870.95** lbs/yr
$E_{TSP(tons/yr)}$ =	$(E_{TSP(lbs/yr)})/(2{,}000$ lbs/ton) =	**1.44 tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ =	$(E_{TSP(lbs/yr)})$/(operating hrs/yr) =	**3.15 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(operating hours per year) =	**569.59** lbs/yr
$E_{PM10(tons/yr)}$ =	$(E_{PM10(lbs/yr)})/(2{,}000$ lbs/ton) =	**0.28 tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ =	$(E_{PM10(lbs/yr)})$/(operating hrs/yr) =	**0.62 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(E_{PM2.5})$(operating hours per year) =	**301.45** lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})/(2{,}000$ lbs/ton) =	**0.15 tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ =	$(E_{PM2.5(lbs/yr)})$/(operating hrs/yr) =	**0.33 lbs/hr (uncontrolled)**

APPENDIX 6.4

WIND EROSION EMISSIONS CALCULATIONS

EMISSION UNIT 2

APPENDIX 6.4
WIND EROSION EMISSIONS CALCULATIONS

Purpose:

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

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

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

The emission factor for TSP is obtained from AP-42, Section 11.9 (Table 11.9-4) and Section 13.2.2.2:

E_{TSP} = **0.38** tons/acre/yr (Table 11.9-4)

The emission factors for PM_{10} and $PM_{2.5}$ are calculated by applying the ratio of the $PM_{0,}$ $PM_{2.5}$ and TSP particle size multiplier (k) values, obtained from AP-42, Section 13.2.2.2, to the TSP emission factor of 0.380 tons/acre:

E_{PM10} = (1.5/4.9)(E_{TSP}) = (1.5/4.9)(0.38 tons/acre) = **0.12** tons/acre/yr

$E_{PM2.5}$ = (0.15/4.9)(E_{TSP}) = (0.15/4.9)(0.38 tons/acre) = **0.012** tons/acre/yr

Example Calculations:

Potential fugitive dust emissions from actively disturbed areas are estimated utilizing the acreage of the disturbed area and the TSP, PM_{0} and $PM_{2.5}$ emission factors, as illustrated in the following example calculations:

▶ Example disturbed area = MSW Disposal Route (Unpaved):

The acreage for the unpaved MSW Disposal Route, is calculated by multiplying the total road length by the average road width of 32 ft., and then dividing by 43,560 ft^2/acre. The acreage for access roads and auxiliary roads was determined using AutoCAD software.

Estimated Unpaved MSW Disposal Route length = **1,884** feet

Estimated Unpaved MSW Disposal Route acreage = [(1,225ft)(32 ft)]/(43,560 ft/ac) = **1.38** acres

▶ Example: MSW Disposal Route (Unpaved) uncontrolled TSP, $PM_{10,}$ and PM $_{2.5}$ Emissions:

$E_{TSP(tons/yr)}$ = (0.38 tons/acre/yr)(1.03 acres) = **0.53** tons/yr (uncontrolled)

$E_{TSP(lbs/hr)}$ = ($E_{TSP(tons/yr)}$)(2,000 lbs/ton)/(8,760 hrs/yr) **0.120** lbs/hr (uncontrolled)

$E_{PM10(tons/yr)}$ = (0.12 tons/acre/yr)(1.03 acres) = **0.16** tons/yr (uncontrolled)

$E_{PM10(lbs/hr)}$ = ($E_{PM10(tons/yr)}$)(2,000 lbs/ton)/(8,760 hrs/yr) **0.037** lbs/hr (uncontrolled)

$E_{PM2.5(tons/yr)}$ = (0.012 tons/acre/yr)(1.03 acres) = **0.016** tons/yr (uncontrolled)

$E_{PM2.5(lbs/hr)}$ = ($E_{PM2.5(tons/yr)}$)(2,000 lbs/ton)/(8,760 hrs/yr) **0.0037** lbs/hr (uncontrolled)

Based on guidance provided in AP-42, Section 13.2.5, Industrial Wind Erosion (November, 2006), only those areas of the Landfill that are actively disturbed by facility operations were included in the acreage for which potential fugitive dust emissions attributable to wind erosion were calculated. Fugitive dust emissions due to wind erosion on disturbed areas are based on wind erosion potentially occurring 24 hrs/day, 365 days/yr, and are summarized in **Table 6.4.1**.

Controlled Emissions

An overall sweeping and watering control efficiency of 95% (based on NMED AQB guidance) was applied to the following disturbed area:

▶ **MSW Disposal Route (Paved)** **2.97** ac

An overall watering control efficiency of 60% (based on NMED AQB guidance) was applied to the following disturbed areas:

▶ **Disposal Route (unpaved)** **1.38** ac

▶ **Access Roads (Unpaved)** **4.89** ac

▶ **Disposal Area** **1.00** ac

▶ **Daily Cover Soil Borrow Area** **1.50** ac

Example Calculations:

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

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

▶ Example: MSW Disposal Route (Paved) controlled TSP, $PM_{10,}$ and PM $_{2.5}$ Emissions:

$E_{TSP(tons/yr)}$ = (1.05 tons/yr)(1 - (95/100)) = **0.056** tons/yr (controlled)

$E_{TSP(lbs/hr)}$ = (0.2 lbs/hr)(1 - (95/100)) = **0.0129** lbs/hr (controlled)

$E_{PM10(tons/yr)}$ = (0.3 tons/yr)(1 - (95/100)) = **0.017** tons/yr (controlled)

$E_{PM10(lbs/hr)}$ = (0.07 lbs/hr)(1 - (95/100)) = **0.0039** lbs/hr (controlled)

$E_{PM2.5(tons/yr)}$ = (0.03 tons/yr)(1 - (95/100)) = **0.0017** tons/yr (controlled)

$E_{PM2.5(lbs/hr)}$ = (0.007 lbs/hr)(1 - (95/100)) = **0.00039** lbs/hr (controlled)

The controlled fugitive dust emissions due to wind erosion on actively disturbed areas are summarized in **Table 6.5.1**.

Uncontrolled Emissions

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

▶ **Auxiliary Roads (Unpaved)** **2.59** ac

▶ **Clean Fill** **1.00** ac

▶ **Green Waste** **1.00** ac

▶ **Petroleum Hydrocarbon Landfarm** **0.50** ac

▶ **Crushing/Shredding Area** **0.15** ac

Uncontrolled fugitive dust emissions due to wind erosion on actively disturbed areas are also summarized in **Table 6.4.1**.

TABLE 6.4.1 - Itemized Summary of Wind Erosion Emissions
Sandoval County Landfill

Number of hours per year =		8,760			Uncontrolled Emissions						Controlled Emissions						
Type of Disturbed Area	**Area (acres)**	**TSP Emission Factor, E_{TSP} (tons/acre/yr)**	**PM_{10} Emission Factor, E_{PM10} (tons/acre/yr)**	**$PM_{2.5}$ Emission Factor, $E_{PM2.5}$ (tons/acre/yr)**	**TSP (tons/yr)**	**TSP (lbs/hr)**	**PM_{10} (tons/yr)**	**PM_{10} (lbs/hr)**	**$PM_{2.5}$ (tons/yr)**	**$PM_{2.5}$ (lbs/hr)**	**Applied Control Efficiency (%)**	**TSP (tons/yr)**	**TSP (lbs/hr)**	**PM_{10} (tons/yr)**	**PM_{10} (lbs/hr)**	**$PM_{2.5}$ (tons/yr)**	**$PM_{2.5}$ (lbs/hr)**
Disposal Route (Paved)	2.97	0.38	0.12	0.012	1.13	0.26	0.35	0.08	0.03	0.008	95	0.056	0.013	0.017	0.004	0.0017	0.00039
Disposal Route (unpaved)	1.38	0.38	0.12	0.012	0.53	0.12	0.16	0.04	0.02	0.004	60	0.21	0.05	0.06	0.01	0.006	0.001
Access Roads (unpaved)	4.89	0.38	0.12	0.012	1.86	0.42	0.57	0.13	0.06	0.013	60	0.74	0.17	0.23	0.05	0.02	0.005
Auxiliary Roads (unpaved)	2.59	0.38	0.12	0.012	0.99	0.23	0.30	0.07	0.03	0.007	0	0.99	0.23	0.30	0.07	0.03	0.007
Disposal Area	1.00	0.38	0.12	0.012	0.38	0.09	0.12	0.03	0.01	0.003	60	0.15	0.03	0.05	0.01	0.005	0.001
Daily Cover Soil Borrow Area	1.50	0.38	0.12	0.012	0.57	0.13	0.17	0.04	0.02	0.004	60	0.23	0.05	0.07	0.02	0.007	0.002
Green Waste	1.00	0.38	0.12	0.012	0.38	0.09	0.12	0.03	0.01	0.00	0	0.4	0.1	0.1	0.0	0.01	0.00
Clean Fill	1.00	0.38	0.12	0.012	0.38	0.09	0.12	0.03	0.01	0.003	0	0.4	0.1	0.1	0.03	0.01	0.003
Petroleum Hydrocarbon Landfarm	0.50	0.38	0.12	0.012	0.19	0.04	0.06	0.01	0.01	0.001	0	0.19	0.04	0.06	0.01	0.01	0.001
Crushing/Shredding Area	0.15	0.38	0.12	0.012	0.06	0.01	0.02	0.00	0.002	0.0004	0	0.06	0.01	0.02	0.004	0.002	0.0004
TOTALS	**16.99**	**--**	**--**	**--**	**6.45**	**1.47**	**1.98**	**0.45**	**0.20**	**0.045**	**--**	**3.38**	**0.77**	**1.04**	**0.24**	**0.104**	**0.024**

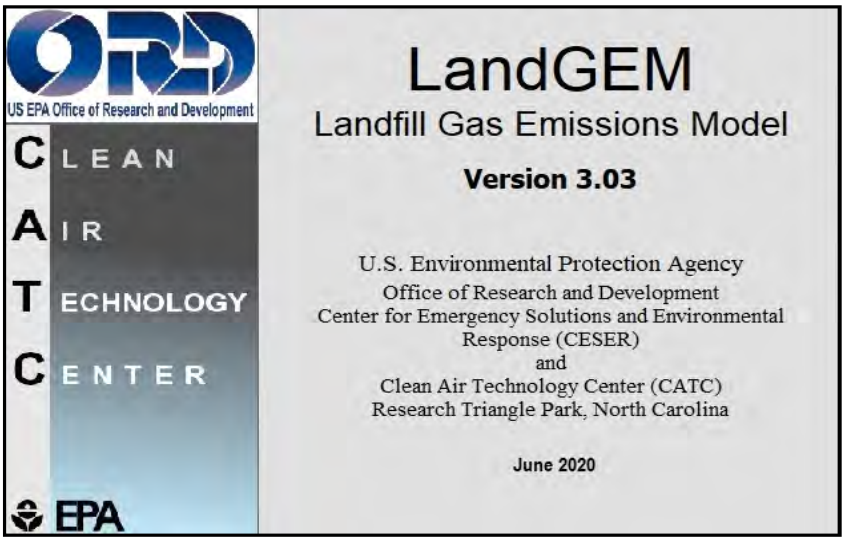
Note:
Wind erosion estimates were calculated using revised (November, 2006) AP-42 k values for TSP and $PM_{10;}$ where $k_{TSP} = 4.9$, $k_{PM10} = 1.5$ and $k_{PM2.5} = 0.15$

APPENDIX 6.5

NMOC EMISSIONS ESTIMATE

EMISSION UNIT 3

(LandGEM Modeling Outputs)



Summary Report

Landfill Name or Identifier: Sandoval County Landfill

Date: Thursday, May 26, 2022

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

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

Where,

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

i = 1-year time increment

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

j = 0.1-year time increment

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

L_0 = 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	**1972**	
Landfill Closure Year (with 80-year limit)	**2028**	
Actual Closure Year (without limit)	***2028***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity		*megagrams*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	$year^{-1}$
Potential Methane Generation Capacity, L_0	**170**	m^3/Mg
NMOC Concentration	**4,000**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**NMOC**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**Methane**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1972	1,435	1,579	0	0
1973	1,435	1,579	1,435	1,579
1974	1,435	1,579	2,870	3,157
1975	1,435	1,579	4,305	4,736
1976	1,435	1,579	5,740	6,314
1977	1,435	1,579	7,175	7,893
1978	1,435	1,579	8,610	9,471
1979	1,435	1,579	10,045	11,050
1980	1,435	1,579	11,480	12,628
1981	1,435	1,579	12,915	14,207
1982	1,435	1,579	14,350	15,785
1983	1,435	1,579	15,785	17,364
1984	1,435	1,579	17,220	18,942
1985	1,435	1,579	18,655	20,521
1986	1,435	1,579	20,090	22,099
1987	1,435	1,579	21,525	23,678
1988	1,435	1,579	22,960	25,256
1989	1,435	1,579	24,395	26,835
1990	1,435	1,579	25,830	28,413
1991	4,191	4,610	27,265	29,992
1992	1,435	1,579	31,456	34,602
1993	1,435	1,579	32,891	36,180
1994	6,759	7,435	34,326	37,759
1995	8,910	9,801	41,085	45,194
1996	20,156	22,172	49,995	54,995
1997	7,724	8,496	70,151	77,166
1998	6,933	7,626	77,875	85,663
1999	9,020	9,922	84,808	93,289
2000	9,548	10,503	93,828	103,211
2001	11,827	13,010	103,376	113,714
2002	12,756	14,032	115,203	126,723
2003	13,948	15,343	127,959	140,755
2004	13,497	14,847	141,907	156,098
2005	7,934	8,727	155,404	170,944
2006	10,251	11,276	163,338	179,672
2007	13,717	15,089	173,589	190,948
2008	12,095	13,305	187,306	206,037
2009	11,012	12,113	199,401	219,341
2010	25,346	27,881	210,413	231,454
2011	9,424	10,366	235,759	259,335

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2012	8,468	9,315	245,183	269,701
2013	22,606	24,867	253,651	279,016
2014	5,229	5,752	276,257	303,883
2015	5,455	6,001	281,486	309,635
2016	7,969	8,766	286,941	315,635
2017	8,080	8,888	294,910	324,401
2018	10,136	11,150	302,990	333,289
2019	10,683	11,751	313,126	344,439
2020	11,292	12,421	323,809	356,190
2021	9,682	10,650	335,101	368,611
2022	10,473	11,521	344,783	379,261
2023	10,997	12,097	355,256	390,782
2024	11,547	12,702	366,253	402,879
2025	12,124	13,337	377,800	415,580
2026	12,730	14,003	389,924	428,917
2027	13,367	14,704	402,655	442,920
2028	0	0	416,022	457,624
2029	0	0	416,022	457,624
2030	0	0	416,022	457,624
2031	0	0	416,022	457,624
2032	0	0	416,022	457,624
2033	0	0	416,022	457,624
2034	0	0	416,022	457,624
2035	0	0	416,022	457,624
2036	0	0	416,022	457,624
2037	0	0	416,022	457,624
2038	0	0	416,022	457,624
2039	0	0	416,022	457,624
2040	0	0	416,022	457,624
2041	0	0	416,022	457,624
2042	0	0	416,022	457,624
2043	0	0	416,022	457,624
2044	0	0	416,022	457,624
2045	0	0	416,022	457,624
2046	0	0	416,022	457,624
2047	0	0	416,022	457,624
2048	0	0	416,022	457,624
2049	0	0	416,022	457,624
2050	0	0	416,022	457,624
2051	0	0	416,022	457,624

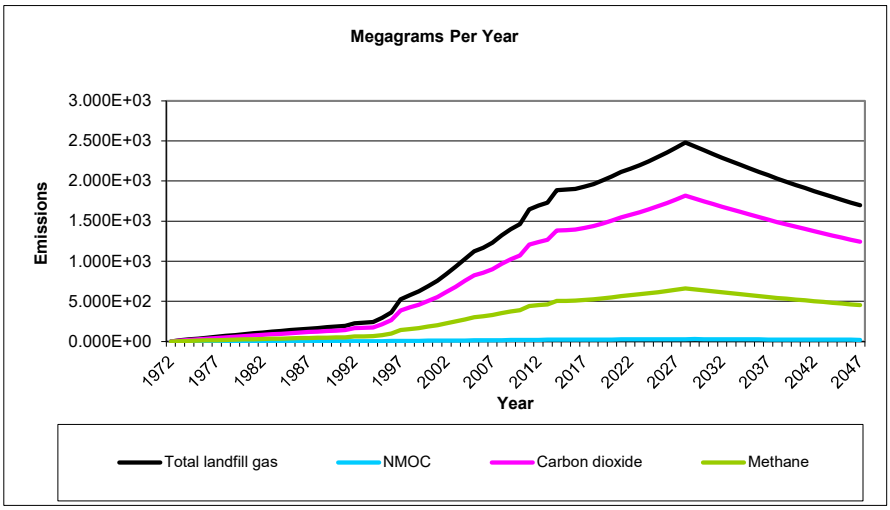
Pollutant Parameters

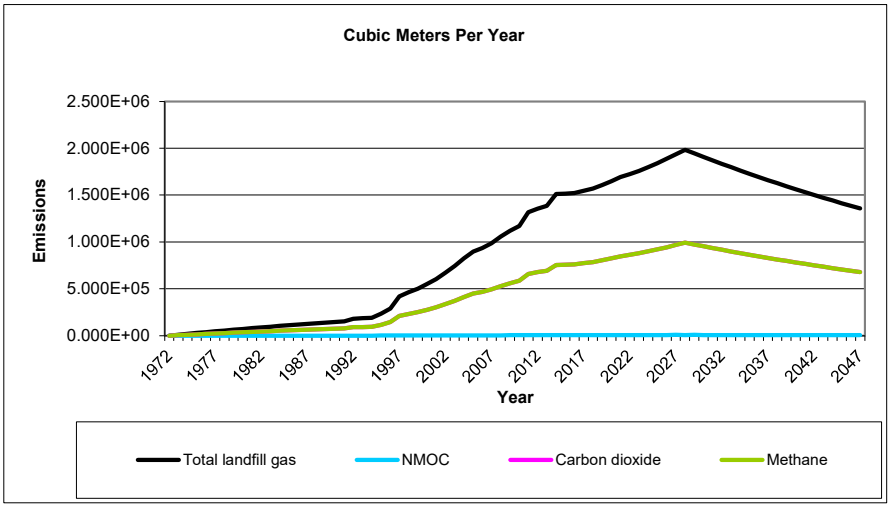
		Gas / Pollutant Default Parameters:		*User-specified Pollutant Parameters:*	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl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

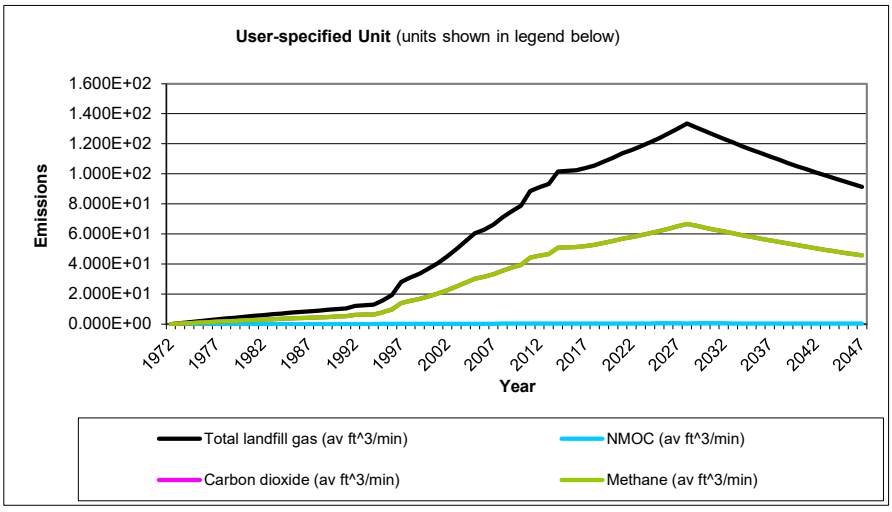
Pollutant Parameters (Continued)

		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
3.000E+03
2.500E+03
2.000E+03
1.500E+03
1.000E+03
5.000E+02
0.000E+00
1972
1977
1982
1987
1992
1997
2002
2007
2012
2017
2022
2027
2032
2037
2042
2047
Year
Total landfill gas
NMOC
Carbon dioxide
Methane


Cubic Meters Per Year
Emissions
2.500E+06
2.000E+06
1.500E+06
1.000E+06
5.000E+05
0.000E+00
1972
1977
1982
1987
1992
1997
2002
2007
2012
2017
2022
2027
2032
2037
2042
2047
Year
Total landfill gas
NMOC
Carbon dioxide
Methane


User-specified Unit (units shown in legend below)
Emissions
1.600E+02
1.400E+02
1.200E+02
1.000E+02
8.000E+01
6.000E+01
4.000E+01
2.000E+01
0.000E+00
1972
1977
1982
1987
1992
1997
2002
2007
2012
2017
2022
2027
2032
2037
2042
2047
Year
Total landfill gas (av ft^3/min)
NMOC (av ft^3/min)
Carbon dioxide (av ft^3/min)
Methane (av ft^3/min)

Results

Year	Total landfill gas			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1972	0	0	0	0	0	0
1973	1.208E+01	9.671E+03	6.498E-01	1.387E-01	3.868E+01	2.599E-03
1974	2.391E+01	1.915E+04	1.287E+00	2.746E-01	7.660E+01	5.147E-03
1975	3.552E+01	2.844E+04	1.911E+00	4.078E-01	1.138E+02	7.644E-03
1976	4.689E+01	3.755E+04	2.523E+00	5.384E-01	1.502E+02	1.009E-02
1977	5.804E+01	4.648E+04	3.123E+00	6.664E-01	1.859E+02	1.249E-02
1978	6.897E+01	5.523E+04	3.711E+00	7.918E-01	2.209E+02	1.484E-02
1979	7.968E+01	6.380E+04	4.287E+00	9.148E-01	2.552E+02	1.715E-02
1980	9.018E+01	7.221E+04	4.852E+00	1.035E+00	2.888E+02	1.941E-02
1981	1.005E+02	8.045E+04	5.406E+00	1.154E+00	3.218E+02	2.162E-02
1982	1.106E+02	8.853E+04	5.948E+00	1.269E+00	3.541E+02	2.379E-02
1983	1.204E+02	9.645E+04	6.480E+00	1.383E+00	3.858E+02	2.592E-02
1984	1.301E+02	1.042E+05	7.002E+00	1.494E+00	4.168E+02	2.801E-02
1985	1.396E+02	1.118E+05	7.513E+00	1.603E+00	4.473E+02	3.005E-02
1986	1.490E+02	1.193E+05	8.014E+00	1.710E+00	4.771E+02	3.206E-02
1987	1.581E+02	1.266E+05	8.505E+00	1.815E+00	5.063E+02	3.402E-02
1988	1.670E+02	1.337E+05	8.986E+00	1.918E+00	5.350E+02	3.595E-02
1989	1.758E+02	1.408E+05	9.458E+00	2.018E+00	5.631E+02	3.783E-02
1990	1.844E+02	1.477E+05	9.921E+00	2.117E+00	5.906E+02	3.968E-02
1991	1.928E+02	1.544E+05	1.037E+01	2.214E+00	6.176E+02	4.150E-02
1992	2.243E+02	1.796E+05	1.207E+01	2.575E+00	7.183E+02	4.827E-02
1993	2.319E+02	1.857E+05	1.248E+01	2.663E+00	7.428E+02	4.991E-02
1994	2.394E+02	1.917E+05	1.288E+01	2.748E+00	7.668E+02	5.152E-02
1995	2.915E+02	2.334E+05	1.569E+01	3.347E+00	9.338E+02	6.274E-02
1996	3.607E+02	2.889E+05	1.941E+01	4.142E+00	1.155E+03	7.764E-02
1997	5.232E+02	4.190E+05	2.815E+01	6.007E+00	1.676E+03	1.126E-01
1998	5.779E+02	4.627E+05	3.109E+01	6.635E+00	1.851E+03	1.244E-01
1999	6.248E+02	5.003E+05	3.362E+01	7.173E+00	2.001E+03	1.345E-01
2000	6.883E+02	5.512E+05	3.703E+01	7.903E+00	2.205E+03	1.481E-01
2001	7.551E+02	6.046E+05	4.062E+01	8.669E+00	2.418E+03	1.625E-01
2002	8.396E+02	6.723E+05	4.517E+01	9.640E+00	2.689E+03	1.807E-01
2003	9.304E+02	7.450E+05	5.006E+01	1.068E+01	2.980E+03	2.002E-01
2004	1.029E+03	8.242E+05	5.538E+01	1.182E+01	3.297E+03	2.215E-01
2005	1.123E+03	8.989E+05	6.040E+01	1.289E+01	3.596E+03	2.416E-01
2006	1.167E+03	9.346E+05	6.279E+01	1.340E+01	3.738E+03	2.512E-01
2007	1.230E+03	9.851E+05	6.619E+01	1.412E+01	3.941E+03	2.648E-01
2008	1.321E+03	1.058E+06	7.109E+01	1.517E+01	4.232E+03	2.844E-01
2009	1.397E+03	1.119E+06	7.516E+01	1.604E+01	4.474E+03	3.006E-01
2010	1.462E+03	1.171E+06	7.866E+01	1.679E+01	4.683E+03	3.146E-01
2011	1.646E+03	1.318E+06	8.858E+01	1.890E+01	5.273E+03	3.543E-01
2012	1.693E+03	1.356E+06	9.109E+01	1.944E+01	5.423E+03	3.644E-01
2013	1.731E+03	1.386E+06	9.312E+01	1.987E+01	5.544E+03	3.725E-01
2014	1.887E+03	1.511E+06	1.015E+02	2.166E+01	6.043E+03	4.061E-01
2015	1.893E+03	1.516E+06	1.019E+02	2.174E+01	6.065E+03	4.075E-01
2016	1.902E+03	1.523E+06	1.023E+02	2.184E+01	6.092E+03	4.093E-01
2017	1.931E+03	1.546E+06	1.039E+02	2.217E+01	6.186E+03	4.156E-01
2018	1.961E+03	1.570E+06	1.055E+02	2.251E+01	6.281E+03	4.220E-01
2019	2.007E+03	1.608E+06	1.080E+02	2.305E+01	6.430E+03	4.320E-01
2020	2.058E+03	1.648E+06	1.107E+02	2.362E+01	6.591E+03	4.428E-01
2021	2.112E+03	1.691E+06	1.136E+02	2.425E+01	6.765E+03	4.545E-01

Results (Continued)

Year	Total landfill gas			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2022	2.152E+03	1.723E+06	1.158E+02	2.470E+01	6.892E+03	4.630E-01
2023	2.197E+03	1.759E+06	1.182E+02	2.523E+01	7.037E+03	4.728E-01
2024	2.246E+03	1.799E+06	1.209E+02	2.579E+01	7.195E+03	4.834E-01
2025	2.299E+03	1.841E+06	1.237E+02	2.639E+01	7.363E+03	4.947E-01
2026	2.355E+03	1.886E+06	1.267E+02	2.704E+01	7.544E+03	5.069E-01
2027	2.416E+03	1.935E+06	1.300E+02	2.774E+01	7.738E+03	5.199E-01
2028	2.481E+03	1.986E+06	1.335E+02	2.848E+01	7.945E+03	5.338E-01
2029	2.431E+03	1.947E+06	1.308E+02	2.792E+01	7.788E+03	5.233E-01
2030	2.383E+03	1.908E+06	1.282E+02	2.736E+01	7.634E+03	5.129E-01
2031	2.336E+03	1.871E+06	1.257E+02	2.682E+01	7.483E+03	5.028E-01
2032	2.290E+03	1.834E+06	1.232E+02	2.629E+01	7.334E+03	4.928E-01
2033	2.245E+03	1.797E+06	1.208E+02	2.577E+01	7.189E+03	4.830E-01
2034	2.200E+03	1.762E+06	1.184E+02	2.526E+01	7.047E+03	4.735E-01
2035	2.156E+03	1.727E+06	1.160E+02	2.476E+01	6.907E+03	4.641E-01
2036	2.114E+03	1.693E+06	1.137E+02	2.427E+01	6.771E+03	4.549E-01
2037	2.072E+03	1.659E+06	1.115E+02	2.379E+01	6.636E+03	4.459E-01
2038	2.031E+03	1.626E+06	1.093E+02	2.332E+01	6.505E+03	4.371E-01
2039	1.991E+03	1.594E+06	1.071E+02	2.286E+01	6.376E+03	4.284E-01
2040	1.951E+03	1.562E+06	1.050E+02	2.240E+01	6.250E+03	4.199E-01
2041	1.913E+03	1.532E+06	1.029E+02	2.196E+01	6.126E+03	4.116E-01
2042	1.875E+03	1.501E+06	1.009E+02	2.152E+01	6.005E+03	4.035E-01
2043	1.838E+03	1.472E+06	9.887E+01	2.110E+01	5.886E+03	3.955E-01
2044	1.801E+03	1.442E+06	9.691E+01	2.068E+01	5.769E+03	3.876E-01
2045	1.766E+03	1.414E+06	9.499E+01	2.027E+01	5.655E+03	3.800E-01
2046	1.731E+03	1.386E+06	9.311E+01	1.987E+01	5.543E+03	3.724E-01
2047	1.696E+03	1.358E+06	9.127E+01	1.948E+01	5.433E+03	3.651E-01
2048	1.663E+03	1.331E+06	8.946E+01	1.909E+01	5.326E+03	3.578E-01
2049	1.630E+03	1.305E+06	8.769E+01	1.871E+01	5.220E+03	3.508E-01
2050	1.598E+03	1.279E+06	8.595E+01	1.834E+01	5.117E+03	3.438E-01
2051	1.566E+03	1.254E+06	8.425E+01	1.798E+01	5.016E+03	3.370E-01
2052	1.535E+03	1.229E+06	8.258E+01	1.762E+01	4.916E+03	3.303E-01
2053	1.505E+03	1.205E+06	8.095E+01	1.727E+01	4.819E+03	3.238E-01
2054	1.475E+03	1.181E+06	7.935E+01	1.693E+01	4.724E+03	3.174E-01
2055	1.446E+03	1.158E+06	7.777E+01	1.660E+01	4.630E+03	3.111E-01
2056	1.417E+03	1.135E+06	7.623E+01	1.627E+01	4.538E+03	3.049E-01
2057	1.389E+03	1.112E+06	7.472E+01	1.595E+01	4.449E+03	2.989E-01
2058	1.361E+03	1.090E+06	7.324E+01	1.563E+01	4.360E+03	2.930E-01
2059	1.334E+03	1.069E+06	7.179E+01	1.532E+01	4.274E+03	2.872E-01
2060	1.308E+03	1.047E+06	7.037E+01	1.502E+01	4.189E+03	2.815E-01
2061	1.282E+03	1.027E+06	6.898E+01	1.472E+01	4.107E+03	2.759E-01
2062	1.257E+03	1.006E+06	6.761E+01	1.443E+01	4.025E+03	2.705E-01
2063	1.232E+03	9.864E+05	6.627E+01	1.414E+01	3.946E+03	2.651E-01
2064	1.207E+03	9.668E+05	6.496E+01	1.386E+01	3.867E+03	2.598E-01
2065	1.184E+03	9.477E+05	6.368E+01	1.359E+01	3.791E+03	2.547E-01
2066	1.160E+03	9.289E+05	6.242E+01	1.332E+01	3.716E+03	2.497E-01
2067	1.137E+03	9.105E+05	6.118E+01	1.306E+01	3.642E+03	2.447E-01
2068	1.115E+03	8.925E+05	5.997E+01	1.280E+01	3.570E+03	2.399E-01
2069	1.093E+03	8.748E+05	5.878E+01	1.254E+01	3.499E+03	2.351E-01
2070	1.071E+03	8.575E+05	5.762E+01	1.229E+01	3.430E+03	2.305E-01
2071	1.050E+03	8.405E+05	5.648E+01	1.205E+01	3.362E+03	2.259E-01
2072	1.029E+03	8.239E+05	5.536E+01	1.181E+01	3.296E+03	2.214E-01

Results (Continued)

Year	Total landfill gas			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2073	1.009E+03	8.076E+05	5.426E+01	1.158E+01	3.230E+03	2.170E-01
2074	9.886E+02	7.916E+05	5.319E+01	1.135E+01	3.166E+03	2.127E-01
2075	9.690E+02	7.759E+05	5.213E+01	1.112E+01	3.104E+03	2.085E-01
2076	9.498E+02	7.605E+05	5.110E+01	1.090E+01	3.042E+03	2.044E-01
2077	9.310E+02	7.455E+05	5.009E+01	1.069E+01	2.982E+03	2.004E-01
2078	9.125E+02	7.307E+05	4.910E+01	1.048E+01	2.923E+03	1.964E-01
2079	8.945E+02	7.163E+05	4.813E+01	1.027E+01	2.865E+03	1.925E-01
2080	8.768E+02	7.021E+05	4.717E+01	1.007E+01	2.808E+03	1.887E-01
2081	8.594E+02	6.882E+05	4.624E+01	9.867E+00	2.753E+03	1.850E-01
2082	8.424E+02	6.745E+05	4.532E+01	9.672E+00	2.698E+03	1.813E-01
2083	8.257E+02	6.612E+05	4.443E+01	9.480E+00	2.645E+03	1.777E-01
2084	8.094E+02	6.481E+05	4.355E+01	9.292E+00	2.592E+03	1.742E-01
2085	7.933E+02	6.353E+05	4.268E+01	9.108E+00	2.541E+03	1.707E-01
2086	7.776E+02	6.227E+05	4.184E+01	8.928E+00	2.491E+03	1.674E-01
2087	7.622E+02	6.104E+05	4.101E+01	8.751E+00	2.441E+03	1.640E-01
2088	7.471E+02	5.983E+05	4.020E+01	8.578E+00	2.393E+03	1.608E-01
2089	7.323E+02	5.864E+05	3.940E+01	8.408E+00	2.346E+03	1.576E-01
2090	7.178E+02	5.748E+05	3.862E+01	8.242E+00	2.299E+03	1.545E-01
2091	7.036E+02	5.634E+05	3.786E+01	8.078E+00	2.254E+03	1.514E-01
2092	6.897E+02	5.523E+05	3.711E+01	7.918E+00	2.209E+03	1.484E-01
2093	6.760E+02	5.413E+05	3.637E+01	7.762E+00	2.165E+03	1.455E-01
2094	6.626E+02	5.306E+05	3.565E+01	7.608E+00	2.122E+03	1.426E-01
2095	6.495E+02	5.201E+05	3.495E+01	7.457E+00	2.080E+03	1.398E-01
2096	6.367E+02	5.098E+05	3.425E+01	7.310E+00	2.039E+03	1.370E-01
2097	6.241E+02	4.997E+05	3.358E+01	7.165E+00	1.999E+03	1.343E-01
2098	6.117E+02	4.898E+05	3.291E+01	7.023E+00	1.959E+03	1.316E-01
2099	5.996E+02	4.801E+05	3.226E+01	6.884E+00	1.920E+03	1.290E-01
2100	5.877E+02	4.706E+05	3.162E+01	6.748E+00	1.882E+03	1.265E-01
2101	5.761E+02	4.613E+05	3.099E+01	6.614E+00	1.845E+03	1.240E-01
2102	5.647E+02	4.522E+05	3.038E+01	6.483E+00	1.809E+03	1.215E-01
2103	5.535E+02	4.432E+05	2.978E+01	6.355E+00	1.773E+03	1.191E-01
2104	5.425E+02	4.344E+05	2.919E+01	6.229E+00	1.738E+03	1.168E-01
2105	5.318E+02	4.258E+05	2.861E+01	6.105E+00	1.703E+03	1.144E-01
2106	5.213E+02	4.174E+05	2.804E+01	5.985E+00	1.670E+03	1.122E-01
2107	5.109E+02	4.091E+05	2.749E+01	5.866E+00	1.637E+03	1.100E-01
2108	5.008E+02	4.010E+05	2.695E+01	5.750E+00	1.604E+03	1.078E-01
2109	4.909E+02	3.931E+05	2.641E+01	5.636E+00	1.572E+03	1.056E-01
2110	4.812E+02	3.853E+05	2.589E+01	5.524E+00	1.541E+03	1.036E-01
2111	4.717E+02	3.777E+05	2.538E+01	5.415E+00	1.511E+03	1.015E-01
2112	4.623E+02	3.702E+05	2.487E+01	5.308E+00	1.481E+03	9.949E-02

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1972	0	0	0	0	0	0
1973	8.851E+00	4.835E+03	3.249E-01	3.226E+00	4.835E+03	3.249E-01
1974	1.753E+01	9.575E+03	6.433E-01	6.388E+00	9.575E+03	6.433E-01
1975	2.603E+01	1.422E+04	9.555E-01	9.487E+00	1.422E+04	9.555E-01
1976	3.437E+01	1.877E+04	1.261E+00	1.253E+01	1.877E+04	1.261E+00
1977	4.254E+01	2.324E+04	1.561E+00	1.550E+01	2.324E+04	1.561E+00
1978	5.055E+01	2.761E+04	1.855E+00	1.842E+01	2.761E+04	1.855E+00
1979	5.840E+01	3.190E+04	2.143E+00	2.128E+01	3.190E+04	2.143E+00
1980	6.609E+01	3.611E+04	2.426E+00	2.409E+01	3.611E+04	2.426E+00
1981	7.363E+01	4.023E+04	2.703E+00	2.684E+01	4.023E+04	2.703E+00
1982	8.103E+01	4.426E+04	2.974E+00	2.953E+01	4.426E+04	2.974E+00
1983	8.827E+01	4.822E+04	3.240E+00	3.217E+01	4.822E+04	3.240E+00
1984	9.538E+01	5.210E+04	3.501E+00	3.476E+01	5.210E+04	3.501E+00
1985	1.023E+02	5.591E+04	3.756E+00	3.730E+01	5.591E+04	3.756E+00
1986	1.092E+02	5.964E+04	4.007E+00	3.979E+01	5.964E+04	4.007E+00
1987	1.159E+02	6.329E+04	4.252E+00	4.222E+01	6.329E+04	4.252E+00
1988	1.224E+02	6.687E+04	4.493E+00	4.461E+01	6.687E+04	4.493E+00
1989	1.288E+02	7.038E+04	4.729E+00	4.696E+01	7.038E+04	4.729E+00
1990	1.351E+02	7.383E+04	4.960E+00	4.925E+01	7.383E+04	4.960E+00
1991	1.413E+02	7.720E+04	5.187E+00	5.150E+01	7.720E+04	5.187E+00
1992	1.644E+02	8.979E+04	6.033E+00	5.990E+01	8.979E+04	6.033E+00
1993	1.700E+02	9.285E+04	6.239E+00	6.194E+01	9.285E+04	6.239E+00
1994	1.754E+02	9.585E+04	6.440E+00	6.394E+01	9.585E+04	6.440E+00
1995	2.137E+02	1.167E+05	7.843E+00	7.787E+01	1.167E+05	7.843E+00
1996	2.644E+02	1.444E+05	9.705E+00	9.636E+01	1.444E+05	9.705E+00
1997	3.835E+02	2.095E+05	1.408E+01	1.398E+02	2.095E+05	1.408E+01
1998	4.235E+02	2.314E+05	1.555E+01	1.544E+02	2.314E+05	1.555E+01
1999	4.579E+02	2.502E+05	1.681E+01	1.669E+02	2.502E+05	1.681E+01
2000	5.045E+02	2.756E+05	1.852E+01	1.839E+02	2.756E+05	1.852E+01
2001	5.534E+02	3.023E+05	2.031E+01	2.017E+02	3.023E+05	2.031E+01
2002	6.154E+02	3.362E+05	2.259E+01	2.243E+02	3.362E+05	2.259E+01
2003	6.819E+02	3.725E+05	2.503E+01	2.485E+02	3.725E+05	2.503E+01
2004	7.544E+02	4.121E+05	2.769E+01	2.749E+02	4.121E+05	2.769E+01
2005	8.227E+02	4.494E+05	3.020E+01	2.998E+02	4.494E+05	3.020E+01
2006	8.553E+02	4.673E+05	3.140E+01	3.117E+02	4.673E+05	3.140E+01
2007	9.016E+02	4.926E+05	3.310E+01	3.286E+02	4.926E+05	3.310E+01
2008	9.684E+02	5.290E+05	3.555E+01	3.529E+02	5.290E+05	3.555E+01
2009	1.024E+03	5.593E+05	3.758E+01	3.731E+02	5.593E+05	3.758E+01
2010	1.071E+03	5.853E+05	3.933E+01	3.905E+02	5.853E+05	3.933E+01
2011	1.207E+03	6.592E+05	4.429E+01	4.398E+02	6.592E+05	4.429E+01
2012	1.241E+03	6.779E+05	4.555E+01	4.522E+02	6.779E+05	4.555E+01
2013	1.268E+03	6.930E+05	4.656E+01	4.623E+02	6.930E+05	4.656E+01
2014	1.383E+03	7.554E+05	5.076E+01	5.040E+02	7.554E+05	5.076E+01
2015	1.388E+03	7.581E+05	5.094E+01	5.058E+02	7.581E+05	5.094E+01
2016	1.394E+03	7.615E+05	5.116E+01	5.080E+02	7.615E+05	5.116E+01
2017	1.415E+03	7.732E+05	5.195E+01	5.159E+02	7.732E+05	5.195E+01
2018	1.437E+03	7.851E+05	5.275E+01	5.238E+02	7.851E+05	5.275E+01
2019	1.471E+03	8.038E+05	5.400E+01	5.362E+02	8.038E+05	5.400E+01
2020	1.508E+03	8.238E+05	5.535E+01	5.496E+02	8.238E+05	5.535E+01
2021	1.548E+03	8.456E+05	5.681E+01	5.641E+02	8.456E+05	5.681E+01

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2022	1.577E+03	8.615E+05	5.788E+01	5.747E+02	8.615E+05	5.788E+01
2023	1.610E+03	8.797E+05	5.911E+01	5.869E+02	8.797E+05	5.911E+01
2024	1.646E+03	8.993E+05	6.043E+01	6.000E+02	8.993E+05	6.043E+01
2025	1.685E+03	9.204E+05	6.184E+01	6.141E+02	9.204E+05	6.184E+01
2026	1.726E+03	9.430E+05	6.336E+01	6.292E+02	9.430E+05	6.336E+01
2027	1.771E+03	9.673E+05	6.499E+01	6.453E+02	9.673E+05	6.499E+01
2028	1.818E+03	9.932E+05	6.673E+01	6.626E+02	9.932E+05	6.673E+01
2029	1.782E+03	9.735E+05	6.541E+01	6.495E+02	9.735E+05	6.541E+01
2030	1.747E+03	9.542E+05	6.411E+01	6.366E+02	9.542E+05	6.411E+01
2031	1.712E+03	9.353E+05	6.284E+01	6.240E+02	9.353E+05	6.284E+01
2032	1.678E+03	9.168E+05	6.160E+01	6.116E+02	9.168E+05	6.160E+01
2033	1.645E+03	8.986E+05	6.038E+01	5.995E+02	8.986E+05	6.038E+01
2034	1.612E+03	8.809E+05	5.918E+01	5.877E+02	8.809E+05	5.918E+01
2035	1.580E+03	8.634E+05	5.801E+01	5.760E+02	8.634E+05	5.801E+01
2036	1.549E+03	8.463E+05	5.686E+01	5.646E+02	8.463E+05	5.686E+01
2037	1.519E+03	8.296E+05	5.574E+01	5.534E+02	8.296E+05	5.574E+01
2038	1.488E+03	8.131E+05	5.463E+01	5.425E+02	8.131E+05	5.463E+01
2039	1.459E+03	7.970E+05	5.355E+01	5.317E+02	7.970E+05	5.355E+01
2040	1.430E+03	7.812E+05	5.249E+01	5.212E+02	7.812E+05	5.249E+01
2041	1.402E+03	7.658E+05	5.145E+01	5.109E+02	7.658E+05	5.145E+01
2042	1.374E+03	7.506E+05	5.043E+01	5.008E+02	7.506E+05	5.043E+01
2043	1.347E+03	7.358E+05	4.944E+01	4.909E+02	7.358E+05	4.944E+01
2044	1.320E+03	7.212E+05	4.846E+01	4.811E+02	7.212E+05	4.846E+01
2045	1.294E+03	7.069E+05	4.750E+01	4.716E+02	7.069E+05	4.750E+01
2046	1.268E+03	6.929E+05	4.656E+01	4.623E+02	6.929E+05	4.656E+01
2047	1.243E+03	6.792E+05	4.563E+01	4.531E+02	6.792E+05	4.563E+01
2048	1.219E+03	6.657E+05	4.473E+01	4.441E+02	6.657E+05	4.473E+01
2049	1.194E+03	6.526E+05	4.384E+01	4.353E+02	6.526E+05	4.384E+01
2050	1.171E+03	6.396E+05	4.298E+01	4.267E+02	6.396E+05	4.298E+01
2051	1.148E+03	6.270E+05	4.213E+01	4.183E+02	6.270E+05	4.213E+01
2052	1.125E+03	6.146E+05	4.129E+01	4.100E+02	6.146E+05	4.129E+01
2053	1.103E+03	6.024E+05	4.047E+01	4.019E+02	6.024E+05	4.047E+01
2054	1.081E+03	5.905E+05	3.967E+01	3.939E+02	5.905E+05	3.967E+01
2055	1.059E+03	5.788E+05	3.889E+01	3.861E+02	5.788E+05	3.889E+01
2056	1.038E+03	5.673E+05	3.812E+01	3.785E+02	5.673E+05	3.812E+01
2057	1.018E+03	5.561E+05	3.736E+01	3.710E+02	5.561E+05	3.736E+01
2058	9.977E+02	5.451E+05	3.662E+01	3.636E+02	5.451E+05	3.662E+01
2059	9.780E+02	5.343E+05	3.590E+01	3.564E+02	5.343E+05	3.590E+01
2060	9.586E+02	5.237E+05	3.519E+01	3.494E+02	5.237E+05	3.519E+01
2061	9.396E+02	5.133E+05	3.449E+01	3.425E+02	5.133E+05	3.449E+01
2062	9.210E+02	5.032E+05	3.381E+01	3.357E+02	5.032E+05	3.381E+01
2063	9.028E+02	4.932E+05	3.314E+01	3.290E+02	4.932E+05	3.314E+01
2064	8.849E+02	4.834E+05	3.248E+01	3.225E+02	4.834E+05	3.248E+01
2065	8.674E+02	4.739E+05	3.184E+01	3.161E+02	4.739E+05	3.184E+01
2066	8.502E+02	4.645E+05	3.121E+01	3.099E+02	4.645E+05	3.121E+01
2067	8.334E+02	4.553E+05	3.059E+01	3.037E+02	4.553E+05	3.059E+01
2068	8.169E+02	4.463E+05	2.998E+01	2.977E+02	4.463E+05	2.998E+01
2069	8.007E+02	4.374E+05	2.939E+01	2.918E+02	4.374E+05	2.939E+01
2070	7.848E+02	4.288E+05	2.881E+01	2.860E+02	4.288E+05	2.881E+01
2071	7.693E+02	4.203E+05	2.824E+01	2.804E+02	4.203E+05	2.824E+01
2072	7.541E+02	4.119E+05	2.768E+01	2.748E+02	4.119E+05	2.768E+01

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2073	7.391E+02	4.038E+05	2.713E+01	2.694E+02	4.038E+05	2.713E+01
2074	7.245E+02	3.958E+05	2.659E+01	2.641E+02	3.958E+05	2.659E+01
2075	7.102E+02	3.880E+05	2.607E+01	2.588E+02	3.880E+05	2.607E+01
2076	6.961E+02	3.803E+05	2.555E+01	2.537E+02	3.803E+05	2.555E+01
2077	6.823E+02	3.727E+05	2.504E+01	2.487E+02	3.727E+05	2.504E+01
2078	6.688E+02	3.654E+05	2.455E+01	2.438E+02	3.654E+05	2.455E+01
2079	6.556E+02	3.581E+05	2.406E+01	2.389E+02	3.581E+05	2.406E+01
2080	6.426E+02	3.510E+05	2.359E+01	2.342E+02	3.510E+05	2.359E+01
2081	6.298E+02	3.441E+05	2.312E+01	2.296E+02	3.441E+05	2.312E+01
2082	6.174E+02	3.373E+05	2.266E+01	2.250E+02	3.373E+05	2.266E+01
2083	6.052E+02	3.306E+05	2.221E+01	2.206E+02	3.306E+05	2.221E+01
2084	5.932E+02	3.240E+05	2.177E+01	2.162E+02	3.240E+05	2.177E+01
2085	5.814E+02	3.176E+05	2.134E+01	2.119E+02	3.176E+05	2.134E+01
2086	5.699E+02	3.113E+05	2.092E+01	2.077E+02	3.113E+05	2.092E+01
2087	5.586E+02	3.052E+05	2.050E+01	2.036E+02	3.052E+05	2.050E+01
2088	5.476E+02	2.991E+05	2.010E+01	1.996E+02	2.991E+05	2.010E+01
2089	5.367E+02	2.932E+05	1.970E+01	1.956E+02	2.932E+05	1.970E+01
2090	5.261E+02	2.874E+05	1.931E+01	1.917E+02	2.874E+05	1.931E+01
2091	5.157E+02	2.817E+05	1.893E+01	1.879E+02	2.817E+05	1.893E+01
2092	5.055E+02	2.761E+05	1.855E+01	1.842E+02	2.761E+05	1.855E+01
2093	4.955E+02	2.707E+05	1.819E+01	1.806E+02	2.707E+05	1.819E+01
2094	4.856E+02	2.653E+05	1.783E+01	1.770E+02	2.653E+05	1.783E+01
2095	4.760E+02	2.601E+05	1.747E+01	1.735E+02	2.601E+05	1.747E+01
2096	4.666E+02	2.549E+05	1.713E+01	1.701E+02	2.549E+05	1.713E+01
2097	4.574E+02	2.499E+05	1.679E+01	1.667E+02	2.499E+05	1.679E+01
2098	4.483E+02	2.449E+05	1.646E+01	1.634E+02	2.449E+05	1.646E+01
2099	4.394E+02	2.401E+05	1.613E+01	1.602E+02	2.401E+05	1.613E+01
2100	4.307E+02	2.353E+05	1.581E+01	1.570E+02	2.353E+05	1.581E+01
2101	4.222E+02	2.306E+05	1.550E+01	1.539E+02	2.306E+05	1.550E+01
2102	4.138E+02	2.261E+05	1.519E+01	1.508E+02	2.261E+05	1.519E+01
2103	4.056E+02	2.216E+05	1.489E+01	1.478E+02	2.216E+05	1.489E+01
2104	3.976E+02	2.172E+05	1.459E+01	1.449E+02	2.172E+05	1.459E+01
2105	3.897E+02	2.129E+05	1.431E+01	1.420E+02	2.129E+05	1.431E+01
2106	3.820E+02	2.087E+05	1.402E+01	1.392E+02	2.087E+05	1.402E+01
2107	3.745E+02	2.046E+05	1.374E+01	1.365E+02	2.046E+05	1.374E+01
2108	3.670E+02	2.005E+05	1.347E+01	1.338E+02	2.005E+05	1.347E+01
2109	3.598E+02	1.965E+05	1.321E+01	1.311E+02	1.965E+05	1.321E+01
2110	3.527E+02	1.927E+05	1.294E+01	1.285E+02	1.927E+05	1.294E+01
2111	3.457E+02	1.888E+05	1.269E+01	1.260E+02	1.888E+05	1.269E+01
2112	3.388E+02	1.851E+05	1.244E+01	1.235E+02	1.851E+05	1.244E+01

APPENDIX 6.6

UNCONTROLLED EMISSIONS

EMISSION UNITS 5 AND 6

Crusher/ Shredder Operations

Crushed Product Stockpiling

Front End Loader Operations

Portable Rock Crusher (Rental) Fugitive Emission Estimates

CRUSHER/SHREDDER OPERATIONS

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from three different Crusher/Shredder related processes:

- Crusher/Shredder Loading, Crushing, Conveyor Transport, and Truck Loading
- Crushed Product Stockpiling
- Crushed Product Transport

These calculation estimates are based on a maximum Crusher/Shredder throughput of 80 tons per hour at 5 hours per day. The Crusher/Shredder will be utilized to reduce concrete, asphalt, C&D waste and MSW throughout its life.

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

- Crusher/Shredder Loading, Crushing, Conveyor Transport and Truck Loading -- Section 11.19.2 (Crushed Stone Processing, Aug. 2004)
- Crushed Product Stockpiling. -- Section 13.2.4 (Aggregate Handling and Storage Piles, November 2006)
- Crushed Product Transport -- Section 13.2.2 (Unpaved Roads, November 2006)

Crusher/Shredder Loading, Crushing, Conveyor Transport, and Truck Loading

The TSP, PM_{10} and $PM_{2.5}$ emissions rates which follow represent the total combined emissions rates for Crusher/Shredder Loading, Crushing, Conveyor Transport, and Truck Loading based on a maximum material throughput of **80 tons/hour**.

Crusher/Shredder Loading TSP, PM_{10} and $PM_{2.5}$ Emission Factors:

E_{TSP} =	0.0000336	pounds/ton	**0.0027** lbs/hr*
E_{PM10} =	0.000016	pounds/ton	**0.0013** lbs/hr
$E_{PM2.5}$ =	0.000016	pounds/ton	**0.0013** lbs/hr**

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

E_{TSP} =	0.0054	pounds/ton	**0.43** lbs/hr
E_{PM10} =	0.0024	pounds/ton	**0.19** lbs/hr
$E_{PM2.5}$ =	0.0024	pounds/ton	**0.19** lbs/hr**

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

E_{TSP} =	0.0030	pounds/ton	**0.24** lbs/hr
E_{PM10} =	0.00110	pounds/ton	**0.088** lbs/hr
$E_{PM2.5}$ =	0.00110	pounds/ton	**0.088** lbs/hr**

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

E_{TSP} =	0.00021	pounds/ton	**0.017** lbs/hr*
E_{PM10} =	0.00010	pounds/ton	**0.008** lbs/hr
$E_{PM2.5}$ =	0.00010	pounds/ton	**0.008** lbs/hr**

**AP-42 does not specify emissions estimates for TSP from Crusher Loading. Following the instructions in AP-42 (1995) Section 11.19.2, Table 11.19.2-2, footnote c, TSP is calculated by multiplying the respective PM_{10} rate by 2.1.*

*** For calculation purposes, the emission rates for $PM_{2.5}$ from Crusher/Shredder Loading, Unloading, Crushing and Conveyor Transport are conservatively estimated to be equal to PM_{10} emissions rates.*

Operating Hours Per Year:

Operating efficiency =	**100%**	(based on Landfill data)
Operating hours per day =	**5**	hrs/day (based on Landfill data)
Operating days per year =	**304**	days/yr

Operating hours per year = (operating efficiency)(operating hrs/day)(operating days)

Operating hours per year = **1,520** hrs/yr

Crusher/Shredder Loading, Crushing, Conveyor Transport, and Truck Loading combined TSP, PM_{10} and $PM_{2.5}$ Emissions (Long-Term and Short-Term):

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(operating hours per year) =	**1,051.06**	lbs/yr
$E_{TSP(tons/yr)}$ =	($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) =	**0.53**	**tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ =	($E_{TSP(lbs/yr)}$)/(operating hrs/yr) =	**0.69**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(operating hours per year) =	**439.71**	lbs/yr
$E_{PM10(tons/yr)}$ =	($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) =	**0.22**	**tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ =	($E_{PM10(lbs/yr)}$)/(operating hrs/yr) =	**0.29**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	($E_{PM2.5}$)(operating hours per year) =	**439.71**	lbs/yr
$E_{PM2.5(tons/yr)}$ =	($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) =	**0.22**	**tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ =	($E_{PM2.5(lbs/yr)}$)/(operating hrs/yr) =	**0.29**	**lbs/hr (uncontrolled)**

CRUSHER/SHREDDER PRODUCT STOCKPILING
(Uncontrolled Emissions)

AP-42, Section 13.2.4, Aggregate Handling and Storage Piles (November, 2006) and AP-42 Table 11.9-4 provides guidance for emissions produced by batch drop operations at the Crushed Product Stockpile. Equation (1) from Section 13.2.4 is used to calculate TSP, PM_{10}, and $PM_{2.5}$ emissions.

Emissions Equation:

$$E = \frac{(k)(0.0032)(U/5)^{1.3}}{(M/2)^{1.4}}$$ (AP-42,13.2.4.3, equation (1))

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

k = particle size multiplier (dimensionless):

k_{TSP} =	**0.74**	(AP-42, 13.2.4.3)
k_{PM10} =	**0.35**	(AP-42, 13.2.4.3)
$k_{PM2.5}$ =	**0.053**	(AP-42, 13.2.4.3)

Where:

U = mean wind speed (mph) =	**11.00**	(Air Quality Bureau Default)
M = material moisture content (%) =	**2.00**	(Air Quality Bureau Default)

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

$$E_{TSP} = \frac{(0.74)(0.0032)(11.0/5)^{1.3}}{(2.0/2)^{1.4}} =$$ **0.0066** lbs/ton of material unloaded

$$E_{PM10} = \frac{(0.35)(0.0032)(11.0/5)^{1.3}}{(2.0/2)^{1.4}} =$$ **0.0031** lbs/ton of material unloaded

$$E_{PM2.5} = \frac{(0.053)(0.0032)(11.0/5)^{1.3}}{(2.0/2)^{1.4}} =$$ **0.00047** lbs/ton of material unloaded

Assumption:

Mass of material handled/yr = mass of material crushed/yr =
(80 tons/hour)(operating hours/year operation) =
121,600 tons/yr

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(mass of material unloaded/yr) =	**802.54**	lbs/yr
$E_{TSP(tons/yr)}$ = ($E_{TSP(lbs/yr)}$)/(2,000 lbs/ton) =	**0.40**	**tons/yr (uncontrolled)**
$E_{TSP(lbs/hr)}$ = ($E_{TSP(lbs/yr)}$)/(operating hrs/yr) =	**0.53**	**lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ = (E_{PM10})(mass of material unloaded/yr) =	**379.58**	lbs/yr
$E_{PM10(tons/yr)}$ = ($E_{PM10(lbs/yr)}$)/(2,000 lbs/ton) =	**0.19**	**tons/yr (uncontrolled)**
$E_{PM10(lbs/hr)}$ = ($E_{PM10(lbs/yr)}$)/(operating hrs/yr) =	**0.25**	**lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ = ($E_{PM2.5}$)(mass of material unloaded/yr) =	**57.48**	lbs/yr
$E_{PM2.5(tons/yr)}$ = ($E_{PM2.5(lbs/yr)}$)/(2,000 lbs/ton) =	**0.029**	**tons/yr (uncontrolled)**
$E_{PM2.5(lbs/hr)}$ = ($E_{PM2.5(lbs/yr)}$)/(operating hrs/yr) =	**0.038**	**lbs/hr (uncontrolled)**

CRUSHER/SHREDDER OPERATIONS EMISSIONS SUMMARY

(Total Uncontrolled TSP, PM_{10}, and $PM_{2.5}$ Emissions)

Crusher/Shredder Loading Emissions	
TSP Long-Term Emissions	**0.0020 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.0027 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.0010 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.0013 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.0010 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.0013 lbs/hr (uncontrolled)**
Crushing Emissions	
TSP Long-Term Emissions	**0.33 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.43 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.15 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.19 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.15 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.19 lbs/hr (uncontrolled)**
Conveyor Transport Emissions	
TSP Long-Term Emissions	**0.18 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.24 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.067 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.088 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.067 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.088 lbs/hr (uncontrolled)**
Truck Loading Emissions	
TSP Long-Term Emissions	**0.013 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.017 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.006 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.008 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.006 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.008 lbs/hr (uncontrolled)**
Crushed Product Stockpiling Emissions	
TSP Long-Term Emissions	**0.40 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**0.53 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.19 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.25 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.029 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.038 lbs/hr (uncontrolled)**
Total Crusher/Shredder Process Emissions:	
TSP Long-Term Emissions	**0.93 tons/yr (uncontrolled)**
TSP Short-Term Emissions	**1.22 lbs/hr (uncontrolled)**
PM_{10} Long-Term Emissions	**0.41 tons/yr (uncontrolled)**
PM_{10} Short-Term Emissions	**0.54 lbs/hr (uncontrolled)**
$PM_{2.5}$ Long-Term Emissions	**0.25 tons/yr (uncontrolled)**
$PM_{2.5}$ Short-Term Emissions	**0.33 lbs/hr (uncontrolled)**

FRONT END LOADER OPERATIONS (CRUSHER/SHREDDER AREA - UNPAVED)

Purpose: The purpose of this calculation is to estimate the potential fugitive dust emissions from Front End Loader travel within the unpaved Crushing Area

Methodology: The Crushing Area is only driven upon by the Front End Loader. This area is unpaved and no dust control is applied. Emissions calculations are based on guidance presented in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006).

The following data and information were used to estimate long-term and short-term emissions:

Average Number of Crushing Area Round Trips Per Day:

Average round trips per day = **10** round trips/hour (based on Landfill data)

Operating days per year = **304** operating days per year (Days, Count From Tracking Sheet)

Total Vehicle Miles Traveled (VMT) Per Year:

Total VMT per year = (operating days per year)(average round trips per day)(round trip distance)

Total VMT per year = **576** VMT/yr Total VMT per day = **1.89** VMT/day

Round Trip Travel Distance:

Travel distance = **200** feet

Travel distance = **0.04** miles

Mean Vehicle Weight (W):

Loader weight includes average empty average weight of Loader + 1/2 weight of material (bucket is empty for 1/2 of round trip)

Front-end Loader empty weight (average) = **13.99** tons based on landfill data)

Average bucket load = **4.00** yd^3 (based on Landfill data)

material density = **1.90** $tons/yd^3$ (Material Densities Standard)

Weight per bucket load = (average load)(material density) = **7.59** tons

Mean vehicle weight = (loader empty weight) + (0.5)(material weight per bucket load) = **17.78** tons

Operating Hours Per Year:

Average operating hours per day (see "Landfill Operating Hours") = **5** hrs/day

Operating days per year = **304** days/yr

Operating hours per year = (average operating hrs/day)(operating days/year) = **1,520** hrs/yr

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FRONT END LOADER OPERATIONS (CRUSHER/SHREDDER AREA - UNPAVED)
(Uncontrolled Long-Term Emissions)

Long-term (tons/yr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (2) was used to estimate long-term emissions:

Long-Term Emissions Equation:

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

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lbs/VMT)
k = particle size multiplier (dimensionless)
s = surface material silt content (%) AP-42, Table 13.2.2-1
a = empirical constant (dimensionless)
b = empirical constant (dimensionless)
W = mean vehicle weight (tons)
p = number of days per year with at least 0.01 inches of precipitation (AP-42, Figure 13.2.2-1)

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	17.78	W =	17.78	W =	17.78
p =	70.00	p =	70.00	p =	70.00

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

$E_{TSP} = [(4.9)(6.4/12)^{0.7}(17.8/3)^{0.45}][(365-70)/365]$ = **5.68** lbs/VMT

$E_{PM10} = [(1.5)(6.4/12)^{0.9}(17.8/3)^{0.45}][(365-70)/365]$ = **1.53** lbs/VMT

$E_{PM2.5} = [(0.15)(6.4/12)^{0.9}(17.8/3)^{0.45}][(365-70)/365]$ = **0.15** lbs/VMT

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

$E_{TSP(lbs/yr)}$ = (E_{TSP})(total VMT/yr) = **3,270.61** lbs/yr

$E_{TSP(tons/yr)}$ = $(E_{TSP(lbs/yr)})/(2{,}000$ lbs/ton) = **1.64 tons/yr (uncontrolled)**

$E_{PM10(lbs/yr)}$ = (E_{PM10})(total VMT/yr) = **882.92** lbs/yr

$E_{PM10(tons/yr)}$ = $(E_{PM10(lbs/yr)})/(2{,}000$ lbs/ton) = **0.44 tons/yr (uncontrolled)**

$E_{PM2.5(lbs/yr)}$ = $(EPM_{2.5})$(total VMT/yr) = **88.29** lbs/yr

$E_{PM2.5(tons/yr)}$ = $(E_{PM2.5(lbs/yr)})/(2{,}000$ lbs/ton) = **0.044 tons/yr (uncontrolled)**

FRONT END LOADER OPERATIONS (CRUSHER/SHREDDER AREA - UNPAVED)
(Uncontrolled Short-Term Emissions)

Short-term (lbs/hr) fugitive dust emissions have been estimated through guidance provided in EPA AP-42, Section 13.2.2, Unpaved Roads (November, 2006). Equation (1a) is used to estimate short-term emissions:

Short-Term Emissions Equation:

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

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

TSP		PM_{10}		$PM_{2.5}$	
k =	4.90	k =	1.50	k =	0.15
s =	6.40	s =	6.40	s =	6.40
a =	0.70	a =	0.90	a =	0.90
b =	0.45	b =	0.45	b =	0.45
W =	17.78	W =	17.78	W =	17.78

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

$E_{TSP} = (4.9)(6.4/12)^{0.7}(17.8/3)^{0.45}$ = **7.03** lbs/VMT

$E_{PM10} = (1.5)(6.4/12)^{0.9}(17.8/3)^{0.45}$ = **1.90** lbs/VMT

$E_{PM2.5} = (0.15)(6.4/12)^{0.9}(17.8/3)^{0.45}$ = **0.19** lbs/VMT

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

$E_{TSP(lbs/yr)}$ =	(E_{TSP})(total VMT/yr) =	**4,046.69** lbs/yr
$E_{TSP(lbs/hr)}$ =	$(E_{TSP(lbs/yr)})$/(operating hours/yr) =	**2.66 lbs/hr (uncontrolled)**
$E_{PM10(lbs/yr)}$ =	(E_{PM10})(total VMT/yr) =	**1,092.43** lbs/yr
$E_{PM10(lbs/hr)}$ =	$(E_{PM10(lbs/yr)})$/(operating hours/yr) =	**0.72 lbs/hr (uncontrolled)**
$E_{PM2.5(lbs/yr)}$ =	$(EPM_{2.5})$(total VMT/yr) =	**109.24** lbs/yr
$E_{PM2.5(tons/yr)}$ =	$(E_{PM2.5(lbs/yr)})$/(operating hours/yr) =	**0.072 lbs/hr (uncontrolled)**

APPENDIX 6.6
Sandoval County Landfill

Rental Crusher Fugitive Emissions Estimates
Metso Lokotrack LT1213S Impact Crusher with screen

Crushing estimates (tertiary, uncontrolled)				
Pollutant	**Factor** (lb/ton)	**PPH**	**TPY**	**Notes**
TSP	0.0054	1.49	0.43	
PM10	0.0024	0.66	0.19	
PM2.5	0.0024	0.66	0.19	*No factor given, using PM10 factor*
Crushing Estimates (tertiary, controlled)				
Pollutant	**Factor** (lb/ton)	**PPH**	**TPY**	**Notes**
TSP	0.0012	0.330	0.071	
PM10	0.0005	0.149	0.032	
PM2.5	0.0001	0.028	0.006	
Screening Estimates (uncontrolled)				
Pollutant	**Factor** (lb/ton)	**PPH**	**TPY**	**Notes**
TSP	0.025	6.88	1.98	
PM10	0.009	2.39	0.69	
PM2.5	0.009	2.39	0.69	*No factor given, using PM10 factor*
Screening Estimates (controlled)				
Pollutant	**Factor** (lb/ton)	**PPH**	**TPY**	**Notes**
TSP	0.0022	0.605	0.131	
PM10	0.0007	0.204	0.044	
PM2.5	0.0001	0.014	0.003	
Loading - Conveyor, crushed stone				
Pollutant	**Factor** (lb/ton)	**PPH**	**TPY**	**Notes**
TSP	0.0001	0.028	0.006	*No factor given, using PM10 factor*
PM10	0.0001	0.028	0.006	
PM2.5	0.0001	0.028	0.006	*No factor given, using PM10 factor*

Total fugitives for crushing, screening and loading (*controlled)* :				
Pollutant		lb/hr	ton/yr	
TSP		0.963	0.208	
PM10		0.380	0.082	
PM2.5		0.069	0.015	

Total fugitives for crushing, screening and loading (*uncontrolled)* :				
Pollutant		lb/hr	ton/yr	
TSP		8.39	2.41	
PM10		3.08	0.89	
PM2.5		3.08	0.89	

NOTES:
Maximum throughput: 250 metric tons/hour (275 short tons/hour)
TPY estimates assumes 2 month (8 week) rental operating 9 hr/day 6 days /week (432 hours)
Fugitive emission rates obtained from AP-42 Section 11.19.2, Table 11.19.2-2
PPH = pounds per hour (lb/hr)
TPY=[PPH*(9 hr/day)*(6 days/wk)*(8 wk rental)]/2,000 lb/ton
Crusher is equipped with a wet suppression system, therefore controlled factors from AP-42 are used.

APPENDIX 6.7

LandGEM Output

(Inventory Tab)

INVENTORY

Landfill Name or Identifier: Sandoval County Landfill

Enter year of emissions inventory: 2028

Gas / Pollutant	Emission Rate				
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(ft^3/year)*	*(short tons/year)*
Total landfill gas	2.481E+03	1.986E+06	1.335E+02	7.015E+07	2.729E+03
Methane	6.626E+02	9.932E+05	6.673E+01	3.507E+07	7.288E+02
Carbon dioxide	1.818E+03	9.932E+05	6.673E+01	3.507E+07	2.000E+03
NMOC	2.848E+01	7.945E+03	5.338E-01	2.806E+05	3.133E+01
1,1,1-Trichloroethane (methyl chloroform) - HAP	5.291E-03	9.534E-01	6.406E-05	3.367E+01	5.820E-03
1,1,2,2-Tetrachloroethane - HAP/VOC	1.525E-02	2.185E+00	1.468E-04	7.716E+01	1.678E-02
1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	1.962E-02	4.767E+00	3.203E-04	1.684E+02	2.159E-02
1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	1.602E-03	3.973E-01	2.669E-05	1.403E+01	1.762E-03
1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	3.352E-03	8.144E-01	5.472E-05	2.876E+01	3.687E-03
1,2-Dichloropropane (propylene dichloride) - HAP/VOC	1.680E-03	3.575E-01	2.402E-05	1.263E+01	1.848E-03
2-Propanol (isopropyl alcohol) - VOC	2.483E-01	9.932E+01	6.673E-03	3.507E+03	2.731E-01
Acetone	3.359E-02	1.390E+01	9.342E-04	4.910E+02	3.695E-02
Acrylonitrile - HAP/VOC	2.762E-02	1.251E+01	8.408E-04	4.419E+02	3.038E-02
Benzene - No or Unknown Co-disposal - HAP/VOC	1.226E-02	3.774E+00	2.536E-04	1.333E+02	1.349E-02
Benzene - Co-disposal - HAP/VOC	7.098E-02	2.185E+01	1.468E-03	7.716E+02	7.808E-02
Bromodichloromethane - VOC	4.196E-02	6.158E+00	4.137E-04	2.175E+02	4.615E-02
Butane - VOC	2.401E-02	9.932E+00	6.673E-04	3.507E+02	2.641E-02
Carbon disulfide - HAP/VOC	3.648E-03	1.152E+00	7.741E-05	4.069E+01	4.013E-03
Carbon monoxide	3.240E-01	2.781E+02	1.868E-02	9.821E+03	3.564E-01
Carbon tetrachloride - HAP/VOC	5.084E-05	7.945E-03	5.338E-07	2.806E-01	5.592E-05
Carbonyl sulfide - HAP/VOC	2.432E-03	9.733E-01	6.540E-05	3.437E+01	2.675E-03
Chlorobenzene - HAP/VOC	2.325E-03	4.966E-01	3.337E-05	1.754E+01	2.557E-03
Chlorodifluoromethane	9.287E-03	2.582E+00	1.735E-04	9.119E+01	1.022E-02
Chloroethane (ethyl chloride) - HAP/VOC	6.930E-03	2.582E+00	1.735E-04	9.119E+01	7.623E-03
Chloroform - HAP/VOC	2.959E-04	5.959E-02	4.004E-06	2.104E+00	3.255E-04
Chloromethane - VOC	5.006E-03	2.384E+00	1.602E-04	8.418E+01	5.506E-03
Dichlorobenzene - (HAP for para isomer/VOC)	2.550E-03	4.171E-01	2.803E-05	1.473E+01	2.805E-03
Dichlorodifluoromethane	1.598E-01	3.178E+01	2.135E-03	1.122E+03	1.758E-01
Dichlorofluoromethane - VOC	2.211E-02	5.164E+00	3.470E-04	1.824E+02	2.432E-02
Dichloromethane (methylene chloride) - HAP	9.824E-02	2.781E+01	1.868E-03	9.821E+02	1.081E-01
Dimethyl sulfide (methyl sulfide) - VOC	4.004E-02	1.549E+01	1.041E-03	5.471E+02	4.404E-02
Ethane	2.211E+00	1.768E+03	1.188E-01	6.243E+04	2.432E+00
Ethanol - VOC	1.028E-01	5.363E+01	3.603E-03	1.894E+03	1.131E-01
Ethyl mercaptan (ethanethiol) - VOC	1.181E-02	4.569E+00	3.070E-04	1.613E+02	1.299E-02
Ethylbenzene - HAP/VOC	4.034E-02	9.137E+00	6.139E-04	3.227E+02	4.438E-02
Ethylene dibromide - HAP/VOC	1.552E-05	1.986E-03	1.335E-07	7.015E-02	1.707E-05
Fluorotrichloromethane - VOC	8.626E-03	1.510E+00	1.014E-04	5.331E+01	9.488E-03
Hexane - HAP/VOC	4.699E-02	1.311E+01	8.808E-04	4.630E+02	5.169E-02
Hydrogen sulfide	1.014E-01	7.151E+01	4.805E-03	2.525E+03	1.115E-01
Mercury (total) - HAP	4.806E-06	5.760E-04	3.870E-08	2.034E-02	5.287E-06
Methyl ethyl ketone - HAP/VOC	4.230E-02	1.410E+01	9.476E-04	4.980E+02	4.653E-02
Methyl isobutyl ketone - HAP/VOC	1.572E-02	3.774E+00	2.536E-04	1.333E+02	1.729E-02
Methyl mercaptan - VOC	9.937E-03	4.966E+00	3.337E-04	1.754E+02	1.093E-02
Pentane - VOC	1.967E-02	6.555E+00	4.404E-04	2.315E+02	2.164E-02
Perchloroethylene (tetrachloroethylene) - HAP	5.069E-02	7.349E+00	4.938E-04	2.595E+02	5.576E-02
Propane - VOC	4.007E-02	2.185E+01	1.468E-03	7.716E+02	4.408E-02
t-1,2-Dichloroethene - VOC	2.242E-02	5.562E+00	3.737E-04	1.964E+02	2.467E-02
Toluene - No or Unknown Co-disposal - HAP/VOC	2.968E-01	7.747E+01	5.205E-03	2.736E+03	3.265E-01
Toluene - Co-disposal - HAP/VOC	1.294E+00	3.377E+02	2.269E-02	1.192E+04	1.423E+00
Trichloroethylene (trichloroethene) - HAP/VOC	3.040E-02	5.562E+00	3.737E-04	1.964E+02	3.344E-02
Vinyl chloride - HAP/VOC	3.769E-02	1.450E+01	9.743E-04	5.121E+02	4.146E-02
Xylenes - HAP/VOC	1.052E-01	2.384E+01	1.602E-03	8.418E+02	1.158E-01

APPENDIX 6.8

PETROLEUM HYDROCARBON LANDFARM SHIPMENT TRACKING

AND

EMISSIONS ESTIMATION SPREADSHEET

EMISSION UNIT 4

APPENDIX 6.8
Sandoval County Landfill
PCS HAPs Emissions Calculation Sheet

Reporting Period 1/1/23 **To** 12/30/23

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

TOTAL HAP EMISSIONS (tons/year)

Total HAP Emissions from Unit 2 (Table 6.7) = constant =	**0.59**	tons
Total HAP Emissions from Unit 3 (Table 6.6) = constant =	**0.96**	tons
Total HAP Emissions from Unit 5 (Table 6.7) = constant =	**0.004**	tons
Total HAP Emissions from PCS Remediation (Unit 4) = Variable =	**22.92**	tons
Total HAP Emissions from Unit 6 (Table 6.8) = constant =	**0.028**	tons
Maximum Target Total HAP =	**24.50**	tons

INDIVIDUAL HAP EMISSIONS

Benzene Emission from Unit 2 (Table 6.7) = constant =	9.60E-04	tons
Benzene Emission from Unit 3 (Table 6.6) = constant =	1.35E-02	tons
Benzene Emission from Unit 5 (Table 6.7) = constant =	9.18E-04	tons
Benzene Emission from Unit 6 (Table 6.8) = constant =	2.80E-02	tons
Benzene from PCS = variable =	0.0E+00	tons
Total Benzene Emissions	**4.34E-02**	tons
Toluene Emission from Unit 2 (Table 6.7) = constant =	4.21E-04	tons
Toluene Emission from Unit 3 (Table 6.6) = constant =	3.27E-01	tons
Toluene Emission from Unit 5 (Table 6.7) = constant =	4.03E-04	tons
Toluene Emission from Unit 6 (Table 6.8) = constant =	2.80E-02	tons
Toluene from PCS = variable =	0.0E+00	tons
Total Toluene Emissions	**3.56E-01**	tons

INDIVIDUAL HAP EMISSIONS

Ethylbenzene Emissions from Unit 2 = constant =	0.0E+00	tons
Ethylbenzene Emissons from Unit 3 (Table 6.6) = con	4.40E-02	tons
Ethylbenzene Emissions from Unit 5 = constant =	0.0E+00	tons
Ethylbenzene Emissions from Unit 6 = constant =	0.0E+00	tons
Ethylbenzene Emissions from PCS = variable =	0.0E+00	tons
Total Ethylbenzene =	**4.40E-02**	tons
Xylene Emissions from Unit 2 (Table 6.7) = constant =	2.93E-04	tons
Xylene Emissions from Unit 3 (Table 6.6) = constant =	1.16E-01	tons
Xylene Emissions from Unit 5 (Table 6.7) = constant =	2.80E-04	tons
Xylene Emissions from Unit 6 (Table 6.8) = constant =	2.80E-02	
Xylene from PCS = variable =	0.0E+00	tons
Total Xylene =	**1.44E-01**	tons
Target Total Per HAP =	**9.50**	tons/yr

APPENDIX 6.9

Initial Notification/Notification of Compliance Status Report for Gasoline Dispensing Facilities

In compliance with

40 CFR 63.11111(c)

Initial Notification/Notification of Compliance Status Report for Gasoline Dispensing Facilities

Applicable Rule: 40 CFR Part 63, Subpart CCCCCC — National Emission Standards for Hazardous Air Pollutants for Area Source Category: Gasoline-Dispensing Facilities and 40 CFR Part 63, Subpart A — National Emission Standards for Hazardous Air Pollutants for Source Categories, Subpart A — General Provisions. Initial notification is being made in accordance with section 63.9(b).

Note: Initial notification reports for existing sources are due not later than May 9, 2008, or within 120 calendar days after the source becomes subject to the relevant standard. Sources may also use the application for approval of construction or reconstruction under section 63.5(d) to fulfill the initial notification requirement. If you are a new or reconstructed major source, you must also include information required under 63.5(d) and 63.9(b)(5)— the Application for Approval of Construction or Reconstruction. You may use the Application for Approval of Construction and Reconstruction as your initial notification. (section 63.5(d)(1)(ii)).

SECTION I GENERAL INFORMATION

Check the appropriate box: ☐ Initial Notification Only ☒ Initial Notification/Notification of Compliance Status ☐ Compliance Notification (previously submitted form as Initial Notification only and am now in compliance)

Print or type the following information for each facility for which you are making notification: (section 63.9(b)(2)(i)-(ii))

Operating Permit Number (optional)	Facility I.D. Number (optional)
Title V Operating Permit No. P243L	**N/A**

Responsible Official's Name/Title

Robert M. Sanchez, Assistant Director of Solid Waste

Street Address

2708 Iris Rd. NE

City	State	ZIP Code
Rio Rancho	**NM**	**87144**

Facility Name (if different from Responsible Official's Name)

Sandoval County Landfill

Facility Street Address (If different than Responsible Official's Street Address)

2708 Iris Rd. NE, Rio Rancho, NM 87144

Facility Local Contact Name	Title	Phone (optional)
Robert M. Sanchez	**Assistant Director of Solid Waste**	**(505) 867-0814**

City	State	ZIP Code
Rio Rancho	**NM**	**87144**

SECTION II APPLICABILITY AND COMPLIANCE STATUS

Initial the box beside the correct answer to the following questions.

Yes	RM S	A1. Is your facility a "gasoline-dispensing facility"? Gasoline-dispensing facility means any stationary facility that dispenses gasoline directly into the fuel tank of a motor vehicle.
No		
Yes	RMS	A2. Does your facility receive and dispense any type of gasoline other than aviation gasoline?
No		

If you answer "No" to either of the above questions and can support your answer, then you are not subject to the control requirements listed below; however, you must still complete Sections III and IV and mail as directed. If prior to January 10, 2008, your facility is meeting the control requirements of C1, C2, and C3, as applicable, under an enforceable State, local, or tribal rule or permit, then this notification is not required to be submitted.

Yes	RMS	C1. Do you require that gasoline be handled in a manner that restricts vapor releases to the atmosphere for extended periods of time? Measures to be taken include, but are not limited to, the following: (1) Minimize gasoline spills (2) Clean up spills as expeditiously as practicable (3) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use (4) Minimize gasoline sent to open-waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.
No		
Yes	RMS	C2. If the monthly gasoline throughput of your facility is greater than or equal to 10,000 gallons per month, is submerged filling (as specified in section 63.11117(b)) currently used for all gasoline storage tanks having a capacity of greater than or equal to 250 gallons?
No		
Yes		C3. If the monthly gasoline throughput of your facility is greater than or equal to 100,000 gallons per month, is vapor-balanced filling (as specified in section 63.11118(b)) currently used for all gasoline storage tanks except (1) Tanks constructed on or before January 10, 2008, with a capacity of less than 2,000 gallons (2) Tanks constructed after January 10, 2008, with a capacity of less than 250 gallons (3) Tanks equipped with floating roofs, or the equivalent?
No	RMS	

If you answer no to any of the above control questions, you must:
1) Complete this notification and mail as directed.
2) Before January 10, 2011, existing sources must comply with all the control questions. This means that you are able to answer yes to each control question. Also, fill out and resubmit this report before January 10, 2011, to notify us that you are now in compliance with subpart CCCCCC.

SECTION III SOURCE DESCRIPTION

Briefly describe the source. (section 63.9(b)(2)(iv))

Provide (at least) information on the number and capacity of gasoline storage tanks and the average monthly gasoline throughput.

The Sandoval County Landfill Operates one underground 20,000-gallon unleaded gasoline dispensing/storage tank. Average monthly throughput for the unleaded fuel tank is approximately 13,300 gallons. The fueling station is designated for use by Sandoval County-owned vehicles only (i.e., law enforcement, County roads maintenance vehicles, landfill maintenance vehicles, etc.).

SECTION IV CERTIFICATION

Name of Responsible Official (Print or Type)	Title	Date (mm/dd/yy)
Robert M. Sanchez	**Assistant Director of Solid Waste**	9/2/10

Signature of Responsible Official

Robert M Sanchez Asst. Director of Solid Waste 9/2/10

Submit Initial Notification/Notification of Compliance Status Form as follows:
(Note: Title V permit applications can be used in lieu of an initial notification provided the same information is contained in the permit application as required by this rule (63.9(a)).
a. New Mexico Air Quality Bureau, Compliance Reporting Section, 1301 Siler Road, Building B, Santa Fe, NM 87507 **and**
b. EPA Region VI Director, Air, Pesticides and Toxics, 1445 Ross Avenue, Dallas, TX 75202–2733 and
c. Keep a copy for your records.

APPENDIX 6.10

TANKS v. 4.0.9d Outputs for SCLF Gasoline Storage Tank

(Reporting Year 2021)

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	SCPW No Lead UST
City:	Albuquerque
State:	New Mexico
Company:	Sandoval County Public Works
Type of Tank:	Horizontal Tank
Description:	Sandoval County Public Works Unleaded fuel tank. Dyed and clear diesel tanks on-site do not require breathing loss calculations.

Tank Dimensions

Shell Length (ft):		37.73
Diameter (ft):		10.00
Volume (gallons):		19,783.00
Turnovers:		9.14
Net Throughput(gal/yr):		185,112.39
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	Y	

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

SCPW No Lead UST - Horizontal Tank
Albuquerque, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 7.8)	All	55.59	55.59	55.59	55.15	3.5959	3.5959	3.5959	68.0000			92.00	Option 4: RVP=7.8, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

SCPW No Lead UST - Horizontal Tank
Albuquerque, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 7.8)	1,077.71	0.00	1,077.71

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).

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)

The Greenhouse gas emissions for SCLF are estimated to be approximately 103,534 tons/year (93,925 Mg/yr) CO2e. Methane emissions from solid waste (Unit 3) are estimated at 100,437 tons/year (91,115 Mg/yr) CO2e, and the sum of combustion sources (CO_2 and NOx) from Units 2, 5, and 6 are estimated to be 1,521 tons/year (1,379 Mg/yr), 1,455 tons/year (1,319 Mg/yr), and 121 tons/year (110 Mg/yr) CO2e, respectively. Section 2, Table 2-P summarizes these estimated GHG emissions from the site.

Tables 6.7 and **6.8** were used to determine GHG Emissions (CO_2 and NOx) from combustion sources at SCLF. Greenhouse gas emissions for SCLF were calculated using the EPA Electronic Greenhouse Gas Reporting Tool (e-GGRT). The e-GGRT is a web-based system that the EPA has developed to support reporting under the 40 CFR 98 Mandatory Reporting of Greenhouse Gases (GHG). The e-GGRT utilizes user inputted facility-specific data and Subpart HH equations to calculate GHG emissions that are electronically reported directly to the EPA. **Appendix 6a.1** provides the GHG Summary Report generated by the e-GGRT that was utilized in determining GHG emissions from waste deposited at SCLF since 1972. The equations utilized by the e-GGRT are explained in greater detail in 40 CFR 98, Subpart HH (Green House Gas Emissions from Municipal Solid Waste Landfills).

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

APPENDIX 6a.1

RY-2021 E-GGRT GHG Summary Report

Submit Receipt

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

Annual Report Submission

Facility Name: Sandoval County Landfill
Address: 2708 Iris Road NE, Rio Rancho NM 87144
Reporting Year: 2021
Submitted Date: Thu Feb 24 10:39:35 EST 2022
Certification Date: Thu Feb 24 14:48:22 EST 2022
Submitted By: Perea, Christopher
Confirmation Number: 344137-314062

Certification Statement:

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

Facility Name: Sandoval County Landfill
Facility Identifier:532057
Facility Reporting Year:2021
Facility Location:
Address: 2708 Iris Road NE
City: Rio Rancho
State: NM
Postal Code: 87144

Facility Site Details:

CO2 equivalent emissions from facility subparts C-II, SS, and TT (metric tons):82,004.5
CO2 equivalent emissions from supplier subparts LL-QQ (metric tons):0
Biogenic CO2 emissions from facility subparts C-II, SS, and TT (metric tons):0
Cogeneration Unit Emissions Indicator:N
GHG Report Start Date:2021-01-01
GHG Report End Date:2021-12-31
Description of Changes to Calculation Methodology:
Plant Code Indicator:N
Primary NAICS Code:562212
Second Primary NAICS Code:

Parent Company Details:

Parent Company Name:COUNTY OF SANDOVAL NEW MEXICO
Address:1500 Idalia Road, Bernalillo, NM 87004
Percent Ownership Interest:100

Subpart HH: Municipal Solid Waste Landfills

Gas Information Details

Gas Name	Methane
Gas Quantity	3,280.18 (Metric Tons)
Own Result?	

Landfill Details

Is the landfill open?	Y
Estimated Year LandFill Closure	2055
Starting Year for Accepting Waste	1972
First year of emissions reporting	2010
Leachate recirculation was used during the reporting year	N
Typical frequency of use for leachate recirculation system	Not used for the past 10 years
Scales are present at the landfill in the reporting year	Y
Does the landfill have a landfill gas collection system?	N
Passive vents and/or flares are present	N
Landfill Capacity	10015456 (Metric Tons)
Total surface area of the landfill containing waste	455267.80 (Square Meters)
Covertype Details	Other soil mixture

Aeration Details

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

Current Waste Disposal Quantity Determination Details

First Year to Current Year Annual Waste Quantity Method

Reporting Year	**2021**
Total Annual Waste Disposal Quantity	165417.34 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal	165417.34 (Metric Tons)

Quantity	
Reporting Year	**2020**
Total Annual Waste Disposal Quantity	171284.54 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	171284.54 (Metric Tons)
Reporting Year	**2019**
Total Annual Waste Disposal Quantity	163017 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	163017 (Metric Tons)
Reporting Year	**2018**
Total Annual Waste Disposal Quantity	164797.53 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	164797.53 (Metric Tons)
Reporting Year	**2017**
Total Annual Waste Disposal Quantity	143710.5638 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	143710.5638 (Metric Tons)
Reporting Year	**2016**
Total Annual Waste Disposal Quantity	164570.7 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	164570.7 (Metric Tons)
Reporting Year	**2015**
Total Annual Waste Disposal Quantity	107076.5 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	107076.5 (Metric Tons)
Reporting Year	**2014**
Total Annual Waste Disposal Quantity	107667.9 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	107667.90 (Metric Tons)
Reporting Year	**2013**
Total Annual Waste Disposal Quantity	99470 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	99470 (Metric Tons)
Reporting Year	**2012**
Total Annual Waste Disposal Quantity	101413 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	101413 (Metric Tons)
Reporting Year	**2011**
Total Annual Waste Disposal Quantity	90110 (Metric Tons)
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	90110 (Metric Tons)
Reporting Year	**2010**
Total Annual Waste	94453 (Metric Tons)

Disposal Quantity	
Method Used to Determine Quantity	Used scales to weigh loads before off-loading and either used scales to weigh individual loads after off-loading or used representative tare vehicle/container weights
Annual Waste Disposal Quantity	94453 (Metric Tons)

Waste Type Details

Year Waste Disposed	**2021**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.4901	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.4723	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.0376	0	0.5	0
Year Waste Disposed	**2020**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.5126964129	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.4249249495	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.0623786377	0	0.5	0
Year Waste Disposed	**2019**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.5032	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.4578	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.0390	0	0.5	0
Year Waste Disposed	**2018**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.4539424	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.4906690	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.0553886	0	0.5	0
Year Waste Disposed	**2017**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.4025	0.31	0.5	0.02

	Modified bulk MSW	bulk C&D waste	0.5547	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.0428	0	0.5	0
Year Waste Disposed	**2016**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.34	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.49	0.08	0.5	0.02
	Modified bulk MSW	inerts	0.17	0	0.5	0
Year Waste Disposed	**2015**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.046529126	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.30258695	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.650883924	0.08	0.5	0.02
Year Waste Disposed	**2014**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.054426175	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.289814205	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.65575962	0.08	0.5	0.02
Year Waste Disposed	**2013**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.013773	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.300925	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.685302	0.08	0.5	0.02
Year Waste Disposed	**2012**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.015462	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.630422	0.31	0.5	0.02
	Modified	bulk C&D waste	0.354116	0.08	0.5	0.02

	bulk MSW					
Year Waste Disposed	**2011**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.009399623	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.828320941	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.162279436	0.08	0.5	0.02
Year Waste Disposed	**2010**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.02106868	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.680317194	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.298614126	0.08	0.5	0.02

Historical Waste Disposal Quantity Estimation Details

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

Were scales used to determine the annual waste quantity	N

Prior Year Annual Waste Quantity Method

Reporting Year	**2009**
Total Annual Waste Disposal Quantity	193477 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	193477 (Metric Tons)
Reporting Year	**2008**
Total Annual Waste Disposal Quantity	275175 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	275175 (Metric Tons)
Reporting Year	**2007**
Total Annual Waste Disposal Quantity	338402 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	338402 (Metric Tons)
Reporting Year	**2006**
Total Annual Waste Disposal Quantity	317940 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	317940 (Metric Tons)
Reporting Year	**2005**
Total Annual Waste Disposal Quantity	206045 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	206045 (Metric Tons)
Reporting Year	**2004**
Total Annual Waste Disposal Quantity	228816 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	228816 (Metric Tons)
Reporting Year	**2003**
Total Annual Waste Disposal Quantity	213449 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	213449 (Metric Tons)
Reporting Year	**2002**
Total Annual Waste Disposal Quantity	256151 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	256151 (Metric Tons)
Reporting Year	**2001**
Total Annual Waste Disposal Quantity	262727 (Metric Tons)
Method Used to Determine Quantity	other

Annual Waste Disposal Quantity	262727 (Metric Tons)
Reporting Year	**2000**
Total Annual Waste Disposal Quantity	197305 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	197305 (Metric Tons)
Reporting Year	**1999**
Total Annual Waste Disposal Quantity	172609 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	172609 (Metric Tons)
Reporting Year	**1998**
Total Annual Waste Disposal Quantity	201997 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	201997 (Metric Tons)
Reporting Year	**1997**
Total Annual Waste Disposal Quantity	188363 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	188363 (Metric Tons)
Reporting Year	**1996**
Total Annual Waste Disposal Quantity	152452 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	152452 (Metric Tons)
Reporting Year	**1995**
Total Annual Waste Disposal Quantity	67131 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	67131 (Metric Tons)
Reporting Year	**1994**
Total Annual Waste Disposal Quantity	96613 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	96613 (Metric Tons)
Reporting Year	**1993**
Total Annual Waste Disposal Quantity	96613 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	96613 (Metric Tons)
Reporting Year	**1992**
Total Annual Waste Disposal Quantity	96613 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	96613 (Metric Tons)
Reporting Year	**1991**
Total Annual Waste Disposal Quantity	87455 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	87455 (Metric Tons)
Reporting Year	**1990**
Total Annual Waste Disposal Quantity	37577 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	37577 (Metric Tons)
Reporting Year	**1989**
Total Annual Waste Disposal Quantity	39583 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	39583 (Metric Tons)
Reporting Year	**1988**
Total Annual Waste Disposal Quantity	43293 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	43293 (Metric Tons)
Reporting Year	**1987**
Total Annual Waste Disposal Quantity	41232 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	41232 (Metric Tons)
Reporting Year	**1986**
Total Annual Waste Disposal Quantity	38745 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	38745 (Metric Tons)
Reporting Year	**1985**
Total Annual Waste Disposal Quantity	36838 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	36838 (Metric Tons)
Reporting Year	**1984**
Total Annual Waste Disposal Quantity	34552 (Metric Tons)
Method Used to Determine Quantity	other

Annual Waste Disposal Quantity	34552 (Metric Tons)
Reporting Year	**1983**
Total Annual Waste Disposal Quantity	32376 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	32376 (Metric Tons)
Reporting Year	**1982**
Total Annual Waste Disposal Quantity	30704 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	30704 (Metric Tons)
Reporting Year	**1981**
Total Annual Waste Disposal Quantity	28718 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	28718 (Metric Tons)
Reporting Year	**1980**
Total Annual Waste Disposal Quantity	26834 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	26834 (Metric Tons)
Reporting Year	**1979**
Total Annual Waste Disposal Quantity	25389 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	25389 (Metric Tons)
Reporting Year	**1978**
Total Annual Waste Disposal Quantity	23865 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	23865 (Metric Tons)
Reporting Year	**1977**
Total Annual Waste Disposal Quantity	22077 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	22077 (Metric Tons)
Reporting Year	**1976**
Total Annual Waste Disposal Quantity	20849 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	20849 (Metric Tons)
Reporting Year	**1975**
Total Annual Waste Disposal Quantity	19410 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	19410 (Metric Tons)
Reporting Year	**1974**
Total Annual Waste Disposal Quantity	18061 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	18061 (Metric Tons)
Reporting Year	**1973**
Total Annual Waste Disposal Quantity	17039 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	17039 (Metric Tons)
Reporting Year	**1972**
Total Annual Waste Disposal Quantity	15849 (Metric Tons)
Method Used to Determine Quantity	other
Annual Waste Disposal Quantity	15849 (Metric Tons)

Waste Type Details

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

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0.036443608	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.104425849	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.859130543	0.08	0.5	0.02

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

Substituted	

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.041133824	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.089223222	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.869642954	0.08	0.5	0.02

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

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.081131317	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.08554914	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.833319543	0.08	0.5	0.02

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

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.006652198	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.060819652	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.93252815	0.08	0.5	0.02

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

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.000349438	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.082986726	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.916663836	0.08	0.5	0.02

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

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.003614258	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.062849626	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.933536116	0.08	0.5	0.02

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

Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate

	Modified bulk MSW	inerts	0.003972846	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.070007355	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.926019799	0.08	0.5	0.02
Year Waste Disposed	**2002**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0.008873672	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.058258605	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.932867723	0.08	0.5	0.02
Year Waste Disposed	**2001**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.070445748	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.929554252	0.08	0.5	0.02
Year Waste Disposed	**2000**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.076931654	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.923068346	0.08	0.5	0.02
Year Waste Disposed	**1999**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0	0	0.5	0
	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.096055246	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.903944754	0.08	0.5	0.02
Year Waste Disposed	**1998**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Modified bulk MSW	inerts	0	0	0.5	0

	Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.081209127	0.31	0.5	0.02
	Modified bulk MSW	bulk C&D waste	0.918790873	0.08	0.5	0.02

Year Waste Disposed	**1997**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.149912669	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.850087331	0.08	0.5	0.02

Year Waste Disposed	**1996**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.145842626	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.854157374	0.08	0.5	0.02

Year Waste Disposed	**1995**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	1	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0	0.08	0.5	0.02

Year Waste Disposed	**1994**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.178402492	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.821597508	0.08	0.5	0.02

Year Waste Disposed	**1993**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.178402492	0.31	0.5	0.02
Modified	bulk C&D waste	0.821597508	0.08	0.5	0.02

	bulk MSW
Year Waste Disposed	**1992**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.178402492	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.821597508	0.08	0.5	0.02

Year Waste Disposed	**1991**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
Modified bulk MSW	inerts	0	0	0.5	0
Modified bulk MSW	bulk MSW waste (excluding inerts and C&D waste)	0.241655709	0.31	0.5	0.02
Modified bulk MSW	bulk C&D waste	0.758344291	0.08	0.5	0.02

Year Waste Disposed	**1990**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1989**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1988**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1987**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1986**
Missing data procedure used?	N

Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1985**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1984**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1983**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1982**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1981**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1980**
Missing data procedure used?	N
Number of Times Substituted	

Waste Type Details

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

Year Waste Disposed	**1979**
Missing data procedure used?	N
Number of Times Substituted	
Waste Type Details	

	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1978**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1977**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1976**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1975**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1974**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1973**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk Waste	Bulk waste	1	0.2	0.5	0.02
Year Waste Disposed	**1972**					
Missing data procedure used?	N					
Number of Times Substituted						
Waste Type Details	Option	Waste Type	Percent by Weight	Degradable Organic Carbon Value	Fraction Of DOC Dissimilated	Decay Rate
	Bulk	Bulk waste	1	0.2	0.5	0.02

	Waste					

Working Capacity Details

Were working capacities used to determine waste disposal quantities	N

Tipping Receipt Details

Were tipping receipts or company records used to determine waste disposal quantities	Y
Start Year	1991
End Year	2009

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

Method	Method #2: Use the estimated population served by the landfill in each year, the values for national average per capita waste generation, and fraction of generated waste disposed of in solid waste disposal sites (Equation HH-2).

Method Start Year	1972
Method End Year	1990

Historical Estimation Population Details

Reporting Year	1990
Estimated Population Served by Landfill	59513
Reporting Year	1989
Estimated Population Served by Landfill	56774
Reporting Year	1988
Estimated Population Served by Landfill	54116
Reporting Year	1987
Estimated Population Served by Landfill	51540
Reporting Year	1986
Estimated Population Served by Landfill	49045
Reporting Year	1985
Estimated Population Served by Landfill	46631
Reporting Year	1984
Estimated Population Served by Landfill	44298
Reporting Year	1983
Estimated Population Served by Landfill	42046
Reporting Year	1982
Estimated Population Served by Landfill	39876
Reporting Year	1981
Estimated Population Served by Landfill	37787
Reporting Year	1980
Estimated Population Served by Landfill	35779
Reporting Year	1979
Estimated Population Served by Landfill	33852
Reporting Year	1978
Estimated Population Served by Landfill	32007
Reporting Year	1977
Estimated Population Served by Landfill	30243
Reporting Year	1976
Estimated Population Served by Landfill	28560
Reporting Year	1975
Estimated Population Served by Landfill	26959
Reporting Year	1974
Estimated Population Served by Landfill	25438
Reporting Year	1973
Estimated Population Served by Landfill	23999

Reporting Year	1972
Estimated Population Served by Landfill	22641
Historical landfill Capacity	
Reason	Waste receipt records for years prior to 1991 were not available, and the estimated population of the service area was known.

Methane Generation and Emissions For Landfills Without LFG Collection Systems

Gas Collection Systems Details

Methane Generation Equation HH5	3280.18 (Metric Tons)
Is Override Indicator?	N

Equation HH-1 Details:

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

Annual Modeled Methane Generation	3644.65 (Metric Tons)
Annual Modeled Methane Generation User Overrided value?	N

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

RY2021 Version 1 Report Compared to Other Certified Reports

Facility: Sandoval County Landfill

Address: 2708 Iris Road NE
Rio Rancho, NM 87144

GHGRP ID: 532057

IMPORTANT: This report presents data contained on this annual report: RY2021 Version 1

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

of the other reporting years.

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

	RY2016 v1	RY2017 v1	RY2018 v1	RY2019 v1	RY2020 v1	RY2021 v1
	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)	(mtons CO2e)
	Complete, certified	Complete, certified	Complete, certified	Complete, certified	Complete, certified	Complete, certified
AS SUBMITTED (basis)	**(SAR)**	**(SAR)**	**(AR4)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**
Direct emissions in CO2e (C-II, SS-TT)***	68,113.8	70,299.0	72,517.0	75,486.0	78,654.3	82,004.5
Biogenic CO2 emissions (C-II, SS-TT)	0.0	0.0	0.0	0.0	0.0	0.0
CO2 received for injection (UU)	N/A	N/A	N/A	N/A	N/A	N/A
CO2 sequestered (RR)	N/A	N/A	N/A	N/A	N/A	N/A
CO2e from products supplied (LL-QQ)* **	0.0	0.0	0.0	0.0	0.0	0.0
ADJUSTED (basis)	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**	**(12.11.14 Final Rule)**
Direct emissions in CO2e (C-II, SS-TT)****	68,113.8	70,299.0	72,517.0	75,486.0	78,654.2	82,004.5
Biogenic CO2 emissions (C-II, SS-TT)	0.0	0.0	0.0	0.0	0.0	0.0
CO2 received for injection (UU)	N/A	N/A	N/A	N/A	N/A	N/A
CO2 sequestered (RR)	N/A	N/A	N/A	N/A	N/A	N/A
CO2e from products supplied (LL-QQ)* ** ****	0.0	0.0	0.0	0.0	0.0	0.0

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

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

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

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

Basis Definitions:

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

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

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

e-GGRT Reporting Year Comparison Report
Metric Tons of Greenhouse Gases by Subpart
RY2021 Version 1 Report Compared to Other Certified Reports

Facility: Sandoval County Landfill

Address: 2708 Iris Road NE
Rio Rancho, NM 87144

GHGRP ID: 532057

IMPORTANT: This report presents data contained on this annual report: RY2021 Version 1

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

	RY2016 v1	RY2017 v1	RY2018 v1	RY2019 v1	RY2020 v1	RY2021 v1
	(mtons)	(mtons)	(mtons)	(mtons)	(mtons)	(mtons)
	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent	Complete, certified and sent
Subpart HH						
Methane	2,724.55	2,811.96	2,900.68	3,019.44	3,146.17	3,280.18

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

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

7.0 Introduction

Multiple sources of equipment and activity-specific data, equations and emissions factors were used in determining potential emissions for SCLF. Information used to determine emissions is outlined in the following sections and attachments.

7.1 Manufacturer Data

Available manufacturer data were used in determining emissions rates from heavy equipment operations at the facility. Data from the Caterpillar Performance Handbook (Edition 49, 2019), Doppstadt, Inc. specification sheets, Metso Lokotrack Product Specifications, John Deere specifications sheets, and diesel fuel manufacturers were used to determine particulate emissions from typical landfill operations. **Attachment 7.**1 provides copies of manufacturer specifications used in this Application, as well as standard densities used to determine machinery loading masses.

7.2 EPA Emission Factors and AP-42

The most recent version of the Environmental Protection Agency's Emissions Factors and AP-42 (5th edition, 1995) were used in determining particulate emissions for this Application. Pages containing relevant equations, emissions factors, and tables are included in **Attachment 7.2**. Additionally, Section 11.19.2 (1/95) of AP-42 4th Edition (1985) was used to determine portions of the TSP emissions from the Crusher/Shredder and Portable Rock Crusher (Rental), and that section is included in **Attachment 7.2** in its entirety.

7.3 Other Modeling and Emission Determination

No computer models were used to determine particulate emissions at SCLF. VOC/HAP emissions that can potentially occur from the remediation of petroleum contaminated soils (PCS) have been estimated as demonstrated in **Section 6** using the most recent AQB-approved mass-balance method. This approach is demonstrated in **Section 6.6.3**, and an example PCS shipment tracking sheet which continually calculates HAP emissions due to landfarming of PCS is provided as **Appendix 6.8**. No PCS have been accepted at SCLF to-date to determine the actual HAP emission rate or individual HAP concentrations for PCS remediation.

EPA LandGEM (Landfill Gas Emissions Model), Version 3.03 (USEPA, May, 2020) was used to calculate total LFG and NMOC emission rates. The Model estimates emissions resulting from the biodegradation of refuse in landfills and is recommended by EPA for use in developing estimates for state inventories. The Model uses a first-order decay rate equation, and estimates annual emissions over any time period specified by the user. The time period specified for SCLF was 1972 (the first year of waste acceptance) through 2028. This conservative timeframe was selected to project emissions estimates for the anticipated 18-month Permit review/issuance period, as well as the remaining Permit term.

One underground, double-wall, fiberglass storage tank for unleaded gasoline is used at SCLF. The tank stores approximately 20,000 gallons, with an annual throughput of approximately 200,000± gallons. VOC emissions from fueling activities have been calculated using the latest version of EPA's Storage Tank Emissions Calculation Software (TANKS ver. 4.0.9d). Tank characteristics have been entered into **Table 2-L**, and **Appendix 6.10** provides the TANKS output files using available fuel/tank data.

Based on the data provided in **Tables 2-K, 2-L, 2-M, 6.7, 6.8**, and the above information, SCLF is not a major source for HAPs (either individually or in the aggregate), as defined in Section 112(r) of the Clean Air Act. Individual HAP emissions were not specified in **Table 2-I**, as none of the values calculated exceeded its associated de minimis level listed in the US EPA document "De Minimis Rates Specified in Proposed 40 CFR Part 63, Subpart B", EPA-453/R-93-035 or de minimis levels established under subsequent rule making for 112(g).

Air Dispersion Modeling has also been performed for the new emissions rates and source locations calculated for the 2022 SCLF Permit Renewal Application. Air dispersion modeling results are provided in **Section 16** (Air Dispersion Modeling) using the UA4 form and demonstrate compliance with applicable regulations, specifically 40 CFR 50 (National Ambient Air Quality Standards); 40 CFR 52 (Prevention of Significant Deterioration); and 20.2.3 NMAC (New Mexico Ambient Air Quality Standards).

7.4 Insignificant Activities and Equipment

Several activities at SCLF are considered "insignificant" or "trivial". Consistent with 20.2.70.300.D(6) NMAC, this Section evaluates the insignificance of each activity utilizing guidance furnished by NMED Air Quality Bureau (AQB). Specifically, AQB has developed a List of Insignificant Activities (dated March

24, 2005), and a List of Trivial Activities (dated September 15, 2008) which list activities and equipment that are considered insignificant or trivial on the basis of size, emissions, or production rate. **Section 2, Table 2-B** provides a list of these activities, and a copy of each List is provided in **Attachment 7.3.**

Diesel Fuel Storage Tank – In addition to the 20,000-gallon unleaded gasoline storage tank, Sandoval County owns and operates a 20,000-gallon diesel fuel underground storage tank. The tank is constructed of double-walled fiberglass, and stores both conventional and dyed diesel fuels (12,000 and 8,000 gallons, respectively). The tank is used solely for fueling County-owned vehicles, and is located at the Landfill Operations Center Fuel Islands (**Figure 5.1, Section 5**). Item #5 of the List of Insignificant Activities (**Attachment 7.3**) requires that the vapor pressure of a stored liquid be <10 mm Hg (i.e., <0.2 psi). As shown on the Material Safety Data Sheet (MSDS) for No. 2 diesel (**Attachment 7.4**), the vapor pressure for the stored fuel is 0.009 psia at 21°C, considerably less than the 0.2 psi threshold value. Item #8 of the List of Insignificant Activities requires that the tank have a storage capacity of less than 25,000 gallons.

Cold Solvent Parts Washers – Two cold solvent parts washer machines are located at the County Fleet & Maintenance Building, and one machine is located at the City of Rio Rancho Public Works Building maintenance shop. The machines are used to clean various equipment parts in conjunction with routine vehicle/equipment maintenance and repair. The units are self-contained; are equipped with re-circulating pumps and filters; and each has a solvent storage capacity of less than 55 gallons.

The solvent used at the Sandoval County Fleet & Maintenance Building is ZEP® DYNA 143™ Parts Washer Degreaser. The Rio Rancho maintenance shop uses a ManTech™ solvent called ThermaFlush®. Emissions from each cold solvent parts washer are considered insignificant due to the low vapor pressure of the stored liquid. As shown on the MSDSs included in **Attachment 7.5**, the vapor pressure for each solvent is 0.3 mm Hg and 0.7 mm Hg, respectively, considerably less than the 10 mm Hg threshold specified in Item #5 of the List of Insignificant Activities.

Waste Oil Storage – Used (waste) oil derived from the servicing of County and Landfill heavy equipment and light service vehicles is temporarily stored at the site until it can be used to heat the County Fleet & Maintenance Building. Emissions from waste oil storage are considered insignificant due to the low vapor pressure of the stored liquid. As shown on the MSDS included in **Attachment 7.5**, the vapor pressure for motor oil is <0.01 mm Hg at 100°C, considerably less than the 10 mm Hg threshold specified in Item #5 of the List of Insignificant Activities.

Waste Oil Heaters – Four waste oil heaters are located in the Sandoval County Fleet & Maintenance Building. These heaters are used solely for heating the building for personnel comfort, and each has a maximum design rating of 175,000 Btu/hr. Because the combined heating value of these heaters is well below 1,000,000 BTU/hr (1 MMBtu/hr), this activity is considered insignificant per Item #4 of the List of Insignificant Activities. This is also an insignificant activity due to the low vapor pressure of motor oil (i.e.,<0.01 mm Hg).

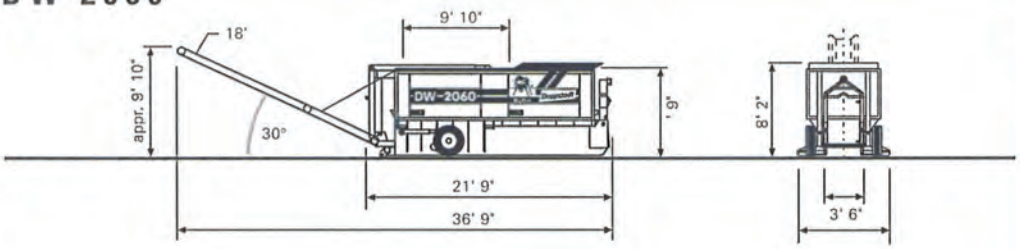
Vehicle Maintenance Fluids Storage – Motor oil, antifreeze, hydraulic oil, automatic transmission fluid, and lubricating grease are stored and used at SCLF. These materials exhibit vapor pressures considerably less than the 0.2 psi threshold value specified in Item #5 of the List of Insignificant Activities. Therefore, storage of these materials is also considered an insignificant activity.

ATTACHMENT 7.1

- **Doppstadt 3060SA Specifications Sheet**
- **Metso Lokotrack LT1213 Product Specifications**
- **2019 Caterpillar Performance Handbook Sections**
- **John Deere 544 Wheel Loader Specifications**
- **Komatsu WA-250 Wheel Loader Specifications**
- **Heating Values of Hydrogen and Fuels (Essom Co. Ltd.)**
- **Material Density Standards**

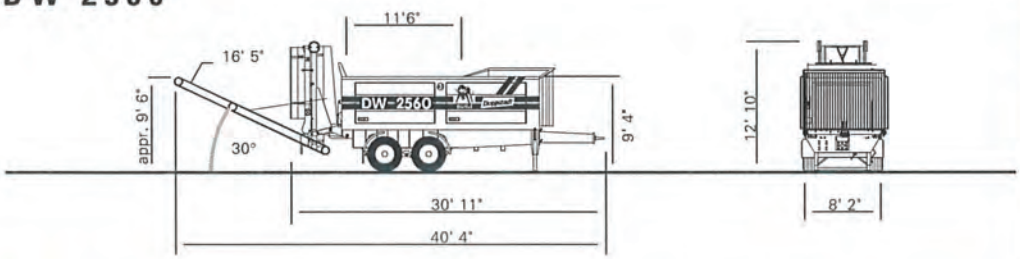
Doppstadt 3060SA Specifications Sheet

DW 2060



Model weight	33,070 lb.
Engine	MB OM 906 LA
HP	205
Exhaust Level	TIER 3
Fuel Tank	80 gal.
Speed	35 rpm
Conveyor Width	32"

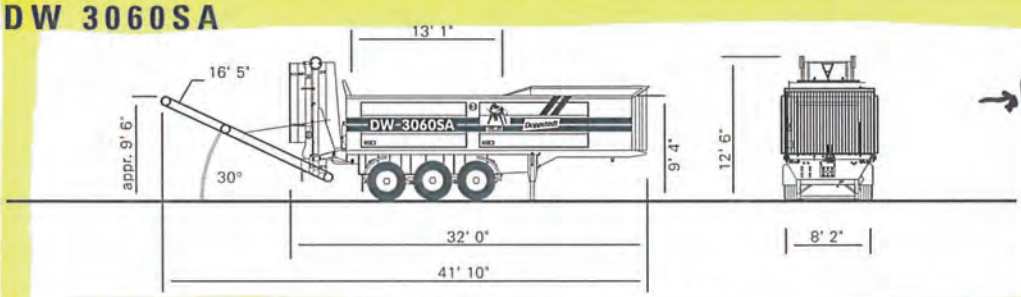
DW 2560



Model weight	41,890 lb.
Engine	MB OM 460 LA
HP	390
Exhaust Level	TIER 3
Fuel Tank	80 gal.
Speed	31 rpm
Conveyor Width	48"

Also available on tracked chassis

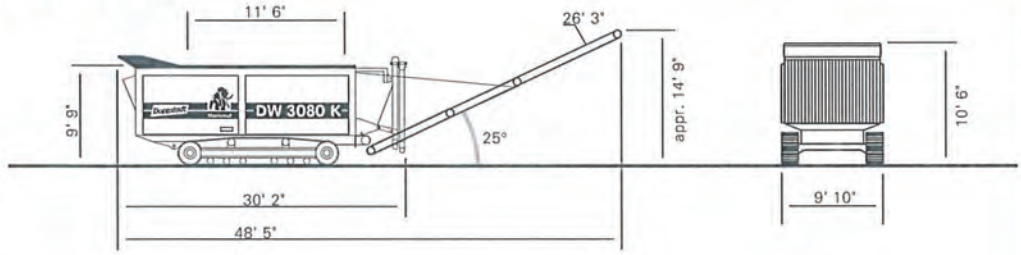
DW 3060SA



Model weight	52,910 lb.
Engine	MB OM 460 LA
HP	430
Exhaust Level	TIER 3
Fuel Tank	2 x 80 gal.
Speed	32 rpm
Conveyor Width	48"

Also available on tracked chassis

DW 3080K



Model weight	100,300 lb.
Engine	MB OM 502 LA
HP	610
Exhaust Level	TIER 3
Fuel Tank	2 x 80 gal.
Speed	30 rpm
Conveyor Width	48"

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Metso Lokotrack LT1213 Product Specifications

Lokotrack®
Mobile crushing & screening plants

metso
Expect results

Lokotrack LT1110

The Lokotrack® LT1110™ is our most compact impactor plant on tracks. The LT1110 is commonly used for crushing medium hard rocks and for recycling. It can crush any recycled material from asphalt to concrete and bricks. The Nordberg® NP1110M™ impact crusher always provides high capacity and a high reduction rate.

Lokotrack LT1110 is built around the powerful Nordberg NP1110M impact crusher from the proven NP series. The crusher is specially designed for mobile applications, and features a large feed opening and robust construction for long-lasting, reliable operation. The Lokotrack LT1110 always features high-quality blow bars as standard.

The highly advanced Metso IC™ process control system controls and adjusts all key parameters in the process for optimum crushing results. By controlling the feeder and crusher it gets the best performance out of the LT1110.

An additional screen module with a return conveyor allows the Lokotrack LT1110 to produce a calibrated end product with just a single unit. The new engine module and hydraulic system provide more power for the crusher and enable lower fuel consumption.

Features

Crusher	Nordberg® NP1110M™
Feed opening	1 040 x 800 mm (41 x 31")
Engine	CAT®, 224 kW (300 hp)
Weight	32 000 kg (71 000 lbs)

"Since we installed our Lokotrack LT1110 and ST3.5, we have processed 200,000 tons of rock. What our Metso Lokotrack system has done so far is unbelievable and we are just getting started."
Angelo Fish
Director
Southern Land Company, Tennessee, USA

Lokotrack LT1213

The Lokotrack® LT1213™ is a fully-equipped mobile impactor plant that combines mobility, high capacity and flexibility in applications. The CAT® diesel engine secures crushing power and high-quality blow bars put the final touches on performance. The LT1213 can operate as a primary or secondary unit.

Lokotrack LT1213 is easy to operate. The new radial side conveyor, hydraulic locking on the long main conveyor and feed hopper walls are examples of innovations used in the LT1213. The LT1213 can be fine-tuned for aggregate, quarry or recycling applications with features like a vibrating grizzly or pan feeder under the crusher.

The LT1213 features an advanced gearbox as standard. The Metso gearbox provides the most efficient crusher drive system on the market with assisted start and brake. An optimized hydraulic circuit with an independent fan and stand-by function gives up to 20% lower fuel consumption and more power for the crusher.

The crusher service rotation is carried out by a 24V hydraulic power pack. New tools are provided to help change the blow bars and breaker plates. Special attention is paid to access to the service locations and trouble-free material flow. The stand-by function helps to save fuel and reduce noise when idling.

Features

Crusher	Nordberg® NP1213M™
Feed opening	1 320 x 900 mm (52 x 35 ½")
Engine	CAT®, 310 kW (415 hp)
Weight	42 000 kg (93 000 lbs)

"After starting asphalt recycling with Lokotrack LT1213 impactor plant, we have verified a fuel consumption of 24 liters (6.3 Gl) per hour which is much less than with our older and smaller impactor plant."
Karl-Werner Bierbrauer
Managing Director
Bierbrauer & Sohn, Germany

Lokotrack® LT1213 & LT1213S
Mobile crushing & screening plants

metso
Expect results

LOKOTRACK LT1213 & LT1213S

Lokotrack LT1213 & LT1213S
The desired impact

Metso Lokotrack LT1213S is fully equipped mobile impactor plant with high capacity screen and return conveyor. LT1213 has the same features and options available but no screen nor return conveyor. The crushing plants have been built around powerful Caterpillar C13 diesel engine and capacity is provided by the refreshed NP1213M impact crusher. Lokotrack LT1213 and LT1213S can be transported as a single unit on a low bed trailer.

Flexibility in applications

New radial return conveyor makes Lokotrack LT1213S easy to operate in closed and open circuits. The conveyor turns hydraulically. Lokotrack LT1213S has the brand new dual slope screen to provide high on board screening capacity. The screening unit can be docked in a few minutes. Both Lokotracks are designed to operate together with other Lokotrack mobile crushing and screening plants. LT1213 and LT1213S can be fine tuned for aggregate, quarry or recycling applications with features like vibrating grizzly or pan feeder under the crusher.

Energy saving built-in

Lokotrack LT1213 and LT1213S have advanced gearbox as a standard. The Metso gearbox provides the most efficient crusher drive system on the market with assisted start and brake. Optimized hydraulic circuit with independent fan and stand-by function gives up to 20% lower fuel consumption and more power for the crusher.

Safe to operate and maintain

The crusher service rotation is done by 24V hydraulic power pack. New tools are provided to help changing the blow bars and breaker plates. Special attention is being paid on access to the service locations and trouble free material flow. Stand-by function helps to save fuel and reduce noise when idling.

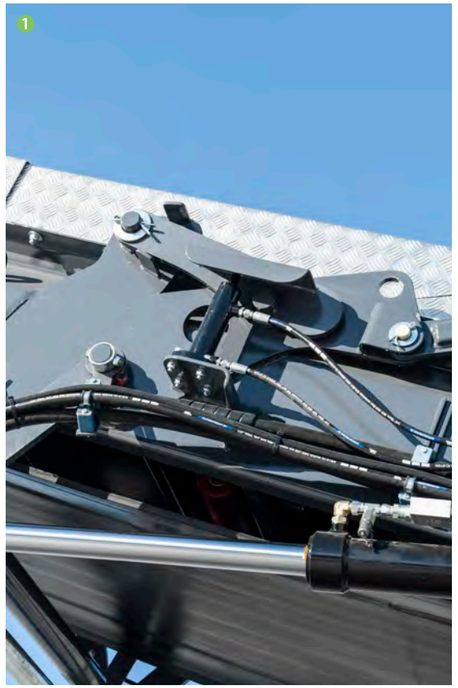
Profitable crushing for different customers

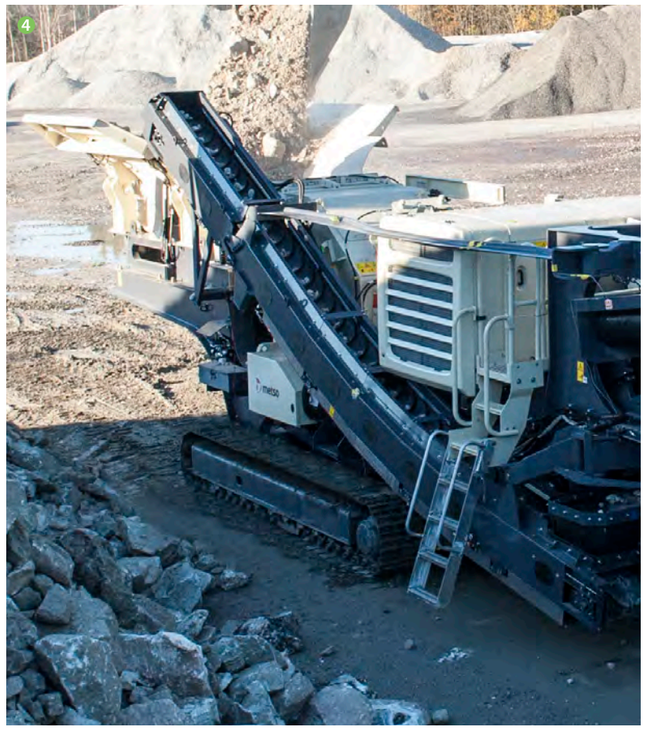
Fast set up is important when crushing plants are moving regularly. Lokotrack LT1213 and LT1213S are ready for crushing only few moments after arriving onsite. Any tools or cranes are not required. IC700 control system with single button start and stop makes the Lokotrack easy to use. Parameters for different sites can be stored and even setting can be optionally adjusted from control display. Lokotrack LT1213 and LT1213S come always with high quality blow bars for efficient crushing. Operation and service DVD with scheduled maintenance, equipment protection plan and extended warranty maximize the availability and profitability.

High quality blow bars as a standard

Lokotrack LT1213 & LT1213S:

- The excellent capacity is a combination of high performance and reliability
- The efficient power transmission provides up to 20% lower fuel consumption
- Compact dimensions and easy set-up gives superior mobility
- New features like service rotation provides easy and safe operation





1. No tools are required for set-up.
2. Dual slope screen enables efficient & accurate separation.
3. Metso gearbox and direct drive enable efficient crushing.
4. Return conveyor always on board in LT1213S.

Lokotrack LT1213		
Nordberg NP1213M impact crusher		
Rotor dimensions	1 300 x 1 200 mm	51 1/5″ x 47 1/5″
Feed hopper		
Standard	6 m^3	8 yd^3
With extensions	9 m^3	12 yd^3
Loading height	3 800 mm	12′ 6″
Feeder		
Width	1 100 mm	43 1/3″
Length	4 200 mm	13′ 9″
Main conveyor		
Width	1 200 mm	47″
Discharge height*	4 000 mm	13′ 2″
Engine		
Caterpillar C13	310 kW	415 hp
Transport dimensions		
Length*	16 850 mm	55′ 3″
Width	2 980 mm	9′ 9″
Height	3 600 mm	11′ 9″
Weight*	45 tons	99 000 lbs

* = Dimensions with a long main conveyor, magnetic separator, side conveyor and feed hopper extensions

Lokotrack LT1213S		
Nordberg NP1213M impact crusher		
Rotor dimensions	1 300 x 1 200 mm	51 1/5″ x 47 1/5″
Screen DS16-36		
Area	5.75 m^2	6.9 yd^2
Feed hopper		
Standard	6 m^3	8 yd^3
With extensions	9 m^3	12 yd^3
Loading height	3 800 mm	12′ 6″
Feeder		
Width	1 100 mm	43 1/3″
Length	4 200 mm	13′ 9″
Main conveyor		
Width	1 200 mm	47″
Discharge height	3 100 mm	10′ 2″
Engine		
Caterpillar C13	310 kW	415 hp
Transport dimensions		
Length	19 400 mm	63′ 7″
Width	3 200 mm	10′ 6″
Height	3 600 mm	11′ 9″
Weight**	55 tons	121 000 lbs

** = Dimensions with all options

The Lokotrack LT1213S is easily transportable on a trailer.

LOKOTRACK LT1213 & LT1213S

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www.metso.com

Subject to alteration without prior notice, Brochure No. 2888-08-15-CSE/Tampere-English,

2019 Caterpillar Performance Handbook

Sections

Wheel Tractor-Scrapers (cont'd)

Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m^3 (yd^3)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Turning Circle m (ft)
						Length	Width	Height	Width of Tread		
DW21 &	8W	51-55	225/*	11.5/15	24 790	12.37	3.53	3.28	2.13	24.0 × 29-24	10.67
No. 21 Scraper	8			**(15/20)**	**(54,650)**	**(40'7")**	**(11'7")**	**(10'9")**	**(7'0")**		**(35'0")**
DW21C &	58C	55-58	300/*	14/19	26 610	12.67	3.58	3.35	2.24	29.5 × 29-22	11.00
No. 470 Scraper	69C			**(18/25)**	**(58,670)**	**(41'7")**	**(11'9")**	**(11'0")**	**(7'4")**		**(36'0")**
DW21D &	85E	58-58	320/*	14/19	26 310	12.78	3.58	3.35	2.24	29.5 × 29-22	11.00
No. 470 Scraper	86E			**(18/25)**	**(58,010)**	**(41'11")**	**(11'9")**	**(11'0")**	**(7'4")**		**(36'0")**
DW21G &	85E	58-60	345/*	14.9/20.6	27 210	12.78	3.58	3.48	2.24	29.5 × 29-28	11.00
No. 470 Scraper	86E			**(19.5/27)**	**(59,980)**	**(41'11")**	**(11'9")**	**(11'5")**	**(7'4")**		**(36'0")**
611	6SZ	99-03	265	11	23 900	12.02	3.27	3.24	2.06	29.5R25	10.2
				(15)	**(52,640)**	**(39'5")**	**(10'9")**	**(10'8")**	**(6'9")**		**(33'5")**
613A	71M	69-76	/150	8.4	13 334	9.67	2.44	2.85	1.89	18.0 × 25-12	9.04
				(11)	**(29,395)**	**(31'9")**	**(8'0")**	**(9'4.5")**	**(6'2.5")**		**(29'8")**
613B	38W	76-84	/150	8.4	14 155	9.78	2.44	2.85	1.89	18.0 × 25-12	8.94
				(11)	**(31,210)**	**(32'1")**	**(8'0")**	**(9'4.5")**	**(6'2.5")**		**(29'4")**
613C		84-93	175	8.4	14 670	10.0	2.44	3.06	1.89	18.00-25,	8.9
				(11)	**(32,340)**	**(32'9")**	**(8'0")**	**(10'0")**	**(6'2.5")**	16 PR (E-2)	**(29'4")**
613C Series II	8LJ	93-08	175	6.8/8.4	15 264	10.14	2.44	3.01	1.80	23.5R25★	9.0
				(8.9/11)	**(33,650)**	**(33'3")**	**(8'0")**	**(9'10")**	**(5'11")**		**(29'6")**
613G	ESB	08-10	181	6.8/8.4	16 887	10.41	2.43	3.01	1.80	23.5R25★	9.0
				(8.9/11)	**(37,229)**	**(34'2")**	**(8'0")**	**(9'11")**	**(5'11")**		**(29'6")**
615	46Z	81-87	/250	12.23	23 400	11.6	3.048	3.590	2.21	26.5-25,	9.63
				(16)	**(51,590)**	**(38'1")**	**(10'0")**	**(11'8")**	**(7'3")**	26 PR (E-2)	**(31'7")**
615C		87-93	265	12.23	23 860	11.6	3.048	3.59	2.21	26.5-25,	9.63
				(16)	**(52,600)**	**(38'1")**	**(10'0")**	**(11'9")**	**(7'3")**	26 PR (E-2)	**(31'7")**
615C Series II	9XG	93-08	265	11/13	25 605	11.6	3.05	3.5	2.1	29.5R25★	10.8
				(14/17)	**(56,450)**	**(38'1")**	**(10'0")**	**(11'0")**	**(6'9")**		**(35'6")**
619B DD	89E	59-60	/225							Turbocharged, Electric start	
DD	90E									Turbocharged, Gas start	
619C PS	61F	60-66	280/250	10.8/14	21 550	11.05	3.30	3.76	2.00	26.5 × 29-22	9.14
DD	62F			**(14/18)**	**(47,500)**	**(36'3")**	**(10'11")**	**(12'2")**	**(6'7")**		**(30'0")**
619**	43F	64-65	/250	15.3/12.6	27 400	11.89	3.60	3.45	2.30	26.5 × 29-26	10.20
				(20/16.5)	**(60,390)**	**(40'0")**	**(11'10")**	**(11'4")**	**(7'7")**		**(33'6")**
621	43H	65-72	/300	10.7/15.3	28 400	12.00	3.60	3.45	2.19	29.5 × 29-22	11.50
				(14/20)	**(62,600)**	**(39'5")**	**(11'10")**	**(11'4")**	**(7'3")**		**(37'8")**
621	23H	65-74	/300	10.7/15.3	24 900	11.60	3.50	3.40	2.10	29.5 × 29-22	13.00
				(14/20)	**(55,000)**	**(38'1")**	**(11'7")**	**(11'2")**	**(6'10")**		**(42'6")**
621B	45P	73-86	/330	10.7/15.3	30 205	12.7	3.45	3.63	2.21	29.5-29,	11.10
				(14/20)	**(66,590)**	**(41'7")**	**(11'4")**	**(11'11")**	**(7'3")**	28 PR (E-3)	**(36'6")**
621E	6AB	86-93	/330	10.7/15.3	30 480	12.93	3.47	3.71	2.21	33.25-29,	10.9
	2PD			**(14/20)**	**(67,195)**	**(42'5")**	**(11'4")**	**(12'2")**	**(7'3")**	26 PR (E-3)	**(35'8")**

*Maximum HP only available.
**Johnson Manufacturing Company built the J619 Elevating Scraper for Caterpillar in 1964.

Wheel Tractor-Scrapers (cont'd)

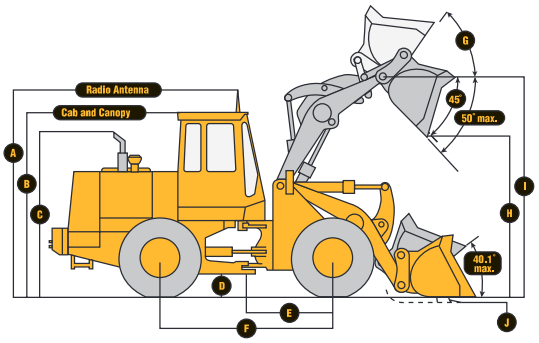
Model	Product Ident. No. Prefix	Years Built	Horse-power Max/ Rated	Capacity Struck/ Heaped m^3 (yd^3)	Approx. Shipping Weight kg (lb)	Dimensions m (ft)				Tire Size (Standard) & ply rating Tractor & Scraper	Turning Circle m (ft)
						Length	Width	Height	Width of Tread		
621F	4SK	93-00	330	10.7/15.3 **(14/20)**	32 090 **(70,740)**	12.93 **(42'5")**	3.47 **(11'4")**	3.71 **(12'2")**	2.21 **(7'3")**	33.25-29 ★★ (E-2/E-3)	10.2 **(33'5")**
621G	ALP	00-03	330/365	10.7/15.3 **(14/20)**	32 250 **(71,090)**	12.93 **(42'5")**	3.47 **(11'4")**	3.71 **(12'2")**	2.20 **(7'3")**	33.25R29	11.7 **(38'5")**
621G	CEN	03-05	330/365	12/17 **(15.7/22)**	32 563 **(71,790)**	12.93 **(42'5")**	3.47 **(11'4")**	3.71 **(12'2")**	2.20 **(7'3")**	33.25R29	11.7 **(38'5")**
621G	DBB	05-10	330/365	12/17 **(15.7/22)**	33 995 **(74,946)**	12.88 **(42'3")**	3.58 **(11'9")**	3.71 **(12'3")**	2.23 **(7'4")** Tractor 2.20 **(7'3")** Scraper	33.25R29 ★★ (E-3)	11.7 **(38'5")**
621H	DBK EAZ	10-13	407	13/18.4 **(17.1/24)**	36 185 **(79,787)**	14.02 **(45'10")**	3.57 **(11'7")**	4.03 **(13'2")**	2.29 **(7'5")** Tractor 2.28 **(7'4")** Scraper	33.25R29 ★★ (E-3)	11.8 **(38'7")**
623	52U	72-74	/300	16.8 **(22)**	29 900 **(66,000)**	11.90 **(39'0")**	3.50 **(11'7")**	3.70 **(12'1")**	2.20 **(7'3")**	29.5 × 29-28	13.70 **(44'11")**
623B	46P	73-86	/330	16.8 **(22)**	32 546 **(71,750)**	12.5 **(41'1")**	3.55 **(11'8")**	3.81 **(12'6")**	2.18 **(7'2")**	29.5-29, 28 PR (E-2)	8.90 **(29'4")**
623E	6CB	86-89	/330	16.8 **(22)**	33 317 **(73,450)**	12.61 **(41'4")**	3.55 **(11'8")**	3.81 **(12'6")**	2.21 **(7'3")**	29.5-29, 34 PR (E-2)	10.9 **(35'9")**
623E	6YF	89-93	/365	13.8/17.6 **(18/23)**	35 290 **(77,800)**	12.61 **(41'4")**	3.55 **(11'8")**	3.94 **(12'11")**	2.18 **(7'2")**	29.5R25	10.9 **(35'8")**
623F	6BK	93-98	365	13.8/17.6 **(18/23)**	35 305 **(77,830)**	12.61 **(41'4")**	3.55 **(11'8")**	3.94 **(12'11")**	2.18 **(7'2")**	29.5-29, 34 PR (E-2)	10.9 **(35'8")**
623F Series II	5EW	98-00	365	13.8/17.6 **(18/23)**	37 122 **(81,840)**	13.28 **(43'7")**	3.55 **(11'8")**	3.55 **(11'8")**	2.21 **(7'3")**	33.25-R29 ★★ (E-2)	8.6 **(28'5")**
623G	ARW	00-02	330/365	13.8/17.6 **(18/23)**	37 120 **(81,840)**	13.21 **(43'4")**	3.55 **(11'8")**	3.68 **(12'1")**	2.2 **(7'3")**	33.25R29	10.9 **(35'8")**
623G	CES	03-05	330/365	13.8/17.6 **(18/23)**	37 120 **(81,840)**	13.21 **(43'4")**	3.55 **(11'8")**	3.68 **(12'1")**	2.2 **(7'3")**	33.25R29	10.9 **(35'8")**
623G	DBC	05-10	330/365	13.8/17.6 **(18/23)**	37 510 **(82,695)**	13.17 **(43'2")**	3.58 **(11'9")**	3.71 **(12'3")**	2.23 **(7'4")** Tractor 2.20 **(7'3")** Scraper	33.25R29 ★★ (E-3)	12.0 **(39'4")**
623H	DBF EJD	10-13	407	14.4/17.6 **(18.8/23)**	39 937 **(88,061)**	13.77 **(45'2")**	3.57 **(11'7")**	3.77 **(12'3")**	2.29 **(7'5")** Tractor 2.28 **(7'4")** Scraper	33.25R29 ★★ (E-3)	11.8 **(38'7")**

John Deere 544 Wheel Loader Specifications

ENGINE	544G	624G	644G
Type	John Deere 6059T with altitude-compensating turbocharger	John Deere 6068T with altitude-compensating turbocharger	John Deere 6076A with altitude-compensating turbocharger; aftercooled
Rated power	120 SAE net hp (90 kW) 125 SAE gross hp (94 kW) @ 2,200 rpm	145 SAE net hp (108 kW) 150 SAE gross hp (112 kW) @ 2,200 rpm	170 SAE net hp (127 kW) 178 SAE gross hp (133 kW) @ 2,200 rpm
Cylinders	6	6	6
Displacement	359 cu. in. (5.884 L)	414 cu. in. (6.785 L)	466 cu. in. (7.636 L)
Maximum net torque	388 lb.-ft. (527 Nm) @ 1,400 rpm	456 lb.-ft. (618 Nm) @ 1,300 rpm	598 lb.-ft. (811 Nm) @ 1,300 rpm
Lubrication	pressure system with full-flow spin-on filter and cooler	pressure system with full-flow spin-on filter and cooler	pressure system with full-flow spin-on filter and cooler
Fuel consumption, typical	2.0 to 4.0 gal./hr. (7.6 to 15.2 L/h)	2.6 to 4.8 gal./hr. (9.8 to 18.2 L/h)	3.0 to 5.9 gal./hr. (11.3 to 22.3 L/h)
Cooling fan	blower	blower	blower
Electrical system	12 volt with 95-amp alternator	12 volt with 95-amp alternator	12 volt with 95-amp alternator
Battery (one 12 volt)	reserve capacity: 160 min., 625 CCA	reserve capacity: 160 min., 625 CCA	reserve capacity: 160 min., 925 CCA
Air cleaner	dual safety element dry type; restriction indicator for service	dual safety element dry type; restriction indicator for service	dual safety element dry type; restriction indicator for service
TRANSMISSION			
Type	torque converter – power shift	torque converter – power shift	torque converter – power shift
Controls	low-effort electronically controlled automatic shift and quick-shift button	low-effort electronically controlled automatic shift and quick-shift button	low-effort electronically controlled automatic shift and quick-shift button
Travel speeds*	*Forward mph (km/h)* / *Reverse mph (km/h)*	*Forward mph (km/h)* / *Reverse mph (km/h)*	*Forward mph (km/h)* / *Reverse mph (km/h)*
Gear 1	4.6 (7.4) / 4.6 (7.4)	4.5 (7.3) / 4.5 (7.3)	4.4 (7.0) / 4.4 (7.0)
Gear 2	7.7 (12.3) / 7.7 (12.3)	7.2 (11.6) / 7.2 (11.6)	7.0 (11.2) / 7.0 (11.2)
Gear 3	16.9 (27.2) / 16.9 (27.2)	15.2 (24.5) / 15.2 (24.5)	13.7 (22.0) / 13.7 (22.0)
Gear 4	23.8 (38.4)	23.0 (37.3)	21.5 (34.6)
*544G and 624G are equipped with 20.5-25 tires; 644G is equipped with 23.5-25 tires.			
AXLES/BRAKES			
Final drives	heavy-duty planetary, mounted inboard	heavy-duty planetary, mounted inboard	heavy-duty planetary, mounted inboard
Differentials (choice of)	conventional front and rear – Standard; hydraulic lock front, conventional rear – Optional; NoSPIN front, conventional rear – Optional; hydraulic lock front and rear – Optional; front axle disconnect – Optional	conventional front and rear – Standard; hydraulic lock front, conventional rear – Optional; NoSPIN front, conventional rear – Optional; hydraulic lock front and rear – Optional; front axle disconnect – Optional	conventional front and rear – Standard; hydraulic lock front, conventional rear – Optional; NoSPIN front, conventional rear – Optional; hydraulic lock front and rear – Optional; front axle disconnect – Optional
Rear axle oscillation	22 degrees, stop to stop	26 degrees, stop to stop	26 degrees, stop to stop
Maximum rise and fall, single wheel	28.6 in. (727 mm)	32.8 in. (833 mm)	36.6 in. (929 mm)
Brakes (conform to SAE J1473, ISO3450)			
Service brakes	inboard-mounted hydraulic wet disc, bathed in cooling oil, long life self-adjusting	inboard-mounted hydraulic wet disc, bathed in cooling oil, long life self-adjusting	inboard-mounted hydraulic wet disc, bathed in cooling oil, long life self-adjusting
Parking brake	automatically spring applied, hydraulically released, disc and caliper type, attached to transmission output shaft	automatically spring applied, hydraulically released, disc and caliper type, attached to transmission output shaft	automatically spring applied, hydraulically released, disc and caliper type, attached to transmission output shaft
HYDRAULIC SYSTEM/STEERING			
Pump (loader and steering)	gear-type, open-center system	gear-type, open-center system	gear-type, open-center system
Maximum flow	46.3 gpm (175 L/min.) @ 600 psi (4137 kPa) and 2,200 rpm	61 gpm (231 L/min.) @ 600 psi (4137 kPa) and 2,200 rpm	69.5 gpm (263 L/min.) @ 600 psi (4137 kPa) and 2,200 rpm
Pressure	loader relief 2,750 psi (18 961 kPa) steering relief 2,650 psi (18 270 kPa)	loader relief 2,800 psi (19 306 kPa) steering relief 2,650 psi (18 270 kPa)	loader relief 3,000 psi (20 685 kPa) steering relief 2,650 psi (18 270 kPa)
Loader controls	two-function valve with single lever and control lever lockout	two-function valve with single lever and control lever lockout	two-function valve with single lever and control lever lockout
Hydraulic cycle times			
Raise	5.8 sec.	5.8 sec.	6.2 sec.
Dump	1.4 sec.	1.7 sec.	1.8 sec.
Lower	3.2 sec. (float down) / 3.5 sec. (power down)	3.5 sec. (float down) / 3.5 sec. (power down)	3.5 sec. (float down) / 3.9 sec. (power down)
Maximum lift capacity	*with 2.25 cu. yd. (1.7 m³) excavating bucket*	*with 2.63 cu. yd. (2.0 m³) excavating bucket*	*with 3.25 cu. yd. (2.5 m³) excavating bucket*
Lift at ground level	24,264 lb. (11 006 kg)	26,938 lb. (12 217 kg)	33,886 lb. (15 368 kg)
With coupler	23,302 lb. (10 568 kg)	25,589 lb. (11 605 kg)	32,524 lb. (14 750 kg)
Lift at maximum height	12,031 lb. (5457 kg)	14,143 lb. (6414 kg)	19,823 lb. (8990 kg)
With coupler	11,492 lb. (5212 kg)	13,817 lb. (6266 kg)	19,020 lb. (8626 kg)
Steering (conforms to SAE J1511)			
Type	power, fully hydraulic	power, fully hydraulic	power, fully hydraulic
Relief valve setting	2,650 psi (18 270 kPa)	2,650 psi (18 270 kPa)	2,650 psi (18 270 kPa)
Articulation angle	80-degree arc (40 degrees each direction)	80-degree arc (40 degrees each direction)	80-degree arc (40 degrees each direction)
Turning radius (measured to centerline of outside tire)	16 ft. 3 in. (4.95 m)	16 ft. 10.5 in. (5.14 m)	17 ft. 11 in. (5.46 m)
TIRES			
Choice of	15.5-25, 12 PR L2 / 17.5-25, 12 PR L2 / 17.5-25, 12 PR L3 / 20.5-25, 12 PR L2 / 20.5-25, 12 PR L3 / 20.5-25, 16 PR L3 / 17.5-25, Radial, One Star L2 equivalent / 17.5-25, Radial, One Star L3 equivalent / 20.5-25, Radial, One Star L2 equivalent / 20.5-25, Radial, One Star L3 equivalent	17.5-25, 12 PR L2 / 17.5-25, 12 PR L3 / 20.5-25, 12 PR L2 / 20.5-25, 12 PR L3 / 20.5-25, 16 PR L3 / 17.5-25, Radial, One Star L2 equivalent / 17.5-25, Radial, One Star L3 equivalent / 20.5-25, Radial, One Star L2 equivalent / 20.5-25, Radial, One Star L3 equivalent	20.5-25, 12 PR L2 / 20.5-25, 16 PR L2 / 20.5-25, 16 PR L3 / 23.5-25, 12 PR L2 / 23.5-25, 16 PR L3 / 23.5-25, 20 PR L3 / 20.5-25, Radial, One Star L3 equivalent / 20.5-25, Radial, One Star L2 equivalent / 23.5-25, Radial, One Star L3 equivalent
15.5-25 tires (one- or three-piece wheels)			
Tread width	76.38 in. (1940 mm)		
Width over tires	93.11 in. (2365 mm)		
Change in vertical height	– 1.57 in. (– 40 mm)		
17.5-25 tires			
Tread width	76.38 in. (1940 mm)	81.1 in. (2060 mm)	
Width over tires	95.28 in. (2420 mm)	100.3 in. (2549 mm)	
Change in vertical height	0	– 2.36 in. (– 60 mm)	

TIRES *(continued)*	544G	624G	644G
20.5-25 tires			
Tread width	74.80 in. (1900 mm)	77.2 in. (1960 mm)	85.4 in. (2170 mm)
Width over tires	96.93 in. (2462 mm)	99.3 in. (2522 mm)	107.6 in. (2732 mm)
Change in vertical height	+ 2.60 in. (+ 66 mm)	0	– 2.0 in. (– 51 mm)
20.5-25, Radial tires			
Tread width			85.4 in. (2170 mm)
Width over tires			108.0 in. (2743 mm)
Change in vertical height			– 2.4 in. (– 62 mm)
23.5-25 tires			
Tread width			83.5 in. (2120 mm)
Width over tires			108.9 in. (2765 mm)
Change in vertical height			0
CAPACITIES (U.S.)			
Fuel tank with ground level fueling	57.6 gal. (218 L)	65.7 gal. (249 L)	75 gal. (284 L)
Cooling system	25 qt. (24 L)	26 qt. (25 L)	30 qt. (28.5 L)
Engine lubrication, including full-flow spin-on filter	20 qt. (19 L)	20 qt. (19 L)	25 qt. (24 L)
Power shift transmission, including vertical cartridge filter	10 qt. (9.5 L)	12 qt. (11 L)	15 qt. (14 L)
Differentials			
Front	20 qt. (19 L)	30 qt. (28 L)	30 qt. (28.4 L)
Rear	20 qt. (19 L)	20 qt. (19 L)	30 qt. (28.4 L)
Loader hydraulic reservoir	80 qt. (76 L)	108 qt. (102 L)	120 qt. (115 L)
DIMENSIONS WITH BUCKET			
A Overall height	11 ft. 5.3 in. (3.52 m)	11 ft. 10.4 in. (3.62 m)	12 ft. 3.2 in. (3.74 m)
B Height to top of cab and canopy	10 ft. 4.8 in. (3.17 m)	10 ft. 9.9 in. (3.30 m)	11 ft. 2.7 in. (3.42 m)
C Height to top of exhaust	9 ft. 2 in. (2.79 m)	9 ft. 7.9 in. (2.94 m)	10 ft. 4.4 in. (3.16 m)
D Ground clearance	14.7 in. (373 mm)	17 in. (433 mm)	19 in. (483 mm)
E Length from centerline of front axle	57 in. (1450 mm)	59.65 in. (1515 mm)	63 in. (1600 mm)
F Wheelbase	114 in. (2900 mm)	119.3 in. (3030 mm)	126 in. (3200 mm)
G Maximum bucket angle	55.3 degrees	55.8 degrees	55 degrees
H Dump height	▲	▲	▲
I Height to hinge pin, fully raised	12 ft. 2.6 in. (3.72 m)	12 ft. 9.3 in. (3.89 m)	13 ft. 1.9 in. (4.0 m)
J Digging depth	4 in. (101 mm)	2 in. (52 mm)	2.68 in. (68 mm)

▲ See Bucket Information below and on page 18.



544G BUCKET INFORMATION (PIN-ON)

Bucket Type/Size	***Stockpiling w/ Bolt-on Edge***	*Stockpiling w/o Bolt-on Edge*	*Stockpiling w/ Spillguard**	*Stockpiling w/ Bolt-on Edge + Spillguard**	***Excavating w/ Bolt-on Edge***	*Excavating w/o Bolt-on Edge*	*Excavating w/ Spillguard**	*Excavating w/ Bolt-on Edge + Spillguard**	*Multi-purpose***
Capacity, heaped SAE, in cu. yd. (m^3)	2.63 (2.0)	2.5 (1.9)	2.75 (2.1)	2.88 (2.2)	2.38 (1.8)	2.25 (1.7)	2.5 (1.9)	2.63 (2.0)	2.13 (1.6)
Capacity, struck SAE, in cu. yd. (m^3)	2.25 (1.7)	2.12 (1.62)	2.41 (1.84)	2.51 (1.92)	1.99 (1.52)	1.88 (1.44)	2.16 (1.65)	2.26 (1.73)	1.77 (1.35)
Bucket width, in in. (m)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)	100.4 (2.55)
Breakout force, SAE J732C, in lb. (kN)	20,569 (91.5)	22,207 (98.8)	22,110 (98.4)	20,430 (90.9)	22,145 (98.5)	24,030 (106.9)	23,942 (106.5)	22,059 (98.1)	20,682 (93.8)
Tipping load, straight, in lb. (kg)	18,914 (8579)	19,469 (8831)	19,423 (8810)	18,841 (8546)	19,262 (8737)	19,833 (8996)	19,791 (8977)	19,132 (8678)	17,556 (7963)
Tipping load, 40-degree full turn, SAE, in lb. (kg)	16,008 (7261)	16,534 (7500)	16,484 (7477)	15,933 (7227)	16,334 (7409)	16,876 (7655)	16,830 (7634)	16,202 (7349)	14,806 (6716)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance, in in. (mm)	58.15 (1477)	58.03 (1474)	58.03 (1474)	58.15 (1477)	57.2 (1453)	57.05 (1449)	57.05 (1449)	57.2 (1453)	50.3 (1277)
Reach, 45-degree dump, full height, in in. (mm)	40.6 (1030)	39.2 (995)	39.2 (995)	40.6 (1030)	38.6 (980)	37.2 (944)	37.2 (944)	38.6 (980)	34.7 (881)
▲ Dump clearance, 45 degree, full height, in in. (mm)	107.2 (2724)	109.8 (2788)	109.8 (2788)	107.2 (2724)	109.3 (2776)	111.8 (2839)	111.8 (2839)	109.3 (2776)	103.8 (2636)
Overall length, in ft.-in. (m)	23-1.8 (7.06)	22-10.2 (6.97)	22-10.2 (6.97)	23-1.8 (7.06)	22-10.1 (6.96)	22-7.2 (6.89)	22-7.2 (6.89)	22-10.7 (6.98)	23-2.8 (7.08)
Loader clearance circle, bucket in carry position, in ft.-in. (m)	37-9 (11.51)	37-7 (11.46)	37-7 (11.46)	37-9 (11.51)	27-7.4 (11.47)	37-5 (11.44)	37-5 (11.44)	37-7.4 (11.47)	37-10 (11.54)
Operating weight, in lb. (kg)	24,092 (10 928)	23,828 (10 808)	23,947 (10 662)	24,311 (11 027)	23,934 (10 856)	23,570 (10 691)	23,689 (10 745)	24,053 (10 910)	24,601 (11 158)

*Auxiliary spillguard is dealer installed. The spillguard is primarily intended to prevent spillage of loose material. However, it does increase bucket capacity.

**Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 17.5-25, 12 PR L2 tires; two rear counterweights; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

544G ADJUSTMENTS TO OPERATING WEIGHTS FOR PIN-ON BUCKETS

Adjustments to operating weights and tipping loads for 2.25 cu. yd. (1.7 m^3) excavating bucket

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Straight*	*Tipping Load, 40-Degree Full Turn, SAE*
15.5-25, 12 PR L2 tires without $CaCl_2$	– 194 lb. (– 88 kg)	– 137 lb. (– 62 kg)	– 119 lb. (– 54 kg)
15.5-25, 12 PR L2 tires with $CaCl_2$	+ 756 lb. (+ 343 kg)	+ 1,199 lb. (+ 544 kg)	– 1,036 lb. (– 470 kg)
17.5-25, 12 PR L2 tires with $CaCl_2$	+ 1,180 lb. (+ 535 kg)	+ 1,658 lb. (+ 752 kg)	+ 1,431 lb. (+ 649 kg)
17.5-25, 12 PR L3 tires without $CaCl_2$	+ 132 lb. (+ 60 kg)	+ 93 lb. (+ 42 kg)	+ 79 lb. (+ 36 kg)
17.5-25, 12 PR L3 tires with $CaCl_2$	+ 1,312 lb. (+ 595 kg)	+ 1,750 lb. (+ 794 kg)	+ 1,512 lb. (+ 686 kg)
17.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	+ 379 lb. (+ 172 kg)	+ 267 lb. (+ 121 kg)	+ 229 lb. (+ 104 kg)
17.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 1,559 lb. (+ 707 kg)	+ 1,925 lb. (+ 873 kg)	+ 1,662 lb. (+ 754 kg)
20.5-25, 12 PR L2 tires without $CaCl_2$	+ 794 lb. (+ 360 kg)	+ 558 lb. (+ 253 kg)	+ 481 lb. (+ 218 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 2,615 lb. (+ 1186 kg)	+ 3,117 lb. (+ 1414 kg)	+ 2,692 lb. (+ 1221 kg)
20.5-25, 12 PR L3 tires without $CaCl_2$	+ 1,085 lb. (+ 442 kg)	+ 763 lb. (+ 346 kg)	+ 657 lb. (+ 298 kg)
20.5-25, 12 PR L3 tires with $CaCl_2$	+ 2,906 lb. (+ 1318 kg)	+ 3,323 lb. (+ 1507 kg)	+ 2,869 lb. (+ 1301 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 302 lb. (– 137 kg)	– 278 lb. (– 126 kg)
Bucket teeth	+ 240 lb. (+ 109 kg)	– 295 lb. (– 134 kg)	– 289 lb. (– 131 kg)
Deduct two rear counterweights	– 1,736 lb. (– 787 kg)	– 3,978 lb. (– 1804 kg)	– 3,188 lb. (– 1446 kg)
Add one rear counterweight*	– 946 lb. (– 429 kg)	– 2,130 lb. (– 966 kg)	– 1,748 lb. (– 793 kg)

*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

624G BUCKET INFORMATION (PIN-ON)

Bucket Type/Size	***Stockpiling w/ Bolt-on Edge***	*Stockpiling w/o Bolt-on Edge*	*Stockpiling w/ Spillguard**	*Stockpiling w/ Bolt-on Edge + Spillguard**	***Excavating w/ Bolt-on Edge***	*Excavating w/o Bolt-on Edge*	*Excavating w/ Spillguard**	*Excavating w/ Bolt-on Edge + Spillguard**	*Multi-purpose***
Capacity, heaped SAE, in cu. yd. (m^3)	3.25 (2.5)	3.0 (2.3)	3.12 (2.4)	3.38 (2.6)	2.75 (2.1)	2.63 (2.0)	2.75 (2.1)	3.0 (2.3)	2.38 (1.8)
Capacity, struck SAE, in cu. yd. (m^3)	2.75 (2.1)	2.63 (2.0)	2.88 (2.2)	3.0 (2.3)	2.38 (1.8)	2.25 (1.7)	2.5 (1.9)	2.63 (2.0)	2.0 (1.5)
Bucket width, in in. (m)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)	101.8 (2.58)
Breakout force, SAE J732C, in lb. (kN)	26,708 (118.8)	29,404 (130.8)	29,238 (130.0)	26,494 (117.8)	29,047 (129.2)	32,202 (143.2)	32,109 (142.8)	28,925 (128.6)	32,471 (144.4)
Tipping load, straight, in lb. (kg)	20,484 (9290)	21,205 (9617)	21,157 (9595)	20,401 (9252)	20,758 (9414)	21,497 (9749)	21,459 (9732)	20,707 (9391)	20,013 (9079)
Tipping load, 40-degree full turn, SAE, in lb. (kg)	17,329 (7859)	18,001 (8164)	17,951 (8141)	17,241 (7819)	17,572 (7969)	18,262 (8282)	18,220 (8263)	17,514 (7943)	16,908 (7668)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance, in in. (mm)	60.5 (1536)	59.8 (1520)	59.8 (1520)	60.5 (1536)	59.2 (1503)	58.5 (1485)	58.5 (1485)	59.2 (1503)	49.8 (1265)
Reach, 45-degree dump, full height, in in. (mm)	40.4 (1027)	38.0 (966)	38.0 (966)	40.4 (1027)	37.6 (956)	35.3 (896)	35.3 (896)	37.6 (956)	28.6 (726)
▲ Dump clearance, 45 degree, full height, in in. (mm)	109.6 (2784)	112.9 (2868)	112.9 (2868)	109.6 (2784)	112.4 (2854)	115.7 (2938)	115.7 (2938)	112.4 (2854)	111.8 (2839)
Overall length, in ft.-in. (m)	24-8.3 (7.52)	24-3.7 (7.41)	24-3.7 (7.41)	24-8.3 (7.52)	24-4.2 (7.42)	23-11.5 (7.3)	23-11.5 (7.3)	24-4.2 (7.42)	24-0.9 (7.34)
Loader clearance circle, bucket in carry position, in ft.-in. (m)	39-5.6 (12.03)	39-2.8 (11.96)	39-2.8 (11.96)	39-5.6 (12.03)	39-3.2 (11.97)	39-0 (11.9)	39-0 (11.9)	39-3.2 (11.97)	39-1.7 (11.93)
Operating weight, in lb. (kg)	27,854 (12 632)	27,435 (12 442)	27,554 (12 496)	27,973 (12 686)	27,756 (12 588)	27,338 (12 398)	27,456 (12 452)	27,876 (12 642)	28,103 (12 745)

*Auxiliary spillguard is dealer installed. The spillguard is primarily intended to prevent spillage of loose material. However, it does increase bucket capacity.

**Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 20.5-25, 12 PR L2 tires; one rear counterweight; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

624G ADJUSTMENTS TO OPERATING WEIGHTS FOR PIN-ON BUCKETS

Adjustments to operating weights and tipping loads for 2.63 cu. yd. (2.0 m^3) excavating bucket

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Straight*	*Tipping Load, 40-Degree Full Turn, SAE*
17.5-25, 12 PR L2 tires without $CaCl_2$	– 794 lb. (– 360 kg)	– 560 lb. (– 254 kg)	– 483 lb. (– 219 kg)
17.5-25, 12 PR L2 tires with $CaCl_2$	+ 386 lb. (+ 175 kg)	+ 1,100 lb. (+ 499 kg)	+ 950 lb. (+ 431 kg)
17.5-25, 12 PR L3 tires without $CaCl_2$	– 661 lb. (– 300 kg)	– 467 lb. (– 212 kg)	– 403 lb. (– 183 kg)
17.5-25, 12 PR L3 tires with $CaCl_2$	+ 518 lb. (+ 235 kg)	+ 1,193 lb. (+ 541 kg)	+ 1,030 lb. (+ 467 kg)
17.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	– 414 lb. (– 188 kg)	– 293 lb. (– 133 kg)	– 251 lb. (– 114 kg)
17.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 765 lb. (+ 347 kg)	+ 1,367 lb. (+ 620 kg)	+ 1,179 lb. (+ 535 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 1,820 lb. (+ 826 kg)	+ 2,560 lb. (+ 1161 kg)	+ 2,211 lb. (+ 1003 kg)
20.5-25, 12 PR L3 tires without $CaCl_2$	+ 291 lb. (+ 132 kg)	+ 205 lb. (+ 93 kg)	+ 179 lb. (+ 81 kg)
20.5-25, 12 PR L3 tires with $CaCl_2$	+ 2,112 lb. (+ 958 kg)	+ 2,765 lb. (+ 1254 kg)	+ 2,388 lb. (+ 1083 kg)
20.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	+ 467 lb. (+ 212 kg)	+ 331 lb. (+ 150 kg)	+ 287 lb. (+ 130 kg)
20.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 2,288 lb. (+ 1038 kg)	+ 2,888 lb. (+ 1310 kg)	+ 2,493 lb. (+ 1131 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 299 lb. (– 136 kg)	– 241 lb. (– 109 kg)
Bucket teeth	+ 240 lb. (+ 109 kg)	– 298 lb. (– 135 kg)	– 291 lb. (– 132 kg)
Deduct one rear counterweight	– 946 lb. (– 429 kg)	– 2,134 lb. (– 968 kg)	– 1,753 lb. (– 795 kg)
Add second rear counterweight*	+ 1,169 lb. (+ 530 kg)	+ 2,677 lb. (+ 1214 kg)	+ 2,196 lb. (+ 996 kg)

*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

644G BUCKET INFORMATION (PIN-ON)

Bucket Type/Size	***Stockpiling w/ Bolt-on Edge***	*Stockpiling w/o Bolt-on Edge*	*Stockpiling w/ Spillguard**	*Stockpiling w/ Bolt-on Edge + Spillguard**	***Excavating w/ Bolt-on Edge***	*Excavating w/o Bolt-on Edge*	*Excavating w/ Spillguard**	*Excavating w/ Bolt-on Edge + Spillguard**	*Multi-purpose***
Capacity, heaped SAE, in cu. yd. (m^3)	4.0 (3.1)	3.75 (2.9)	4.0 (3.1)	4.25 (3.2)	3.5 (2.7)	3.25 (2.5)	3.5 (2.7)	3.75 (2.8)	2.75 (2.1)
Capacity, struck SAE, in cu. yd. (m^3)	3.4 (2.6)	3.2 (2.45)	3.57 (2.73)	3.78 (2.89)	2.88 (2.2)	2.75 (2.1)	3.14 (2.4)	3.25 (2.5)	2.31 (1.77)
Bucket width, in in. (m)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)	112.2 (2.85)
Breakout force, SAE J732C, in lb. (kN)	34,171 (152.0)	37,440 (166.5)	37,346 (166.1)	33,997 (151.2)	37,284 (165.8)	41,105 (182.8)	41,012 (182.4)	37,139 (165.2)	41,720 (185.6)
Tipping load, straight, in lb. (kg)	26,264 (11 911)	27,329 (12 394)	27,298 (12 380)	26,184 (11 875)	26,883 (12 192)	27,734 (12 578)	27,708 (12 566)	26,844 (12 174)	26,731 (12 123)
Tipping load, 40-degree full turn, SAE, in lb. (kg)	22,118 (10 031)	23,161 (10 504)	23,124 (10 487)	22,032 (9992)	22,730 (10 310)	23,525 (10 669)	23,492 (10 654)	22,687 (10 289)	22,614 (10 256)
Tipping load, 35-degree turn, SAE, in lb. (kg)	22,932 (10 400)	23,975 (10 873)	23,937 (10 856)	22,846 (10 361)	23,543 (10 677)	24,345 (11 041)	24,314 (11 027)	23,499 (10 657)	23,417 (10 620)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance, in in. (mm)	64.4 (1635)	63.8 (1622)	63.8 (1622)	64.4 (1635)	62.8 (1596)	62.2 (1580)	62.2 (1580)	62.8 (1596)	57.1 (1450)
Reach, 45-degree dump, full height, in in. (mm)	45.0 (1142)	42.7 (1086)	42.7 (1086)	45.0 (1142)	42.0 (1068)	39.8 (1011)	39.8 (1011)	42.0 (1068)	35.6 (904)
▲ Dump clearance, 45 degree, full height, in in. (mm)	111.3 (2828)	114.8 (2917)	114.8 (2917)	111.3 (2828)	114.3 (2904)	117.8 (2992)	117.8 (2993)	114.3 (2904)	115.8 (2942)
Overall length, in ft.-in. (m)	25-10.4 (7.88)	25-5.5 (7.76)	25-5.5 (7.76)	25-10.4 (7.88)	25-5.9 (7.77)	25-1 (7.65)	25-1 (7.65)	25-5.9 (7.77)	25-0.5 (7.63)
Loader clearance circle, bucket in carry position, in ft.-in. (m)	42-0.2 (12.81)	41-9.2 (12.73)	41-9.2 (12.73)	42-0.2 (12.81)	41-9.6 (12.74)	41-6.7 (12.67)	41-6.7 (12.67)	41-9.6 (12.74)	41-6.3 (12.66)
Operating weight, in lb. (kg)	35,236 (15 980)	34,824 (15 793)	34,943 (15 847)	35,357 (16 035)	34,980 (15 864)	34,544 (15 666)	32,226 (15 720)	35,095 (15 916)	35,035 (15 889)

*Auxiliary spillguard is dealer installed. The spillguard is primarily intended to prevent spillage of loose material. However, it does increase bucket capacity.

**Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 23.5-25, 12 PR L2 tires; one rear counterweight; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

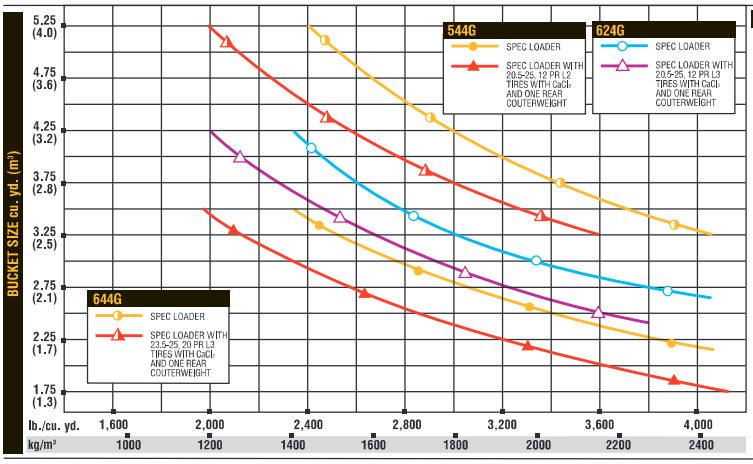
644G ADJUSTMENTS TO OPERATING WEIGHTS FOR PIN-ON BUCKETS

Adjustments to operating weights and tipping loads for 3.25 cu. yd. (2.5 m^3) excavating bucket

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Straight*	*Tipping Load, 35-Degree Turn, SAE*	*Tipping Load, 40-Degree Full Turn, SAE*
20.5-25, 12 PR L2 tires without $CaCl_2$	– 1,587 lb. (– 720 kg)	– 1,129 lb. (– 512 kg)	– 1,005 lb. (– 456 kg)	– 977 lb. (– 443 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 234 lb. (+ 106 kg)	+ 1,462 lb. (+ 663 kg)	+ 1,301 lb. (+ 590 kg)	+ 1,263 lb. (+ 573 kg)
20.5-25, 16 PR L2 tires without $CaCl_2$	– 1,499 lb. (– 680 kg)	– 1,067 lb. (– 484 kg)	– 950 lb. (– 431 kg)	– 922 lb. (– 418 kg)
20.5-25, 16 PR L2 tires with $CaCl_2$	+ 322 lb. (+ 146 kg)	+ 1,526 lb. (+ 692 kg)	+ 1,356 lb. (+ 615 kg)	+ 1,316 lb. (+ 597 kg)
20.5-25, 16 PR L3 tires without $CaCl_2$	– 1,235 lb. (– 560 kg)	– 877 lb. (– 398 kg)	– 783 lb. (– 355 kg)	– 758 lb. (– 344 kg)
20.5-25, 16 PR L3 tires with $CaCl_2$	+ 586 lb. (+ 266 kg)	+ 1,713 lb. (+ 777 kg)	+ 1,523 lb. (+ 691 kg)	+ 1,479 lb. (+ 671 kg)
20.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	– 1,120 lb. (– 508 kg)	– 796 lb. (– 361 kg)	– 710 lb. (– 322 kg)	– 688 lb. (– 312 kg)
20.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 701 lb. (+ 318 kg)	+ 1,795 lb. (+ 814 kg)	+ 1,596 lb. (+ 724 kg)	+ 1,550 lb. (+ 703 kg)
23.5-25, 12 PR L2 tires with $CaCl_2$	+ 2,396 lb. (+ 1087 kg)	+ 3,411 lb. (+ 1547 kg)	+ 3,036 lb. (+ 1,377 kg)	+ 2,945 lb. (+ 1336 kg)
23.5-25, 20 PR L3 tires without $CaCl_2$	+ 494 lb. (+ 224 kg)	+ 353 lb. (+ 160 kg)	+ 313 lb. (+ 142 kg)	+ 304 lb. (+ 138 kg)
23.5-25, 20 PR L3 tires with $CaCl_2$	+ 2,890 lb. (+ 1311 kg)	+ 3,761 lb. (+ 1706 kg)	+ 3,347 lb. (+ 1518 kg)	+ 3,250 lb. (+ 1474 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 295 lb. (– 134 kg)	– 273 lb. (– 124 kg)	– 276 lb. (– 125 kg)
Bucket teeth	+ 262 lb. (+ 119 kg)	– 326 lb. (– 148 kg)	– 322 lb. (– 146 kg)	– 320 lb. (– 145 kg)
Deduct one rear counterweight	– 910 lb. (– 413 kg)	– 2,068 lb. (– 938 kg)	– 1,773 lb. (– 804 kg)	– 1,700 lb. (– 771 kg)
Add second rear counterweight	+ 1,422 lb. (+ 645 kg)	+ 3,258 lb. (+ 1478 kg)	+ 2,789 lb. (+ 1265 kg)	+ 2,672 lb. (+ 1212 kg)

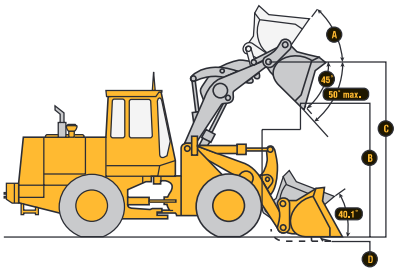
*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

544G / 624G / 644G BUCKET SELECTION GUIDE*

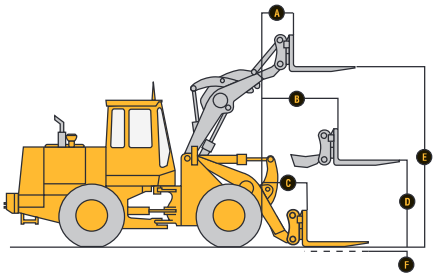


MATERIAL (Loose weight)	lb/yd³	kg/m³
Caliche	2,100	1250
Cinders	1,000	590
Clay and gravel, dry	2,400	1420
Clay and gravel, wet	2,600	1540
Clay, dry	2,500	1480
Clay, natural bed	2,800	1660
Clay, wet	2,800	1660
Coal, anthracite, broken	1,850	1100
Coal, bituminous, broken	1,400	830
Earth, dry, packed	2,550	1510
Earth, loam	2,100	1250
Earth, wet, excavated	2,700	1600
Granite, broken or large crushed	2,800	1660
Gravel, dry	2,550	1510
Gravel, dry 1/2" to 2" (13 to 50 mm)	2,850	1690
Gravel, pit run (graveled sand)	3,250	1930
Gravel, wet 1/2" to 2" (13 to 50 mm)	3,400	2020
Gypsum, crushed	2,700	1600
Limestone, broken or crushed	2,600	1540
Magnetite, iron ore	4,700	2790
Phosphate rock	2,160	1280
Pyrite, iron ore	4,350	2580
Sand and gravel, dry	2,900	1720
Sand and gravel, wet	3,400	2020
Sand, dry	2,400	1420
Sand, wet	3,100	1840
Sandstone, broken	2,550	1510
Shale	2,100	1250
Slag, broken	2,950	1750
Stone, crushed	2,700	1600
Topsoil	1,600	950

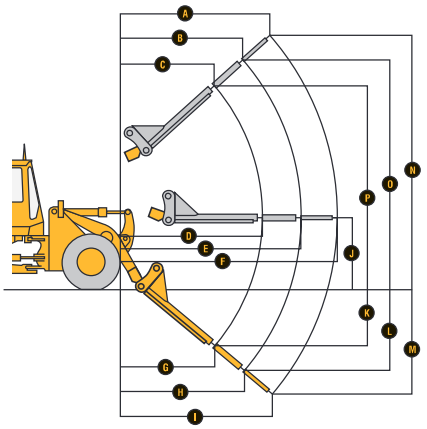
*This guide, representing bucket sizes not necessarily manufactured by Deere, will help you in selecting proper bucket size for material density and loader configuration. Optimum bucket size is determined after adding or subtracting all the tipping load changes due to optional equipment.



544G / 624G / 644G LOADER WITH TOOL CARRIER AND BUCKET*



544G / 624G / 644G LOADER WITH TOOL CARRIER AND PALLET FORK*



544G / 624G / 644G LOADER WITH TOOL CARRIER AND MATERIAL-HANDLING ARM*

*Allied attachments ordered through John Deere dealers.

DIMENSIONS WITH TOOL CARRIER

	544G	624G	644G
BUCKET			
A Maximum bucket angle	55.3 degrees	55.8 degrees	55 degrees
B Dump height	▲	▲	▲
C Height to hinge pin, fully raised	12 ft. 2.6 in. (3.72 m)	12 ft. 9.3 in. (3.89 m)	13 ft. 1.9 in. (4.0 m)
D Digging depth	4 in. (101 mm)	2 in. (52 mm)	2.68 in. (68 mm)
PALLET FORK			
A Reach, fully raised	2 ft. 3.4 in. (697 mm)	1 ft. 11.9 in. (607 mm)	2 ft. 6.3 in. (770 mm)
B Maximum reach, fork level	4 ft. 9.5 in. (1461 mm)	4 ft. 9.5 in. (1460 mm)	5 ft. 1.7 in. (1568 mm)
C Reach, ground level	2 ft. 11.9 in. (912 mm)	3 ft. 0.7 in. (932 mm)	3 ft. 1.7 in. (958 mm)
D Fork height, maximum reach	5 ft. 4.6 in. (1641 mm)	5 ft. 5.1 in. (1654 mm)	6 ft. 0.4 in. (1840 mm)
E Fork height, fully raised	11 ft. 4.7 in. (3473 mm)	11 ft. 0.6 in. (3623 mm)	12 ft. 6.3 in. (3818 mm)
F Digging depth	4 in. (101 mm)	3.7 in. (93 mm)	1.9 in. (48 mm)
MATERIAL-HANDLING ARM			
A Reach, fully raised (extended)	11 ft. 3.7 in. (3446 mm)	11 ft. 0.6 in. (3368 mm)	11 ft. 6.9 in. (3527 mm)
B Reach, fully raised (mid-position)	9 ft. 5.8 in. (2890 mm)	9 ft. 2.7 in. (2812 mm)	9 ft. 8.3 in. (2953 mm)
C Reach, fully raised (retracted)	6 ft. 9 in. (2057 mm)	6 ft. 5.9 in. (1979 mm)	6 ft. 10.4 in. (2092 mm)
D Maximum reach (retracted)	11 ft. 6.1 in. (3508 mm)	11 ft. 6.3 in. (3512 mm)	11 ft. 8.7 in. (3574 mm)
E Maximum reach (mid-position)	15 ft. 3.1 in. (4651 mm)	15 ft. 3.3 in. (4655 mm)	15 ft. 5.7 in. (4717 mm)
F Maximum reach (extended)	17 ft. 9.1 in. (5413 mm)	17 ft. 9.3 in. (5417 mm)	17 ft. 11.7 in. (5479 mm)
G Reach, below ground (retracted)	7 ft. 6.6 in. (2302 mm)	7 ft. 9.2 in. (2367 mm)	7 ft. 11.4 in. (2423 mm)
H Reach, below ground (mid-position)	9 ft. 11.9 in. (3046 mm)	10 ft. 8.2 in. (3257 mm)	10 ft. 10.9 in. (3324 mm)
I Reach, below ground (extended)	11 ft. 10 in. (3608 mm)	12 ft. 7.5 in. (3849 mm)	12 ft. 10.5 in. (3924 mm)
J Height, maximum reach	6 ft. 3.6 in. (1919 mm)	6 ft. 4.2 in. (1935 mm)	6 ft. 7.5 in. (2019 mm)
K Depth, below ground (retracted)	4 ft. 10.9 in. (1496 mm)	4 ft. 4.1 in. (1323 mm)	4 ft. 2.3 in. (1294 mm)
L Depth, below ground (mid-position)	7 ft. 5.3 in. (2286 mm)	6 ft. 8.3 in. (2040 mm)	6 ft. 6.7 in. (1998 mm)
M Depth, below ground (extended)	9 ft. 1.6 in. (2783 mm)	8 ft. 3.2 in. (2519 mm)	8 ft. 1.2 in. (2468 mm)
N Height, fully raised (extended)	22 ft. 1.2 in. (6736 mm)	22 ft. 7.9 in. (6905 mm)	22 ft. 11 in. (6985 mm)
O Height, fully raised (mid-position)	20 ft. 4.6 in. (6214 mm)	20 ft. 11.3 in. (6383 mm)	21 ft. 3.3 in. (6484 mm)
P Height, fully raised (retracted)	17 ft. 9.9 in. (5432 mm)	18 ft. 4.5 in. (5600 mm)	18 ft. 9.7 in. (5732 mm)

▲ See Bucket Information below and on pages 20–21.

544G TOOL CARRIER INFORMATION (COUPLER AND BUCKET)

Bucket Type/Size	*General Purpose**	*General Purpose**	*General Purpose**	*General Purpose**
Capacity, heaped SAE	2.63 cu. yd. (2.0 m³)	2.25 cu. yd. (1.7 m³)	2.0 cu. yd. (1.5 m³)	1.75 cu. yd. (1.4 m³)
Capacity, struck SAE	2.25 cu. yd. (1.7 m³)	1.88 cu. yd. (1.44 m³)	1.9 cu. yd. (1.45 m³)	1.5 cu. yd. (1.15 m³)
Bucket width	101.8 in. (2.59 m)	100.4 in. (2.55 m)	95.25 in. (2.42 m)	95.25 in. (2.42 m)
Breakout force, SAE J732C	20,342 lb. (90.5 kN)	22,407 lb. (99.7 kN)	25,223 lb. (114.4 kN)	27,166 lb. (120.8 kN)
Tipping load, straight	18,453 lb. (8370 kg)	19,002 lb. (8619 kg)	19,196 lb. (8707 kg)	19,342 lb. (8773 kg)
Tipping load, 40-degree full turn, SAE	15,607 lb. (7079 kg)	16,110 lb. (7307 kg)	16,286 lb. (7387 kg)	16,417 lb. (7446 kg)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance	58.5 in. (1486 mm)	58.1 in. (1477 mm)	51.9 in. (1319 mm)	51.9 in. (1319 mm)
Reach, 45-degree dump, full height	41.1 in. (1044 mm)	39.1 in. (992 mm)	31.77 in. (807 mm)	31.77 in. (807 mm)
▲ Dump clearance, 45 degree, full height	107 in. (2717 mm)	110.1 in. (2798 mm)	112.4 in. (2854 mm)	112.4 in. (2854 mm)
Overall length	23 ft 2 in. (7.06 m)	22 ft. 4.8 in. (6.83 m)	22 ft. 4.8 in. (6.83 m)	22 ft. 4.8 in. (6.83 m)
Loader clearance circle, bucket in carry position	37 ft. 10.6 in. (11.55 m)	37 ft. 6.7 in. (11.45 m)	37 ft. 0 in. (11.28 m)	37 ft. 0 in. (11.28 m)
Operating weight	24,434 lb. (11 083 kg)	24,145 lb. (10 952 kg)	24,083 lb. (10 924 kg)	24,024 lb. (10 897 kg)

*Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 17.5-25, 12 PR L2 tires; two rear counterweights; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

544G ADJUSTMENTS TO OPERATING WEIGHTS FOR TOOL CARRIER WITH BUCKET

Adjustments to operating weights and tipping loads for 2.25 cu. yd. (1.7 m³) general-purpose bucket and 48-in. (1219 mm) pallet fork

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Bucket, Straight*	*Tipping Load, Bucket, Full Turn*	*Tipping Load, Fork, Straight*	*Tipping Load, Fork, Full Turn*
15.5-25, 12 PR L2 tires without $CaCl_2$	– 194 lb. (– 88 kg)	– 134 lb. (– 61 kg)	– 115 lb. (– 52 kg)	– 97 lb. (– 44 kg)	– 82 lb. (– 37 kg)
15.5-25, 12 PR L2 tires with $CaCl_2$	+ 756 lb. (+ 343 kg)	+ 1,177 lb. (+ 534 kg)	+ 1,016 lb. (+ 461 kg)	+ 836 lb. (+ 379 kg)	+ 723 lb. (+ 328 kg)
17.5-25, 12 PR L2 tires with $CaCl_2$	+ 1,180 lb. (+ 535 kg)	+ 1,629 lb. (+ 739 kg)	+ 1,407 lb. (+ 638 kg)	+ 1,158 lb. (+ 525 kg)	+ 1,003 lb. (+ 455 kg)
17.5-25, 12 PR L3 tires without $CaCl_2$	+ 132 lb. (+ 60 kg)	+ 90 lb. (+ 41 kg)	+ 79 lb. (+ 36 kg)	+ 64 lb. (+ 29 kg)	+ 57 lb. (+ 26 kg)
17.5-25, 12 PR L3 tires with $CaCl_2$	+ 1,312 lb. (+ 595 kg)	+ 1,720 lb. (+ 780 kg)	+ 1,486 lb. (+ 674 kg)	+ 1,222 lb. (+ 554 kg)	+ 1,056 lb. (+ 479 kg)
17.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	+ 379 lb. (+ 172 kg)	+ 260 lb. (+ 118 kg)	+ 227 lb. (+ 103 kg)	+ 185 lb. (+ 84 kg)	+ 161 lb. (+ 73 kg)
17.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 1,559 lb. (+ 707 kg)	+ 1,890 lb. (+ 857 kg)	+ 1,632 lb. (+ 740 kg)	+ 1,345 lb. (+ 610 kg)	+ 1,162 lb. (+ 527 kg)
20.5-25, 12 PR L2 tires without $CaCl_2$	+ 794 lb. (+ 360 kg)	+ 547 lb. (+ 248 kg)	+ 474 lb. (+ 215 kg)	+ 388 lb. (+ 176 kg)	+ 335 lb. (+ 152 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 2,615 lb. (+ 1186 kg)	+ 3,061 lb. (+ 1388 kg)	+ 2,644 lb. (+ 1199 kg)	+ 2,178 lb. (+ 988 kg)	+ 1,883 lb. (+ 854 kg)
20.5-25, 12 PR L3 tires without $CaCl_2$	+ 1,085 lb. (+ 492 kg)	+ 750 lb. (+ 340 kg)	+ 646 lb. (+ 293 kg)	+ 530 lb. (+ 240 kg)	+ 458 lb. (+ 208 kg)
20.5-25, 12 PR L3 tires with $CaCl_2$	+ 2,906 lb. (+ 1318 kg)	+ 3,261 lb. (+ 1479 kg)	+ 2,818 lb. (+ 1278 kg)	+ 2,420 lb. (+ 1098 kg)	+ 2,093 lb. (+ 950 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 295 lb. (– 134 kg)	– 240 lb. (– 109 kg)	– 212 lb. (– 96 kg)	– 170 lb. (– 77 kg)
Deduct two rear counterweights	– 1,736 lb. (– 787 kg)	– 3,805 lb. (– 1726 kg)	– 3,127 lb. (– 1418 kg)	– 2,712 lb. (– 1230 kg)	– 2,227 lb. (– 1010 kg)
Deduct one rear counterweight*	– 946 lb. (– 429 kg)	– 2,092 lb. (– 949 kg)	– 1,718 lb. (– 779 kg)	– 1,488 lb. (– 675 kg)	– 1,222 lb. (– 554 kg)

*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

544G TOOL CARRIER INFORMATION (COUPLER AND FORKS)

Tine Length	*48 in. (1219 mm)*	*54 in. (1372 mm)*	*60 in. (1524 mm)*
Ground to top of tine clearance	11 ft. 4.7 in. (3473 mm)	11 ft. 4.7 in. (3473 mm)	11 ft. 4.7 in. (3473 mm)
Maximum reach with fork level	4 ft. 9.5 in. (1461 mm)	4 ft. 9.5 in. (1461 mm)	4 ft. 9.5 in. (1461 mm)
Overall length	25 ft. 3.9 in. (7720 mm)	26 ft. 9.9 in. (7872 mm)	26 ft. 3.9 in. (8024 mm)
Tipping load, straight (fork level, load centered on tine)	13,665 lb. (6198 kg)	13,240 lb. (6006 kg)	12,899 lb. (5851 kg)
Tipping load, 40-degree full turn (fork level, load centered on tine)	11,541 lb. (5235 kg)	11,224 lb. (5091 kg)	10,925 lb. (4956 kg)
Operating weight	23,827 lb. (10 808 kg)	23,869 lb. (10 827 kg)	23,909 lb. (10 845 kg)

544G TOOL CARRIER INFORMATION (COUPLER AND MATERIAL-HANDLING ARM)

Boom Position	*Retracted*	*Mid-position*	*Extended*
Operating load	3,795 lb. (1721 kg)	3,966 lb. (1799 kg)	2,585 lb. (1173 kg)
Tipping load, straight	8,945 lb. (4057 kg)	6,998 lb. (3174 kg)	6,103 lb. (2768 kg)
Tipping load, 40-degree full turn	7,589 lb. (3442 kg)	5,932 lb. (2691 kg)	5,171 lb. (2346 kg)
Operating weight	23,633 lb. (10 720 kg)	23,633 lb. (10 720 kg)	23,633 lb. (10 720 kg)

624G TOOL CARRIER INFORMATION (COUPLER AND BUCKET)

Bucket Type/Size	*General Purpose**	*General Purpose**	*General Purpose**
Capacity, heaped SAE	3.0 cu. yd. (2.3 m³)	2.63 cu. yd. (2.0 m³)	2.25 cu. yd. (1.7 m³)
Capacity, struck SAE	2.63 cu. yd. (2.0 m³)	2.25 cu. yd. (1.7 m³)	1.88 cu. yd. (1.44 m³)
Bucket width	101.8 in. (2.59 m)	101.8 in. (2.59 m)	100.4 in. (2.55 m)
Breakout force, SAE J732C	27,280 lb. (121.3 kN)	29,770 lb. (132.4 kN)	32,696 lb. (145.4 kN)
Tipping load, straight	20,107 lb. (9119 kg)	20,184 lb. (9154 kg)	21,058 lb. (9550 kg)
Tipping load, 40-degree full turn, SAE	17,016 lb. (7717 kg)	17,098 lb. (7754 kg)	17,882 lb. (8110 kg)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance	59.9 in. (1522 mm)	58.6 in. (1489 mm)	58.2 in. (1478 mm)
Reach, 45-degree dump, full height	39.6 in. (1007 mm)	36.8 in. (936 mm)	34.8 in. (884 mm)
▲ Dump clearance, 45 degree, full height	110.1 in. (2797 mm)	112.8 in. (2865 mm)	116 in. (2946 mm)
Overall length	24 ft 9.5 in. (7.56 m)	24 ft. 5.3 in. (7.45 m)	24 ft. 0.8 in. (7.34 m)
Loader clearance circle, bucket in carry position	39 ft. 5.2 in. (12.02 m)	39 ft. 2.8 in. (11.96 m)	38 ft. 10.8 in. (11.86 m)
Operating weight	27,880 lb. (12 644 kg)	27,796 lb. (12 606 kg)	27,432 lb. (12 441 kg)

*Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 20.5-25, 12 PR L2 tires; one rear counterweight; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

624G ADJUSTMENTS TO OPERATING WEIGHTS FOR TOOL CARRIER WITH BUCKET

Adjustments to operating weights and tipping loads for 2.63 cu. yd. (2.0 m³) general-purpose bucket and 54-in. (1372 mm) pallet fork

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Bucket, Straight*	*Tipping Load, Bucket, Full Turn*	*Tipping Load, Fork, Straight*	*Tipping Load, Fork, Full Turn*
17.5-25, 12 PR L2 tires without $CaCl_2$	– 794 lb. (– 360 kg)	– 536 lb. (– 243 kg)	– 461 lb. (– 209 kg)	– 386 lb. (– 175 kg)	– 335 lb. (– 152 kg)
17.5-25, 12 PR L2 tires with $CaCl_2$	+ 386 lb. (+ 175 kg)	+ 1,054 lb. (+ 478 kg)	+ 911 lb. (+ 413 kg)	+ 763 lb. (+ 346 kg)	+ 657 lb. (+ 298 kg)
17.5-25, 12 PR L3 tires without $CaCl_2$	– 661 lb. (– 300 kg)	– 448 lb. (– 203 kg)	– 384 lb. (– 174 kg)	– 320 lb. (– 145 kg)	– 280 lb. (– 127 kg)
17.5-25, 12 PR L3 tires with $CaCl_2$	+ 518 lb. (+ 235 kg)	+ 1,142 lb. (+ 518 kg)	+ 988 lb. (+ 448 kg)	+ 829 lb. (+ 376 kg)	+ 714 lb. (+ 324 kg)
17.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	– 414 lb. (– 188 kg)	– 280 lb. (– 127 kg)	– 240 lb. (– 109 kg)	– 201 lb. (– 91 kg)	– 174 lb. (– 79 kg)
17.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 765 lb. (+ 347 kg)	+ 1,310 lb. (+ 594 kg)	+ 1,131 lb. (+ 513 kg)	+ 948 lb. (+ 430 kg)	+ 816 lb. (+ 370 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 1,820 lb. (+ 826 kg)	+ 2,452 lb. (+ 1112 kg)	+ 2,119 lb. (+ 961 kg)	+ 1,777 lb. (+ 806 kg)	+ 1,532 lb. (+ 695 kg)
20.5-25, 12 PR L3 tires without $CaCl_2$	+ 291 lb. (+ 132 kg)	+ 196 lb. (+ 89 kg)	+ 170 lb. (+ 77 kg)	+ 143 lb. (+ 65 kg)	+ 123 lb. (+ 56 kg)
20.5-25, 12 PR L3 tires with $CaCl_2$	+ 2,112 lb. (+ 958 kg)	+ 2,646 lb. (+ 1200 kg)	+ 2,286 lb. (+ 1037 kg)	+ 1,918 lb. (+ 870 kg)	+ 1,654 lb. (+ 750 kg)
20.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	+ 467 lb. (+ 212 kg)	+ 315 lb. (+ 143 kg)	+ 271 lb. (+ 123 kg)	+ 229 lb. (+ 104 kg)	+ 196 lb. (+ 89 kg)
20.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 2,288 lb. (+ 1038 kg)	+ 2,765 lb. (+ 1254 kg)	+ 2,390 lb. (+ 1084 kg)	+ 2,004 lb. (+ 909 kg)	+ 1,728 lb. (+ 784 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 286 lb. (– 130 kg)	– 264 lb. (– 120 kg)	– 223 lb. (– 101 kg)	– 210 lb. (– 95 kg)
Deduct one rear counterweight	– 946 lb. (– 429 kg)	– 2,044 lb. (– 927 kg)	– 1,678 lb. (– 761 kg)	– 1,471 lb. (– 667 kg)	– 1,211 lb. (– 549 kg)
Add second rear counterweight*	+ 1,169 lb. (+ 530 kg)	+ 2,564 lb. (+ 1,163 kg)	+ 2,101 lb. (+ 953 kg)	+ 1,850 lb. (+ 839 kg)	+ 1,517 lb. (+ 688 kg)

*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

624G TOOL CARRIER INFORMATION (COUPLER AND FORKS)

Tine Length	*48 in. (1219 mm)*	*54 in. (1372 mm)*	*60 in. (1524 mm)*
Ground to top of tine clearance	11 ft. 10.6 in. (3623 mm)	11 ft. 10.6 in. (3623 mm)	11 ft. 10.6 in. (3623 mm)
Maximum reach with fork level	4 ft. 9.5 in. (1460 mm)	4 ft. 9.5 in. (1460 mm)	4 ft. 9.5 in. (1460 mm)
Overall length	25 ft. 8 in. (7823 mm)	26 ft. 2 in. (7975 mm)	26 ft. 8 in. (8128 mm)
Tipping load, straight (fork level, load centered on tine)	15,222 lb. (6903 kg)	14,790 lb. (6707 kg)	14,380 lb. (6522 kg)
Tipping load, 40-degree full turn (fork level, load centered on tine)	12,930 lb. (5864 kg)	12,560 lb. (5696 kg)	12,205 lb. (5535 kg)
Operating weight	27,190 lb. (12 331 kg)	27,232 lb. (12 350 kg)	27,271 lb. (12 368 kg)

624G TOOL CARRIER INFORMATION (COUPLER AND MATERIAL-HANDLING ARM)

Boom Position	*Retracted*	*Mid-position*	*Extended*
Operating load	4,271 lb. (1937 kg)	3,354 lb. (1521 kg)	2,573 lb. (1167 kg)
Tipping load, straight	10,059 lb. (4562 kg)	7,903 lb. (3584 kg)	5,956 lb. (2701 kg)
Tipping load, 40-degree full turn	8,542 lb. (3874 kg)	6,708 lb. (3042 kg)	5,164 lb. (2334 kg)
Operating weight	26,996 lb. (12 243 kg)	26,996 lb. (12 243 kg)	26,996 lb. (12 243 kg)

644G TOOL CARRIER INFORMATION (COUPLER AND BUCKET)

Bucket Type/Size	*General Purpose**	*General Purpose**
Capacity, heaped SAE	3.75 cu. yd. (2.8 m^3)	3.25 cu. yd. (2.5 m^3)
Capacity, struck SAE	3.17 cu. yd. (2.42 m^3)	2.78 cu. yd. (2.13 m^3)
Bucket width	112.2 in. (2.85 m)	112.2 in. (2.85 m)
Breakout force, SAE J732C	35,317 lb. (157.1 kN)	38,085 lb. (169.4 kN)
Tipping load, straight	26,228 lb. (11 895 kg)	26,595 lb. (12 061 kg)
Tipping load, 35-degree full turn, SAE	22,945 lb. (10 406 kg)	23,283 lb. (10 559 kg)
Tipping load, 40-degree full turn, SAE	22,147 lb. (10 044 kg)	22,478 lb. (10 194 kg)
Reach, 45-degree dump, 7-ft. (2.13 m) clearance	65.0 in. (1652 mm)	63.7 in. (1618 mm)
Reach, 45-degree dump, full height	44.8 in. (1138 mm)	42.3 in. (1075 mm)
▲ Dump clearance, 45 degree, full height	113.0 in. (2871 mm)	115.6 in. (2935 mm)
Overall length	25 ft 8.3 in. (7.83 m)	25 ft. 4.5 in. (7.73 m)
Loader clearance circle, bucket in carry position	41 ft. 10.8 in. (12.77 m)	41 ft. 8.6 in. (12.72 m)
Operating weight	35,553 lb. (16 124 kg)	35,384 lb. (16 047 kg)

*Allied attachments ordered through John Deere dealers.

Loader operating information is based on machine with all standard equipment; 23.5-25, 12 PR L2 tires; one rear counterweight; ROPS cab; 175-lb. (79 kg) operator; and full fuel tank. This information is affected by tire size, ballast, and different attachments.

644G ADJUSTMENTS TO OPERATING WEIGHTS FOR TOOL CARRIER WITH BUCKET

Adjustments to operating weights and tipping loads for 3.25 cu. yd. (2.5 m^3) general-purpose bucket and 60-in. (1524 mm) pallet fork

Add (+) or deduct (–) lb. (kg) as indicated for loaders with	*Operating Weight*	*Tipping Load, Bucket, Straight*	*Tipping Load, Bucket, 35° Turn*	*Tipping Load, Bucket, Full Turn*	*Tipping Load, Fork, Straight*	*Tipping Load, Fork, 35° Turn*	*Tipping Load, Fork, Full Turn*
20.5-25, 12 PR L2 tires without $CaCl_2$	– 1,587 lb. (– 720 kg)	– 1,109 lb. (– 503 kg)	– 988 lb. (– 448 kg)	– 959 lb. (– 435 kg)	– 745 lb. (– 338 kg)	– 663 lb. (– 300 kg)	– 642 lb. (– 291 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 234 lb. (+ 106 kg)	+ 1,435 lb. (+ 651 kg)	+ 1,277 lb. (+ 579 kg)	+ 1,239 lb. (+ 562 kg)	+ 983 lb. (+ 446 kg)	+ 875 lb. (+ 397 kg)	+ 850 lb. (+ 386 kg)
20.5-25, 16 PR L2 tires without $CaCl_2$	– 1,499 lb. (– 680 kg)	– 1,047 lb. (– 475 kg)	– 933 lb. (– 423 kg)	– 906 lb. (– 411 kg)	– 705 lb. (– 320 kg)	– 626 lb. (– 284 kg)	– 608 lb. (– 276 kg)
20.5-25, 16 PR L2 tires with $CaCl_2$	+ 322 lb. (+ 146 kg)	+ 1,497 lb. (+ 679 kg)	+ 1,332 lb. (+ 604 kg)	+ 1,292 lb. (+ 586 kg)	+ 1,023 lb. (+ 464 kg)	+ 912 lb. (+ 414 kg)	+ 885 lb. (+ 401 kg)
20.5-25, 16 PR L3 tires without $CaCl_2$	– 1,235 lb. (– 560 kg)	– 862 lb. (– 391 kg)	– 767 lb. (– 348 kg)	– 745 lb. (– 338 kg)	– 580 lb. (– 263 kg)	– 514 lb. (– 233 kg)	– 498 lb. (– 226 kg)
20.5-25, 16 PR L3 tires with $CaCl_2$	+ 586 lb. (+ 266 kg)	+ 1,682 lb. (+ 763 kg)	+ 1,495 lb. (+ 678 kg)	+ 1,451 lb. (+ 658 kg)	+ 1,148 lb. (+ 521 kg)	+ 1,024 lb. (+ 465 kg)	+ 994 lb. (+ 451 kg)
20.5-25, Radial, One Star L2 equivalent tires without $CaCl_2$	– 1,120 lb. (– 508 kg)	– 783 lb. (– 355 kg)	– 697 lb. (– 316 kg)	– 677 lb. (– 307 kg)	– 524 lb. (– 237 kg)	– 463 lb. (– 210 kg)	– 450 lb. (– 204 kg)
20.5-25, Radial, One Star L2 equivalent tires with $CaCl_2$	+ 701 lb. (+ 318 kg)	+ 1,762 lb. (+ 799 kg)	+ 1,566 lb. (+ 710 kg)	+ 1,433 lb. (+ 650 kg)	+ 1,204 lb. (+ 546 kg)	+ 1,075 lb. (+ 488 kg)	+ 1,042 lb. (+ 473 kg)
20.5-25, 12 PR L2 tires with $CaCl_2$	+ 2,396 lb. (+ 1087 kg)	+ 3,347 lb. (+ 1518 kg)	+ 2,979 lb. (+ 1351 kg)	+ 2,891 lb. (+ 1311 kg)	+ 2,283 lb. (+ 1035 kg)	+ 2,031 lb. (+ 921 kg)	+ 1,972 lb. (+ 894 kg)
23.5-25, 20 PR L3 tires without $CaCl_2$	+ 494 lb. (+ 224 kg)	+ 344 lb. (+ 156 kg)	+ 306 lb. (+ 139 kg)	+ 298 lb. (+ 135 kg)	+ 243 lb. (+ 110 kg)	+ 218 lb. (+ 99 kg)	+ 209 lb. (+ 95 kg)
23.5-25, 20 PR L3 tires with $CaCl_2$	+ 2,890 lb. (+ 1311 kg)	+ 3,691 lb. (+ 1674 kg)	+ 3,285 lb. (+ 1490 kg)	+ 3,188 lb. (+ 1446 kg)	+ 2,518 lb. (+ 1142 kg)	+ 2,242 lb. (+ 1017 kg)	+ 2,177 lb. (+ 987 kg)
ROPS canopy in lieu of ROPS cab	– 320 lb. (– 145 kg)	– 298 lb. (– 135 kg)	– 251 lb. (– 114 kg)	– 238 lb. (– 108 kg)	– 201 lb. (– 91 kg)	– 170 lb. (– 77 kg)	– 161 lb. (– 73 kg)
Deduct one rear counterweight	– 910 lb. (– 413 kg)	– 2,031 lb. (– 921 kg)	– 1,740 lb. (– 789 kg)	– 1,669 lb. (– 757 kg)	– 1,373 lb. (– 622 kg)	– 1,176 lb. (– 533 kg)	– 1,126 lb. (– 511 kg)
Add second rear counterweight*	+ 1,422 lb. (+ 645 kg)	+ 3,197 lb. (+ 1450 kg)	+ 2,736 lb. (+ 1241 kg)	+ 2,622 lb. (+ 1189 kg)	+ 2,179 lb. (+ 988 kg)	+ 1,868 lb. (+ 847 kg)	+ 1,790 lb. (+ 812 kg)

*Optional counterweight not to be used when $CaCl_2$ ballast is used in the tires.

644G TOOL CARRIER INFORMATION (COUPLER AND FORKS)

Tine Length	*54 in. (1372 mm)*	*60 in. (1524 mm)*	*72 in. (1829 mm)*
Ground to top of tine clearance	12 ft. 6.3 in. (3818 mm)	12 ft. 6.3 in. (3818 mm)	12 ft. 6.3 in. (3818 mm)
Maximum reach with fork level	5 ft. 1.7 in. (1568 mm)	5 ft. 1.7 in. (1568 mm)	5 ft. 1.7 in. (1568 mm)
Overall length	27 ft. 2.3 in. (8287 mm)	27 ft. 8.3 in. (8439 mm)	28 ft. 8.3 in. (8744 mm)
Tipping load, straight (fork level, load centered on tine)	18,251 lb. (8277 kg)	17,755 lb. (8052 kg)	16,809 lb. (7623 kg)
Tipping load, 35-degree turn (fork level, load centered on tine)	15,953 lb. (7235 kg)	15,511 lb. (7034 kg)	14,670 lb. (6653 kg)
Tipping load, 40-degree full turn (fork level, load centered on tine)	15,389 lb. (6979 kg)	14,963 lb. (6786 kg)	14,149 lb. (6417 kg)
Operating weight	35,309 lb. (16 013 kg)	35,379 lb. (16 045 kg)	35,523 lb. (16 110 kg)

644G TOOL CARRIER INFORMATION (COUPLER AND MATERIAL-HANDLING ARM)

Boom Position	*Retracted*	*Mid-position*	*Extended*
Operating load	5,640 lb. (2558 kg)	4,462 lb. (2024 kg)	3,902 lb. (1770 kg)
Tipping load, straight	13,290 lb. (6027 kg)	10,518 lb. (4770 kg)	9,204 lb. (4174 kg)
Tipping load, 35-degree turn	11,671 lb. (5293 kg)	9,235 lb. (4188 kg)	8,077 lb. (3663 kg)
Tipping load, 40-degree full turn	11,281 lb. (5116 kg)	8,924 lb. (4047 kg)	7,803 lb. (3539 kg)
Operating weight	34,114 lb. (15 471 kg)	34,114 lb. (15 471 kg)	34,114 lb. (15 471 kg)

	544G	624G	644G
ENGINE			
Antifreeze, –34°F (–37°C)	●	●	●
Coolant recovery tank	●	●	●
Enclosed safety fan guard	●	●	●
Muffler, vertical through hood, with curved-end exhaust stack	●	●	●
Oil-to-water engine oil cooler	●	●	●
Quick-release John Deere dual-stage fuel filter and water separator	●	●	●
Turbocharger provides spark arresting	●	●	●
Electric ether start aid	■	■	■
Engine coolant heater, 1,000 watts, 110 volts	■	■	■
Environmentally-friendly engine oil drain*	■	■	■
High-capacity precleaner*	■	■	■
Perforated engine side shields and hood*	■	■	■
Radiator sand screen	■	■	■
Sucker fan with convoluted grille screen*	■	■	■
ELECTRICAL			
Auxiliary fused circuits for fuses (4)	●	●	●
Auxiliary start receptacle	●	●	●
Batteries (2), 320-min. reserve capacity, 1,250 CCA	●	●	●
Batteries (2), 380-min. reserve capacity, 1,900 CCA	■	■	■
Blade-type multi-fused circuits	●	●	●
By-pass starter safety cover on starter	●	●	●
Electrical load center for service, lockable	●	●	●
Positive terminal battery cover	●	●	●
Prewired for license plate light	●	●	●
Prewired for rotating beacon	●	●	●
Alternator, 135 amp	■	■	■
Battery disconnect	■	■	■
LIGHTS			
Conform to SAE J99			
Two front and two rear flashing and turn signals with guards	●	●	●
Two front halogen driving with guards, 35,200 candlepower each	●	●	●
Two rear reflectors	●	●	●
Two rear stop and tail	●	●	●
Rotating beacon*	■	■	■
Two front and two rear halogen work with guards, 35,200 candlepower each	■	■	■
AXLES			
Remote grease bank for rear axle	●	●	●
Bolt-on axle seal guards*	■	■	■
Front axle disconnect	■	■	■
Hydraulic locking front and rear	■	■	■
Hydraulic locking front, conventional rear	■	■	■
NoSPIN front, conventional rear	■	■	■
Wheel spacers for use with chains*	■	■	■
HYDRAULIC SYSTEM			
Hydraulic oil cooler behind radiator	●	●	●
Hydraulic reservoir with sight gauge and spin-on breather filter	●	●	●
Return-to-dig feature	●	●	●
Automatic boom height control	■	■	■
Auxiliary cylinder circuits*	■	■	■
Auxiliary motor circuit*	■	■	■
Loader control conversion*	■	■	■
Three-function valve, dual-lever control with auxiliary lever for third function	■	■	■
Three-function valve, single-lever control with auxiliary lever for third function	■	■	■
Two-function valve with dual-lever control	■	■	■
STEERING			
Power steering (two cylinders) and 40-degree articulation each side and rubber cushion stops	●	●	●
Conforms to SAE 1511 with emergency manual mode			
Secondary steering	■	■	■
Conforms to SAE J53			

	544G	624G	644G
LOADER			
Boom extensions*	■	■	■
High lift*	■	■	■
Material weigh system*	■	■	■
Quick coupler valve, lines, and control	■	■	■
TIRES			
Single-piece wheels			
15.5-25, 12 PR L2	●		
17.5-25, 12 PR L2	■	■	
17.5-25, 12 PR L3	■	■	
Three-piece wheels			
17.5-25, 12 PR L2		■	
17.5-25, 12 PR, 20 PR L3		■	
17.5-25 XTLA Radial 16 PR One Star L2	■	■	
17.5-25 XHAT Radial 16 PR One Star L3	■	■	
20.5-25, 12 PR L2	■	●	●
20.5-25, 12 PR L3	■	■	
20.5-25, 16 PR L2		■	■
20.5-25, 16 PR L3	■		■
20.5-25 XTLA Radial 24 PR One Star L2	■	■	■
20.5-25 XHAT Radial 24 PR One Star L3		■	■
23.5-25, 12 PR L2			■
23.5-25, 16 PR L3			■
23.5-25, 20 PR L3			■
23.5-25 XHAT Radial 28 PR One Star L3			■
23.1-26, 10 PR LS2	■	■	
28L-26, 14 PR LS2	■	■	■
Foam-filled tires*	■	■	■
Solid rubber tires*	■	■	■
OPERATOR'S STATION			
Canopy	●	●	●
Isolation mounted ROPS/FOPS / Integral load guard for material fork use – Conforms to SAE J1040C, J231, ISO3471, ISO3449 / Cup holder / Coat hooks (2) / Floormat / Left side access / Instrument cover vandal protection / Prewired for rotating beacon			
Cab	■	■	■
Isolation mounted ROPS/FOPS / Integral load guard for material fork use – Conforms to SAE J1040C, J231, ISO3471, ISO3449 – Sound suppressed / Cup holder / Coat hooks (2) / Deluxe headliner / Floormat with lunch box holder / Dome and map light / Filtered fresh air intake heater/defroster, 36,000 Btu/hr. (10.5 kW) / Front two-speed and rear one-speed windshield wiper and washers / Tinted safety glass / Prewired for rotating beacon			
Cab with air conditioning, 27,000 Btu/hr. (7.9 kW)	■	■	■
Alternator, 135 amp / Isolation mounted ROPS/FOPS / Integral load guard for material fork use – Conforms to SAE J1040C, J231, ISO3471, ISO3449 – Sound suppressed / Cup holder / Coat hooks (2) / Deluxe headliner / Floormat / Dome and map light / Filtered fresh air intake heater/defroster, 36,000 Btu/hr. (10.5 kW) / Front two-speed and rear one-speed windshield wiper and washers / Tinted safety glass / Prewired for rotating beacon			
Ashtray	●	●	●
Deluxe suspension vinyl seat with adjustable armrests, fore-aft, backrest tilt, lumbar and height/weight	●	●	●
Conforms to SAE J899			
Deluxe suspension cloth seat with adjustable armrests, fore-aft, backrest tilt, lumbar and height/weight	■	■	■
Conforms to SAE J899			
Electronic monitor system and audible/visible warning	●	●	●

	544G	624G	644G
Digital display, illuminated – Alternator voltage – Hourmeter – Speedometer (mph/kph) – Tachometer / Gauges, illuminated – Engine coolant temperature – Fuel – Transmission oil temperature / Indicators – Low radiator coolant level – Engine air filter restriction – Low alternator voltage – Low transmission oil pressure – Hydraulic oil filter restriction – Low brake pressure – Park brake on – Ether start on (if equipped) – Low steering pressure (and secondary steering activated, if equipped) – Fasten seat belt reminder – Turn signals/flashers / Built-in diagnostics – Fault code retrieval – Onboard diagnostics for all monitors, wiring, gauges, sensors, etc.			
Horn, electric	●	●	●
Conforms to SAE J994, J1446			
Key start switch with electric fuel shut-off	●	●	●
Mirrors	●	●	●
Interior (2), 4 in. x 8 in. (100 mm x 200 mm) / Exterior (2), 7.88 in. x 11.68 in. (200 mm x 300 mm) / Conform to SAE J985			
Rear quarter vertical sliding windows	●	●	●
Seat belt, 2 in. (51 mm), with retractors	●	●	●
Conforms to SAE J388			
Seat belt, 3 in. (76 mm), with retractors	■	■	■
Conforms to SAE J388			
Slip-resistant steps and ergonomically-located handholds	●	●	●
Conform to SAE J185			
Steering wheel, textured, with spinner knob	●	●	●
Storage compartment, under seat, lockable	●	●	●
Tilt steering	●	●	●
Air conditioning (field installed)	■	■	■
AM-FM stereo radio*	■	■	■
Left platform, slip-resistant steps, and ergonomically-located handholds	■	■	■
Conform to SAE J185			
Operator protection packages*	■	■	■
ROPS-to-cab conversion panels*	■	■	■
Seat backrest extension	■	■	■
LOADER			
Loader boom service lock	●	●	●
Conforms to SAE J38			
BUCKETS AND ATTACHMENTS			
Full line of buckets, bolt-on cutting edges, wear plates, and teeth	■	■	■
Quick coupler with full line of buckets, forks, material-handling arms, and other attachments*	■	■	■
OTHER			
Articulation transport lock	●	●	●
Conforms to SAE J276			
Reverse warning alarm	●	●	●
Switchable to 97 db(A) or 111 db(A) / Conforms to SAE J994, J1446			
Vandal protection	●	●	●
Engine side shields / Fuel / Hydraulic reservoir / Instrument panel / Radiator / Transmission dipstick			
Custom paint for caustic environments*	■	■	■
Fenders, front and rear	■	■	■
Front frame, rear frame, and transmission bottom guards	■	■	■
Hinged front and rear frame bottom guards*	■	■	■
Illuminated license plate bracket	■	■	■
Lift and tie-down hooks	■	■	■
Rear counterweights with integral drawbar and pin	■	■	■
Ride control system	■	■	■
SMV emblem*	■	■	■
Transmission side frame guards	■	■	■

KEY: ● Standard equipment ■ Optional or special equipment

*See your John Deere dealer for further information.

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using No. 2-D fuel at 35 API gravity. No derating is required up to 10,000 ft. (3050 m) altitude. Gross power is without cooling fan.

Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with SAE standards. Except where otherwise noted, these specifications are based on units with all standard equipment, one rear counterweight each, ROPS cabs, full fuel tanks, and 175-lb. (79 kg) operators; 544G unit with 17.5-25, 12 PR L2 tires; 624G unit with 20.5-25, 12 PR L2 tires; and 644G unit with 23.5-25, 12 PR L2 tires.

SAFETY live with it

DKA544G Litho in U.S.A. (95-11)

Komatsu WA-250 Wheel Loader Specifications

SPECIFICATIONS

ENGINE

Model . . . . . .Komatsu SAA6D107E-1
Type . . . . . .Water-cooled, 4-cycle
Aspiration . . . . . .Turbocharged, aftercooled
Number of cylinders 6
Bore x stroke . . . . . .**107 mm x 124 mm** 4.21" x 4.88"
Piston displacement . . . . . .**6.69 ltr** 408 in³
Governor . . . . . .All-speed, electronic
Horsepower
SAE J1995 . . . . . .Gross **104 kW** 140 HP
ISO 9249/SAE J1349* . . . . . .Net **103 kW** 138 HP
Rated rpm . . . . . .2000 rpm
Fan drive method for radiator cooling . . . . . .Hydraulic
Fuel system . . . . . .Direct injection
Lubrication system:
Method . . . . . .Gear pump, force-lubrication
Filter . . . . . .Full-flow type
Air cleaner . . . . . .Dry type with double elements and dust evacuator, plus dust indicator

*Net horsepower at the maximum speed of radiator cooling fan is 100 kW 134 HP.

EPA Tier 3 and EU Stage 3A emissions certified.

TRANSMISSION

Transmission:
Type . . . . . .Hydrostatic, 1 pump, 2 motors with speed range select
Travel speed: **km/h** mph
Measured with 17.5-25 tires

	1st	2nd	3rd	4th
Both Forward	**3.6 - 11.7**	**11.7**	**16.2**	**34.2**
and Reverse	2.2 - 7.3	7.3	10.1	21.2

Measured with 20.5-25 tires

	1st	2nd	3rd	4th
Both Forward	**4.0 - 13.0**	**13.0**	**18.0**	**38.0**
and Reverse	2.5 - 8.1	8.1	11.2	23.6

AXLES AND FINAL DRIVES

Drive system . . . . . .Four-wheel drive
Front . . . . . .Fixed, semi-floating
Rear . . . . . .Center-pin support, semi-floating, 24° total oscillation
Reduction gear . . . . . .Spiral bevel gear
Differential gear . . . . . .Torque proportioning
Final reduction gear . . . . . .Planetary gear, single reduction

BRAKES

Service brakes . . . . . .Hydraulically actuated, wet disc brakes actuate on four wheels
Parking brake . . . . . .Wet, multi-disc brake on transfer output shaft
Emergency brake . . . . . .Parking brake is commonly used

STEERING SYSTEM

Type . . . . . .Full-hydraulic power steering
Steering angle . . . . . .38° each direction (40° end stop)
Minimum turning radius at the center of outside tire . . . . . .**5175 mm** 17'0"

HYDRAULIC SYSTEM

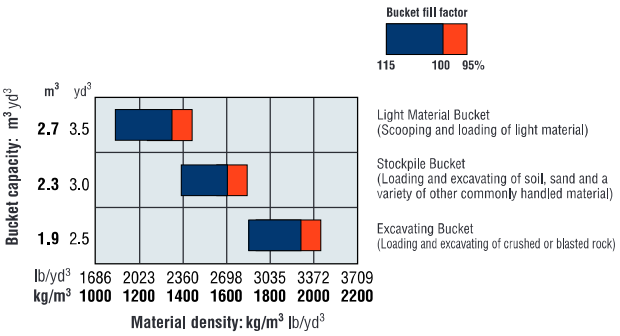
Steering system:
Hydraulic pump . . . . . .Gear type pump
Capacity . . . . . .**110 ltr/min** 29.1 U.S. gal/min at rated rpm
Relief valve setting . . . . . .**18.6 MPa** 190 kgf/cm² 2,700 psi
Hydraulic cylinders:
Type . . . . . .Double-acting, piston type
Number of cylinders 2
Bore x stroke . . . . . .**70 mm x 453 mm** 2.8" x 17.8"

Loader control:
Hydraulic pump . . . . . .Gear type pump
Capacity . . . . . .**78 ltr/min** 20.6 U.S. gal/min
Relief valve setting . . . . . .**20.6 MPa** 210 kgf/cm² 3,000 psi
Hydraulic cylinders:
Type . . . . . .Double-acting, piston type
Number of cylinders—bore x stroke:
Lift cylinder . . . . . .2- **130 mm x 717 mm** 5.1" x 28.2"
Bucket cylinder . . . . . .1- **150 mm x 491 mm** 5.9" x 19.3"
Control valve . . . . . .2-spool type
Control positions:
Boom . . . . . .Raise, hold, lower, and float
Bucket . . . . . .Tilt-back, hold, and dump
Hydraulic cycle time (rated load in bucket)
Raise . . . . . .6.3 sec
Dump . . . . . .1.7 sec
Lower (Empty) . . . . . .3.6 sec

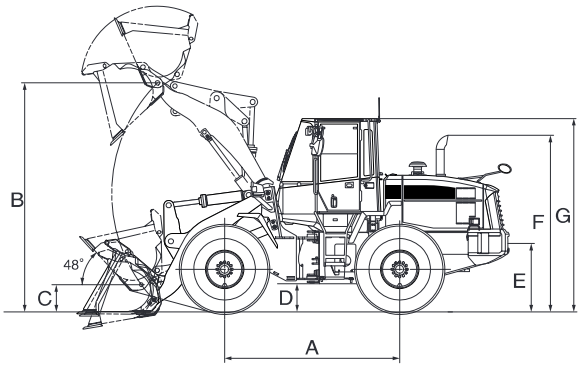
SERVICE REFILL CAPACITIES

Cooling system	**22 ltr**	5.8 U.S. gal
Fuel tank	**186 ltr**	49.1 U.S. gal
Engine	**23 ltr**	6.1 U.S. gal
Hydraulic system	**67 ltr**	17.7 U.S. gal
Axle (each front and rear)	**18 ltr**	4.8 U.S. gal
Torque converter and transmission	**5 ltr**	1.3 U.S. gal

BUCKET SELECTION GUIDE



DIMENSIONS



		17.5-25 tires		20.5-25 tires	
	Tread	**1930 mm**	6'4"	**1930 mm**	6'4"
	Width over tires	**2375 mm**	7'10"	**2470 mm**	8'1"
A	Wheelbase	**2900 mm**	9'6"	**2900 mm**	9'6"
B	Hinge pin height, max. height	**3725 mm**	12'3"	**3795 mm**	12'5"
C	Hinge pin height, carry position	**375 mm**	1'3"	**450 mm**	1'6"
D	Ground clearance	**395 mm**	1'4"	**465 mm**	1'6"
E	Hitch height	**880 mm**	2'11"	**950 mm**	3'1"
F	Overall height, top of the stack	**2855 mm**	9'4"	**2925 mm**	9'7"
G	Overall height, ROPS cab	**3130 mm**	10'3"	**3200 mm**	10'6"

Measured with 17.5-25-16PR (L2) tires, ROPS/FOPS cab

	Stockpile Bucket		Excavating Bucket		Light Material Bucket
	Bolt-On Cutting Edges	**Teeth**	**Bolt-On Cutting Edges**	**Teeth**	**Bolt-On Cutting Edges**
Bucket capacity: heaped	**2.3 m³** 3.0 yd³	**2.1 m³** 2.7 yd³	**1.9 m³** 2.5 yd³	**1.8 m³** 2.4 yd³	**2.7 m³** 3.5 yd³
struck	**2.0 m³** 2.6 yd³	**1.8 m³** 2.4 yd³	**1.6 m³** 2.1 yd³	**1.5 m³** 2.0 yd³	**2.3 m³** 3.0 yd³
Bucket width	**2685 mm** 8'10"	**2705 mm** 8'10"	**2685 mm** 8'10"	**2705 mm** 8'10"	**2685 mm** 8'10"
Bucket weight	**960 kg** 2,116 lb	**865 kg** 1,907 lb	**905 kg** 1,995 lb	**810 kg** 1,786 lb	**1050 kg** 2,315 lb
Dumping clearance, max. height and 45° dump angle*	**2780 mm** 9'1"	**2665 mm** 8'9"	**2855 mm** 9'4"	**2740 mm** 9'0"	**2685 mm** 8'10"
Reach at max. height and 45° dump angle*	**1055 mm** 3'6"	**1155 mm** 3'9"	**980 mm** 3'3"	**1080 mm** 3'7"	**1150 mm** 3'9"
Reach at **2130 mm** (7') clearance and 45° dump angle*	**1535 mm** 5'0"	**1560 mm** 5'1"	**1495 mm** 4'11"	**1530 mm** 5'0"	**1580 mm** 5'2"
Reach with arm horizontal and bucket level*	**2305 mm** 7'7"	**2450 mm** 8'0"	**2200 mm** 7'3"	**2345 mm** 7'8"	**2430 mm** 8'0"
Operating height (fully raised)	**4995 mm** 16'5"	**4995 mm** 16'5"	**4875 mm** 16'0"	**4875 mm** 16'0"	**5130 mm** 16'10"
Overall length	**7055 mm** 23'2"	**7200 mm** 23'7"	**6950 mm** 22'10"	**7095 mm** 23'3"	**7185 mm** 23'7"
Loader clearance circle (bucket at carry, outside corner of bucket)	**12060 mm** 39'7"	**12140 mm** 39'10"	**12030 mm** 39'6"	**12085 mm** 39'8"	**12220 mm** 40'1"
Digging depth: 0°	**145 mm** 5.7"	**160 mm** 6.3"	**145 mm** 5.7"	**160 mm** 6.3"	**145 mm** 5.7"
10°	**335 mm** 1'1"	**375 mm** 1'3"	**315 mm** 1'0"	**355 mm** 1'2"	**355 mm** 1'2"
Static tipping load: straight	**11110 kg** 24,495 lb	**11205 kg** 24,705 lb	**11230 kg** 24,760 lb	**11325 kg** 24,970 lb	**10960 kg** 24,160 lb
38° full turn	**9780 kg** 21,560 lb	**9860 kg** 21,740 lb	**9885 kg** 21,790 lb	**9965 kg** 21,970 lb	**9645 kg** 21,265 lb
Breakout force	**121 kN** 12340 kgf 27,210 lb	**106 kN** 10830 kgf 23,875 lb	**136 kN** 13850 kgf 30,535 lb	**117 kN** 12010 kgf 26,475 lb	**108 kN** 11000 kgf 24,250 lb
Operating weight	**10965 kg** 24,170 lb	**10870 kg** 23,965 lb	**10910 kg** 24,050 lb	**10815 kg** 23,845 lb	**11055 kg** 24,370 lb

* At the end of B.O.C.

All dimensions, weights, and performance values based on SAE J732c and J742b standards.

Static tipping load and operating weight shown include lubricant, coolant, full fuel tank, ROPS cab, and operator. Machine stability and operating weight affected by counterweight, tire size, and other attachments.

Apply the following weight changes to operating weight and static tipping load.

WEIGHT CHANGES

	Change in Operating Weight		Change in Tipping Load				Width Over Tire		Ground Clearance		Change in Vertical Dimensions		Change in Reach	
			Straight		Full Turn									
17.5-25-16PR (L3)	**55 kg**	121 lb	**45 kg**	99 lb	**35 kg**	77 lb	**2375 mm**	7'10"	**395 mm**	1'4"	**0 mm**	0"	**0 mm**	0"
20.5-25-12PR (L2)	**280 kg**	617 lb	**215 kg**	474 lb	**190 kg**	419 lb	**2470 mm**	8'1"	**465 mm**	1'6"	**70 mm**	2.8"	**–70 mm**	–2.8"
20.5-25-12PR (L3)	**430 kg**	948 lb	**325 kg**	717 lb	**280 kg**	617 lb	**2470 mm**	8'1"	**465 mm**	1'6"	**70 mm**	2.8"	**–70 mm**	–2.8"
Install ROPS canopy (instead of cab)	**–150 kg**	–331 lb	**–150 kg**	–331 lb	**–130 kg**	–287 lb								
Additional counterweight	**300 kg**	661 lb	**580 kg**	1,279 lb	**510 kg**	1,124 lb								

STANDARD EQUIPMENT

- 2-spool valve for boom and bucket controls
- Air conditioner
- Alternator, 60 A
- Auto shift transmission with mode select system
- Back-up alarm
- Back-up lamp
- Batteries, **110 Ah**/2 x 12 V
- Bucket positioner
- Counterweight
- Directional signal
- Engine, Komatsu SAA6D107E-1 diesel
- Engine shut-off system, electric
- Floor mat
- Fuel prefilter with water separator
- Hydraulic-driven fan with reverse rotation
- Lift cylinders and bucket cylinder
- Loader linkage with standard lift boom
- Main monitor panel with EMMS (Equipment Management Monitoring System)
- PPC fingertip control, mono lever
- Radiator mask, lattice type
- Rear defroster (electric)
- Rear view mirror
- Rear window washer and wiper
- ROPS/FOPS cab
- Seat, rigid type with reclining
- Seat belt
- Service brakes, wet disc type
- Starting motor, **4.5 kW**/24 V
- Steering wheel, tiltable
- Sun visor
- Tires (17.5-25-16PR, L2 tubeless) and rims
- Transmission, 4 forward and 4 reverse

OPTIONAL EQUIPMENT

- 3-spool valve
- Additional counterweight
- AM/FM radio
- AM/FM stereo radio cassette
- Boom kick-out
- Bucket teeth (bolt-on type)
- Bucket teeth (tip type)
- Cutting edge (bolt-on type)
- Deluxe suspension seat
- ECSS (Electronically Controlled Suspension System)
- Emergency steering (SAE)
- Engine pre-cleaner with extension
- Fire extinguisher
- Front fenders
- High lift boom
- Limited slip differential (F&R)
- Rear full fender
- Tool kit
- Vandalism protection kit

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Heating Values of Hydrogen and Fuels (Essom Co. Ltd.)

HEATING VALUES OF HYDROGEN AND FUELS

Fuels	Lower Heating Value (LHV) [1]			Higher Heating Value (HHV) [1]			Density
Gaseous Fuels @ 32 F and 1 atm	**Btu/ft3 [2]**	**Btu/lb [3]**	**MJ/kg [4]**	**Btu/ft3 [2]**	**Btu/lb [3]**	**MJ/kg [4]**	**grams/ft3**
Natural gas	983	20,267	47.141	1089	22,453	52.225	22.0
Hydrogen	290	51,682	120.21	343	61,127	142.18	2.55
Still gas (in refineries)	1458	20,163	46.898	1,584	21,905	50.951	32.8
Liquid Fuels	**Btu/gal [2]**	**Btu/lb [3]**	**MJ/kg [4]**	**Btu/gal [2]**	**Btu/lb [3]**	**MJ/kg [4]**	**grams/gal**
Crude oil	129,670	18,352	42.686	138,350	19,580	45.543	3,205
Conventional gasoline	116,090	18,679	43.448	124,340	20,007	46.536	2,819
Reformulated or low-sulfur gasoline	113,602	18,211	42.358	121,848	19,533	45.433	2,830
CA reformulated gasoline	113,927	18,272	42.500	122,174	19,595	45.577	2,828
U.S. conventional diesel	128,450	18,397	42.791	137,380	19,676	45.766	3,167
Low-sulfur diesel	129,488	18,320	42.612	138,490	19,594	45.575	3,206
Petroleum naphtha	116,920	19,320	44.938	125,080	20,669	48.075	2,745
NG-based FT naphtha	111,520	19,081	44.383	119,740	20,488	47.654	2,651
Residual oil	140,353	16,968	39.466	150,110	18,147	42.210	3,752
Methanol	57,250	8,639	20.094	65,200	9,838	22.884	3,006
Ethanol	76,330	11,587	26.952	84,530	12,832	29.847	2,988
E-Diesel Additives	116,090	18,679	43.448	124,340	20,007	46.536	2,819
Liquefied petroleum gas (LPG)	84,950	20,038	46.607	91,410	21,561	50.152	1,923
Liquefied natural gas (LNG)	74,720	20,908	48.632	84,820	23,734	55.206	1,621
Dimethyl ether (DME)	68,930	12,417	28.882	75,610	13,620	31.681	2,518
Dimethoxy methane (DMM)	72,200	10,061	23.402	79,197	11,036	25.670	3,255
Methyl ester (biodiesel, BD)	119,550	16,134	37.528	127,960	17,269	40.168	3,361
Fischer-Tropsch diesel (FTD)	123,670	18,593	43.247	130,030	19,549	45.471	3,017
Liquid Hydrogen	30,500	51,621	120.07	36,020	60,964	141.80	268
Methyl tertiary butyl ether (MTBE)	93,540	15,094	35.108	101,130	16,319	37.957	2,811
Ethyl tertiary butyl ether (ETBE)	96,720	15,613	36.315	104,530	16,873	39.247	2,810
Tertiary amyl methyl ether (TAME)	100,480	15,646	36.392	108,570	16,906	39.322	2,913
Butane	94,970	19,466	45.277	103,220	21,157	49.210	2,213
Isobutane	90,060	19,287	44.862	98,560	21,108	49.096	2,118
Isobutylene	95,720	19,271	44.824	103,010	20,739	48.238	2,253
Propane	84,250	19,904	46.296	91,420	21,597	50.235	1,920
Solid Fuels	**Btu/ton [2]**	**Btu/lb [5]**	**MJ/kg [4]**	**Btu/ton [2]**	**Btu/lb [5]**	**MJ/kg [4]**	
Coal (wet basis) [6]	19,546,300	9,773	22.732	20,608,570	10,304	23.968	
Bituminous coal (wet basis) [7]	22,460,600	11,230	26.122	23,445,900	11,723	27.267	
Coking coal (wet basis)	24,600,497	12,300	28.610	25,679,670	12,840	29.865	
Farmed trees (dry basis)	16,811,000	8,406	19.551	17,703,170	8,852	20.589	
Herbaceous biomass (dry basis)	14,797,555	7,399	17.209	15,582,870	7,791	18.123	
Corn stover (dry basis)	14,075,990	7,038	16.370	14,974,460	7,487	17.415	
Forest residue (dry basis)	13,243,490	6,622	15.402	14,164,160	7,082	16.473	

Notes:

[1] The **lower heating value** (also known as net calorific value) of a fuel is defined as the amount of heat released by combusting a specified quantity (initially at 25°C) and returning the temperature of the combustion products to 150°C, which assumes the latent heat of vaporization of water in the reaction products is not recovered.

The **higher heating value** (also known as gross calorific value or gross energy) of a fuel is defined as the amount of heat released by a specified quantity (initially at 25°C) once it is combusted and the products have returned to a temperature of 25°C, which takes into account the latent heat of vaporization of water in the combustion products.

[2] Btu = British thermal unit.

[3] The heating values for gaseous fuels in units of Btu/lb are calculated based on the heating values in units of Btu/ft3 and the corresponding fuel density values. The heating values for liquid fuels in units of Btu/lb are calculated based on heating values in units of Btu/gal and the corresponding fuel density values.

[4] The heating values in units of MJ/kg, are converted from the heating values in units of Btu/lb.

[5] For solid fuels, the heating values in units of Btu/lb are converted from the heating values in units of Btu/ton.

[6] Coal characteristics assumed by GREET for electric power production.

[7] Coal characteristics assumed by GREET for hydrogen and Fischer-Tropsch diesel production.

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Material Density Standards

Material Densities from http://www.simetric.co.uk/si_materials.htm

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower lb/yd^3 [*,**]	Upper lb/yd^3 [*,**]	Mean lb/yd^3 [*,**]	Lower tons/yd^3 [***]	Upper tons/yd^3 [***]	Mean tons/yd^3 [***]
fa, ground	256	256	256	432	432	432	0.22	0.22	0.22
n, lumpy	881	881	881	1485	1485	1485	0.74	0.74	0.74
Alum, pulverized	753	753	753	1269	1269	1269	0.63	0.63	0.63
Alumina	961	961	961	1620	1620	1620	0.81	0.81	0.81
Aluminum, oxide	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Ammonia gas	0.77	0.77	0.77	1.30	1.30	1.30	0.0006	0.0006	0.0006
Ammonium Nitrate	730	730	730	1230	1230	1230	0.62	0.62	0.62
Ammonium Sulphate - dry	1130	1130	1130	1905	1905	1905	0.95	0.95	0.95
Ammonium Sulphate - wet	1290	1290	1290	2174	2174	2174	1.09	1.09	1.09
Andesite, solid	2771	2771	2771	4671	4671	4671	2.34	2.34	2.34
Antimony, cast	6696	6696	6696	11286	11286	11286	5.64	5.64	5.64
Apples	641	641	641	1080	1080	1080	0.54	0.54	0.54
Arsenic	5671	5671	5671	9559	9559	9559	4.78	4.78	4.78
Asbestos - shredded	320	400	360	539	674	607	0.27	0.34	0.30
Asbestos rock	1600	1600	1600	2697	2697	2697	1.35	1.35	1.35
Ashes - wet	730	890	810	1230	1500	1365	0.62	0.75	0.68
Ashes - dry	570	650	610	961	1096	1028	0.48	0.55	0.51
Asphalt, crushed	721	721	721	1215	1215	1215	0.61	0.61	0.61
Babbitt	7272	7272	7272	12257	12257	12257	6.13	6.13	6.13
Bagasse	120	120	120	202	202	202	0.10	0.10	0.10
Bakelite, solid	1362	1362	1362	2296	2296	2296	1.15	1.15	1.15
Baking powder	721	721	721	1215	1215	1215	0.61	0.61	0.61
Barium	3780	3780	3780	6371	6371	6371	3.19	3.19	3.19
Bark, wood refuse	240	240	240	405	405	405	0.20	0.20	0.20
Barley	609	609	609	1027	1027	1027	0.51	0.51	0.51
Barite, crushed	2883	2883	2883	4859	4859	4859	2.43	2.43	2.43
Basalt, broken	1954	1954	1954	3294	3294	3294	1.65	1.65	1.65
Basalt, solid	3011	3011	3011	5075	5075	5075	2.54	2.54	2.54
ite, crushed	1281	1281	1281	2159	2159	2159	1.08	1.08	1.08
s, castor	577	577	577	973	973	973	0.49	0.49	0.49
Beans, cocoa	593	593	593	1000	1000	1000	0.50	0.50	0.50
Beans, navy	801	801	801	1350	1350	1350	0.68	0.68	0.68
Beans, soy	721	721	721	1215	1215	1215	0.61	0.61	0.61
Beeswax	961	961	961	1620	1620	1620	0.81	0.81	0.81
Beets	721	721	721	1215	1215	1215	0.61	0.61	0.61
Bentonite	593	593	593	1000	1000	1000	0.50	0.50	0.50
Bicarbonate of soda	689	689	689	1161	1161	1161	0.58	0.58	0.58
Bismuth	9787	9787	9787	16497	16497	16497	8.25	8.25	8.25
Bones, pulverized	881	881	881	1485	1485	1485	0.74	0.74	0.74
Borax, fine	849	849	849	1431	1431	1431	0.72	0.72	0.72
Bran	256	256	256	432	432	432	0.22	0.22	0.22
Brewers grain	432	432	432	728	728	728	0.36	0.36	0.36
Brick, common red	1922	1922	1922	3240	3240	3240	1.62	1.62	1.62
Brick, fire clay	2403	2403	2403	4050	4050	4050	2.03	2.03	2.03
Brick, silica	2050	2050	2050	3455	3455	3455	1.73	1.73	1.73
Brick, chrome	2803	2803	2803	4725	4725	4725	2.36	2.36	2.36
Brick, magnesia	2563	2563	2563	4320	4320	4320	2.16	2.16	2.16
Buckwheat	657	657	657	1107	1107	1107	0.55	0.55	0.55
Butter	865	865	865	1458	1458	1458	0.73	0.73	0.73
Cadmium	8650	8650	8650	14580	14580	14580	7.29	7.29	7.29
Calcium carbide	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Caliche	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
Carbon, solid	2146	2146	2146	3617	3617	3617	1.81	1.81	1.81
Carbon, powdered	80	80	80	135	135	135	0.07	0.07	0.07
Carbon dioxide	1.98	1.98	1.98	3.34	3.34	3.34	0.0017	0.0017	0.0017
Carbon monoxide	1.25	1.25	1.25	2.11	2.11	2.11	0.0011	0.0011	0.0011
dboard	689	689	689	1161	1161	1161	0.58	0.58	0.58
nt - clinker	1290	1540	1415	2174	2596	2385	1.09	1.30	1.19
Cement, Portland	1506	1506	1506	2538	2538	2538	1.27	1.27	1.27
Cement, mortar	2162	2162	2162	3644	3644	3644	1.82	1.82	1.82
Cement, slurry	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower lb/yd^3 *,**	Upper lb/yd^3 *,**	Mean lb/yd^3 *,**	Lower tons/yd^3 ***	Upper tons/yd^3 ***	Mean tons/yd^3 ***
Chalk, solid	2499	2499	2499	4212	4212	4212	2.11	2.11	2.11
[illegible]k, lumpy	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
[illegible]k, fine	1121	1121	1121	1890	1890	1890	0.94	0.94	0.94
Charcoal	208	208	208	351	351	351	0.18	0.18	0.18
Chloroform	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Chocolate, powder	641	641	641	1080	1080	1080	0.54	0.54	0.54
Chromic acid, flake	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Chromium	6856	6856	6856	11556	11556	11556	5.78	5.78	5.78
Chromium ore	2162	2162	2162	3644	3644	3644	1.82	1.82	1.82
Cinders, furnace	913	913	913	1539	1539	1539	0.77	0.77	0.77
Cinders, Coal, ash	641	641	641	1080	1080	1080	0.54	0.54	0.54
Clay, dry excavated	1089	1089	1089	1836	1836	1836	0.92	0.92	0.92
Clay, wet excavated	1826	1826	1826	3078	3078	3078	1.54	1.54	1.54
Clay, dry lump	1073	1073	1073	1809	1809	1809	0.90	0.90	0.90
Clay, fire	1362	1362	1362	2296	2296	2296	1.15	1.15	1.15
Clay, wet lump	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Clay, compacted	1746	1746	1746	2943	2943	2943	1.47	1.47	1.47
Clover seed	769	769	769	1296	1296	1296	0.65	0.65	0.65
Coal, Anthracite, solid	1506	1506	1506	2538	2538	2538	1.27	1.27	1.27
Coal, Anthracite, broken	1105	1105	1105	1863	1863	1863	0.93	0.93	0.93
Coal, Bituminous, solid	1346	1346	1346	2269	2269	2269	1.13	1.13	1.13
Coal, Bituminous, broken	833	833	833	1404	1404	1404	0.70	0.70	0.70
Cobaltite (cobolt ore)	6295	6295	6295	10611	10611	10611	5.31	5.31	5.31
Coconut, meal	513	513	513	865	865	865	0.43	0.43	0.43
Coconut, shredded	352	352	352	593	593	593	0.30	0.30	0.30
Coffee, fresh beans	561	561	561	946	946	946	0.47	0.47	0.47
Coffee, roast beans	432	432	432	728	728	728	0.36	0.36	0.36
Coke	570	650	610	961	1096	1028	0.48	0.55	0.51
Concrete, Asphalt	2243	2243	2243	3781	3781	3781	1.89	1.89	1.89
[illegible]crete, Gravel	2403	2403	2403	4050	4050	4050	2.03	2.03	2.03
[illegible]rete, Limestone with Portland	2371	2371	2371	3996	3996	3996	2.00	2.00	2.00
Copper ore	1940	2590	2265	3270	4366	3818	1.63	2.18	1.91
Copper sulfate, ground	3604	3604	3604	6075	6075	6075	3.04	3.04	3.04
Copra, medium size	529	529	529	892	892	892	0.45	0.45	0.45
Copra, meal, ground	641	641	641	1080	1080	1080	0.54	0.54	0.54
Copra, expeller cake ground	513	513	513	865	865	865	0.43	0.43	0.43
Copra, expeller cake chopped	465	465	465	784	784	784	0.39	0.39	0.39
Cork, solid	240	240	240	405	405	405	0.20	0.20	0.20
Cork, ground	160	160	160	270	270	270	0.13	0.13	0.13
Corn, on the cob	721	721	721	1215	1215	1215	0.61	0.61	0.61
Corn, shelled	721	721	721	1215	1215	1215	0.61	0.61	0.61
Corn, grits	673	673	673	1134	1134	1134	0.57	0.57	0.57
Cottonseed, dry, de-linted	561	561	561	946	946	946	0.47	0.47	0.47
Cottonseed, dry, not de-linted	320	320	320	539	539	539	0.27	0.27	0.27
Cottonseed, cake, lumpy	673	673	673	1134	1134	1134	0.57	0.57	0.57
Cottonseed, hulls	192	192	192	324	324	324	0.16	0.16	0.16
Cottonseed, meal	593	593	593	1000	1000	1000	0.50	0.50	0.50
Cottonseed, meats	641	641	641	1080	1080	1080	0.54	0.54	0.54
Cottonwood	416	416	416	701	701	701	0.35	0.35	0.35
Cryolite	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Cullet	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Culm	753	753	753	1269	1269	1269	0.63	0.63	0.63
Dolomite, solid	2899	2899	2899	4886	4886	4886	2.44	2.44	2.44
Dolomite, pulverized	737	737	737	1242	1242	1242	0.62	0.62	0.62
Dolomite, lumpy	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Earth, loam, dry, excavated	1249	1249	1249	2105	2105	2105	1.05	1.05	1.05
Earth, moist, excavated	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
Earth, wet, excavated	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
[illegible], dense	2002	2002	2002	3374	3374	3374	1.69	1.69	1.69
[illegible]rth, soft loose mud	1730	1730	1730	2916	2916	2916	1.46	1.46	1.46
Earth, packed	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Earth, Fullers, raw	673	673	673	1134	1134	1134	0.57	0.57	0.57

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower lb/yd^3 *,**	Upper lb/yd^3 *,**	Mean lb/yd^3 *,**	Lower tons/yd^3 ***	Upper tons/yd^3 ***	Mean tons/yd^3 ***
Emery	4005	4005	4005	6751	6751	6751	3.38	3.38	3.38
[illegible]	737	737	737	1242	1242	1242	0.62	0.62	0.62
[illegible]spar, solid	2563	2563	2563	4320	4320	4320	2.16	2.16	2.16
Feldspar, pulverized	1233	1233	1233	2078	2078	2078	1.04	1.04	1.04
Fertilizer, acid phosphate	961	961	961	1620	1620	1620	0.81	0.81	0.81
Fish, scrap	721	721	721	1215	1215	1215	0.61	0.61	0.61
Fish, meal	593	593	593	1000	1000	1000	0.50	0.50	0.50
Flaxseed, whole	721	721	721	1215	1215	1215	0.61	0.61	0.61
Flint - silica	1390	1390	1390	2343	2343	2343	1.17	1.17	1.17
Flour, wheat	593	593	593	1000	1000	1000	0.50	0.50	0.50
Flue dust	1450	2020	1735	2444	3405	2924	1.22	1.70	1.46
Fluorspar, solid	3204	3204	3204	5401	5401	5401	2.70	2.70	2.70
Fluorspar, lumps	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Fluorspar, pulverized	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
Fullers Earth - raw or burnt	570	730	650	961	1230	1096	0.48	0.62	0.55
Galena (lead ore)	7400	7600	7500	12473	12810	12642	6.24	6.41	6.32
Garbage, household rubbish	481	481	481	811	811	811	0.41	0.41	0.41
Glass - broken or cullet	1290	1940	1615	2174	3270	2722	1.09	1.63	1.36
Glass, window	2579	2579	2579	4347	4347	4347	2.17	2.17	2.17
Glue, animal, flaked	561	561	561	946	946	946	0.47	0.47	0.47
Glue, vegetable, powdered	641	641	641	1080	1080	1080	0.54	0.54	0.54
Gluten, meal	625	625	625	1053	1053	1053	0.53	0.53	0.53
Gneiss, bed in place	2867	2867	2867	4832	4832	4832	2.42	2.42	2.42
Gneiss, broken	1858	1858	1858	3132	3132	3132	1.57	1.57	1.57
Granite, solid	2691	2691	2691	4536	4536	4536	2.27	2.27	2.27
Granite, broken	1650	1650	1650	2781	2781	2781	1.39	1.39	1.39
Graphite, flake	641	641	641	1080	1080	1080	0.54	0.54	0.54
Grain - Maize	760	760	760	1281	1281	1281	0.64	0.64	0.64
Grain - Barley	600	600	600	1011	1011	1011	0.51	0.51	0.51
[illegible]n - Millet	760	800	780	1281	1348	1315	0.64	0.67	0.66
[illegible]n - Wheat	780	800	790	1315	1348	1332	0.66	0.67	0.67
Gravel, loose, dry	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Gravel, with sand, natural	1922	1922	1922	3240	3240	3240	1.62	1.62	1.62
Gravel, dry 1/4 to 2 inch	1682	1682	1682	2835	2835	2835	1.42	1.42	1.42
Gravel, wet 1/4 to 2 inch	2002	2002	2002	3374	3374	3374	1.69	1.69	1.69
Gummite (uranium ore)	3890	6400	5145	6557	10788	8672	3.28	5.39	4.34
Gypsum, solid	2787	2787	2787	4698	4698	4698	2.35	2.35	2.35
Gypsum, broken	1290	1600	1445	2174	2697	2436	1.09	1.35	1.22
Gypsum, crushed	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Gypsum, pulverized	1121	1121	1121	1890	1890	1890	0.94	0.94	0.94
Halite (salt), solid	2323	2323	2323	3916	3916	3916	1.96	1.96	1.96
Halite (salt), broken	1506	1506	1506	2538	2538	2538	1.27	1.27	1.27
Hematite (iron ore)	5095	5205	5150	8588	8773	8681	4.29	4.39	4.34
Hemimorphite (zinc ore)	3395	3490	3442.5	5722	5883	5803	2.86	2.94	2.90
Hydrochloric acid 40%	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Ice, solid	919	919	919	1549	1549	1549	0.77	0.77	0.77
Ice, crushed	593	593	593	1000	1000	1000	0.50	0.50	0.50
Ilmenite	2307	2307	2307	3889	3889	3889	1.94	1.94	1.94
Iridium	22154	22154	22154	37342	37342	37342	18.67	18.67	18.67
Iron ore - crushed - see metals table	2100	2900	2500	3540	4888	4214	1.77	2.44	2.11
Iron oxide pigment	400	400	400	674	674	674	0.34	0.34	0.34
Iron Pyrites	2400	2400	2400	4045	4045	4045	2.02	2.02	2.02
Iron sulphate - pickling tank - dry	1200	1200	1200	2023	2023	2023	1.01	1.01	1.01
Iron sulphate - pickling tank - wet	1290	1290	1290	2174	2174	2174	1.09	1.09	1.09
Ivory	1842	1842	1842	3105	3105	3105	1.55	1.55	1.55
Kaolin, green crushed	1025	1025	1025	1728	1728	1728	0.86	0.86	0.86
Kaolin, pulverized	352	352	352	593	593	593	0.30	0.30	0.30
[illegible]ad, rolled - see metals table	11389	11389	11389	19197	19197	19197	9.60	9.60	9.60
[illegible] red	3684	3684	3684	6210	6210	6210	3.10	3.10	3.10
[illegible]ead, white pigment	4085	4085	4085	6885	6885	6885	3.44	3.44	3.44
Leather	945	945	945	1593	1593	1593	0.80	0.80	0.80
Lignite, dry	801	801	801	1350	1350	1350	0.68	0.68	0.68

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower $lb/yd^{3\,*,**}$	Upper $lb/yd^{3\,*,**}$	Mean $lb/yd^{3\,*,**}$	Lower $tons/yd^{3\,***}$	Upper $tons/yd^{3\,***}$	Mean $tons/yd^{3\,***}$
Lime, quick, lump	849	849	849	1431	1431	1431	0.72	0.72	0.72
[illegible], quick, fine	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
[illegible]e, stone, large	2691	2691	2691	4536	4536	4536	2.27	2.27	2.27
Lime, stone, lump	1538	1538	1538	2592	2592	2592	1.30	1.30	1.30
Lime, hydrated	481	481	481	811	811	811	0.41	0.41	0.41
Lime, wet or mortar	1540	1540	1540	2596	2596	2596	1.30	1.30	1.30
Limonite, solid	3796	3796	3796	6398	6398	6398	3.20	3.20	3.20
Limonite, broken	2467	2467	2467	4158	4158	4158	2.08	2.08	2.08
Limestone, solid	2611	2611	2611	4401	4401	4401	2.20	2.20	2.20
Limestone, broken	1554	1554	1554	2619	2619	2619	1.31	1.31	1.31
Limestone, pulverized	1394	1394	1394	2350	2350	2350	1.17	1.17	1.17
Linseed, whole	753	753	753	1269	1269	1269	0.63	0.63	0.63
Linseed, meal	513	513	513	865	865	865	0.43	0.43	0.43
Locust, dry	705	705	705	1188	1188	1188	0.59	0.59	0.59
Magnesite, solid	3011	3011	3011	5075	5075	5075	2.54	2.54	2.54
Magnesium oxide	1940	1940	1940	3270	3270	3270	1.63	1.63	1.63
Magnesium sulphate, crystal	1121	1121	1121	1890	1890	1890	0.94	0.94	0.94
Magnetite, solid (iron ore)	5046	5046	5046	8505	8505	8505	4.25	4.25	4.25
Magnetite, broken	3284	3284	3284	5535	5535	5535	2.77	2.77	2.77
Malachite (copper ore)	3750	3960	3855	6321	6675	6498	3.16	3.34	3.25
Malt	336	336	336	566	566	566	0.28	0.28	0.28
Manganese, solid	7609	7609	7609	12825	12825	12825	6.41	6.41	6.41
Manganese oxide	1922	1922	1922	3240	3240	3240	1.62	1.62	1.62
Manure	400	400	400	674	674	674	0.34	0.34	0.34
Marble, solid	2563	2563	2563	4320	4320	4320	2.16	2.16	2.16
Marble, broken	1570	1570	1570	2646	2646	2646	1.32	1.32	1.32
Marl, wet, excavated	2243	2243	2243	3781	3781	3781	1.89	1.89	1.89
Mica, solid	2883	2883	2883	4859	4859	4859	2.43	2.43	2.43
Mica, broken	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
[illegible] - flake	520	520	520	876	876	876	0.44	0.44	0.44
[illegible] - powder	986	986	986	1662	1662	1662	0.83	0.83	0.83
Milk, powdered	449	449	449	757	757	757	0.38	0.38	0.38
Molybdenum ore	1600	1600	1600	2697	2697	2697	1.35	1.35	1.35
Mortar, wet	2403	2403	2403	4050	4050	4050	2.03	2.03	2.03
Mud, packed	1906	1906	1906	3213	3213	3213	1.61	1.61	1.61
Mud, fluid	1730	1730	1730	2916	2916	2916	1.46	1.46	1.46
Nickel ore	1600	1600	1600	2697	2697	2697	1.35	1.35	1.35
Nickel, rolled	8666	8666	8666	14607	14607	14607	7.30	7.30	7.30
Nickel silver	8442	8442	8442	14229	14229	14229	7.11	7.11	7.11
Nitric acid, 91%	1506	1506	1506	2538	2538	2538	1.27	1.27	1.27
Nitrogen	1.26	1.26	1.26	2.12	2.12	2.12	0.0011	0.0011	0.0011
Oak, red	705	705	705	1188	1188	1188	0.59	0.59	0.59
Oats	432	432	432	728	728	728	0.36	0.36	0.36
Oats, rolled	304	304	304	512	512	512	0.26	0.26	0.26
Oil cake	785	785	785	1323	1323	1323	0.66	0.66	0.66
Oil, linseed	942	942	942	1588	1588	1588	0.79	0.79	0.79
Oil, petroleum	881	881	881	1485	1485	1485	0.74	0.74	0.74
Oxygen	1.43	1.43	1.43	2.41	2.41	2.41	0.0012	0.0012	0.0012
Oyster shells, ground	849	849	849	1431	1431	1431	0.72	0.72	0.72
Paper, standard	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Peanuts, shelled	641	641	641	1080	1080	1080	0.54	0.54	0.54
Peanuts, not shelled	272	272	272	458	458	458	0.23	0.23	0.23
Peat, dry	400	400	400	674	674	674	0.34	0.34	0.34
Peat, moist	801	801	801	1350	1350	1350	0.68	0.68	0.68
Peat, wet	1121	1121	1121	1890	1890	1890	0.94	0.94	0.94
Pecan wood	753	753	753	1269	1269	1269	0.63	0.63	0.63
Phosphate rock, broken	1762	1762	1762	2970	2970	2970	1.48	1.48	1.48
[illegible]osphorus	2339	2339	2339	3943	3943	3943	1.97	1.97	1.97
[illegible]	1153	1153	1153	1943	1943	1943	0.97	0.97	0.97
[illegible]laster	849	849	849	1431	1431	1431	0.72	0.72	0.72
Platinum ore	2600	2600	2600	4382	4382	4382	2.19	2.19	2.19
Porcelain	2403	2403	2403	4050	4050	4050	2.03	2.03	2.03

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower lb/yd^3 [*,**]	Upper lb/yd^3 [*,**]	Mean lb/yd^3 [*,**]	Lower tons/yd^3 [***]	Upper tons/yd^3 [***]	Mean tons/yd^3 [***]
Porphyry, solid	2547	2547	2547	4293	4293	4293	2.15	2.15	2.15
[illegible]yry, broken	1650	1650	1650	2781	2781	2781	1.39	1.39	1.39
[illegible]sh	1281	1281	1281	2159	2159	2159	1.08	1.08	1.08
Potassium chloride	2002	2002	2002	3374	3374	3374	1.69	1.69	1.69
Potatoes, white	769	769	769	1296	1296	1296	0.65	0.65	0.65
Pumice, stone	641	641	641	1080	1080	1080	0.54	0.54	0.54
Pyrite (fool's gold)	2400	5015	3707.5	4045	8453	6249	2.02	4.23	3.12
Quartz, solid	2643	2643	2643	4455	4455	4455	2.23	2.23	2.23
Quartz, lump	1554	1554	1554	2619	2619	2619	1.31	1.31	1.31
Quartz sand	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Resin, synthetic, crushed	561	561	561	946	946	946	0.47	0.47	0.47
Rice, hulled	753	753	753	1269	1269	1269	0.63	0.63	0.63
Rice, rough	577	577	577	973	973	973	0.49	0.49	0.49
Rice grits	689	689	689	1161	1161	1161	0.58	0.58	0.58
Rip-Rap	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Rock - soft - excavated with shovel	1600	1780	1690	2697	3000	2849	1.35	1.50	1.42
Rosin	1073	1073	1073	1809	1809	1809	0.90	0.90	0.90
Rubber, caoutchouc	945	945	945	1593	1593	1593	0.80	0.80	0.80
Rubber, manufactured	1522	1522	1522	2565	2565	2565	1.28	1.28	1.28
Rubber, ground scrap	481	481	481	811	811	811	0.41	0.41	0.41
Rye	705	705	705	1188	1188	1188	0.59	0.59	0.59
Salt cake	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
Salt, course	801	801	801	1350	1350	1350	0.68	0.68	0.68
Salt, fine	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Saltpeter	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Sand, wet	1922	1922	1922	3240	3240	3240	1.62	1.62	1.62
Sand, wet, packed	2082	2082	2082	3509	3509	3509	1.75	1.75	1.75
Sand, dry	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
Sand, loose	1442	1442	1442	2431	2431	2431	1.22	1.22	1.22
[illegible], rammed	1682	1682	1682	2835	2835	2835	1.42	1.42	1.42
[illegible], water filled	1922	1922	1922	3240	3240	3240	1.62	1.62	1.62
Sand with Gravel, dry	1650	1650	1650	2781	2781	2781	1.39	1.39	1.39
Sand with Gravel, wet	2020	2020	2020	3405	3405	3405	1.70	1.70	1.70
Sandstone, solid	2323	2323	2323	3916	3916	3916	1.96	1.96	1.96
Sandstone, broken	1370	1450	1410	2309	2444	2377	1.15	1.22	1.19
Sawdust	210	210	210	354	354	354	0.18	0.18	0.18
Sewage, sludge	721	721	721	1215	1215	1215	0.61	0.61	0.61
Shale, solid	2675	2675	2675	4509	4509	4509	2.25	2.25	2.25
Shale, broken	1586	1586	1586	2673	2673	2673	1.34	1.34	1.34
Shells - oyster	800	800	800	1348	1348	1348	0.67	0.67	0.67
Sinter	1600	2180	1890	2697	3675	3186	1.35	1.84	1.59
Slag, solid	2114	2114	2114	3563	3563	3563	1.78	1.78	1.78
Slag, broken	1762	1762	1762	2970	2970	2970	1.48	1.48	1.48
Slag, crushed, 1/4 inch	1185	1185	1185	1997	1997	1997	1.00	1.00	1.00
Slag, furn. granulated	961	961	961	1620	1620	1620	0.81	0.81	0.81
Slate, solid	2691	2691	2691	4536	4536	4536	2.27	2.27	2.27
Slate, broken	1290	1450	1370	2174	2444	2309	1.09	1.22	1.15
Slate, pulverized	1362	1362	1362	2296	2296	2296	1.15	1.15	1.15
Smithsonite (zinc ore)	4300	4300	4300	7248	7248	7248	3.62	3.62	3.62
Snow, freshly fallen	160	160	160	270	270	270	0.13	0.13	0.13
Snow, compacted	481	481	481	811	811	811	0.41	0.41	0.41
Soap, solid	801	801	801	1350	1350	1350	0.68	0.68	0.68
Soap, chips	160	160	160	270	270	270	0.13	0.13	0.13
Soap, flakes	160	160	160	270	270	270	0.13	0.13	0.13
Soap, powdered	368	368	368	620	620	620	0.31	0.31	0.31
Soapstone talc	2400	2400	2400	4045	4045	4045	2.02	2.02	2.02
Soda Ash, heavy	1080	1080	1080	1820	1820	1820	0.91	0.91	0.91
Soda Ash, light	432	432	432	728	728	728	0.36	0.36	0.36
[illegible]m	977	977	977	1647	1647	1647	0.82	0.82	0.82
[illegible]ium Aluminate, ground	1153	1153	1153	1943	1943	1943	0.97	0.97	0.97
Sodium Nitrate, ground	1201	1201	1201	2024	2024	2024	1.01	1.01	1.01
Soy beans, whole	753	753	753	1269	1269	1269	0.63	0.63	0.63

Material - powder, ore, solids, etc.	Lower kg/m^3	Upper kg/m^3	Mean kg/m^3	Lower lb/yd$^{3\,*,**}$	Upper lb/yd$^{3\,*,**}$	Mean lb/yd$^{3\,*,**}$	Lower tons/yd$^{3\,***}$	Upper tons/yd$^{3\,***}$	Mean tons/yd$^{3\,***}$
Starch, powdered	561	561	561	946	946	946	0.47	0.47	0.47
[illegible]e, crushed	1602	1602	1602	2700	2700	2700	1.35	1.35	1.35
[illegible]e (common, generic)	2515	2515	2515	4239	4239	4239	2.12	2.12	2.12
Sugar, brown	721	721	721	1215	1215	1215	0.61	0.61	0.61
Sugar, powdered	801	801	801	1350	1350	1350	0.68	0.68	0.68
Sugar, granulated	849	849	849	1431	1431	1431	0.72	0.72	0.72
Sugar, raw cane	961	961	961	1620	1620	1620	0.81	0.81	0.81
Sugarbeet pulp, dry	208	208	208	351	351	351	0.18	0.18	0.18
Sugarbeet pulp, wet	561	561	561	946	946	946	0.47	0.47	0.47
Sugarcane	272	272	272	458	458	458	0.23	0.23	0.23
Sulphur, solid	2002	2002	2002	3374	3374	3374	1.69	1.69	1.69
Sulphur, lump	1314	1314	1314	2215	2215	2215	1.11	1.11	1.11
Sulphur, pulverized	961	961	961	1620	1620	1620	0.81	0.81	0.81
Taconite	2803	2803	2803	4725	4725	4725	2.36	2.36	2.36
Talc, solid	2691	2691	2691	4536	4536	4536	2.27	2.27	2.27
Talc, broken	1746	1746	1746	2943	2943	2943	1.47	1.47	1.47
Tanbark, ground	881	881	881	1485	1485	1485	0.74	0.74	0.74
Tankage	961	961	961	1620	1620	1620	0.81	0.81	0.81
Tar	1153	1153	1153	1943	1943	1943	0.97	0.97	0.97
Tobacco	320	320	320	539	539	539	0.27	0.27	0.27
Trap rock, solid	2883	2883	2883	4859	4859	4859	2.43	2.43	2.43
Trap rock, broken	1746	1746	1746	2943	2943	2943	1.47	1.47	1.47
Turf	400	400	400	674	674	674	0.34	0.34	0.34
Turpentine	865	865	865	1458	1458	1458	0.73	0.73	0.73
Walnut, black, dry	609	609	609	1027	1027	1027	0.51	0.51	0.51
Water, pure	1000	1000	1000	1686	1686	1686	0.84	0.84	0.84
Water, sea (see liquids table)	1026	1026	1026	1729	1729	1729	0.86	0.86	0.86
Wheat	769	769	769	1296	1296	1296	0.65	0.65	0.65
Wheat, cracked	673	673	673	1134	1134	1134	0.57	0.57	0.57
[illegible]od chips - dry - see wood table	240	520	380	405	876	641	0.20	0.44	0.32
[illegible]l	1314	1314	1314	2215	2215	2215	1.11	1.11	1.11
Zinc oxide	400	400	400	674	674	674	0.34	0.34	0.34

NOTES:

*1 kg = 2.2046226218 lb

**1m^3 = 1.3079506193 yd^3

***1 ton = 2000 lbs

ATTACHMENT 7.2

Sections of AP-42 Used in this Application.

Table 3.3-1. EMISSION FACTORS FOR UNCONTROLLED GASOLINE AND DIESEL INDUSTRIAL ENGINES[a]

Pollutant	Gasoline Fuel (SCC 2-02-003-01, 2-03-003-01)		Diesel Fuel (SCC 2-02-001-02, 2-03-001-01)		EMISSION FACTOR RATING
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	
NO_x	0.011	1.63	0.031	4.41	D
CO	6.96 E-03[d]	0.99[d]	6.68 E-03	0.95	D
SO_x	5.91 E-04	0.084	2.05 E-03	0.29	D
PM-10[b]	7.21 E-04	0.10	2.20 E-03	0.31	D
CO_2[c]	1.08	154	1.15	164	B
Aldehydes	4.85 E-04	0.07	4.63 E-04	0.07	D
TOC					
Exhaust	0.015	2.10	2.47 E-03	0.35	D
Evaporative	6.61 E-04	0.09	0.00	0.00	E
Crankcase	4.85 E-03	0.69	4.41 E-05	0.01	E
Refueling	1.08 E-03	0.15	0.00	0.00	E

[a] References 2,5-6,9-14. When necessary, an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code. TOC = total organic compounds.

[b] PM-10 = particulate matter less than or equal to 10 μm aerodynamic diameter. All particulate is assumed to be ≤ 1 μm in size.

[c] Assumes 99% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 86 weight % carbon in gasoline, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and gasoline heating value of 20,300 Btu/lb.

[d] Instead of 0.439 lb/hp-hr (power output) and 62.7 lb/mmBtu (fuel input), the correct emissions factors values are 6.96 E-03 lb/hp-hr (power output) and 0.99 lb/mmBtu (fuel input), respectively. This is an editorial correction. March 24, 2009

Table 3.3-2. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR UNCONTROLLED DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (Fuel Input) (lb/MMBtu)
Benzene[b]	9.33 E-04
Toluene[b]	4.09 E-04
Xylenes[b]	2.85 E-04
Propylene	2.58 E-03
1,3-Butadiene[b,c]	<3.91 E-05
Formaldehyde[b]	1.18 E-03
Acetaldehyde[b]	7.67 E-04
Acrolein[b]	<9.25 E-05
Polycyclic aromatic hydrocarbons (PAH)	
Naphthalene[b]	8.48 E-05
Acenaphthylene	<5.06 E-06
Acenaphthene	<1.42 E-06
Fluorene	2.92 E-05
Phenanthrene	2.94 E-05
Anthracene	1.87 E-06
Fluoranthene	7.61 E-06
Pyrene	4.78 E-06
Benzo(a)anthracene	1.68 E-06
Chrysene	3.53 E-07
Benzo(b)fluoranthene	<9.91 E-08
Benzo(k)fluoranthene	<1.55 E-07
Benzo(a)pyrene	<1.88 E-07
Indeno(1,2,3-cd)pyrene	<3.75 E-07
Dibenz(a,h)anthracene	<5.83 E-07
Benzo(g,h,l)perylene	<4.89 E-07
TOTAL PAH	1.68 E-04

[a] Based on the uncontrolled levels of 2 diesel engines from References 6-7. Source Classification Codes 2-02-001-02, 2-03-001-01. To convert from lb/MMBtu to ng/J, multiply by 430.
[b] Hazardous air pollutant listed in the *Clean Air Act*.
[c] Based on data from 1 engine.

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

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

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

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

[c] Symbols for equations:

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

Table 11.9-1 (cont.).

[d] Multiply the ≤15-μm equation by this fraction to determine emissions, except as noted.
[e] Multiply the TSP predictive equation by this fraction to determine emissions.
[f] Blasting factor taken from a reexamination of field test data reported in Reference 1. See Reference 4.
[g] To estimate emissions from traffic on unpaved surfaces by vehicles such as haul trucks, light-to-medium duty vehicles, or scrapers in the travel mode, see the unpaved road emission factor equation in AP-42 Section 13.2.2.
[h] Coal storage pile factor taken from Reference 5. To estimate emissions on a shorter time scale (e. g., worst-case day), see the procedure presented in Section 13.2.5.
[i] Rating applicable to mine types I, II, and IV (see Tables 11.9-5 and 11.9-6).

Note: Section 234 of the Clean Air Act of 1990 required EPA to review and revise the emission factors in this Section (and models used to evaluate ambient air quality impact), to ensure that they did not overestimate emissions from western surface coal mines. Due to resource and technical limitations, the haul road emission factors were isolated to receive the most attention during these studies, as the largest contributor to emissions. Resultant model evaluation with revised emission factors have improved model prediction for total suspended particulate (TSP); however, there is still a tendency for overprediction of particulate matter impact for PM-10, for as yet undetermined causes, prompting the Agency to make a policy decision not to use them for regulatory applications to these sources. However, the technical consideration exists that no better alternative data are currently available and the information should be made known. Users should accordingly use these factors with caution and awareness of their likely limitations.

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

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

Table 11.9-4 (cont.).

Source	Material	Mine Location[a]	TSP Emission Factor[b]	Units	EMISSION FACTOR RATING
End dump truck unloading (batch drop)[c]	Coal	V	0.007 0.004	lb/T kg/Mg	E E
Scraper unloading (batch drop)[c]	Topsoil	IV	0.04 0.02	lb/T kg/Mg	E E
Wind erosion of exposed areas[d]	Seeded land, stripped overburden, graded overburden	Any	0.38 0.85	T/(acre)(yr) Mg/(hectare)(yr)	C C

[a] Roman numerals I through V refer to specific mine locations for which the corresponding emission factors were developed (Reference 5). Tables 11.9-4 and 11.9-5 present characteristics of each of these mines. See text for correct use of these "mine-specific" emission factors. The other factors (from Reference 7, except for overburden drilling from Reference 1) can be applied to any western surface coal mine.

[b] Total suspended particulate (TSP) denotes what is measured by a standard high volume sampler (see Section 13.2).

[c] Predictive emission factor equations, which generally provide more accurate estimates of emissions, are presented in Chapter 13.

[d] To estimate wind erosion on a shorter time scale (e. g., worst-case day), see Section 13.2.5.

11.19.2 Crushed Stone Processing

11.19.2.1 Process Description[1-2]

Major rock types processed by the rock and crushed stone industry include limestone, granite, dolomite, traprock, sandstone, quartz, and quartzite. Minor types include calcareous marl, marble, shell, and slate. Industry classifications vary considerably and, in many cases, do not reflect actual geological definitions.

Rock and crushed stone products generally are loosened by drilling and blasting, then are loaded by power shovel or front-end loader into large haul trucks that transport the material to the processing operations. Techniques used for extraction vary with the nature and location of the deposit. Processing operations may include crushing, screening, size classification, material handling, and storage operations. All of these processes can be significant sources of PM and PM-10 emissions if uncontrolled.

Quarried stone normally is delivered to the processing plant by truck and is dumped into a hoppered feeder, usually a vibrating grizzly type, or onto screens, as illustrated in Figure 11.19.2-1. The feeder or screens separate large boulders from finer rocks that do not require primary crushing, thus reducing the load to the primary crusher. Jaw, impactor, or gyratory crushers are usually used for initial reduction. The crusher product, normally 7.5 to 30 centimeters (3 to 12 inches) in diameter, and the grizzly throughs (undersize material) are discharged onto a belt conveyor and usually are conveyed to a surge pile for temporary storage, or are sold as coarse aggregates.

The stone from the surge pile is conveyed to a vibrating inclined screen called the scalping screen. This unit separates oversized rock from the smaller stone. The undersize material from the scalping screen is considered to be a product stream and is transported to a storage pile and sold as base material. The stone that is too large to pass through the top deck of the scalping screen is processed in the secondary crusher. Cone crushers are commonly used for secondary crushing (although impact crushers are sometimes used), which typically reduces material to about 2.5 to 10 centimeters (1 to 4 inches). The material (throughs) from the second level of the screen bypasses the secondary crusher because it is sufficiently small for the last crushing step. The output from the secondary crusher and the throughs from the secondary screen are transported by conveyor to the tertiary circuit, which includes a sizing screen and a tertiary crusher.

Tertiary crushing is usually performed using cone crushers or other types of impactor crushers. Oversize material from the top deck of the sizing screen is fed to the tertiary crusher. The tertiary crusher output, which is typically about 0.50 to 2.5 centimeters (3/16th to 1 inch), is returned to the sizing screen. Various product streams with different size gradations are separated in the screening operation. The products are conveyed or trucked directly to finished product bins, open area stockpiles, or to other processing systems such as washing, air separators, and screens and classifiers (for the production of manufactured sand).

Some stone crushing plants produce manufactured sand. This is a small-sized rock product with a maximum size of 0.50 centimeters (3/16th inch). Crushed stone from the tertiary sizing screen is sized in a vibrating inclined screen (fines screen) with relatively small mesh sizes. Oversized material is processed in a cone crusher or a hammermill (fines crusher) adjusted to produce small diameter material. The output is then returned to the fines screen for resizing.

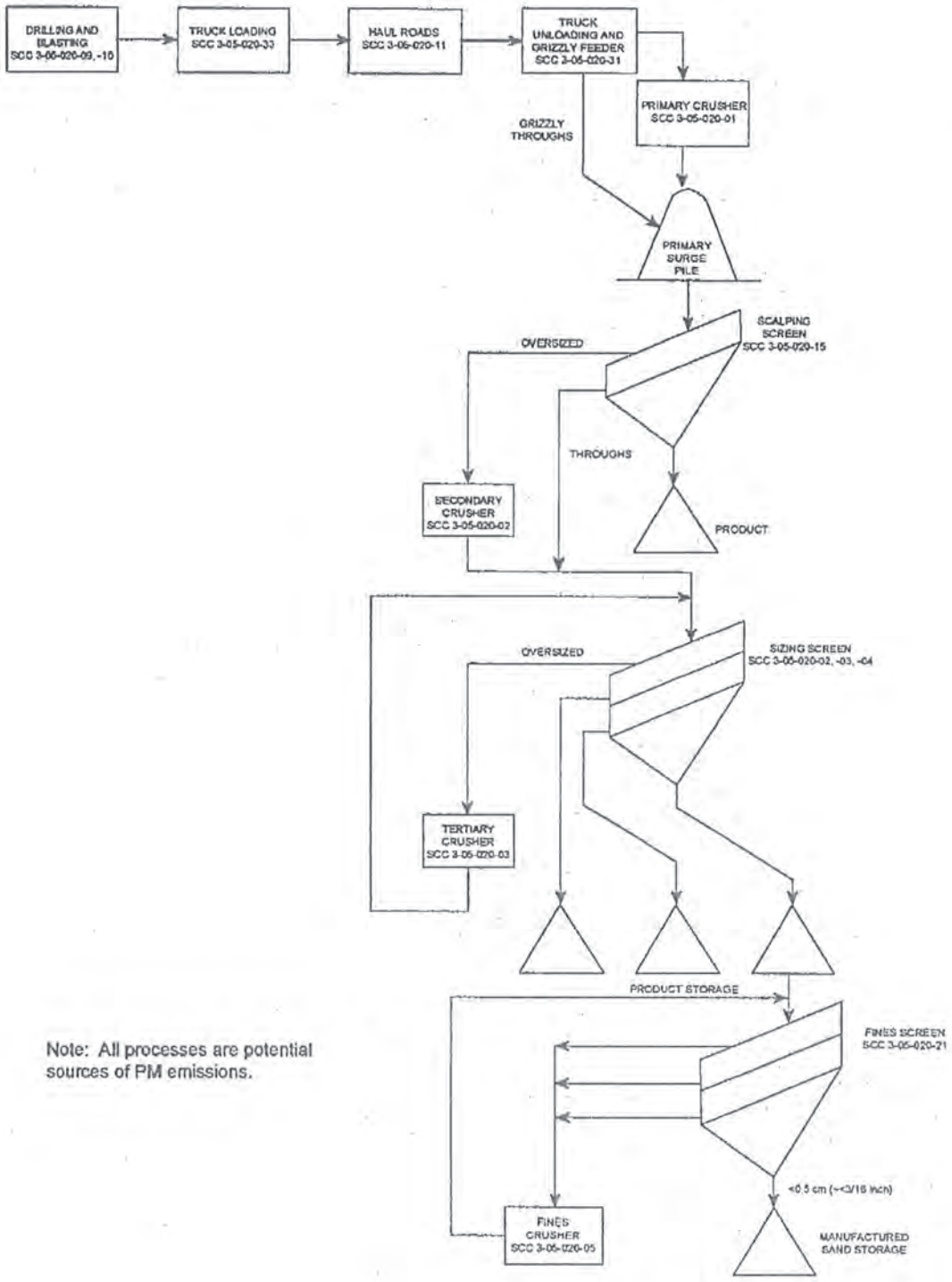

Figure 11.19.2-1: Typical stone processing plant.[2]
(SCC = Source Classification Code.)

In certain cases, stone washing is required to meet particular end product specifications or demands as with concrete aggregate processing. Crushed and broken stone normally is not milled but is screened and shipped to the consumer after secondary or tertiary crushing.

11.19.2.2 Emissions And Controls[1-8]

Emissions of PM and PM-10 occur from a number of operations in stone quarrying and processing. A substantial portion of these emissions consists of heavy particles that may settle out within the plant. As in other operations, crushed stone emission sources may be categorized as either process sources or fugitive dust sources. Process sources include those for which emissions are amenable to capture and subsequent control. Fugitive dust sources generally involve the reentrainment of settled dust by wind or machine movement. Emissions from process sources should be considered fugitive unless the sources are vented to a baghouse or are contained in an enclosure with a forced-air vent or stack. Factors affecting emissions from either source category include the stone size distribution and surface moisture content of the stone processed; the process throughput rate; the type of equipment and operating practices used; and topographical and climatic factors.

Of geographic and seasonal factors, the primary variables affecting uncontrolled PM emissions are wind and material moisture content. Wind parameters vary with geographical location, season, and weather. It can be expected that the level of emissions from unenclosed sources (principally fugitive dust sources) will be greater during periods of high winds. The material moisture content also varies with geographic location, season, and weather. Therefore, the levels of uncontrolled emissions from both process emission sources and fugitive dust sources generally will be greater in arid regions of the country than in temperate ones, and greater during the summer months because of a higher evaporation rate.

The moisture content of the material processed can have a substantial effect on emissions. This effect is evident throughout the processing operations. Surface wetness causes fine particles to agglomerate on, or to adhere to, the faces of larger stones, with a resulting dust suppression effect. However, as new fine particles are created by crushing and attrition, and as the moisture content is reduced by evaporation, this suppressive effect diminishes and may disappear. Plants that use wet suppression systems (spray nozzles) to maintain relatively high material moisture contents can effectively control PM emissions throughout the process. Depending on the geographic and climatic conditions, the moisture content of mined rock may range from nearly zero to several percent. Because moisture content is usually expressed on a basis of overall weight percent, the actual moisture amount per unit area will vary with the size of the rock being handled. On a constant mass-fraction basis, the per-unit area moisture content varies inversely with the diameter of the rock. Therefore, the suppressive effect of the moisture depends on both the absolute mass water content and the size of the rock product. Typically, wet material contains 1.5 to 4 percent water or more.

A variety of material, equipment, and operating factors can influence emissions from crushing. These factors include (1) stone type, (2) feed size and distribution, (3) moisture content, (4) throughput rate, (5) crusher type, (6) size reduction ratio, and (7) fines content. Insufficient data are available to present a matrix of rock crushing emission factors detailing the above classifications and variables. Available data indicate that PM-10 emissions from limestone and granite processing operations are similar. Therefore, the emission factors developed from the emission data gathered at limestone and granite processing facilities are considered to be representative of typical crushed stone processing operations. Emission factors for filterable PM and PM-10 emissions from crushed stone processing operations are presented in Tables 11.19-1 (metric units) and 11.19-2 (English units).

Table 11.19.2-1 (Metric Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS[a]

Source[b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10[c]	EMISSION FACTOR RATING
Screening (SCC 3-05-020-02,-03)	—[d]		0.0076[e]	C
Screening (controlled) (SCC 3-05-020-02-03)	—[d]		0.00042[e]	C
Primary crushing (SCC 3-05-020-01)	0.00035[f]	E	ND[g]	
Secondary crushing (SCC 3-05-020-02)	ND		ND[g]	
Tertiary crushing (SCC 3-05-020-03)	—[d]		0.0012[h]	C
Primary crushing (controlled) (SCC 3-05-020-01)	ND		ND[g]	
Secondary crushing (controlled) (SCC 3-05-020-02)	ND		ND[g]	
Tertiary crushing (controlled) (SCC 3-05-020-03)	—[d]		0.00029[h]	C
Fines crushing[j] (SCC 3-05-020-05)	—[d]		0.0075	E
Fines crushing (controlled)[j] (SCC 3-05-020-05)	—[d]		0.0010	E
Fines screening[j] (SCC 3-05-020-21)	—[d]		0.036	E
Fines screening (controlled)[j] (SCC 3-05-020-21)	—[d]		0.0011	E
Conveyor transfer point[k] (SCC 3-05-020-06)	—[d]		0.00072	D
Conveyor transfer point (controlled)[k] (SCC 3-05-020-06)	—[d]		2.4×10^{-5}	D
Wet drilling: unfragmented stone[m] (SCC 3-05-020-10)	ND		4.0×10^{-5}	E
Truck unloading: fragmented stone[m] (SCC 3-05-020-31)	ND		8.0×10^{-6}	E
Truck loading--conveyor: crushed stone[n] (SCC 3-05-020-32)	ND		5.0×10^{-5}	E

[a] Emission factors represent uncontrolled emissions unless noted. Emission factors in kg/Mg of material throughput. SCC = Source Classification Code. ND = no data.

[b] Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent and the same facilities operating wet suppression sytems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over or the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ sub-standard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

[c] Although total suspended particulate (TSP) is not a measurable property from a process, some states may require estimates of TSP emissions. No data are available to make these estimates. However, relative ratios in AP-42 Sections 13.2.2 and 13.2.4 indicate that TSP emission factors may be estimated by multiplying PM-10 by 2.1.

Table 11.19.2-1 (cont.).

[d] Emission factors for total particulate are not presented pending a re-evaluation of the EPA Method 201a test data and/or results of emission testing. This re-evaluation is expected to be completed by July 1995.
[e] References 9, 11, 15-16.
[f] Reference 1.
[g] No data available, but emission factors for PM-10 emission factors for tertiary crushing can be used as an upper limit for primary or secondary crushing.
[h] References 10-11, 15-16.
[j] Reference 12.
[k] References 13-14.
[m] Reference 3.
[n] Reference 4.

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS[a]

Source[b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10[c]	EMISSION FACTOR RATING
Screening (SCC 3-05-020-02,-03)	—[d]		0.015[e]	C
Screening (controlled) (SCC 3-05-020-02-03)	—[d]		0.00084[e]	C
Primary crushing (SCC 3-05-020-01)	0.00070[f]	E	ND[g]	
Secondary crushing (SCC 3-05-020-02)	ND		ND[g]	
Tertiary crushing (SCC 3-05-020-03)	—[d]		0.0024[h]	C
Primary crushing (controlled) (SCC 3-05-020-01)	ND		ND[g]	NA
Secondary crushing (controlled) (SCC 3-05-020-02)	ND		ND[g]	NA
Tertiary crushing (controlled) (SCC 3-05-020-03)	—[d]		0.00059[h]	C
Fines crushing[i] (SCC 3-05-020-05)	—[d]		0.015	E
Fines crushing (controlled)[i] (SCC 3-05-020-05)	—[d]		0.0020	E
Fines screening[i] (SCC 3-05-020-21)	—[d]		0.071	E
Fines screening (controlled)[i] (SCC 3-05-020-21)	—[d]		0.0021	E
Conveyor transfer point[k] (SCC 3-05-020-06)	—[d]		0.0014	D
Conveyor transfer point (controlled)[k] (SCC 3-05-020-06)	—[d]		4.8×10^{-5}	D
Wet drilling: unfragmented stone[m] (SCC 3-05-020-10)	ND		8.0×10^{-5}	E
Truck unloading: fragmented stone[m] (SCC 3-05-020-31)	ND		1.6×10^{-5}	E
Truck loading–conveyor: crushed stone[n] (SCC 3-05-020-32)	ND		0.00010	E

[a] Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/ton of material throughput. SCC = Source Classification Code. ND = no data.

[b] Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over or the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ sub-standard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

[c] Although total suspended particulate (TSP) is not a measurable property from a process, some states may require estimates of TSP emissions. No data are available to make these estimates. However, relative ratios in AP-42 Sections 13.2.2 and 13.2.4 indicate that TSP emission factors may be estimated by multiplying PM-10 by 2.1.

Table 11.19.2-2 (cont.).

[d] Emission factors for total particulate are not presented pending a re-evaluation of the EPA Method 201a test data and/or results of emission testing. This re-evaluation is expected to be completed by July 1995.
[e] References 9, 11, 15-16.
[f] Reference 1.
[g] No data available, but emission factors for PM-10 emission factors for tertiary crushing can be used as an upper limit for primary or secondary crushing.
[h] References 10-11, 15-16.
[j] Reference 12.
[k] References 13-14.
[m] Reference 3.
[n] Reference 4.

Emission factor estimates for stone quarry blasting operations are not presented here because of the sparsity and unreliability of available test data. While a procedure for estimating blasting emissions is presented in Section 11.9, Western Surface Coal Mining, that procedure should not be applied to stone quarries because of dissimilarities in blasting techniques, material blasted, and size of blast areas. Milling of fines is not included in this section as this operation is normally associated with nonconstruction aggregate end uses and will be covered elsewhere when information is adequate. Emission factors for fugitive dust sources, including paved and unpaved roads, materials handling and transfer, and wind erosion of storage piles, can be determined using the predictive emission factor equations presented in AP-42 Section 13.2.

References For Section 11.19.2

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13. T. Brozell, *PM-10 Emission Factors for Two Transfer Points at a Granite Stone Crushing Plant*, EPA Contract No. 68-D0-0122, U. S. Environmental Protection Agency, Research Triangle Park, NC, January 1994.

14. T. Brozell, *PM-10 Emission Factors for a Stone Crushing Plant Transfer Point*, EPA Contract No. 68-D0-0122, U. S. Environmental Protection Agency, Research Triangle Park, NC, February 1993.

15. T. Brozell and J. Richards, *PM-10 Emission Factors for a Limestone Crushing Plant Vibrating Screen and Crusher for Bristol, Tennessee*, EPA Contract No. 68-D2-0163, U. S. Environmental Protection Agency, Research Triangle Park, NC, July 1993.

16. T. Brozell and J. Richards, *PM-10 Emission Factors for a Limestone Crushing Plant Vibrating Screen and Crusher for Marysville, Tennessee*, EPA Contract No. 68-D2-0163, U. S. Environmental Protection Agency, Research Triangle Park, NC, July 1993.

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)[a]

Source [b]	Total Particulate Matter [r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0054[d]	E	0.0024[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012[d]	E	0.00054[p]	C	0.00010[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0390[e]	E	0.0150[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030[f]	E	0.0012[f]	E	0.000070[q]	E
Screening (SCC 3-05-020-02, 03)	0.025[c]	E	0.0087[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022[d]	E	0.00074[m]	C	0.000050[q]	E
Fines Screening (SCC 3-05-020-21)	0.30[g]	E	0.072[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036[g]	E	0.0022[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030[h]	E	0.00110[n]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[i]	E	4.6×10^{-5}[q]	D	1.3×10^{-5}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0×10^{-5}[j]	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6×10^{-5}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

m. References 1, 3, 7, 8, and 15

n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing

o. References 2, 3, 7, 8

p. References 2, 3, 7, 8, and 15

q. Reference 15

r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2

s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

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

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

[a]References 1,5-15.

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

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

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

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

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

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

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

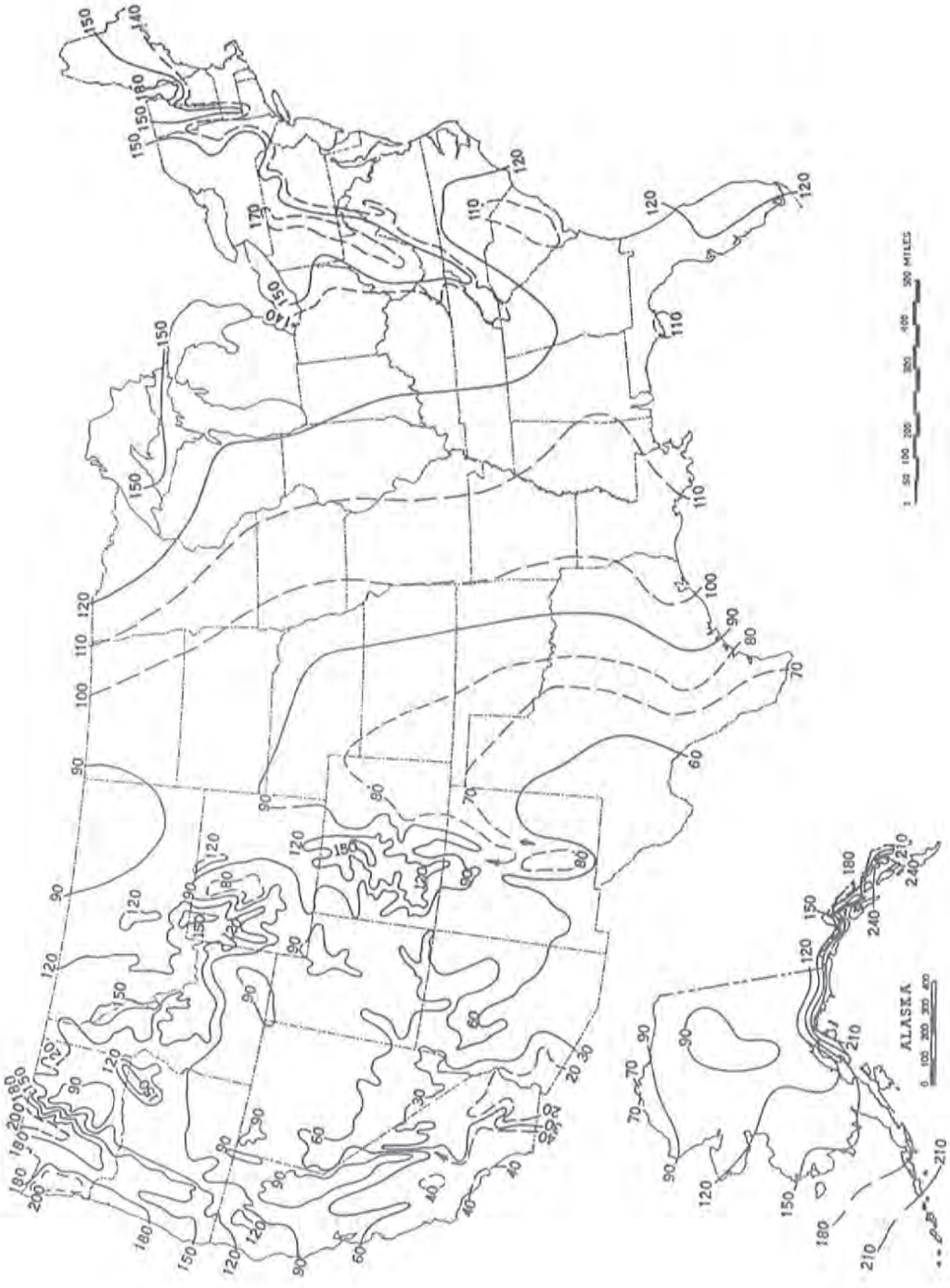


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES[a]

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

[a] References 1-10. ND = no data.

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

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

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

where:

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

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

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

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

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

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

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

ATTACHMENT 7.3

NMED AQB Insignificant Activities List
(March 24, 2005)

NMED AQB Trivial Activities List
(September 15, 2008)

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

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

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

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

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

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

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

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

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

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

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

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

OR

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

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

OR

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

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

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

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

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

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

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

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

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

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

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

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

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

8. Non-anthropogenic wind blown dust.

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

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

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

12. Food service and cafeteria activities.

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

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

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

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

17. Air-conditioning units used for human comfort.

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

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

20. Tobacco smoking rooms and areas.

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

22. Pneumatically operated equipment.

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

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

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

26. Vents from continuous emissions monitors and other analyzers.

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

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

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

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

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

32. Hydraulic and hydrostatic testing equipment.

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

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

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

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

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

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

ATTACHMENT 7.4

SDS Sheets for No. 2 Diesel and Gasoline (all grades)

HESS

MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types) **MSDS No. 9909**

EMERGENCY OVERVIEW
CAUTION!
OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.
If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000
MSDS INTERNET WEBSITE: www.hess.com (See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES
Contact with liquid or vapor may cause mild irritation.

SKIN
May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static

Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	Exposure Limits TWA/STEL	Note
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist	
	ACGIH	100 mg/m^3 (as totally hydrocarbon vapor) TWA	A3, skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA	
	ACGIH	10 ppm TWA / 15 ppm STEL	A4, Skin

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE
Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR
Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE:	0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H_2O = 1):	0.83 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H_2O):	Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute dermal LD50 (rabbits): > 5 ml/kg
Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)
Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)
This material has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic) UN 1202 (International)	
DOT SHIPPING LABEL:	None	

Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING

HEALTH:	0
FIRE:	2
REACTIVITY:	0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS® HAZARD RATING

HEALTH:	1 *	* Chronic
FIRE:	2	
PHYSICAL:	0	

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

AMERADA HESS CORPORATION

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732)750-6000
MSDS Internet Website www.hess.com/about/environ.html

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS * (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION (rev. Dec-97)

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Dec-97)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Dec-97)

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Dec-97)

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3

Component (CAS No.)	Exposure Limits Source	TWA (ppm)	STEL (ppm)	Note
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	50	--	A4 (skin)
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS
Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION
Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION
Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

APPEARANCE
A translucent, straw-colored or light yellow liquid

ODOR
A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 -- 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

SOLUBILITY (H_2O): Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY (rev. Dec-94)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-04)

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION (rev. Jan-04)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-04)

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
	* CHRONIC		

SUPERSEDES MSDS DATED: 12/30/97

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than

N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212)642-4900
API	American Petroleum Institute (202)682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

ATTACHMENT 7.5

Parts Washer Solvent and Motor Oil MSDS Data

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : ZEP DYNA 143 20GL

Material number : 000000000000036650

Manufacturer or supplier's details

Company : Zep Inc.

Address : 1310 Seaboard Industrial Blvd., NW
Atlanta, GA 30318

Telephone : 404-352-1680

Emergency telephone numbers		
For SDS Information	:	Compliance Services 1-877-428-9937
For a Medical Emergency	:	877-541-2016 Toll Free - All Calls Recorded
For a Transportation Emergency	:	CHEMTREC: 800-424-9300 - All Calls Recorded. In the District of Columbia 202-483-7616

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	liquid
Colour	colourless
Odour	solvent-like, slight

GHS Classification

Flammable liquids : Category 4
Aspiration hazard : Category 1

GHS Label element

Hazard pictograms :

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H304 May be fatal if swallowed and enters airways.

Precautionary statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
Dispose of contents/container in accordance with local regulation.

Potential Health Effects

Carcinogenicity:

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical Name	CAS-No.	Concentration [%]
Distillates (petroleum), hydrotreated light	64742-47-8	>= 90 - <= 100

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice	: Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Symptoms of poisoning may appear several hours later. Do not leave the victim unattended.
If inhaled	: If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	: Wash off immediately with plenty of water for at least 15 minutes. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide (CO2)
Dry chemical
Dry sand

Unsuitable extinguishing media : High volume water jet

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide
Smoke

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : No smoking.
Keep container tightly closed in a dry and well-ventilated place.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated light	64742-47-8	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	400 ppm 1,600 mg/m3	OSHA P0

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Ensure that eyewash stations and safety showers are close to the workstation location.
Tightly fitting safety goggles

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	colourless
Odour	:	solvent-like, slight
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	No data available
Boiling point	:	192 - 211 °C
Flash point	:	61.66 °C Method: Pensky-Martens closed cup
Evaporation rate	:	0.14 n-Butyl Acetate = 1.0
Upper explosion limit	:	7.0 %(V)
Lower explosion limit	:	0.7 %(V)
Vapour pressure	:	0.43 hPa (20 °C)
Relative vapour density	:	No data available
Density	:	0.79 g/cm3
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	not determined
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	not determined
Thermal decomposition	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed. Vapours may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Strong oxidizing agents

Hazardous decomposition products	:	Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

Distillates (petroleum), hydrotreated light:

Acute oral toxicity	:	LD50 Rat: > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 Rat: > 4.6 mg/l Exposure time: 6 h
Acute dermal toxicity	:	LD50 Rat: > 2,000 mg/kg

Skin corrosion/irritation

Product:

Remarks: May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Product:

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Distillates (petroleum), hydrotreated light:

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

Further information

Product:

Remarks: Solvents may degrease the skin.

Components:
Distillates (petroleum), hydrotreated light:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	: Remarks: No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	: No data available

Components:
Distillates (petroleum), hydrotreated light :

Additional ecological information	: No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	: Dispose of in accordance with local regulations. Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with

chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IMDG (Vessel):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Cargo Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: IATA (Passenger Air):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

Transportation Regulation: TDG (Canada):
NOT REGULATED AS DANGEROUS GOODS OR HAZARDOUS MATERIAL

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other

reproductive harm.

The components of this product are reported in the following inventories:

TSCA	On TSCA Inventory
DSL	All components of this product are on the Canadian DSL
AICS	On the inventory, or in compliance with the inventory
NZIoC	Not in compliance with the inventory
PICCS	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

Inventory Acronym and Validity Area Legend:

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

NFPA:

HMIS III:

HEALTH	1
FLAMMABILITY	2
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

OSHA GHS Label Information:

Hazard pictograms :

Signal word : **Danger:**
Hazard statements : Combustible liquid. May be fatal if swallowed and enters airways.
Precautionary statements :

Prevention: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Wear protective gloves/ eye protection/ face protection.
Response: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Do NOT induce vomiting. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Storage: Store in a well-ventilated place. Keep cool. Store locked up.
Disposal: Dispose of contents/container in accordance with local regulation.

Version:	2.4
Revision Date:	02/11/2016
Print Date:	05/02/2016

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes. This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

Zep Inc. markets products under well recognized and established brand names such as Zep®, Zep Commercial®,Zep Professional®, Enforcer®, National Chemical™, Selig™, Misty®, Next Dimension™, Petro®, i-Chem®, TimeMist®, TimeWick™, MicrobeMax®, Country Vet®, Konk®, Original Bike Spirits®, Blue Coral®, Black Magic®, Rain-X®, Niagara National™, FC Forward Chemicals®,Rexodan®, Mykal™, and a number of private labeled brands.

MATERIAL SAFETY DATA SHEET: PRO-POWER

Section I - General Information

(0[illegible]-000000- - 0382)
D[illegible] Issue:
1[illegible]08 12:00:00 AM
Chemical Name & Synonyms:
N/A
Chemical Family:
Aliphatic/Terpene Blend
Manufacturer Name:
MANTEK, DIVISION OF NCH CORP.
Manufacturer Address:
BOX 152170
IRVING, TEXAS 75015
Prepared By:
D HOLLAS/CHEMIST

Supercedes:
11/4/2004 12:00:00 AM
Trade Name & Synonyms:
PRO-POWER
Formula is a mixture: [√]

Product Code Number:
0382

Emergency Phone Number:
800-424-9300

Section II - Hazardous Ingredients

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS

Chemical Name (Ingredients)	Hazard	TLV	PEL	STEL	CAS #
SYNTHETIC ISOPARAFFINIC HYDROCARBON	IRR/COMB	5 mg/m3 $1	5 mg/m3 $2	10 mg/m3$1	64742-47-8
D-LIMONENE	IRR/COMB	N/E 1	5 mg/m3 *2	N/E	5989-27-5

$ Mineral Oil Mist
* Vegetable Oil Mist

Section III - Physical Data

Boiling Point (°F): 424°
Vapor Pressure (mm Hg.): [illegible]
Vapor Density (Air=1): 4.9
pH @ 100% : N/A
% Volatile by Volume: 100
H_2O Solubility: Negligible

Specific Gravity (H_2O=1): 0.82
Color: Colorless
Odor: Orange
Clarity: Transparent
Evaporation Rate (BuAc=1): 0.03
Viscosity: Non-viscous

Section IV - Fire and Explosion Hazard

Flash Point: 142°F
Flammable Limits: Product Mixture
LEL: 0.5%
Method Used: P.M.C.C.
UEL: 6.1%
Aerosol Level (NFPA 30B): N/A

[illegible]nguishing Media:

[√] Foam	[ ] Alcohol Foam	[√] CO2
[√] Dry Chemical	[√] Water Spray	[ ] Other

NFPA 704 Hazard Rating:

4-Extreme
3-High
2-Moderate
1-Slight
0-Insignificant

Health: 2
Flammability: 2
Instability: 0
Special:

Special Fire Fighting Procedures:
Firefighters should wear a self-contained breathing apparatus and full protective gear. Cool fire-exposed containers with water spray to prevent bursting.

Unusual Fire and Explosion Hazards:
Vapors are heavier than air and may travel to distant and/or low-lying sources of ignition and flashback. Product may produce a floating fire hazard as liquid floats on water. The use of water spray (fog), while effective, may cause frothing and foaming. Never use a water jet as this will just spread the fire. Use care as spills may be slippery.

Section V - Health and Hazard Data

Threshold Limit Value:
5 mg/m^3 as Oil Mist 1.

Effects of Overexposure:

Acute: (Short Term Exposure)
EYE CONTACT: Causes irritation seen as stinging, tearing, and redness.
SKIN CONTACT: Causes irritation seen as itching and redness. May cause allergic skin reaction seen as delayed skin rash which may be followed by blistering, scaling, and other skin effects. Prolonged or repeated contact, as from clothing wet with material, may cause drying, defatting, and cracking of the skin.
INHALATION: May cause respiratory irritation seen as coughing and sneezing. May cause an allergic respiratory reaction. At low vapor concentrations, no harmful effects are expected. At high vapor concentrations, inhalation may cause central nervous system effects such as headache, dizziness, drowsiness, weakness, unconciousness, possible anesthetic effects from central nervous system depression, and may be fatal.
INGESTION: May cause irritation with possible nausea, vomiting, and diarrhea. Ingestion and subsequent vomiting of this product can lead to aspiration of the product into the lungs which can cause damage and may be fatal.

Chronic: (Long Term Exposure)
May cause skin and respiratory sensitization to those individuals sensitive to orange oil. On rare occasions, prolonged and repeated exposure to Hydrocarbon Mist poses a risk of chronic lung inflammation. This condition is usually asymptomatic as a result of repeated small aspirations. Shortness of breath and coughing are the most common symptoms. Aspiration may lead to pulmonary edema and hemorrhage and may be fatal. Signs of lung involvement include increased respiration and heart rates as well as a bluish discoloration of the skin. Chronic skin contact may promote dermatitis and oil acne. In rarer cases, an increased senstivity to sunlight (photosensitivity) may occur.
Medical conditions aggravated by exposure are pre-existing respiratory and skin conditions such as asthma, emphysema, and dermatitis.
TARGET ORGANS: Blood-forming organs, central nervous system, and lungs. The primary routes of exposure are skin and eye contact.

[illegible]ary Routes of Entry

[illegible]halation	[ ] Ingestion	[√] Absorption

Emergency First Aid Procedures:

Inhalation:
Remove from the area to fresh air. If not breathing, clear the airway and start mouth to mouth artificial respiration. Get immediate medical attention.

Eye Contact:
Rinse the eyes with water. Remove any contact lenses and continue flushing with plenty of water for several minutes. Seek medical attention if irritation develops.

Skin Contact:
W ffected areas with large amounts of soap and water for 15 minutes. Remove contaminated clothing and shoes. Seek medical attention if irritation s. Wash clothing and clean shoes before re-use.

Ingestion:
Give 3 to 4 glasses of water, but DO NOT induce vomiting. If vomiting occurs, give fluids again. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

Notes to Physician:
Ingestion and subsequent vomiting of this product can lead to aspiration of the product into the lungs which can cause damage and may be fatal. Depending on the amount ingested and retained as well as the toxicity of the product, gastric lavage should be considered. Keep patient's head below hips to prevent pulmonary aspiration. If comatose, a cuffed endotracheal tube will prevent aspiration. In severe cases of an allergic reaction, anaphylactic shock may occur. Have the person lie down with their legs above their chest to increase blood flow to the heart and brain. Ensure respiratory support by supplying oxygen and administer epinephrine as indicated.

Section VI - Toxicity Information

Product Contains Chemicals Listed as Carcinogen or Potential Carcinogen By:

[ ] IARC [ ] NTP [ ] OSHA [ ] ACGIH [ ] Other

Total VOC Content: 100% by weight; 100% by volume, 820 g/L
VOC Content acter low vapor exemption: 30% by weight; 29% by volume; 237 g/L

SYNTHETIC ISOPARAFFINIC HYDROCARBON (<3% DMSO extractables)
IHL-RAT LC_{50}: >290 ppm 3.
ORL-RAT LD_{50}: >10 g/kg 3.
SKN-RBT LD_{50}: >3 g/kg 3.
SKN SENSITIZER: no 3.
SKN IRRITATION: slight 3.
EYE IRRITATION: slight 3.

This hydrocarbon was administered orally 5 days/week to male and female rats at 100, 500 or 1000 mg/kg for 13 weeks. An additional group was dosed with 100 mg/kg for 13 weeks followed by a 4-week recovery period. No mortalities or clinical effects were observed. Liver and kidney weights for the 500 and 1000 mg/kg exposure groups were significantly increased. After the 4-week recovery period, there were no differences in organ weights. 3.

Mineral Oil and Hydrocarbon Mists derived from highly Refined Oils and Petroleum Distillates are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation, and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years), no carcinogenic effects have been reported in any animal species tested. These Petroleum Distillates are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. For this reason, they are not classified as cancer hazards. 3.

D-LIMONENE
OR AT LD_{50}: 4,400 mg/kg 4.
S LD_{50}: >5,000 mg/kg 3.
S : Severely irritating 3.
E. : Severely irritating 3.

Section VII - Reactivity Data

Stability

[√] Stable [ ] Unstable

Conditions to Avoid:
Avoid heat, hot surfaces, sparks, and open flames.

Hazardous Polymerization

[√] Will not occur [ ] May occur

Conditions to Avoid:
N/A

Incompatibility (Materials to Avoid):
Strong oxidizing agents such as Chlorine bleach and concentrated Hydrogen Peroxide. Acids, clays, Aluminum Chloride, halogens, Iodine Pentafluoride, Vinyl Chloride plastics, and rubber.

Hazardous Decomposition Products:
Oxides of Carbon. Smoke.

Section VIII - Spill Or Leak Procedures

Steps to be Taken if Material is Released or Spilled:
Wear appropriate protective clothing. Eliminate all sources of ignition and ventilate the area. Use only non-sparking equipment. Use care as spills may be slippery. Shut off source of leak. Dike and contain spill. Absorb with an inert material and transfer all material into a properly labeled container for disposal. Prevent product from contaminating soil or from entering sewage and drainage systems and bodies of water. Flush area with water.

Waste Disposal Method(s):
Dispose of in accordance with all Federal, State, and local regulations.

Neutralizing Agent:
N/A

Section IX - Special Protection Information

Required Ventilation:
Local ventilation is recommended to control exposure from operations that can generate excessive levels of mists. Local ventilation is preferred, because it p ts dispersion into work areas by controlling it at its source.

R tory Protection:
Re tors should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2-1992). For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH approved half-facepiece respirator equipped with appropriate chemical cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in publication No. 87-116 or ANSI Z88.2-1992.

Glove Protection:

Neoprene or nitrile rubber gloves should be worn. Ensure compliance with OSHA's personal protective equipment (PPE) standard for hand protection, 29 CFR 1910.138.

Eye Protection:

Safety glasses with side shields if the method of application presents the likelihood of eye contact. Ensure compliance with OSHA's Personal Protective Equipment (PPE) standard for eye and face protection, 29 CFR 1910.133.

Protection:

Protective clothing when handling. A safety shower and an eyewash station should be available. Remove soaked clothing and shoes. Wash clothing and clean shoes before re-use.

Section X - Storage and Handling Information

Storage Temperature

Max: 120°F Min: 35°F

Storage Conditions

[√] Indoors [ ] Outdoors [ ] Heated [ ] Refrigerated

Precautions to be Taken in Handling and Storing:

Always store material in its original container. Keep the container tightly closed when not in use. Use with caution around heat, sparks, pilot lights, static electricity, and open flame. Empty containers may contain product residues which may exhibit the hazards of the product. To avoid possible explosion, do not pressurize, cut, weld, solder, drill, grind, or expose empty containers to heat, hot surfaces, sparks, or open flames. Ground and bond container when handling near flammable vapors and all sources of ignition. Bulk Storage: For maximum product life, store indoors. Outdoor Storage Tip: Store containers on their side to help prevent water accumulation on a flat end and consequent product contamination.

Other Precautions:

Keep out of reach of children. Read the entire label before using the product. Follow the label directions.

Section XI - Regulatory Information

Chemical Name	CAS Number	Upper % Limit

None.

Those Ingredients listed above are subject to the reporting requirements of 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Please call 1-800-527-9919 for additional information if you are a California customer. This MSDS is not intended for users in the state of California.

Section XII - References

1. Threshold Limit Values for chemical substances and physical agents and biological exposure indices, ACGIH, 2007.
2. OSHA PEL.
3. Vendor's MSDS.
4. Registry of toxic effects of chemical substances, CCINFOWeb, 2007.
5. European Chemical Substances Information System (ESIS), International Uniform Chemical Information Database (IUCLID) Chemical Data Sheets.
6. ChemADVISOR, Inc. Database Release: 2007-4.

All the components of this product are in compliance with the Toxic Substances Control Act (TSCA) and are either listed on the TSCA inventory or otherwise exempted from listing.

IR: Irritant, OSHA: Occupational Safety & Health Administration, IARC: International Agency for the Research on Cancer, TOX: Toxic, NFPA: National Fire Protection Association, ppm: Parts Per Million, UEL: Upper Explosion Limit, STEL: Short-term Exposure Limit, HMN: Human, mg/m3, IHL: Inhalation, COMB: Combustible, CORR: Corrosive, MUT: Mutagenic, CARC: Carcinogenic, N/A: Not Applicable, TLV: Threshold Limit Value, N/E: Not Established, ORL: Oral, FLAM: Flammable, ASPHYX: Asphyxiant, C.O.C.: Cleveland Open Cup, PNOR: Particles Not Otherwise Regulated, LEL: Lower Explosion Limit, mg/L: Milligrams per Liter, PNOS: Particles Not Otherwise Specified, g/L: Grams per Liter, PMCC: Pensky-Martin Closed Cup, NTP: National Toxicology Program, µg/L: Micrograms per Liter, TCC: Tagliabue Closed Cup, SEV: Severe, RBT: Rabbit, INV: Intravenous, ACGIH: American Conference of Governmental Industrial Hygienists, PEL: Permissible Exposure Limit, MOD: Moderate, IPT: Intraperitoneal, gm/kg: Grams per Kilogram, C.C.C.: Cleveland Closed Cup, SKN: Skin, Milligrams per Cubic Meter, mg/kg: Milligrams per Kilogram, VOC: Volatile Organic Compound, SDT: Standard Draize Test, MSE: Mouse, GPG: Guinea Pig.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE IN LIGHT OF CURRENT FORMULATION. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

MANTEK, DIVISION OF NCH CORP. assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage, or disposal of the product.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Supreme Motor Oil

Product Use: Automotive Motor Oil
Product Number(s): CPS220002, CPS220011, CPS220013, CPS220019, CPS220059, CPS220060, CPS220135, CPS220153, CPS220155
Synonyms: Chevron Supreme Motor Oil SAE 10W-30, Chevron Supreme Motor Oil SAE 10W-30 (API SL), Chevron Supreme Motor Oil SAE 10W-40, Chevron Supreme Motor Oil SAE 20W-50, Chevron Supreme Motor Oil SAE 30, Chevron Supreme Motor Oil SAE 40, Chevron Supreme Motor Oil SAE 5W-20, Chevron Supreme Motor Oil SAE 5W-30, Chevron Supreme Motor Oil SAE 5W-30 (API SL)
Company Identification
ChevronTexaco Global Lubricants
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevron-lubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
ChevronTexaco Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevrontexaco.com
Product Information: (800) LUBE TEK
MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	75 - 95 %weight

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

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

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 200 °C (392 °F) (Min)
Autoignition: No Data Available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

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

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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

Color: Amber
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Specific Gravity: 0.86 - 0.9 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: 8 cSt @ 100°C (212°F) (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: No product toxicology data available.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

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

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE
This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

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

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.
DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR
Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

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

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS

GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

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

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components has been notified but may not be listed in the following chemical inventories: DSL (Canada). Secondary notification by the importer may be required.

One or more components does not comply with the following chemical inventory requirements: AICS (Australia).

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

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

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

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

LABEL RECOMMENDATION:
Label Category : ENGINE OIL 1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1
Revision Date: 04/29/2005

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number

ACGIH - American Conference of Government Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - ChevronTexaco	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the ChevronTexaco Energy Research & Technology Company, 100 Chevron Way, Richmond, California 94802.

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

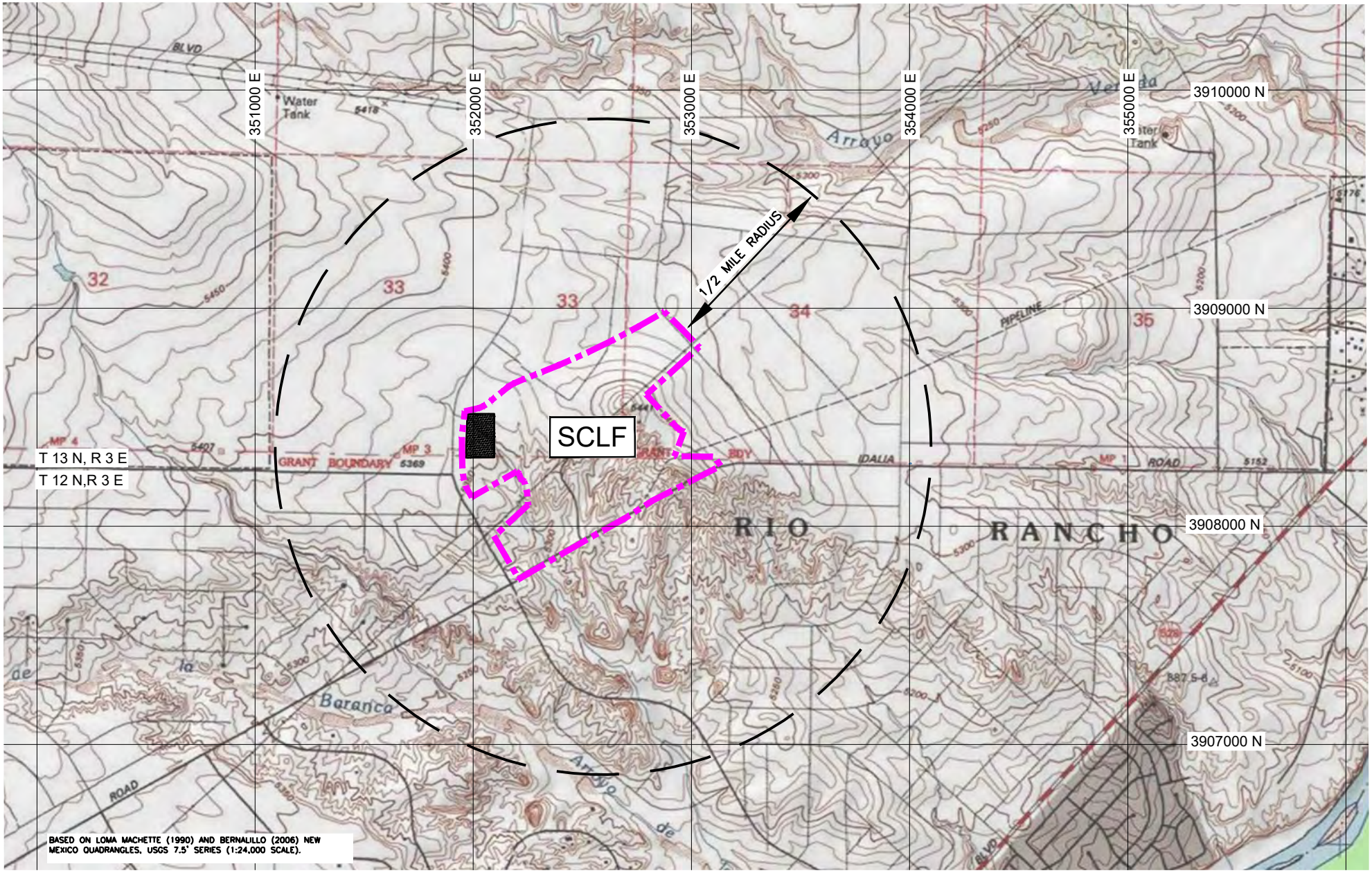
Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

Figure 8.1 is a map of the SCLF and a ½-mile radius surrounding area. **Figure 8.1** is plotted on a portion of the Bernalillo (2006) and Loma Machete (1990) 7.5-minute USGS quadrangle maps. The figure shows the facility boundary, surrounding topography, map name, graphical scale, north arrow, and the UTM scales on both axes. The area which is restricted to public access is the facility property boundary. Due to the condensed nature of the map elements required by this Section, on-site Landfill access and haul roads are shown on **Figure 5.1, Section 5**.



A:\2021\8115.21\03_DSGN\01_DWG\050_CIVIL\02_CONTENT\TITLE V\SITE MAP REVISED.DWG, 9/9/2022 10:01:53 AM, dmill

Parkhill

Parkhill.com

SANDOVAL COUNTY LANDFILL

2708 IRIS RD. NE
RIO RANCHO, NM 87144

NORTH

0' 1000' 2000'

0m 500m

LEGEND

- FACILITY BOUNDARY
- PUBLIC ACCESS AREA
- 3907000 N — UTM GRID COORDINATE

SITE MAP

Date:	09/09/2022
Project No:	8115.21
Figure:	8.1

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☒ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms.
Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☑ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☑ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. ☑ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☑ A sample of the letters sent to the owners of record.
5. ☑ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☑ A sample of the public notice posted and a verification of the local postings.
7. ☑ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☑ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☑ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☑ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☑ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

In compliance with 20.2.72.219.B NMAC, notification of the public was conducted on March 2 and 3, 2023. Notice was posted in 4 publicly accessible locations, mailed to counties, municipalities, and Indian tribes within 10 miles and land owners within 100-feet of the facility boundary, published in a newspaper of local circulation, and distributed to a local radio station to be read as a public service announcement. Documentary proof of these notification activities is included in this section in the following attachments:

Attachment	Contents
9.1	Copies of Certified Letter Receipts
9.2	Sample of Letter Sent to Counties, Municipalities, and Indian Tribes
9.3	Counties, Municipalities, Tribes, and Owners of Record to Whom Notices Were Sent
9.4	Proof of Publication, Classified and Display Advertisements
9.5	Proof and Verification of Public Notice Posting
9.6	Property Tax Records from Sandoval County Assessor
9.7	Sample of letters Sent to Owners of Record
9.8	Copy and Documentary Proof of PSA Submittal to Local Radio Station
9.9	Map of Facility and Surrounding Owners of Record

ATTACHMENT 9.1

Copies of Certified Letter Receipts

7019 2970 0001 1096 3173

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Rio Rancho, NM 87124

OFFICIAL USE

Certified Mail Fee	$4.15
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$3.35
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

Postmark Here
MAR 03 2023
03/03/2023
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

AMREP SOUTHWEST INC
409 NM HWY 528 NE
RIO RANCHO, NM 87124

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
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BACA, DEBRA
5194 27TH AVE NE
RIO RANCHO, NM 87144-4702

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☐ Return Receipt (hardcopy)	$3.35
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

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BARCENA, NORBERT
PO BOX 892
PLACITAS, NM 87043

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

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BEDFORD, ALFRED J AND RECIO,
ZENAIDA M
39 CAVEN RD
LIGONIER, PA 15658-2010

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

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RIO RANCHO, NM 87124

BOWLES, ROBERT J AND NANCY
MURPHY
4811 HARDWARE DR NE STE D-5
ALBUQUERQUE, NM 87109-2023

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☐ Return Receipt (hardcopy)	$3.35
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

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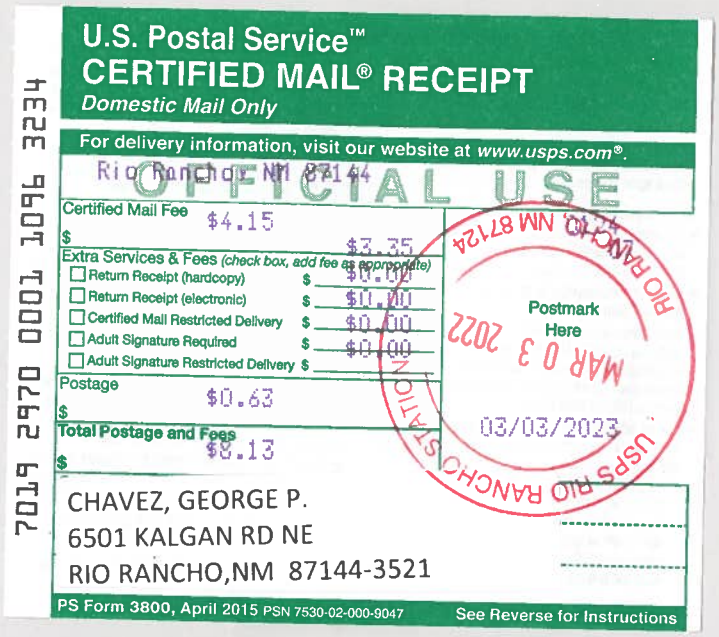
RIO RANCHO, NM 87124

CARMEN SCHELL CONST CO INC AND
KLINGLER, JENNY
204 WINGED FOOT CT SE
RIO RANCHO, NM 87124-8252

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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CHAVEZ, GEORGE P.
6501 KALGAN RD NE
RIO RANCHO,NM 87144-3521

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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RIO RANCHO, NM 87124

CITY OF RIO RANCHO
3200 CIVIC CENTER CIRCLE NE
RIO RANCHO, NM 87144-4503

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Extra Services & Fees (check box, add fee as appropriate)
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- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

COLLINS, LON E & JEANNETTE R.
216 VILLA VERDE SE
RIO RANCHO, NM 87124

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- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

GARCIA, VANESSA & HOFHEINS, MARK
5808 RIO LAMA RD NE
RIO RANCHO, NM 87144

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New York, NY 10030

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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USPS RIO RANCHO STATION
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GOODE, MATTIE L
220 WEST 133RD STREET APT-9J
NEW YORK, NY 10030

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Englishtown, NJ 07726

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63

Total Postage and Fees $8.13

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03/03/2023
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

GRANT, STEVEN
45 LAFAYETTE MILLS RD
MANALAPAN, NJ 07726

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Barnalillo, NM 87004

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

RIO RANCHO, NM 87124 0124 07
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HAROLD'S GRADING & TRUCKING,INC
PO BOX 54
BARNALILLO, NM 87004

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Albuquerque, NM 87106

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

RIO RANCHO, NM 87124 0124 07
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HARSH HOLDINGS, LLC
2525 VISTA LARGA AVE NE
ALBUQUERQUE, NM 87106-2647

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Staten Island, NY 10310

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

RIO RANCHO, NM 87124 0124 07
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MC DONALD, DONALD P & ADELE
26 HARTFORD AVE
STATEN ISLAND, NY 10310

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Santa Fe, NM 87504

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

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NEW MEXICO DOT
PO BOX 1149
SANTA FE, NM 87504-1149

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Albuquerque, NM 87158

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

RIO RANCHO, NM 87124 0124 07
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PUBLIC SERVICE CO. OF NEW MEXICO
CORPORATE HEADQUARTERS MS 1025
ALBUQUERQUE, NM 87158-0001

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Albuquerque, NM 87193

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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.63
Total Postage and Fees	$8.13

RIO RANCHO, NM 87124 0124 07
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RUIZ DEVELOPMENT LC
PO BOX 66960
ALBUQUERQUE, NM 87193-6960

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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $0.63
Total Postage and Fees $8.13

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RIO RANCHO, NM 87124

SALAIS, RIGBERTO & ROSA MARIE
5195 27TH AVE
RIO RANCHO, NM 87124

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Bernalillo, NM 87004

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $0.63
Total Postage and Fees $8.13

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RIO RANCHO, NM 87124

SANDOVAL COUNTY
PO BOX 40
BERNALILLO, NM 87004-0040

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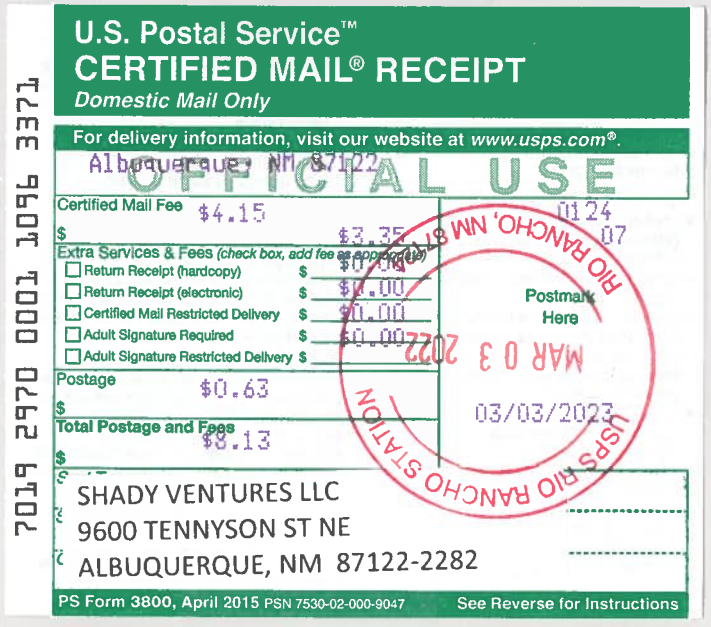

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Albuquerque, NM 87122

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- Adult Signature Required $0.00
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SHADY VENTURES LLC
9600 TENNYSON ST NE
ALBUQUERQUE, NM 87122-2282

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Sarver, PA 16055

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $0.63
Total Postage and Fees $8.13

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RIO RANCHO, NM 87124

STEPHENS PROPERTIES LP
171 BEAR CREEK RD
SARVER, PA 16055-9227

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Albuquerque, NM 87113

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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $0.63
Total Postage and Fees $8.13

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USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

VANDERGEEST, JOHN W
8521 MOUNTAIN RD NE
ALBUQUERQUE, NM 87112

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Los Angeles, CA 90033

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- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $0.63
Total Postage and Fees $8.13

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MAR 03 2022
03/03/2023
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124

YI, EUNHEE NICOLE
1528 N EVERGREEN AVE UNIT 481
LOS ANGELES, CA 90033-1517

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Albuquerque, NM 87109

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

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RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: YOUNGBERG LLLP
Street and Apt.: 6729 ACADEMY RD NE
City, State, ZIP: ALBUQUERQUE, NM 87109-3390

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Rio Rancho, NM 87144

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Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

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RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: City of Rio Rancho
Street and Apt.: Attn: Greggory D. Hall, Mayor, 3200 Civic Center NE
City, State, ZIP: Rio Rancho, NM 87144

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Bernalillo, NM 87004

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Certified Mail Fee $4.15
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- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

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MAR 03 2022
RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: Sandoval County
Street and Apt.: Attn: Wayne Johnson, County Manager, PO Box 40
City, State, ZIP: Bernalillo, NM 87004

PS Form 3800

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Albuquerque, NM 87103

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: City of Albuquerque
Street and Apt.: Attn: Tim Keller, Mayor, PO Box 1293
City, State, ZIP: Albuquerque, NM 87103

PS Form 3800

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For delivery information, visit our website at www.usps.com®.

Corrales, NM 87048

OFFICIAL USE

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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: Village of Corrales
Street and Apt.: Attn: James F. Fahey, Jr MD, Mayor, 4324 Corrales Rd.
City, State, ZIP: Corrales, NM 87048

PS Form 3800

7019 2970 0001 1096 4231

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Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Bernalillo, NM 87004

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
RIO RANCHO, NM 87124
USPS RIO RANCHO STATION
03/03/2023

Sent To: Town of Bernalillo
Street and Apt.: Attn: Jack Torres, Mayor, PO Box 638
City, State, ZIP: Bernalillo, NM 87004

PS Form 3800

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Albuquerque, NM 87107

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

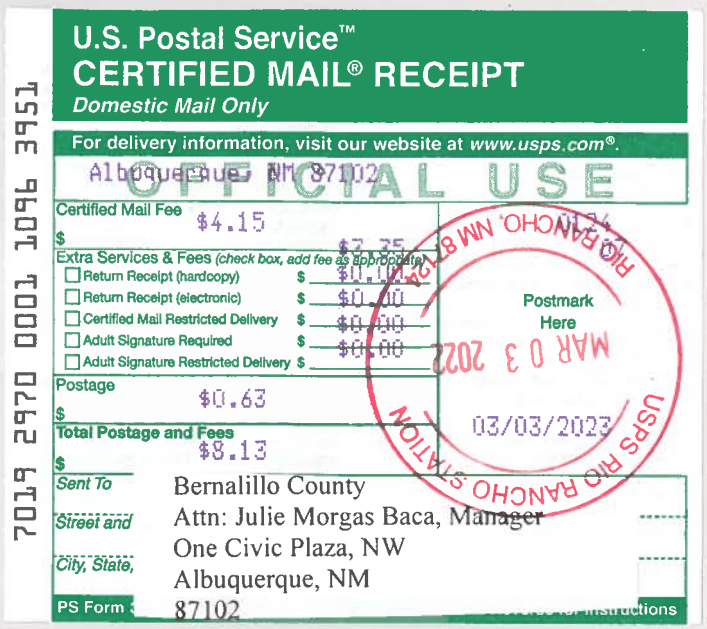
Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Village of Los Ranchos de Albuquerque
Street and: Attn: Donald T. Lopez, Mayor
City, State: 6718 Rio Grande Blvd NW
Los Ranchos, NM 87107

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 2970 0001 1096 3944



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For delivery information, visit our website at www.usps.com®.

Albuquerque, NM 87102

OFFICIAL USE

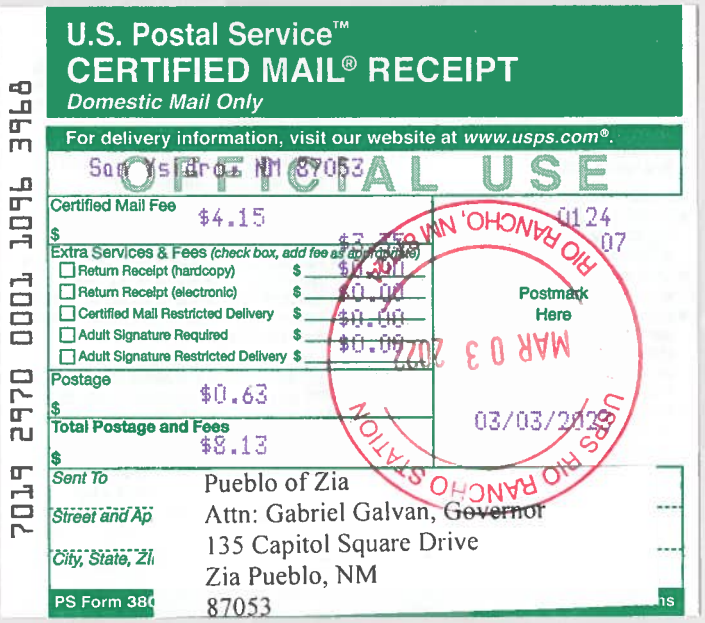
Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Bernalillo County
Street and: Attn: Julie Morgas Baca, Manager
City, State: One Civic Plaza, NW
Albuquerque, NM
PS Form: 87102

7019 2970 0001 1096 3951



U.S. Postal Service™
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Santa Ysidro, NM 87053

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Pueblo of Zia
Street and Ap: Attn: Gabriel Galvan, Governor
City, State, Zi: 135 Capitol Square Drive
Zia Pueblo, NM
PS Form 380: 87053

7019 2970 0001 1096 3968

U.S. Postal Service™
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For delivery information, visit our website at www.usps.com®.

Algodones, NM 87001

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Pueblo of San Felipe
Street and: Attn: Carl Valencia, Governor
City, State: P.O. Box 4339
San Felipe Pueblo, NM
PS Form: 87001

7019 2970 0001 1096 3975

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Bernalillo, NM 87004

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Pueblo of Santa Ana
Street and Ap: Attn: Joseph Sanchez, Governor
City, State, Z: 2 Dove Road
Santa Ana Pueblo, NM
PS Form 38: 87004

7019 2970 0001 1096 3982

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Bernalillo, NM 87004

OFFICIAL USE

Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.63
Total Postage and Fees $8.13

Postmark Here
MAR 03 2022
03/03/2023

Sent To: Pueblo of Sandia
Street and: Attn: Stuart Paisano, Governor
City, State: 481 Sandia Loop
Bernalillo, NM
PS Form: 87004

7019 2970 0001 1096 3999

7019 2970 0001 1096 4002

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For delivery information, visit our website at *www.usps.com®*.

Albuquerque, NM 87113

OFFICIAL USE

Certified Mail Fee	$4.15
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$0.63
Total Postage and Fees	$8.13

Postmark Here
MAR 03 2022
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124
03/03/2022

Sent To: Cibola National Forest
Street and Apt.: 2113 Osuna Road
City, State, Z: Albuquerque, NM 87113-1001

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 2970 0001 1096 4019

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For delivery information, visit our website at *www.usps.com®*.

Santa Fe, NM 87502

OFFICIAL USE

Certified Mail Fee	$4.15
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$0.63
Total Postage and Fees	$8.13

Postmark Here
MAR 03 2022
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124
03/03/2022

Sent To: Bureau of Land Management
Street and Apt.: New Mexico State Office
City, State, ZIP: P.O. Box 27115
Santa Fe, NM 87502-0115

PS Form 380

7019 2970 0001 1096 4026

U.S. Postal Service™
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For delivery information, visit our website at *www.usps.com®*.

Pena Blanca, NM 87041

OFFICIAL USE

Certified Mail Fee	$4.15
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$0.63
Total Postage and Fees	$8.13

Postmark Here
MAR 03 2022
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124
03/03/2022

Sent To: U.S. Army Corps of Engineers
Street and Apt: 82 Dam Crest Road
City, State, ZIP: Pena Blanca, NM 87041-5015

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 2970 0001 1096 4033

U.S. Postal Service™
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For delivery information, visit our website at *www.usps.com®*.

Albuquerque, NM 87120

OFFICIAL USE

Certified Mail Fee	$4.15
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$0.63
Total Postage and Fees	$8.13

Postmark Here
MAR 03 2022
USPS RIO RANCHO STATION
RIO RANCHO, NM 87124
03/03/2022

Sent To: Petroglyph National Monument
Street and Apt.: Attn: Visitor Services
City, State, ZIP: 6001 Unser Blvd. NW
Albuquerque, NM 87120

PS Form 3800

ATTACHMENT 9.2

Sample of Letter Sent to Counties, Municipalities, and Indian Tribes

Parkhill

March 3, 2023

To whom it may concern;

Sandoval County Landfill announces its application submittal to the New Mexico Environment Department for a significant revision of the Sandoval County Landfill Air Quality Permit. Expected date of application submittal to the Air Quality Bureau is March 7, 2023.

The exact location for the Sandoval County Landfill is 2708 Iris Road, NE, Rio Rancho, NM 87124. The facility is located immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of intersection of NM 528 and Iris Road in Sandoval County NM.

The proposed revision consists of the following

> The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes.

The estimated maximum site-wide quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	31.4 pph	25.6 tpy
$PM_{2.5}$	4.5 pph	3.5 tpy
Sulfur Dioxide (SO_2)	0.83 pph	0.58 tpy
Nitrogen Oxides (NO_x)	12.84 pph	8.94 tpy
Carbon Monoxide (CO)	5.1 pph	2.4 tpy
Volatile Organic Compounds (VOC)	5.8 pph	24.98 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	5.6 pph	24.5 tpy
Green House Gas Emissions as Total CO_2e	n/a	83,209 tpy

The standard and maximum operating schedule of the facility will be from 7:00 a.m. to 4:00 p.m. 6 days a week and a maximum of 52 weeks per year.

The owner and operator of the facility are:

Sandoval County Department of Public Works (Owner)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operator)
2708 Iris Road NE
Rio Rancho, NM 87124

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Other comments and questions may be submitted verbally 505.476.4300; 1.800.224.7009.

\\Data1\Projects3\2022\40111.22\04_PRCMNT\00_PASS\NSR_Mailing_Ltr_EN.docx

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505.629.3395.

Sincerely,

Sandoval County Landfill
2708 Iris Rd. NE
Rio Rancho, NM 87124

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ to learn how and where to file a complaint of discrimination.

Parkhill

3 de Marzo de 2023

A quien le interese;

El Relleno Sanitario del Condado de Sandoval (Sandoval County Landfill) anuncia la presentación de su solicitud ante el Departamento del Medio Ambiente de Nuevo México para una revisión significativa del Permiso relativo a la calidad del aire del Relleno Sanitario del Condado de Sandoval. La fecha prevista para la presentación de la solicitud ante la Oficina para la Calidad del Aire (Air Quality Bureau) es el 7 de marzo de 2023.

La ubicación exacta del Relleno Sanitario del Condado de Sandoval es 2708 Iris Road, NE, Rio Rancho, NM 87124. Las instalaciones se encuentran inmediatamente al norte de la intersección de Iris Road e Idalia Road, aproximadamente 1.5 millas al noroeste de la intersección de la carretera NM 528 e Iris Road en el Condado de Sandoval, NM.

Revisión propuesta:

> El Relleno Sanitario del Condado de Sandoval solicita una Modificación significativa del Permiso con una Revisión de Fuente Nueva (NSR por sus siglas en inglés) para incorporar las modificaciones planeadas para la ruta de depósito de las instalaciones y otras modificaciones en la orientación de la carretera de las instalaciones, además de cambios en el volumen del tráfico.

A continuación se detallan las cantidades máximas estimadas en todo el sitio para los contaminantes regulados del aire en libras por hora (lph) y en toneladas por año (tpa), que podrán cambiar levemente durante el transcurso de la revisión del Departamento.

Contaminante:	Libras por hora	Toneladas por año
Material particulado PM_{10}	31.4 lph	25.6 tpa
Material particulado $PM_{2.5}$	4.5 lph	3.5 tpa
Dióxido de azufre (SO_2)	0.83 lph	0.58 tpa
Óxidos de nitrógeno (NO_x)	12.84 lph	8.94 tpa
Monóxido de carbono (CO)	5.1 lph	2.4 tpa
Compuestos Volátiles Orgánicos	5.8 lph	24.98 tpa
Suma total de todos los contaminantes peligrosos en el aire	5.6 lph	24.5 tpa
Emisiones de gases de efecto invernadero (CO_2 equivalente total)	n/a	83,209 tpa

El horario de funcionamiento estándar y máximo de las instalaciones será de 7:00 a.m. a 4:00 p.m. 6 días por semana y un máximo de 52 semanas por año.

El propietario y el operador de las instalaciones son:

Sandoval County Department of Public Works (Propietario)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operador)
2708 Iris Road NE
Rio Rancho, NM 87124

333 Rio Rancho Boulevard NE | Suite 400 | Rio Rancho, New Mexico 87124 | 505.867.6990 Parkhill.com

Si tiene comentarios acerca de la construcción o del funcionamiento de estas instalaciones y desea que sus comentarios formen parte del proceso de revisión del permiso, deberá presentar sus comentarios por escrito al Administrador de Programas de Permisos de la Oficina para la Calidad del Aire del Departamento del Medio Ambiente de Nuevo México: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Otros comentarios y preguntas podrán presentarse verbalmente 505.476.4300; 1.800.224.7009;.

Sírvase hacer referencia al nombre de la empresa y al nombre de las instalaciones, o envíe una copia de este aviso junto con sus comentarios ya que el Departamento podría no haber recibido aún la solicitud del permiso. Por favor, incluya con sus comentarios una dirección de retorno legible. Una vez que el Departamento haya hecho una revisión preliminar de la solicitud y de su impacto en la calidad del aire, se publicará el aviso del Departamento en la sección legal de un periódico de circulación en la zona cercana a las instalaciones.

Atención
Este es un aviso de la Oficina para la Calidad de Aire del Departamento del Medio Ambiente de Nuevo México, relativo a las emisiones producidas por instalaciones ubicadas en esa zona. Si desea recibir información en español, sírvase comunicarse con esa oficina llamando al 505.629.3395.

Sinceramente,

Sandoval County Landfill
2708 Iris Rd. NE
Rio Rancho, NM 87124

Aviso de no discriminación
El Departamento del Medio Ambiente de Nuevo México (NMED por sus siglas en inglés) no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo exigido por las leyes y los reglamentos correspondientes. El NMED es responsable de la coordinación de esfuerzos para el cumplimiento de las reglas y la recepción de indagaciones relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, que incluye el Título VI de la Ley de Derechos Civiles de 1964, como fuera enmendado; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975; el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas a la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene preguntas sobre este aviso o sobre los programas, las normas o los procedimientos de no discriminación del NMED, o si cree que ha sido discriminado con respecto a un programa o actividad del NMED, puede comunicarse con la Coordinadora de No Discriminación: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. También puede visitar nuestro sitio web en https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ para saber cómo y dónde presentar una queja por discriminación.

ATTACHMENT 9.3

Counties, Municipalities, Tribes, and Owners of Record to Whom Notices Were Sent

ATTACHMENT 9.3
OWNERS OF RECORD, COUNTIES, MUNICIPALITIES AND INDIAN TRIBES TO WHOM NOTICE WAS MAILED
SANDOVAL COUNTY LANDFILL

Counties, Municipalities and Tribes						
Entity	**Contact Name**	**Title**	**Address**	**City**	**State**	**Zip**
City of Rio Rancho	Greggory D. Hall	Mayor	3200 Civic Center NE	Rio Rancho	NM	87144
Sandoval County	Wayne Johnson	County Manager	PO Box 40	Bernalillo	NM	87004
City of Albuquerque	Tim Keller	Mayor	PO Box 1293	Albuquerque	NM	87103
Village of Corrales	James F. Fahey, Jr MD	Mayor	4324 Corrales Rd.	Corrales	NM	87048
Town of Bernalillo	Jack Torres	Mayor	PO Box 638	Bernalillo	NM	87004
Village of Los Ranchos de Albuquerque	Donald T. Lopez	Mayor	6718 Rio Grande Blvd NW	Los Ranchos	NM	87107
Bernalillo County	Julie Morgas Baca	County Manager	One Civic Plaza, NW	Albuquerque	NM	87102
Pueblo of Zia	Gabriel Galvan	Govenor	135 Capitol Square Drive	Zia Pueblo	NM	87053-6013
Pueblo of San Felipe	Carl Valencia	Govenor	P.O. Box 4339	San Felipe Pueblo	NM	87001
Pueblo of Santa Ana	Joseph Sanchez	Govenor	2 Dove Road	Santa Ana Pueblo	NM	87004
Pueblo of Sandia	Stuart Paisano	Govenor	481 Sandia Loop	Bernalillo	NM	87004
Cibola National Forest			2113 Osuna Road	Albuquerque	NM	87113-1001
Bureau of Land Management	New Mexico State Office		P.O. Box 27115	Santa Fe	NM	87502-0115
U.S. Army Corps of Engineers			82 Dam Crest Road	Pena Blanca	NM	87041-5015
Petroglyph National Monument	Attn: Visitor Services		6001 Unser Blvd. NW	Albuquerque	NM	87120

ATTACHMENT 9.3
OWNERS OF RECORD WITHIN 100 FEET TO WHOM NOTICE WAS MAILED
SANDOVAL COUNTY LANDFILL

OWNER	UPC	ADDRESS	CITY	STATE	ZIP
AMREP SOUTHWEST INC	1016073076217*	409 NM HWY 528 NE	RIO RANCHO	NM	87124
	1016073098298				
	1016073104292				
	1016073110288				
	1015073058194				
	1015073063101				
	1016073165106*				
	1014071022462				
	1015072262362				
BACA, DEBRA	1015072279499	5194 27TH AVE NE	RIO RANCHO	NM	87144-4702
BARCENA, NORBERT	1015072510476	PO BOX 892	PLACITAS	NM	87043
BEDFORD, ALFRED J AND RECIO, ZENAIDA M	1016073141081	39 CAVEN RD	LIGONIER	PA	15658-2010
	1016073153085				
BOWLES, ROBERT J AND NANCY MURPHY	1015072441452	4811 HARDWARE DR NE STE D-5	ALBUQUERQUE	NM	87109-2023
	1015072421441				
CARMEN SCHELL CONST CO INC AND KLINGLER, JENNY	1015073071135	204 WINGED FOOT CT SE	RIO RANCHO	NM	87124-8252
CHAVEZ, GEORGE P.	1015073051143	6501 KALGAN RD NE	RIO RANCHO	NM	87144-3521
	1015073079100				
CITY OF RIO RANCHO	1016073186108	3200 CIVIC CENTER CIRCLE NE	RIO RANCHO	NM	87144-4503
	1015072365415				
	1015072352409				
	1015072357395				
	1015073326010*				
COLLINS, LON E & JEANNETTE R.	1015072396409	216 VILLA VERDE SE	RIO RANCHO	NM	87124
GARCIA, VANESSA & HOFHEINS, MARK	1015073030167	5808 RIO LAMA RD NE	RIO RANCHO	NM	87144
GOODE, MATTIE L	1015073103109	220 WEST 133RD STREET APT-9J	NEW YORK	NY	10030
GRANT, STEVEN	1015073053189	45 LAFAYETTE MILLS RD	MANALAPAN	NJ	07726
	1015073047183				
HAROLD'S GRADING & TRUCKING,INC	1016072025501	PO BOX 54	BARNALILLO	NM	87004
HARSH HOLDINGS, LLC	1016073144057	2525 VISTA LARGA AVE NE	ALBUQUERQUE	NM	87106-2647
	1016073102029				
MC DONALD, DONALD P & ADELE	1015073264035	26 HARTFORD AVE	STATEN ISLAND	NY	10310
NEW MEXICO DOT	1015073257083	PO BOX 1149	SANTA FE	NM	87504-1149
PUBLIC SERVICE CO. OF NEW MEXICO	1016073115280	CORPORATE HEADQUARTERS MS 1025	ALBUQUERQUE	NM	87158-0001
	1016073120275				
	1016073114225				
	1015072296483				
RUIZ DEVELOPMENT LC	1015073091104	PO BOX 66960	ALBUQUERQUE	NM	87193-6960
SALAIS, RIGBERTO & ROSA MARIE	1015073276008	5195 27TH AVE	RIO RANCHO	NM	87124
SANDOVAL COUNTY	1015073472105	PO BOX 40	BERNALILLO	NM	87004-0040
SHADY VENTURES LLC	1015072333440	9600 TENNYSON ST NE	ALBUQUERQUE	NM	87122-2282
STEPHENS PROPERTIES LP	1015073041178	171 BEAR CREEK RD	SARVER	PA	16055-9227
	1015073035172				
VANDERGEEST, JOHN W	1015073057148	8521 MOUNTAIN RD NE	ALBUQUERQUE	NM	87112
YI, EUNHEE NICOLE	1015072473470	1528 N EVERGREEN AVE UNIT 481	LOS ANGELES	CA	90033-1517
YOUNGBERG LLLP	1016073066001	6729 ACADEMY RD NE	ALBUQUERQUE	NM	87109-3390

[1.] *Data obtained from the Sandoval County Tax Parcel Viewer (https://sc-assessor.maps.arcgis.com/apps/Solutions/s2.html?appid= d13de383a130459ab4b0c33a8c19ba2d); and subsequent follow-up communications with the Sandoval County Assessor's Office to confirm addresses for UPC's associated with "null" data.*

[2.] *UPC's returning "null" data from the online database are indicated with a "*". Contact information was provided via email by the Sandoval County Assessor's Office and/or NM DOT.*

ATTACHMENT 9.4

Proof of Publication

Legal and Display Advertisements

Providers. The plan will be discussed which will include expected funding, total number of homes expected to be

light Time on Thursday, March 30, 2023.

Public documents can be pro-

equipment will continually be

NOTICE IS HEREBY GIVEN of the title and of a general summary of the subject matter

AVISO DE SOLICITUD DE PERMISO RELATIVO A LA CALIDAD DEL AIRE

El Relleno Sanitario del Condado de Sandoval (Sandoval County Landfill) anuncia la presentación de su solicitud ante el Departamento del Medio Ambiente de Nuevo México para una revisión significativa del Permiso relativo a la calidad del aire del Relleno Sanitario del Condado de Sandoval. La fecha prevista para la presentación de la solicitud ante la Oficina para la Calidad del Aire (Air Quality Bureau) es el 7 de marzo de 2023.

La ubicación exacta del Relleno Sanitario del Condado de Sandoval es 2708 Iris Road, NE, Rio Rancho, NM 87124. Las instalaciones se encuentran inmediatamente al norte de la intersección de Iris Road e Idalia Road, aproximadamente 1.5 millas al noroeste de la intersección de la carretera NM 528 e Iris Road en el Condado de Sandoval, NM.

Revisión propuesta:

El Relleno Sanitario del Condado de Sandoval solicita una Modificación significativa del Permiso con una Revisión de Fuente Nueva (NSR por sus siglas en inglés) para incorporar las modificaciones planeadas para la ruta de depósito de las instalaciones y otras modificaciones en la orientación de la carretera de las instalaciones, además de cambios en el volumen del tráfico.

A continuación se detallan las cantidades máximas estimadas en todo el sitio para los contaminantes regulados del aire en libras por hora (lph) y en toneladas por año (tpa), que podrán cambiar levemente durante el transcurso de la revisión del Departamento.

Contaminante:	Libras por hora	Toneladas por año
Material particulado PM 10	31.4 lph	25.6 tpa
Material particulado PM 2.5	4.5 lph	3.5 tpa
Dióxido de azufre (SO2)	0.83 lph	0.58 tpa
Óxidos de nitrógeno (NOx)	12.84 lph	8.94 tpa
Monóxido de carbono (CO)	5.1 lph	2.4 tpa
Compuestos Volátiles Orgánicos	5.8 lph	24.98 tpa
Suma total de todos los contaminantes peligrosos en el aire	5.6 lph	24.5 tpa
Emisiones de gases de efecto invernadero (CO2 equivalente total)	n/a	83,209 tpa

El horario de funcionamiento estándar y máximo de las instalaciones será de 7:00 a.m. a 4:00 p.m. 6 días por semana y un máximo de 52 semanas por año.

El propietario y el operador de las instalaciones son:

Sandoval County Department of Public Works (Propietario)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operador)
2708 Iris Road NE
Rio Rancho, NM 87124

Si tiene comentarios acerca de la construcción o del funcionamiento de estas instalaciones y desea que sus comentarios formen parte del proceso de revisión del permiso, deberá presentar sus comentarios por escrito al Administrador de Programas de Permisos de la Oficina para la Calidad del Aire del Departamento del Medio Ambiente de Nuevo México: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Otros comentarios y preguntas podrán presentarse verbalmente 505.476.4300; 1.800.224.7009;.

Sírvase hacer referencia al nombre de la empresa y al nombre de las instalaciones, o envíe una copia de este aviso junto con sus comentarios ya que el Departamento podría no haber recibido aún la solicitud del permiso. Por favor, incluya con sus comentarios una dirección de retorno legible. Una vez que el Departamento haya hecho una revisión preliminar de la solicitud y de su impacto en la calidad del aire, se publicará el aviso del Departamento en la sección legal de un periódico de circulación en la zona cercana a las instalaciones.

Atención
Este es un aviso de la Oficina para la Calidad de Aire del Departamento del Medio Ambiente de Nuevo México, relativo a las emisiones producidas por instalaciones ubicadas en esa zona. Si desea recibir información en español, sírvase comunicarse con esa oficina llamando al 505.629.3395.

Aviso de no discriminación
El Departamento del Medio Ambiente de Nuevo México (NMED por sus siglas en inglés) no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo exigido por las leyes y los reglamentos correspondientes. El NMED es responsable de la coordinación de esfuerzos para el cumplimiento de las reglas y la recepción de indagaciones relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, que incluye el Título VI de la Ley de Derechos Civiles de 1964, como fuera enmendado; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975; el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas a la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene preguntas sobre este aviso o sobre los programas, las normas o los procedimientos de no discriminación del NMED, o si cree que ha sido discriminado con respecto a un programa o actividad del NMED, puede comunicarse con la Coordinadora de No Discriminación: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. También puede visitar nuestro sitio web en https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ para saber cómo y dónde presentar una queja por discriminación.

Observer: March 2, 2023

AND PURCHASING BOOKS | ACTIONS HERETOFORE | OFFICE HOURS. THIS NO-

NOTICE OF AIR QUALITY PERMIT APPLICATION

Sandoval County Landfill announces its application submittal to the New Mexico Environment Department for a significant revision of the Sandoval County Landfill Air Quality Permit. Expected date of application submittal to the Air Quality Bureau is March 7, 2023.

The exact location for the Sandoval County Landfill is 2708 Iris Road, NE, Rio Rancho, NM 87124. The facility is located immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of intersection of NM 528 and Iris Road in Sandoval County NM.

The proposed revision consists of the following

The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes.

The estimated maximum site-wide quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM 10	31.4 pph	25.6 tpy
PM 2.5	4.5 pph	3.5 tpy
Sulfur Dioxide (SO2)	0.83 pph	0.58 tpy
Nitrogen Oxides (NOx)	12.84 pph	8.94 tpy
Carbon Monoxide (CO)	5.1 pph	2.4 tpy
Volatile Organic Compounds (VOC)	5.8 pph	24.98 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	5.6 pph	24.5 tpy
Green House Gas Emissions as Total CO2e	n/a	83,209 tpy

The standard and maximum operating schedule of the facility will be from 7:00 a.m. to 4:00 p.m. 6 days a week and a maximum of 52 weeks per year.

The owner and operator of the facility are:

Sandoval County Department of Public Works (Owner)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operator)
2708 Iris Road NE
Rio Rancho, NM 87124

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Other comments and questions may be submitted verbally 505.476.4300; 1.800.224.7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505.629.3395.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ to learn how and where to file a complaint of discrimination.

Observer: March 2, 2023

IN THE MATTER OF THE ESTATE OF
LOIS LILA BRISTER, Deceased.

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of the Estate of Lois Lila Brister (the "Decedent"). All persons having claims against the Estate of the Decedent are required to present their claims within four (4) months after the date of the first publication of this notice, or sixty (60) days after the date of mailing or other delivery of this notice, whichever is later, or the claims will be forever barred. Claims must be presented to the Personal Representative's attorneys, Spangler Pacheco & Werbelow PA, P. O. Box 15698, Rio Rancho, New Mexico 87174, or filed with the Probate Court of Sandoval County, New Mexico, located at the following address: 1500 Idalia Road, Building D, Bernalillo, NM 87004 and P.O. Box 40 Bernalillo, NM 87004.

Dated: 2/10/2023

/s/Gary Lynn Brister, Personal Representative
of the Estate of Lois Lila Brister

Submitted by:

SPANGLER PACHECO & WERBELOW PA
/s/LeeAnn Werbelow
Attorneys for Gary Lynn Brister, as Personal Representative
for the Estate of Lois Lila Brister
P. O. Box 15698
Rio Rancho, New Mexico 87174
Telephone: (505) 892-3607
Email: lw@lsplegal.com

Observer: March 2, 9, 16, 2023

MICHAEL ENCINIAS

DAWN SANDOVAL

RR slaying to appear on true crime show

By Michaela Helean
Observer staff writer
mhelean@rrobserver.com

RIO RANCHO — The 2018 murder of Dawn Sandoval, from Rio Rancho, will be included in the Oxygen True Crime show "Killer Relationship with Faith Jenkins" in season two.

"Hosted by Divorce Court's presiding judge, Faith Jenkins, this true crime series delves into jaw-droppingly evil stories of love that sours and breakups that turn downright murderous," it says in the show description.

According to IMDB, Killer Relationship investigates burgeoning romances from their beginnings and follows what happened all the way through to their bitter ends.

In 2018, Sandoval County police investigated a missing person case that involved Sandoval and her ex-husband Michael Encinias. The 46-year-old woman was reported missing by family on April 16 and found burned in a remote area of Sandoval County on May 6.

Due to decomposition, the Office of the Medical Investigator could not determine how Dawn Sandoval died but ruled her death a homicide.

Her family waited for months after reporting her missing, and after a long investigation police arrested Encinias in November that same year.

According to the report, Sandoval and Encinias were married for 19 years. They got a divorce shortly before Sandoval went missing.

He was found guilty of second-degree murder and tampering with evidence. Encinias' sentence amounted to a total of 18 years in jail and two years of probation after that.

There is no release date for season two yet.

For more information on the show, visit oxygen.com/killer-relationship-with-faith-jenkins.

RRPD: Woman tried to ram police vehicle

By Michaela Helean
Observer staff writer
mhelean@rrobserver.com

RIO RANCHO — An Albuquerque woman is facing several charges in Rio Rancho after attempting to ram a police car and a following pursuit.

According to a criminal complaint filed with Rio Rancho Police Department, an officer was out on duty Jan. 5 looking at a suspicious vehicle when another vehicle passed them at a high rate of speed. The officer got into their vehicle and followed the car, which pulled into the parking lot of Good 2 Go on Unser Blvd.

The driver, Erika Mendez, 33, of Albuquerque, then allegedly drove toward the officer, according to the report. "The vehicle proceeded to head my way and pulled next to the passenger side of my marked police unit. I was able to get a good look at the driver as she stared at me, then smirked briefly before she revved the engine and accelerated her vehicle towards mine," the complaint states.

The officer then says that because they feared she would strike them, maneuvered the vehicle out of the way, and pulled around to try to get her license plate down. The two vehicles circled each other until the officer pulled away on Unser Blvd. The woman caught up at a high rate of speed.

As the officer was calling out the information, she got close enough to hit the police unit again, forcing the officer to swerve the police unit so it wouldn't get hit.

The officer was able to get behind the vehicle once more and saw Mendez almost hit another vehicle which "just so happened to be an Albuquerque Police Unit" stopped at the red light at Unser and Southern blvds.

The woman ran through the red light and almost hit right-of-way vehicles.

The officer was able to get the license plate number at that point and attempted to perform a traffic stop after Cabezon Blvd. on Unser Blvd.

Mendez stopped briefly but continued to travel southbound on Unser. She then threw a glass bottle out the window toward the police unit, causing them swerve out of the way and disengage from the chase.

The Albuquerque Police unit continued to chase the woman. She traveled into Albuquerque, where she was finally detained on Jan. 6.

Rio Rancho charged Mendez with aggravated assault with a deadly weapon and resisting, evading or obstructing an officer. She was also charged with littering due to the glass bottle being thrown.

Shamrock Shuffle: A fun run for luck, health

RIO RANCHO — Run Fit will host its annual Shamrock Shuffle for St. Patrick's Day on March 12.

The run location is the Loma Colorado Park near the Aquatic Center.

Participants have dressed up in the past with shamrocks, headbands and a lot of green.

The run offers several distances including the 10-Miler, 10K, 4 Mile Run, 4 Mile Walk, and Kids K.

Run Fit puts on several fun runs every year, but the Shamrock Shuffle and Hobbler Gobbler always happen in Rio Rancho.

People wishing to register for the fun run can go to irunfit.org/run-fit-events/shamrock-shuffle.

Correction

In the Feb. 23 *Observer* story "Brandt targets shooting threats," state Sen. Craig Brandt was incorrectly identified as the Senate majority whip. He is the Senate minority whip.

NOTICE OF AIR QUALITY PERMIT APPLICATION

Sandoval County Landfill announces its application submittal to the New Mexico Environment Department for a significant revision of the Sandoval County Landfill Air Quality Permit. Expected date of application submittal to the Air Quality Bureau is March 7, 2023.

The exact location for the Sandoval County Landfill is 2708 Iris Road, NE, Rio Rancho, NM 87124. The facility is located immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of intersection of NM 528 and Iris Road in Sandoval County NM.

The proposed revision consists of the following

> The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes.

The estimated maximum site-wide quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	31.4 pph	25.6 tpy
$PM_{2.5}$	4.5 pph	3.5 tpy
Sulfur Dioxide (SO_2)	0.83 pph	0.58 tpy
Nitrogen Oxides (NO_x)	12.84 pph	8.94 tpy
Carbon Monoxide (CO)	5.1 pph	2.4 tpy
Volatile Organic Compounds (VOC)	5.8 pph	24.98 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	5.6 pph	24.5 tpy
Green House Gas Emissions as Total CO_2e	n/a	83,209 tpy

The standard and maximum operating schedule of the facility will be from 7:00 a.m. to 4:00 p.m. 6 days a week and a maximum of 52 weeks per year.

The owner and operator of the facility are:

Sandoval County Department of Public Works (Owner)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operator)
2708 Iris Road NE
Rio Rancho, NM 87124

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Other comments and questions may be submitted verbally 505.476.4300; 1.800.224.7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505.629.3395.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ to learn how and where to file a complaint of discrimination.

AVISO DE SOLICITUD DE PERMISO RELATIVO A LA CALIDAD DEL AIRE

El Relleno Sanitario del Condado de Sandoval (Sandoval County Landfill) anuncia la presentación de su solicitud ante el Departamento del Medio Ambiente de Nuevo México para una revisión significativa del Permiso relativo a la calidad del aire del Relleno Sanitario del Condado de Sandoval. La fecha prevista para la presentación de la solicitud ante la Oficina para la Calidad del Aire (Air Quality Bureau) es el 7 de marzo de 2023.

La ubicación exacta del Relleno Sanitario del Condado de Sandoval es 2708 Iris Road, NE, Rio Rancho, NM 87124. Las instalaciones se encuentran inmediatamente al norte de la intersección de Iris Road e Idalia Road, aproximadamente 1.5 millas al noroeste de la intersección de la carretera NM 528 e Iris Road en el Condado de Sandoval, NM.

Revisión propuesta:

El Relleno Sanitario del Condado de Sandoval solicita una Modificación significativa del Permiso con una Revisión de Fuente Nueva (NSR por sus siglas en inglés) para incorporar las modificaciones planeadas para la ruta de depósito de las instalaciones y otras modificaciones en la orientación de la carretera de las instalaciones, además de cambios en el volumen del tráfico.

A continuación se detallan las cantidades máximas estimadas en todo el sitio para los contaminantes regulados del aire en libras por hora (lph) y en toneladas por año (tpa), que podrán cambiar levemente durante el transcurso de la revisión del Departamento.

Contaminante:	Libras por hora	Toneladas por año
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Material particulado PM 2.5	4.5 lph	3.5 tpa
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Óxidos de nitrógeno (NOx)	12.84 lph	8.94 tpa
Monóxido de carbono (CO)	5.1 lph	2.4 tpa
Compuestos Volátiles Orgánicos	5.8 lph	24.98 tpa
Suma total de todos los contaminantes peligrosos en el aire	5.6 lph	24.5 tpa
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El horario de funcionamiento estándar y máximo de las instalaciones será de 7:00 a.m. a 4:00 p.m. 6 días por semana y un máximo de 52 semanas por año.

El propietario y el operador de las instalaciones son:

Sandoval County Department of Public Works (Propietario)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operador)
2708 Iris Road NE
Rio Rancho, NM 87124

Si tiene comentarios acerca de la construcción o del funcionamiento de estas instalaciones y desea que sus comentarios formen parte del proceso de revisión del permiso, deberá presentar sus comentarios por escrito al Administrador de Programas de Permisos de la Oficina para la Calidad del Aire del Departamento del Medio Ambiente de Nuevo México: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Otros comentarios y preguntas podrán presentarse verbalmente 505.476.4300; 1.800.224.7009;.

Sírvase hacer referencia al nombre de la empresa y al nombre de las instalaciones, o envíe una copia de este aviso junto con sus comentarios ya que el Departamento podría no haber recibido aún la solicitud del permiso. Por favor, incluya con sus comentarios una dirección de retorno legible. Una vez que el Departamento haya hecho una revisión preliminar de la solicitud y de su impacto en la calidad del aire, se publicará el aviso del Departamento en la sección legal de un periódico de circulación en la zona cercana a las instalaciones.

Atención
Este es un aviso de la Oficina para la Calidad de Aire del Departamento del Medio Ambiente de Nuevo México, relativo a las emisiones producidas por instalaciones ubicadas en esa zona. Si desea recibir información en español, sírvase comunicarse con esa oficina llamando al 505.629.3395.

Aviso de no discriminación
El Departamento del Medio Ambiente de Nuevo México (NMED por sus siglas en inglés) no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo exigido por las leyes y los reglamentos correspondientes. El NMED es responsable de la coordinación de esfuerzos para el cumplimiento de las reglas y la recepción de indagaciones relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, que incluye el Título VI de la Ley de Derechos Civiles de 1964, como fuera enmendado; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975; el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas a la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene preguntas sobre este aviso o sobre los programas, las normas o los procedimientos de no discriminación del NMED, o si cree que ha sido discriminado con respecto a un programa o actividad del NMED, puede comunicarse con la Coordinadora de No Discriminación: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. También puede visitar nuestro sitio web en https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ para saber cómo y dónde presentar una queja por discriminación.

ATTACHMENT 9.5

Proof and Verification of Public Notice Posting

ATTACHMENT 9.5
Sandoval County Landfill
Public Notice Posting Locations

Notice of this filing has been posted in the following locations:

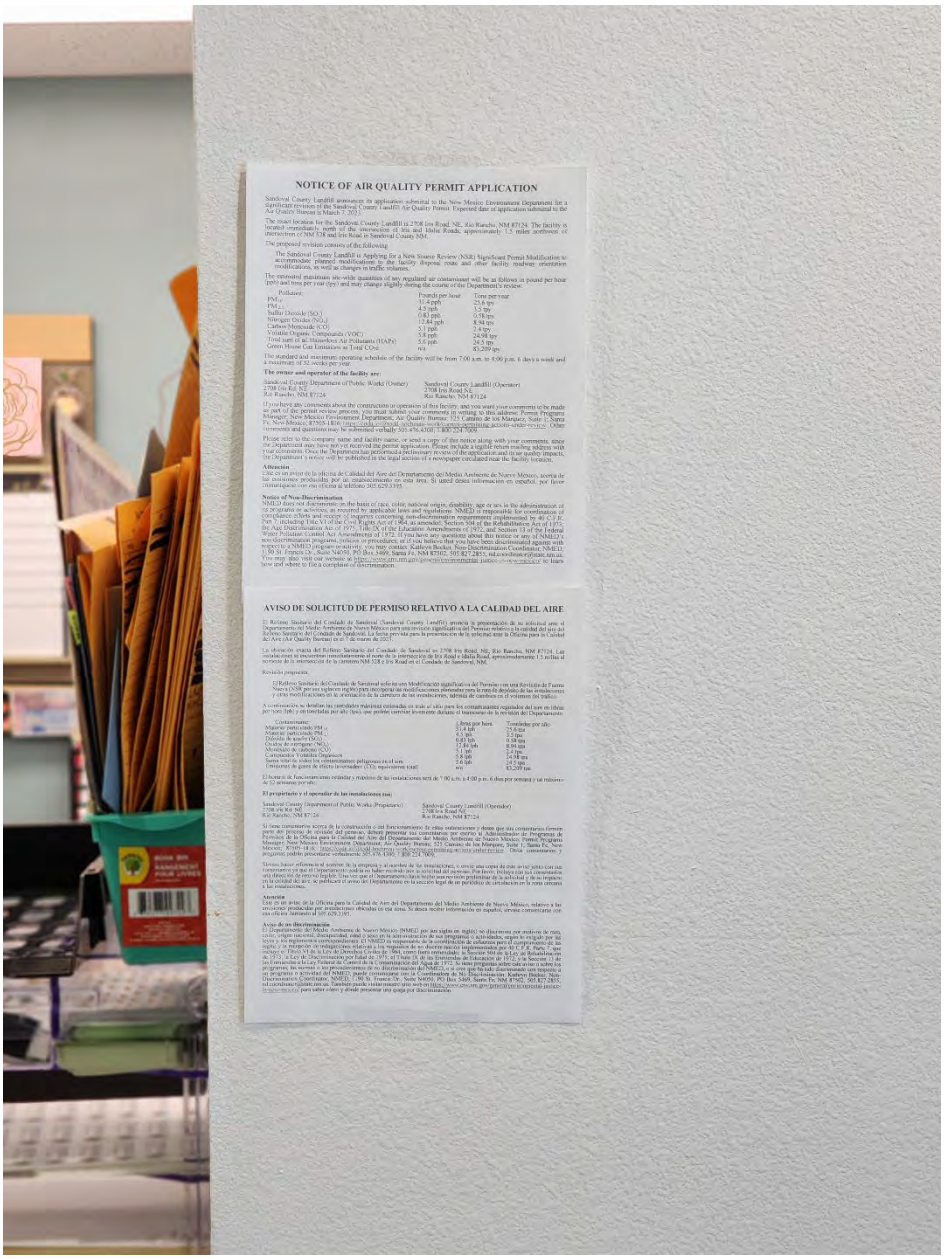
1. Sandoval County Landfill Scale House, 2700 Iris Road NE, Rio Rancho, NM, 87124
2. Sandoval County Department of Public Works Office, 2708 Iris Road Ne, Rio Rancho, NM 87124
3. Rio Rancho City Hall, 3200 Civic Center Circle NE, Rio Rancho, NM 87144
4. Bernalillo Town Hall, 829 Camino del Pueblo, Bernalillo, NM 87004

Verification of local postings and certification of posting is also provided in this Attachment.

ATTACHMENT 9.5
Sandoval County Landfill
Verification of Local Postings

Sandoval County Landfill Scale House – 3/3/2023

ATTACHMENT 9.5
Sandoval County Landfill
Verification of Local Postings



NOTICE OF AIR QUALITY PERMIT APPLICATION

Sandoval County Landfill announces its application submittal to the New Mexico Environment Department for a Significant revision of the Sandoval County Landfill Air Quality Permit. Expected date of application submittal to the Air Quality Bureau is March 7, 2023.

The exact location for the Sandoval County Landfill is 2708 Iris Road, NE, Rio Rancho, NM 87124. The facility is located immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of intersection of NM 528 and Iris Road in Sandoval County NM.

The proposed revision consists of the following:

The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes.

The estimated maximum site-wide quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant	Pounds per hour	Tons per year
PM_{10}	31.4 pph	25.8 tpy
$PM_{2.5}$	4.5 pph	3.5 tpy
Sulfur Dioxide (SO_2)	0.81 pph	0.58 tpy
Nitrogen Oxides (NO_x)	12.44 pph	8.94 tpy
Carbon Monoxide (CO)	5.1 pph	3.4 tpy
Volatile Organic Compounds (VOC)	3.8 pph	24.98 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	5.0 pph	24.5 tpy
Green House Gas Emissions as Total CO_2e	n/a	83,209 tpy

The standard and maximum operating schedule of the facility will be from 7:00 a.m. to 4:00 p.m. 6 days a week and a maximum of 52 weeks per year.

The owner and operator of the facility are:

Sandoval County Department of Public Works (Owner) 2708 Iris Rd. NE Rio Rancho, NM 87124	Sandoval County Landfill (Operator) 2708 Iris Road NE Rio Rancho, NM 87124

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager, New Mexico Environment Department, Air Quality Bureau: 525 Camino de los Marquez, Suite 1, Santa Fe, New Mexico 87505-1816; https://cabinet.env.nm.gov/air-quality/contact-us/public-notice-comment/. Other comments and questions may be submitted verbally 505.476.4300; 1.800.224.7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a technical review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esta oficina al teléfono 505.629.3395.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972; and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Civil Rights Division Compliance Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502; 505.827.2855; nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-discrimination-policy-notice-and-civil-rights/ to learn how and where to file a complaint of discrimination.

AVISO DE SOLICITUD DE PERMISO RELATIVO A LA CALIDAD DEL AIRE

El Relleno Sanitario del Condado de Sandoval (Sandoval County Landfill) anuncia la presentación de su solicitud ante el Departamento del Medio Ambiente de Nuevo México para una revisión significativa del Permiso relativo a la calidad del aire del Relleno Sanitario del Condado de Sandoval. La fecha prevista para la presentación de la solicitud ante la Oficina para la Calidad del Aire (Air Quality Bureau) es el 7 de marzo de 2023.

La ubicación exacta del Relleno Sanitario del Condado de Sandoval es 2708 Iris Road, NE, Rio Rancho, NM 87124. Las instalaciones se encuentran inmediatamente al norte de la intersección de Iris Road e Idalia Road, aproximadamente 1.5 millas al noroeste de la intersección de la carretera NM 528 e Iris Road en el Condado de Sandoval, NM.

Revisión propuesta.

El Relleno Sanitario del Condado de Sandoval solicita una Modificación significativa del Permiso con una Revisión de Fuente Nueva (NSR por sus siglas en inglés) para incorporar las modificaciones planeadas para la ruta de depósito de las instalaciones y otras modificaciones en la orientación de la carretera de las instalaciones, además de cambios en el volumen del tráfico.

A continuación se detallan las cantidades máximas estimadas en todo el sitio para los contaminantes regulados del aire en libras por hora (lph) y en toneladas por año (tpa), que podrán cambiar levemente durante el transcurso de la revisión del Departamento.

Contaminante:	Libras por hora	Toneladas por año
Material particulado PM_{10}	31.4 lph	25.8 tpa
Material particulado $PM_{2.5}$	4.5 lph	3.5 tpa
Dióxido de azufre (SO_2)	0.81 lph	0.58 tpa
Óxidos de nitrógeno (NO_x)	12.44 lph	8.94 tpa
Monóxido de carbono (CO)	5.1 lph	3.4 tpa
Compuestos Volátiles Orgánicos	3.8 lph	24.98 tpa
Suma total de todos los contaminantes peligrosos en el aire	5.0 lph	24.5 tpa
Emisiones de gases de efecto invernadero (GEI) equivalentes total	n/a	83,209 tpa

El horario de funcionamiento estándar y máximo de las instalaciones será de 7:00 a.m. a 4:00 p.m. 6 días por semana y un máximo de 52 semanas por año.

El propietario y el operador de las instalaciones son:

Sandoval County Departmental Public Works (Propietario) 2708 Iris Rd. NE Rio Rancho, NM 87124	Sandoval County Landfill (Operador) 2708 Iris Road NE Rio Rancho, NM 87124

Si tiene comentarios acerca de la construcción o del funcionamiento de estas instalaciones y desea que sus comentarios formen parte del proceso de revisión del permiso, deberá presentar sus comentarios por escrito a: Administrador de Programas de Permisos de la Oficina para la Calidad del Aire del Departamento del Medio Ambiente de Nuevo México; Permit Programs Manager, New Mexico Environment Department, Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico 87505-1816; https://cabinet.env.nm.gov/air-quality/contact-us/public-notice-comment/. Otros comentarios y preguntas podrán presentarse verbalmente 505.476.4300; 1.800.224.7009.

Sírvase hacer referencia al nombre de la empresa y al nombre de las instalaciones, o envíe una copia de este aviso junto con sus comentarios, ya que es posible que el Departamento todavía no haya recibido la solicitud del permiso. Por favor, incluya con sus comentarios una dirección de envío legible. Una vez que el Departamento haya hecho una revisión preliminar de la solicitud y de su impacto en la calidad del aire, se publicará el aviso del Departamento en la sección legal de un periódico de circulación en la zona cercana a las instalaciones.

Atención

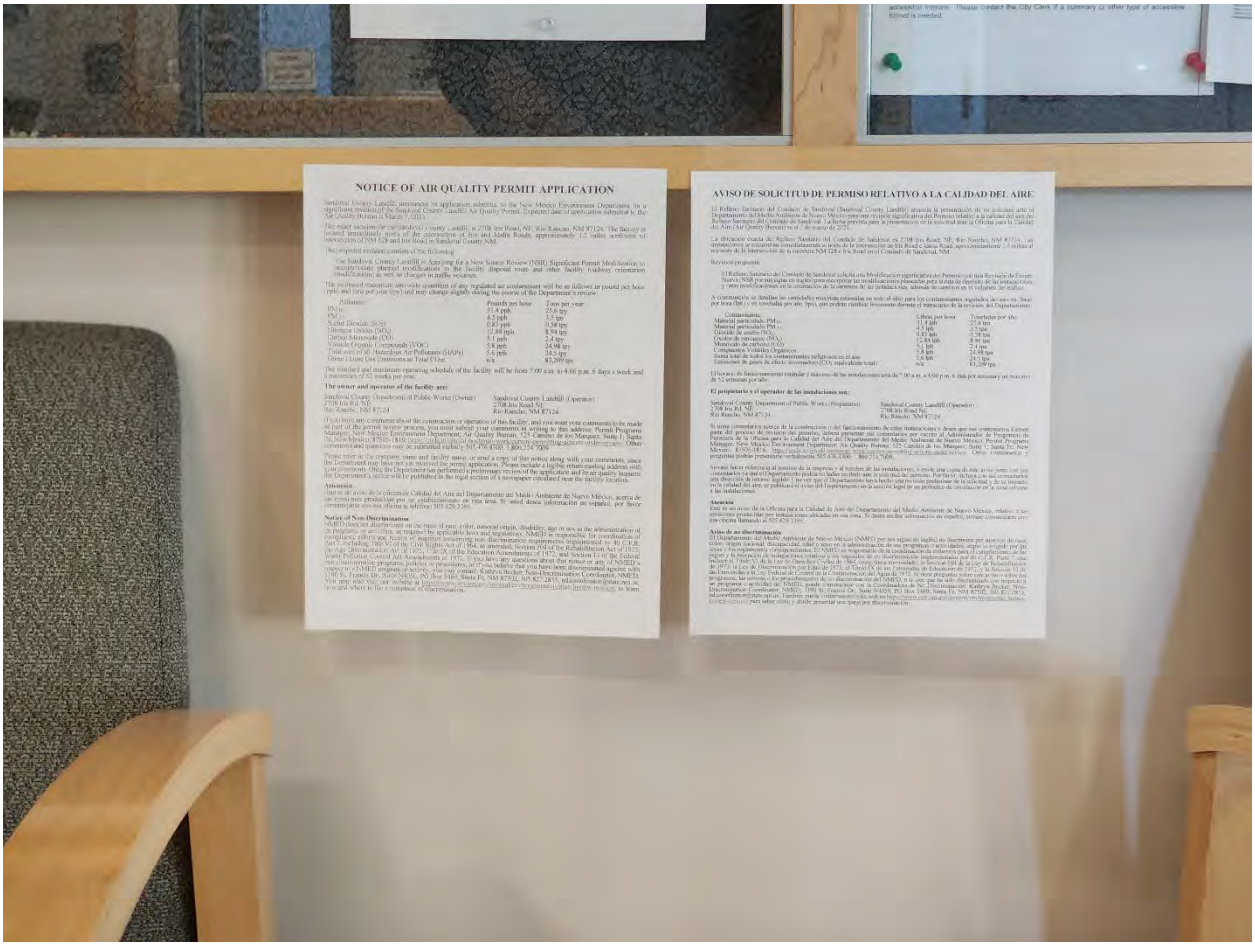
Este es un aviso de la Oficina para la Calidad de Aire del Departamento del Medio Ambiente de Nuevo México, relativo a las emisiones producidas por instalaciones ubicadas en esta zona. Si desea recibir información en español, envíe comentarios por esta oficina llamando al 505.629.3395.

Aviso de no discriminación

El Departamento de Medio Ambiente de Nuevo México (NMED por sus siglas en inglés) no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo exigido por las leyes y reglamentos aplicables. El NMED es responsable de la coordinación de esfuerzos para el cumplimiento de las leyes, y la recepción de obligaciones relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, que incluye el Título VI de la Ley de Derechos Civiles de 1964, según fueron enmendados; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975; el Título IX de las Enmiendas de Educación de 1972; y la Sección 13 de las Enmiendas a la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene preguntas sobre este aviso o sobre los programas, políticas o procedimientos de no discriminación del NMED, o si cree que ha sido discriminado con respecto a un programa o actividad del NMED, puede comunicarse con la Coordinación de No Discriminación, Coordinador, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502; 505.827.2855; nd.coordinator@state.nm.us. También puede visitar nuestro sitio web en https://www.env.nm.gov/general/non-discrimination-policy-notice-and-civil-rights/ para saber cómo y dónde presentar una queja por discriminación.

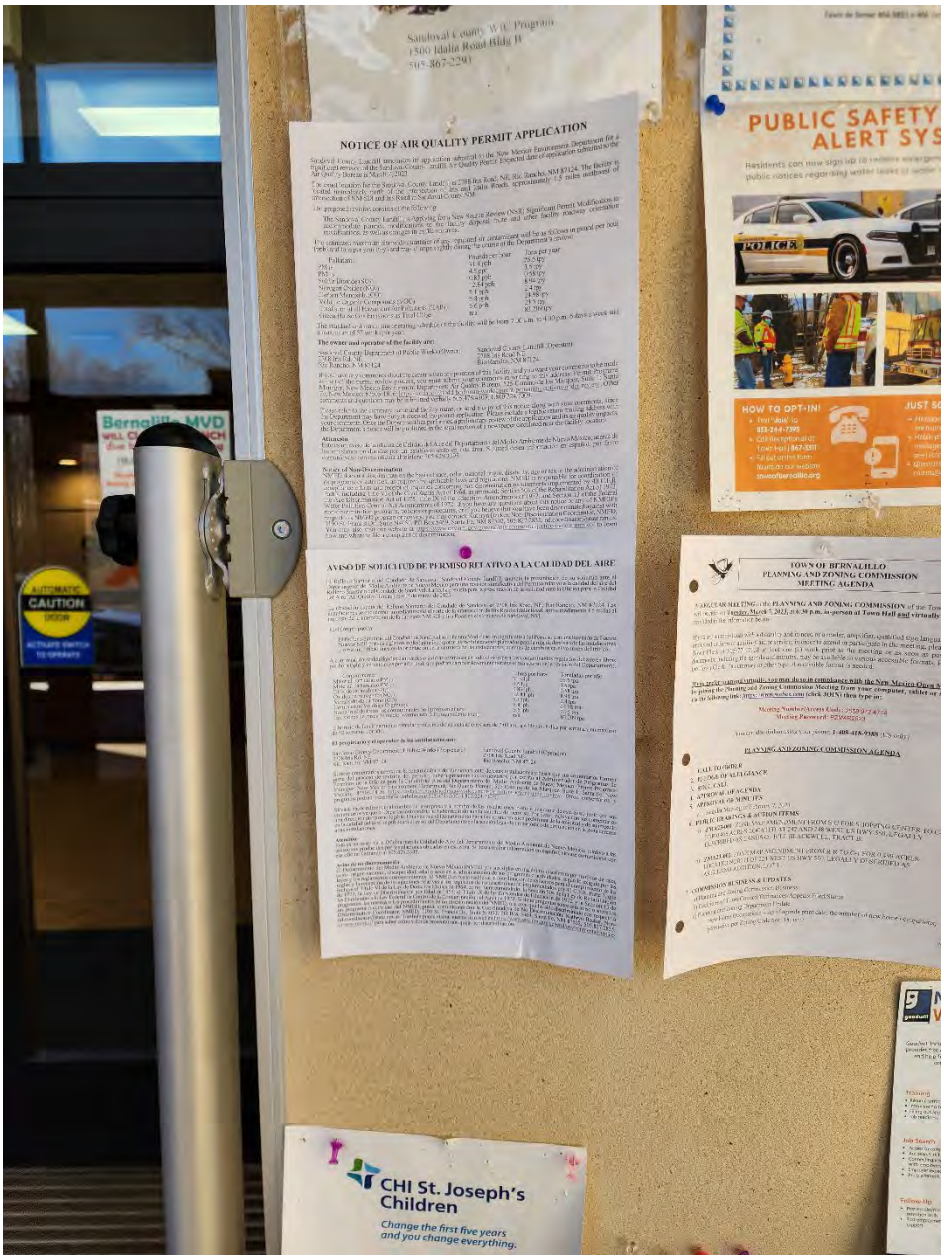
Sandoval County Department of Public Works Office Lobby – 3/3/2023

ATTACHMENT 9.5
Sandoval County Landfill
Verification of Local Postings



Rio Rancho City Hall, main entrance – 3/3/2023

ATTACHMENT 9.5
Sandoval County Landfill
Verification of Local Postings



Bernalillo Town Hall, main entrance – 3/3/2023

General Posting of Notices – Certification

I, Pamela Gonzales, the undersigned, certify that on March 3, 2023, I posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the Town of Bernalillo and the City of Rio Rancho, Sandoval County, State of New Mexico:

1. Sandoval County Landfill Scale House
2. Sandoval County Public Works Complex
3. Bernalillo Town Hall
4. Rio Rancho City Hall

Signed this 3 day of MARCH, 2023.

Signature

3/3/2023
Date

PAMELA GONZALES
Printed Name

PROJECT COORDINATOR
Title

ATTACHMENT 9.6

Property Tax Records from Sandoval County Assessor

This page can be printed using your internet browser or by CTL + P
Account: R073878

Location

Parcel Number 1-016-073-098-298

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 97 Lot: 45 Unit: 20

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $174

Primary Taxable $58

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$174	$58	0.500	21780.000	1.000

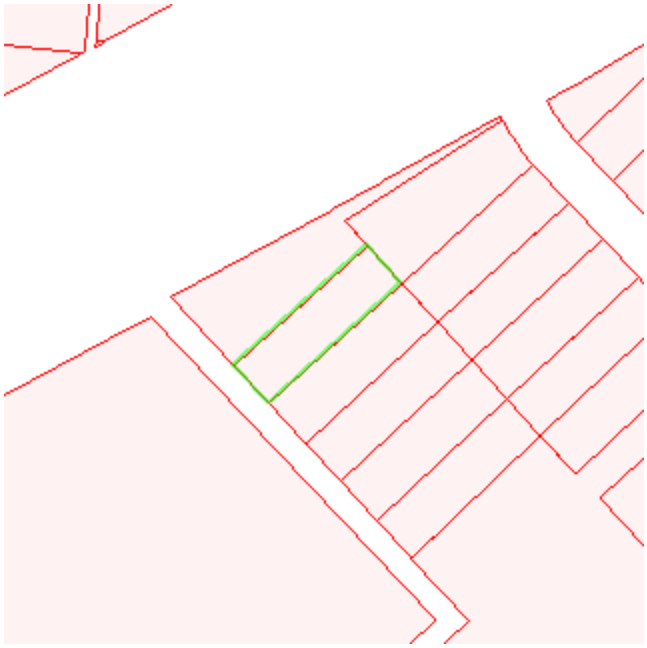
Transfers

Sale Date	Doc Description
	PLAT

Tax Year	Taxes
2022	$2.40
2021	$2.40

Images

- GIS



This page can be printed using your internet browser or by CTL + P
Account: R073876

Location

Parcel Number 1-016-073-104-292

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 97 Lot: 44 Unit: 20

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $174

Primary Taxable $58

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$174	$58	0.500	21780.000	1.000

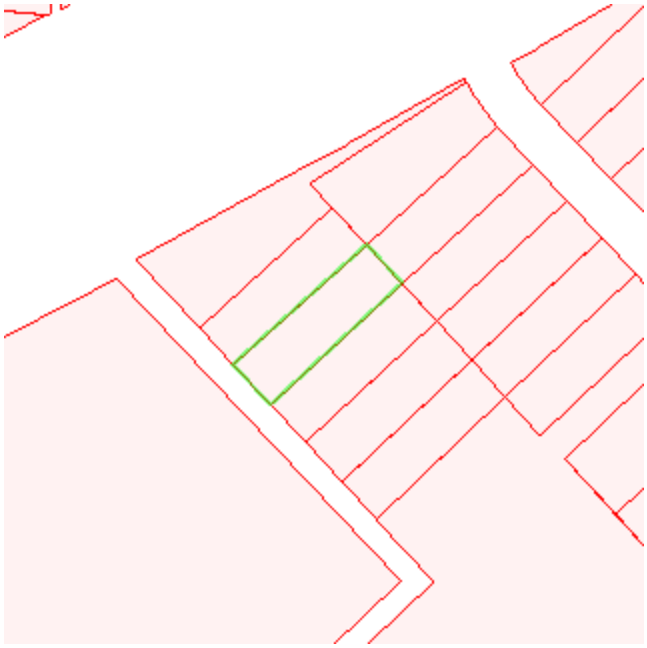
Transfers

Sale Date	Doc Description
	PLAT

Tax Year	Taxes
2022	$2.40
2021	$2.40

Images

- GIS



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Account: R073874

Location

Parcel Number 1-016-073-110-288

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 97 Lot: 43 Unit: 20

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $174

Primary Taxable $58

Tax Area: 510CSH_NR **Mill Levy**: 41.705

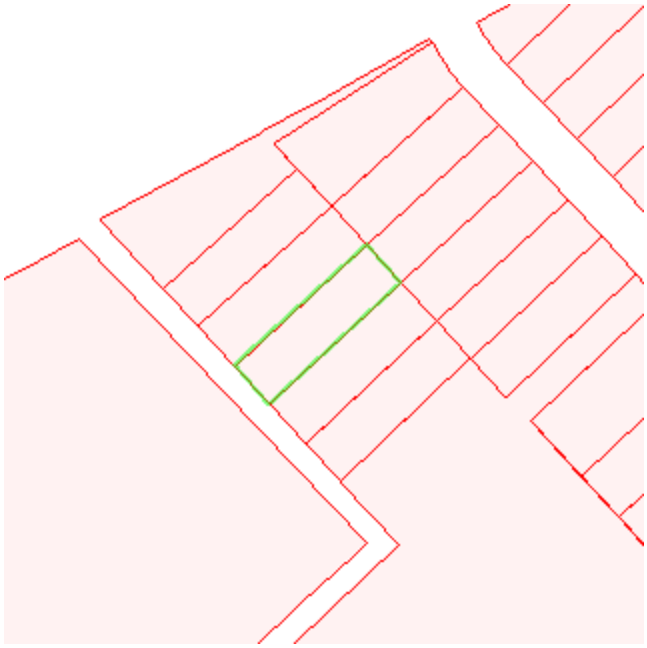
Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$174	$58	0.500	21780.000	1.000

Transfers

Sale Date	Doc Description
	PLAT

Images

- GIS



Tax Year	Taxes
2022	$2.40
2021	$2.40

This page can be printed using your internet browser or by CTL + P
Account: C066873

Location

Parcel Number

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Subd: RIO RANCHO ESTATES Block: 62 Lot: 38 Unit: 17, Subd: RIO RANCHO ESTATES Block: 177 Lot: 1 Unit: 20 AND:- Lot: 2 Unit: 20 AND:- Lot: 3 Unit: 20 AND:- Lot: 4 Unit: 20 AND:- Lot: 5 Unit: 20 AND:- Lot: 6 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 13 Unit: 20, Subd: RIO RANCHO ESTATES Unit: 21 AND:- Unit: 20 Tract: CC-2, 8-A, Subd: RIO RANCHO ESTATES Block: 97 Lot: 41 Unit: 20 AND:- Lot: 42 Unit: 20, Subd: RIO RANCHO ESTATES Block: BB Lot: 33 Unit: 17 AND:- Lot: 34 Unit: 17 CENTRAL ASSESSED 94-IN (SSCAFCA)

Owner Information

Owner Name PUBLIC SERVICE COMPANY OF NEW MEXICO

Owner Address CORPORATE HEADQUARTERS MS 1025
ALBUQUERQUE, NM 87158-0001
UNITED STATES OF AMERICA

Assessment History

Actual (2022)	$58,738,143
Primary Taxable	$19,579,381

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed
Central Assessed	$58,738,143	$19,579,381

Transfers

Sale Date	Doc Description
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED

Images

Tax Year	Taxes
2022	$816,558.08
2021	$883,338.40

This page can be printed using your internet browser or by CTL + P
Account: C066873

Location

Parcel Number

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Subd: RIO RANCHO ESTATES Block: 62 Lot: 38 Unit: 17, Subd: RIO RANCHO ESTATES Block: 177 Lot: 1 Unit: 20 AND:- Lot: 2 Unit: 20 AND:- Lot: 3 Unit: 20 AND:- Lot: 4 Unit: 20 AND:- Lot: 5 Unit: 20 AND:- Lot: 6 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 13 Unit: 20, Subd: RIO RANCHO ESTATES Unit: 21 AND:- Unit: 20 Tract: CC-2, 8-A, Subd: RIO RANCHO ESTATES Block: 97 Lot: 41 Unit: 20 AND:- Lot: 42 Unit: 20, Subd: RIO RANCHO ESTATES Block: BB Lot: 33 Unit: 17 AND:- Lot: 34 Unit: 17 CENTRAL ASSESSED 94-IN (SSCAFCA)

Owner Information

Owner Name PUBLIC SERVICE COMPANY OF NEW MEXICO

Owner Address CORPORATE HEADQUARTERS MS 1025
ALBUQUERQUE, NM 87158-0001
UNITED STATES OF AMERICA

Assessment History

Actual (2022)	$58,738,143
Primary Taxable	$19,579,381

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed
Central Assessed	$58,738,143	$19,579,381

Transfers

Sale Date	Doc Description
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED

Images

Tax Year	Taxes
2022	$816,558.08
2021	$883,338.40

This page can be printed using your internet browser or by CTL + P
Account: C066873

Location

Parcel Number

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Subd: RIO RANCHO ESTATES Block: 62 Lot: 38 Unit: 17, Subd: RIO RANCHO ESTATES Block: 177 Lot: 1 Unit: 20 AND:- Lot: 2 Unit: 20 AND:- Lot: 3 Unit: 20 AND:- Lot: 4 Unit: 20 AND:- Lot: 5 Unit: 20 AND:- Lot: 6 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 13 Unit: 20, Subd: RIO RANCHO ESTATES Unit: 21 AND:- Unit: 20 Tract: CC-2, 8-A, Subd: RIO RANCHO ESTATES Block: 97 Lot: 41 Unit: 20 AND:- Lot: 42 Unit: 20, Subd: RIO RANCHO ESTATES Block: BB Lot: 33 Unit: 17 AND:- Lot: 34 Unit: 17 CENTRAL ASSESSED 94-IN (SSCAFCA)

Owner Information

Owner Name PUBLIC SERVICE COMPANY OF NEW MEXICO

Owner Address CORPORATE HEADQUARTERS MS 1025
ALBUQUERQUE, NM 87158-0001
UNITED STATES OF AMERICA

Assessment History

Actual (2022)	$58,738,143
Primary Taxable	$19,579,381

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed
Central Assessed	$58,738,143	$19,579,381

Transfers

Sale Date	Doc Description
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED

Images

Tax Year	Taxes
2022	$816,558.08
2021	$883,338.40

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Account: R072771

Location

Parcel Number 1-015-073-058-194

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 9 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 194 LOT: 9 PG: 0 .50 ACS

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $174

Primary Taxable $58

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$174	$58	0.500	21780.000	1.000

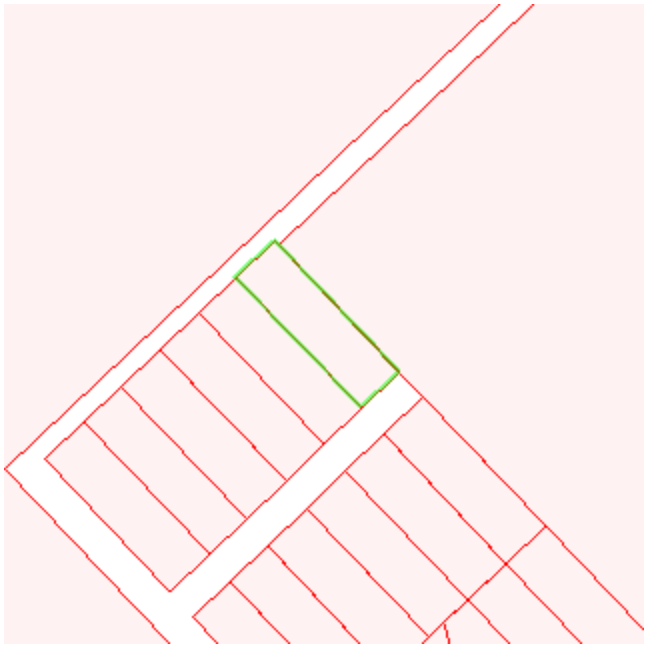
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$2.40
2021	$2.40

Images

- GIS



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Account: R010090

Location

Parcel Number 1-015-073-053-189

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 10 Unit: 20

Owner Information

Owner Name GRANT, STEVEN

Owner Address 45 LAFAYETTE MILLS RD
MANALAPAN, NJ 07726
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

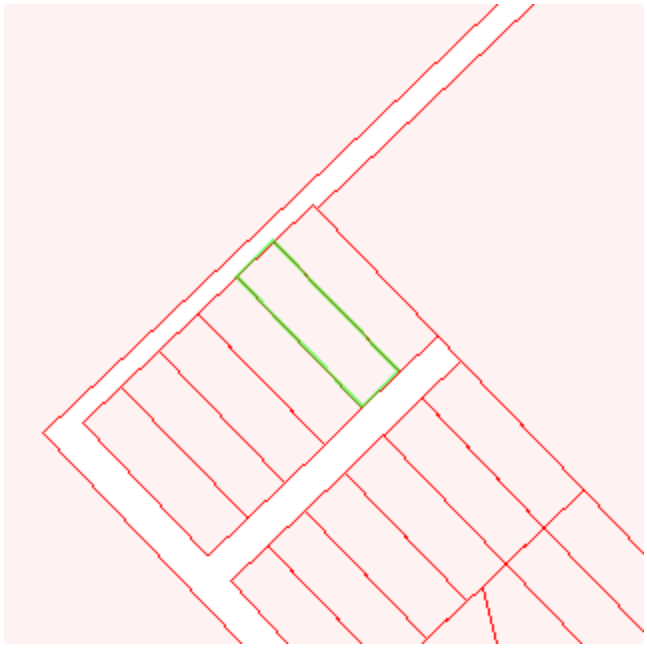
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$36.32
2021	$41.96

Images

- GIS



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Account: R010091

Location

Parcel Number 1-015-073-047-183

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 11 Unit: 20

Owner Information

Owner Name GRANT, STEVEN

Owner Address 45 LAFAYETTE MILLS RD
MANALAPAN, NJ 07726
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

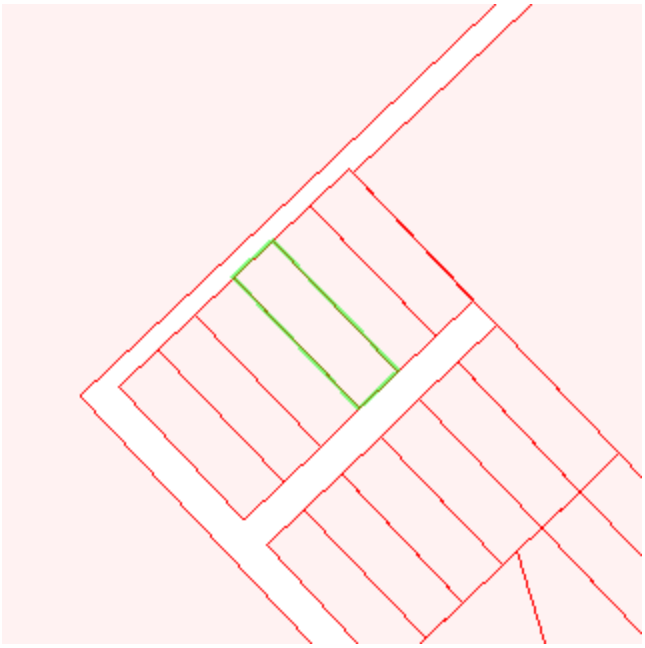
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$36.32
2021	$41.96

Images

- GIS



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Account: R096039

Location

Parcel Number 1-015-073-041-178

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 12 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 194 LOT: 12 BK: 407 PG: 18895

Owner Information

Owner Name STEPHENS PROPERTIES LP

Owner Address 171 BEAR CREEK RD
SARVER, PA 16055-9227
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

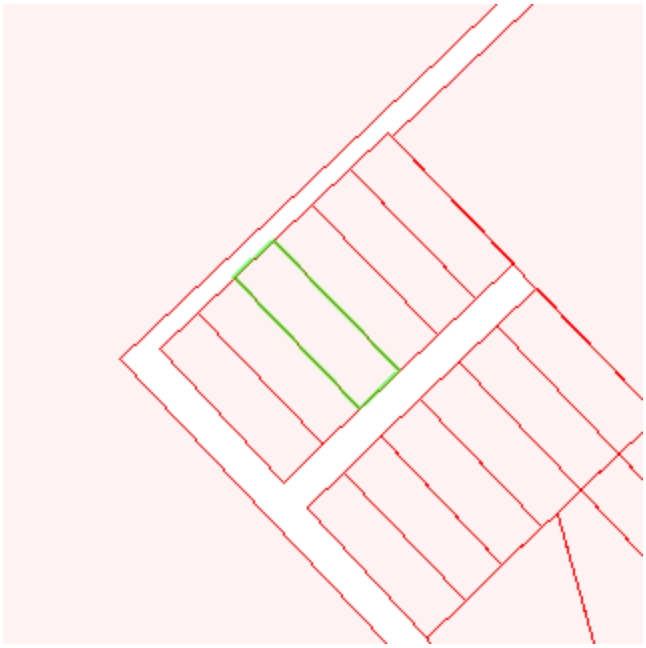
Transfers

Sale Date	Doc Description
	WARRANTY DEED

Images

Tax Year	Taxes
2022	$36.32
2021	$41.96

- GIS



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Account: R010178

Location

Parcel Number 1-015-073-035-172

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 13 Unit: 20

Owner Information

Owner Name STEPHENS PROPERTIES LP

Owner Address 171 BEAR CREEK RD
SARVER, PA 16055-9227
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

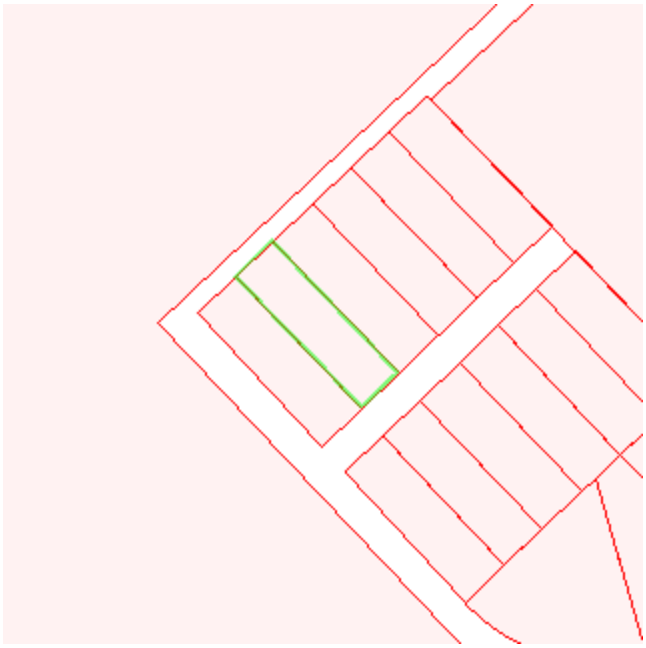
Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

Transfers

Sale Date	Doc Description
	WARRANTY DEED

Images

- GIS



Tax Year	Taxes
2022	$36.32
2021	$41.96

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Account: R135127

Location

Parcel Number 1-015-073-030-167

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 194 Lot: 14 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 194 LOT: 14 PG: 0

Owner Information

Owner Name GARCIA, VANESSA & HOFHEINS, MARK

In Care Of Name HOFHEINS, MARK

Owner Address 5808 RIO LAMA RD NE RIO RANCHO, NM 87144 UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

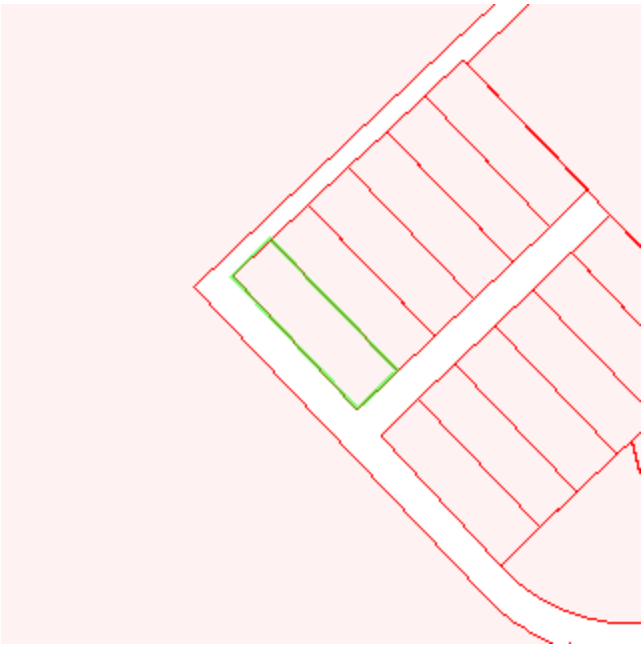
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$36.32
2021	$41.96

Images

- GIS



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Account: R132090

Location

Parcel Number 1-015-073-057-148

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 193 Lot: 14 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 193 LOT: 14 BK: 408 PG: 43640

Owner Information

Owner Name VANDERGEEST, JOHN W

Owner Address 8521 MOUNTAIN RD NE
ALBUQUERQUE, NM 87112
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

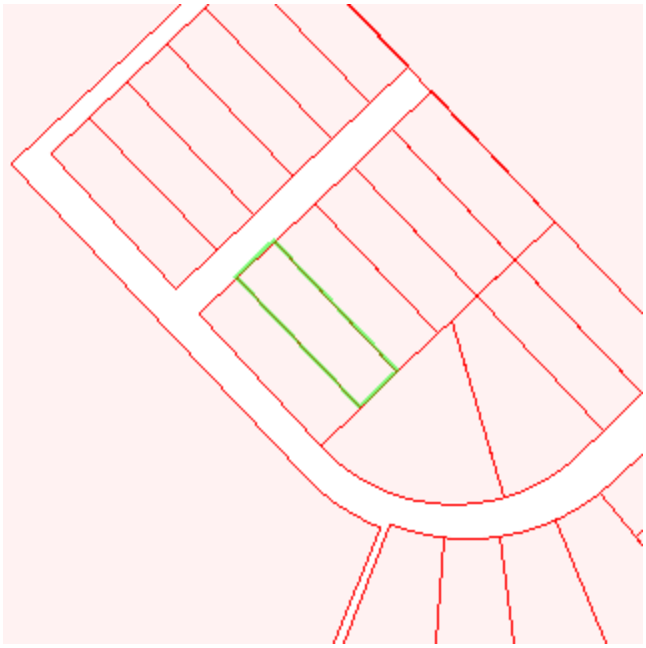
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$36.32
2021	$41.96

Images

- GIS



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Account: R121395

Location

Parcel Number 1-015-073-051-143

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 193 Lot: 13 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 193 LOT: 13 BK: 409 PG: 1943

Owner Information

Owner Name CHAVEZ, GEORGE P

Owner Address 6501 KALGAN RD NE
RIO RANCHO, NM 87144-3521
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,614

Primary Taxable $871

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,614	$871	0.500	21780.000	1.000

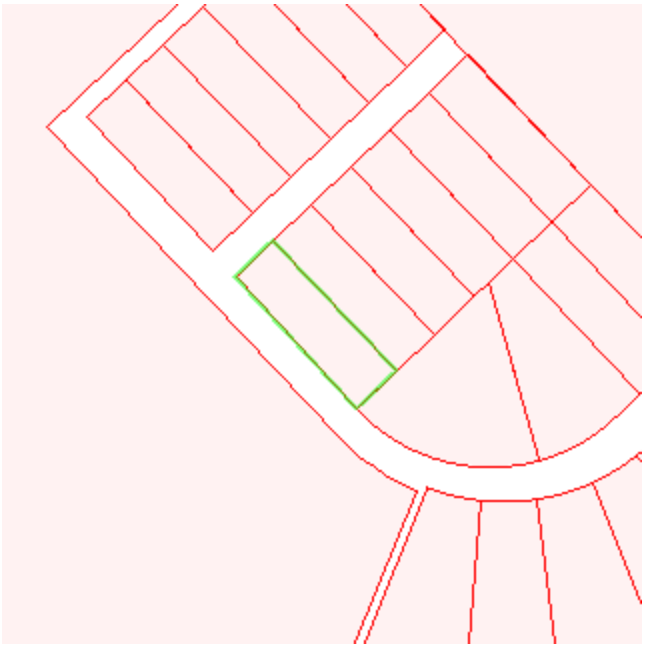
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$36.32
2021	$41.96

Images

- GIS



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Account: R121118

Location

Parcel Number 1-015-073-071-135

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 193 Lot: 12 Unit: 20

Owner Information

Owner Name CARMEN SCHELL CONST CO INC AND KLINGLER, JENNY

Owner Address 204 WINGED FOOT CT SE
RIO RANCHO, NM 87124-8252
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,457

Primary Taxable $819

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$2,457	$819	0.940	40946.400	1.000

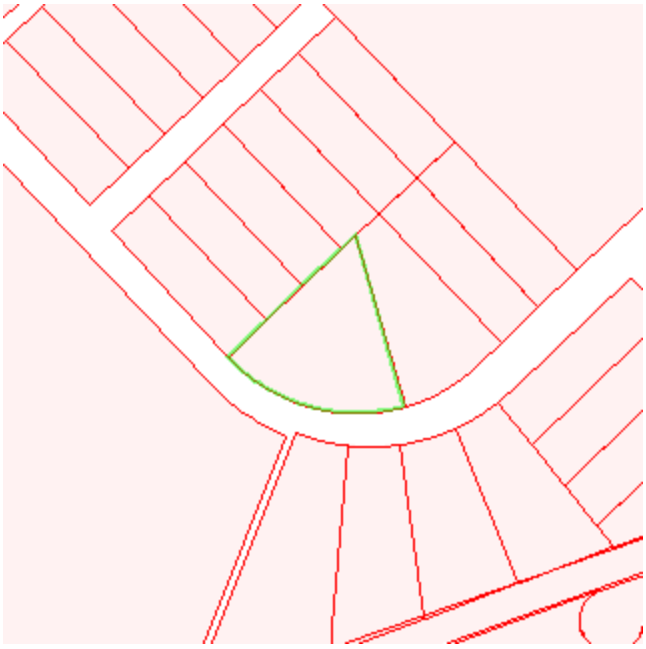
Transfers

Sale Date	Doc Description
10/20/2008	CASH SALE

Tax Year	Taxes
2022	$34.16
2021	$33.80

Images

- Photo
- GIS



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Account: R072741

Location

Parcel Number 1-015-073-063-101

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 192 Lot: 13 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 192 LOT: 13 PG: 0 1.01 ACS

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $352

Primary Taxable $117

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$352	$117	1.010	43995.600	1.000

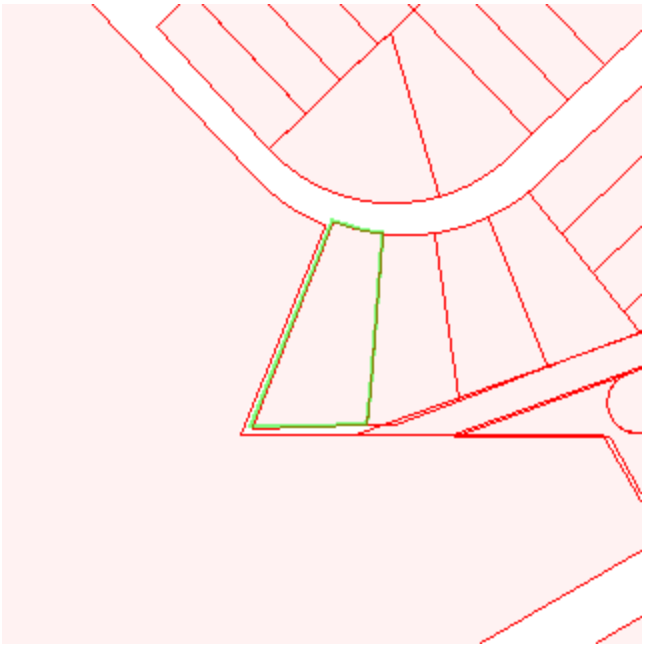
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$4.88
2021	$4.84

Images

- GIS



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Account: R075846

Location

Parcel Number 1-015-073-079-100

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 192 Lot: 14 Unit: 20 SUB: RIO RANCHO ESTATES UNIT: 20 BLK: 192 LOT: 14 BK: 409 PG: 21715

Owner Information

Owner Name CHAVEZ, GEORGE P

Owner Address 6501 KALGAN RD NE
RIO RANCHO, NM 87144-3521
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $4,757

Primary Taxable $1,586

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$4,757	$1,586	1.820	79279.200	1.000

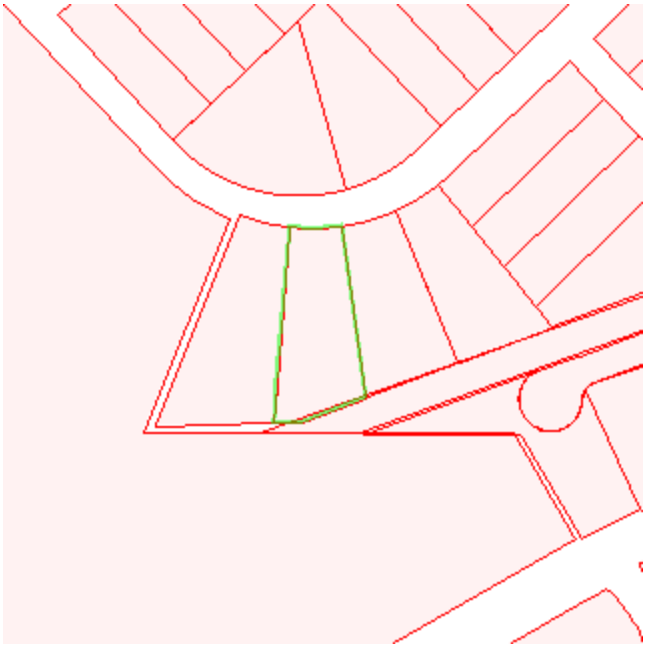
Transfers

Sale Date	Doc Description
04/21/2006	CASH SALE

Tax Year	Taxes
2022	$66.16
2021	$65.48

Images

- Photo
- GIS



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Account: R045229

Location

Parcel Number 1-015-073-091-104

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 192 Lot: 15 Unit: 20

Owner Information

Owner Name RUIZ DEVELOPMENT LC

Owner Address P.O. BOX 66960
ALBUQUERQUE, NM 87193-6960
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $1,803

Primary Taxable $601

Tax Area: 510CSH_NR **Mill Levy**: 41.705

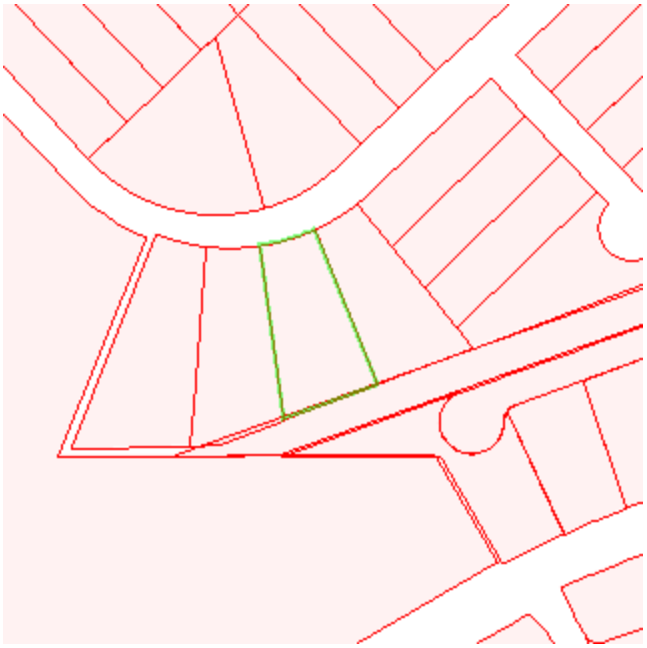
Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$1,803	$601	0.690	30056.400	1.000

Transfers

Sale Date	Doc Description
	SPECIAL WARRANTY DEED

Images

- GIS



Tax Year	Taxes
2022	$25.08
2021	$24.80

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Account: R010170

Location

Parcel Number 1-015-073-103-109

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 192 Lot: 16 Unit: 20

Owner Information

Owner Name GOODE, MATTIE L

Owner Address 220 WEST 133RD STREET APT-9J
NEW YORK, NY 10030
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $1,882

Primary Taxable $627

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$1,882	$627	0.720	31363.200	1.000

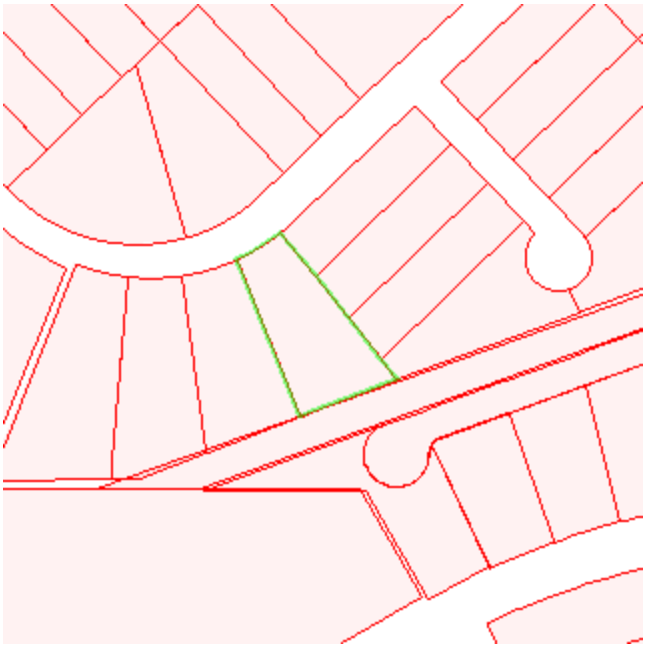
Transfers

No Transfer Documents

Tax Year	Taxes
2022	$26.16
2021	$25.88

Images

- GIS



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Account: R010169

Location

Parcel Number 1-016-073-141-081

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 192 Lot: 12 Unit: 20

Owner Information

Owner Name BEDFORD, ALFRED J AND RECIO, ZENAIDA M

Owner Address 39 CAVEN RD
LIGONIER, PA 15658-2010
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $3,889

Primary Taxable $1,296

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	SQFT	Units
Non-Residential Land	$3,889	$1,296	32404.284	1.000

Transfers

Sale Date	Doc Description
	PLAT
01/27/2017	DEATH CERTIFICATE
	WARRANTY DEED
	QUIT CLAIM DEED
	MISCELLANEOUS

Tax Year	Taxes
2022	$54.04
2021	$62.40

Images

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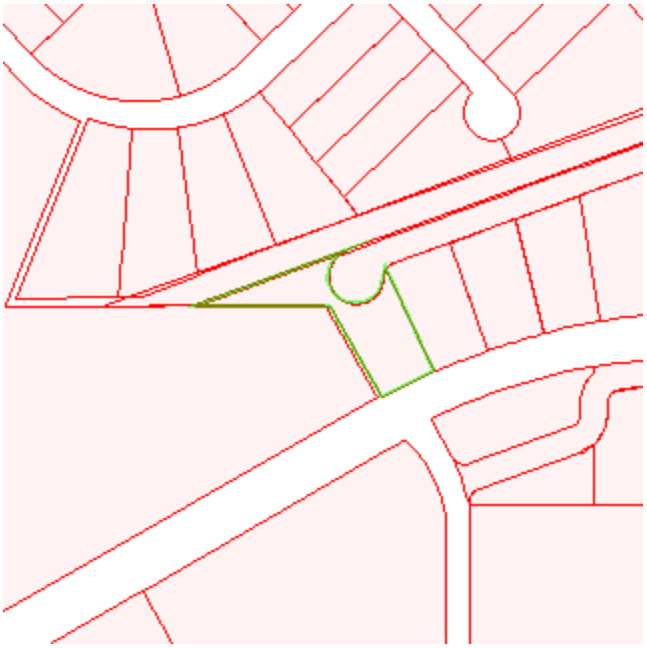

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Account: R183864

Location

Parcel Number 1-016-073-371-110

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 93 Lot: 35 Unit: 20 AND:- Lot: 41 Unit: 20 AND:- Lot: 36 Unit: 20 AND:- Lot: 37 Unit: 20 AND:- Lot: 38 Unit: 20 AND:- Lot: 39 Unit: 20 AND:- Lot: 40 Unit: 20, Subd: RIO RANCHO ESTATES Block: 99 Lot: 27 Unit: 20 AND:- Lot: 28 Unit: 20 AND:- Lot: 29 Unit: 20 AND:- Lot: 30 Unit: 20 AND:- Lot: 31 Unit: 20 AND:- Lot: 32 Unit: 20 AND:- Lot: 33 Unit: 20 AND:- Lot: 34 Unit: 20 AND:- Lot: 35 Unit: 20 AND:- Lot: 36 Unit: 20 AND:- Lot: 37 Unit: 20, Subd: RIO RANCHO ESTATES Block: 104 Lot: 1 Unit: 20 AND:- Lot: 2 Unit: 20 AND:- Lot: 3 Unit: 20 AND:- Lot: 4 Unit: 20 AND:- Lot: 5 Unit: 20 AND:- Lot: 6 Unit: 20 AND:- Lot: 7 Unit: 20 AND:- Lot: 8 Unit: 20 AND:- Lot: 9 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 13 Unit: 20 AND:- Lot: 14 Unit: 20 AND:- Lot: 15 Unit: 20 AND:- Lot: 17 Unit: 20 AND:- Lot: 16 Unit: 20 AND:- Lot: 18 Unit: 20 AND:- Lot: 19 Unit: 20 AND:- Lot: 20 Unit: 20 AND:- Lot: 21 Unit: 20 AND:- Lot: 22 Unit: 20 AND:- Lot: 23 Unit: 20 AND:- Lot: 24 Unit: 20 AND:- Lot: 25 Unit: 20 AND:- Lot: 27 Unit: 20 AND:- Lot: 26 Unit: 20 AND:- Lot: 28 Unit: 20 AND:- Lot: 29 Unit: 20 AND:- Lot: 30 Unit: 20 AND:- Lot: 31 Unit: 20 AND:- Lot: 32 Unit: 20 AND:- Lot: 35 Unit: 20 AND:- Lot: 36 Unit: 20 AND:- Lot: 37 Unit: 20 AND:- Lot: 38 Unit: 20 AND:- Lot: 39 Unit: 20, Subd: RIO RANCHO ESTATES Unit: 20 AND:- Lot: R.O.W Unit: 21 Tract: A, Subd: RIO RANCHO ESTATES Block: 177 Lot: 3 Unit: 20 AND:- Lot: 7 Unit: 20 AND:- Lot: 8 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 12 Unit: 20, Subd: RIO RANCHO ESTATES Block: 179 Lot: 41 Unit: 20 AND:- Lot: 41 Unit: 20 AND:- Lot: 41 Unit: 20 AND:- Lot: 42 Unit: 20 AND:- Lot: 42 Unit: 20 AND:- Lot: 43 Unit: 20 AND:- Lot: 43 Unit: 20 AND:- Lot: 44 Unit: 20 AND:- Lot: 44 Unit: 20 AND:- Lot: 45 Unit: 20 AND:- Lot: 45 Unit: 20 AND:- Lot: 46 Unit: 20 AND:- Lot: 46 Unit: 20, Subd: RIO RANCHO ESTATES Block: 192 Lot: 6 Unit: 20 AND:- Lot: 7 Unit: 20 AND:- Lot: 8 Unit: 20 AND:- Lot: 9 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20, Subd: RIO RANCHO SPORTS COMPLEX Lot:

Owner Information

Owner Name CITY OF RIO RANCHO

Owner Address 3200 CIVIC CENTER CIR NE
RIO RANCHO, NM 87144-4501
UNITED STATES OF AMERICA

Assessment History

Actual Value (2018)	$18,016
Primary Taxable	$6,005
Exempt	($6,005)
Adjusted Taxable Total	$0

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Exempt Land	$18,016	$6,005	2.758	117126.586	33.000

R.O.W, Subd: SPORTS COMPLEX NORTH
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OF, PORT. OF IBADAN RD

Transfers

Sale Date	Doc Description
07/01/2020	SPECIAL WARRANTY DEED
10/17/2019	WARRANTY DEED
	PARTIAL DEFAULT JUDGMENT
	PLAT
	WARRANTY DEED
	PARTIAL DEFAULT JUDGMENT
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PLAT
PLAT

Tax Year	Taxes
2022	$0.00
2021	$0.00

Images

- GIS

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Account: R106307

Location

Parcel Number 1-016-073-153-085

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 192 Lot: 11 Unit: 20

Owner Information

Owner Name BEDFORD, ALFRED J AND RECIO, ZENAIDA M

Owner Address 39 CAVEN RD
LIGONIER, PA 15658-2010
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $2,894

Primary Taxable $965

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	SQFT	Units
Non-Residential Land	$2,894	$965	24114.000	1.000

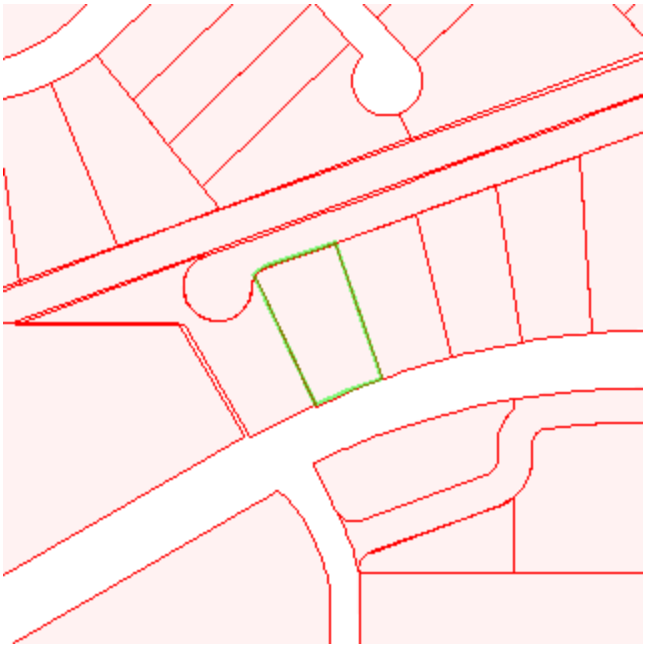
Transfers

Sale Date	Doc Description
	PLAT
01/27/2017	DEATH CERTIFICATE
	WARRANTY DEED
	QUIT CLAIM DEED
	MISCELLANEOUS

Tax Year	Taxes
2022	$40.24
2021	$46.44

Images

- GIS



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Account: R108811

Location

Parcel Number 1-016-073-144-057

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 84 Lot: 16A Unit: 17 AND:- Lot: 16B Unit: 17

Owner Information

Owner Name HARSH HOLDINGS LLC

Owner Address 2525 VISTA LARGA AVE NE
ALBUQUERQUE, NM 87106-2647
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $11,998

Primary Taxable $3,999

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$11,998	$3,999	0.977	42562.476	2.000

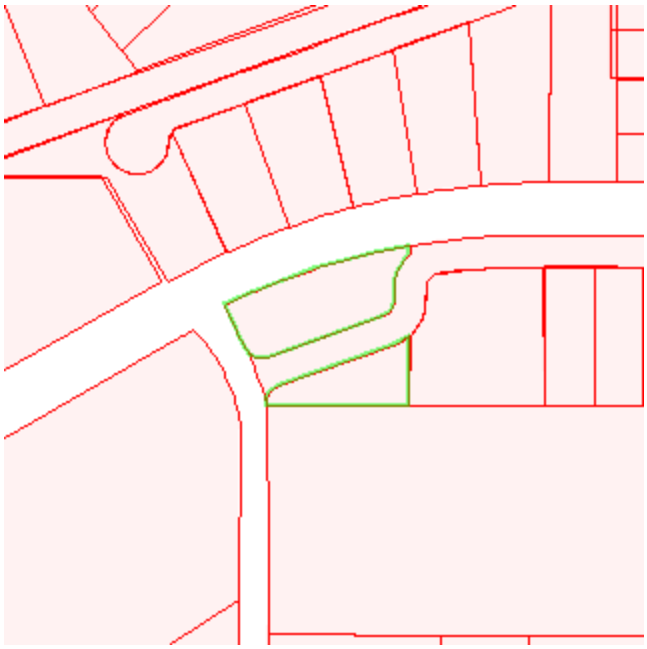
Transfers

Sale Date	Doc Description
01/22/2019	WARRANTY DEED
11/13/2018	WARRANTY DEED
	PLAT
	PLAT
	WARRANTY DEED
	WARRANTY DEED
	SOLE SEPERATE PROPERTY CONVEYAN
12/19/2011	WARRANTY DEED
	QUIT CLAIM DEED
	MISCELLANEOUS
	PLAT

Tax Year	Taxes
2022	$166.76
2021	$117.96

Images

- GIS



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Account: R068259

Location

Parcel Number 1-016-073-102-029

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 34 T: 13N R: 3E Subd: RIO RANCHO ESTATES Block: 82 Lot: 3 Unit: 17

Owner Information

Owner Name HARSH HOLDINGS LLC

Owner Address 2525 VISTA LARGA AVE NE
ALBUQUERQUE, NM 87106-2647
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $100,188

Primary Taxable $33,396

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$100,188	$33,396	5.000	217800.000	1.000

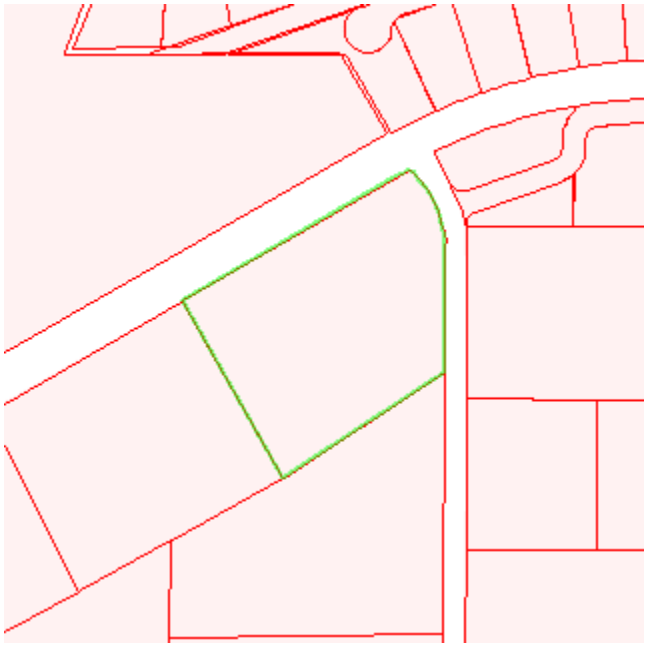
Transfers

Sale Date	Doc Description
01/22/2019	WARRANTY DEED
11/13/2018	WARRANTY DEED
	PLAT
	SOLE SEPERATE PROPERTY CONVEYAN
12/19/2011	WARRANTY DEED
	WARRANTY DEED
	PLAT

Tax Year	Taxes
2022	$1,392.80
2021	$839.20

Images

- GIS



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Account: R067434

Location

Parcel Number 1-016-073-066-001

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 82 Lot: 2 Unit: 17 SUB: RIO RANCHO ESTATES UNIT: 17 BLK: 82 LOT: 2 BK: N/A PG: 0

Owner Information

Owner Name YOUNGBERG LLLP

Owner Address 6729 ACADEMY RD NE
ALBUQUERQUE, NM 87109-3390
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $19,602

Primary Taxable $6,534

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$19,602	$6,534	5.000	217800.000	1.000

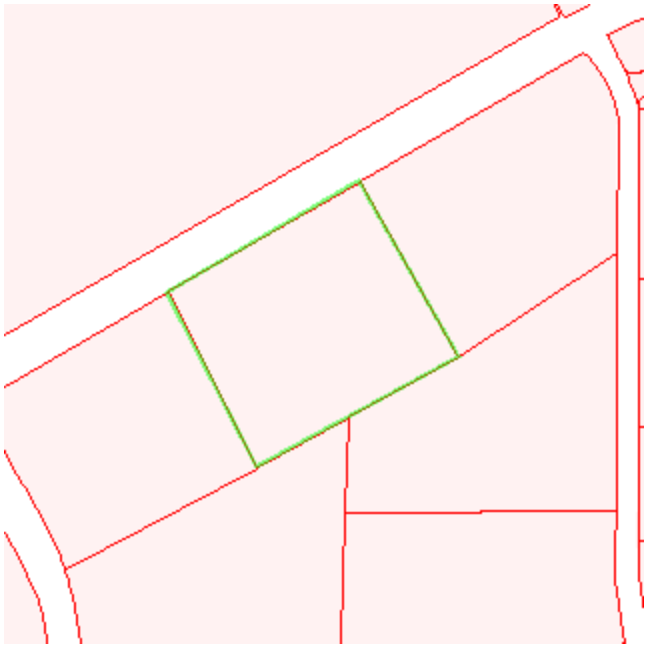
Transfers

Sale Date	Doc Description
11/18/2020	QUIT CLAIM DEED
09/07/2017	QUIT CLAIM DEED
07/16/2012	SPECIAL WARRANTY DEED
07/18/2012	SPECIAL WARRANTY DEED
	PLAT

Tax Year	Taxes
2022	$272.52
2021	$269.72

Images

- Photo
- GIS



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Account: R049703

Location

Parcel Number 1-016-072-025-501

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 82 Lot: 1 Unit: 17

Owner Information

Owner Name HAROLD'S GRADING & TRUCKING,INC

Owner Address PO BOX 54
BERNALILLO, NM 87004
UNITED STATES OF AMERICA

Assessment History

Actual Value (2018) $60,984

Primary Taxable $20,328

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$60,984	$20,328	5.000	217800.000	1.000

Transfers

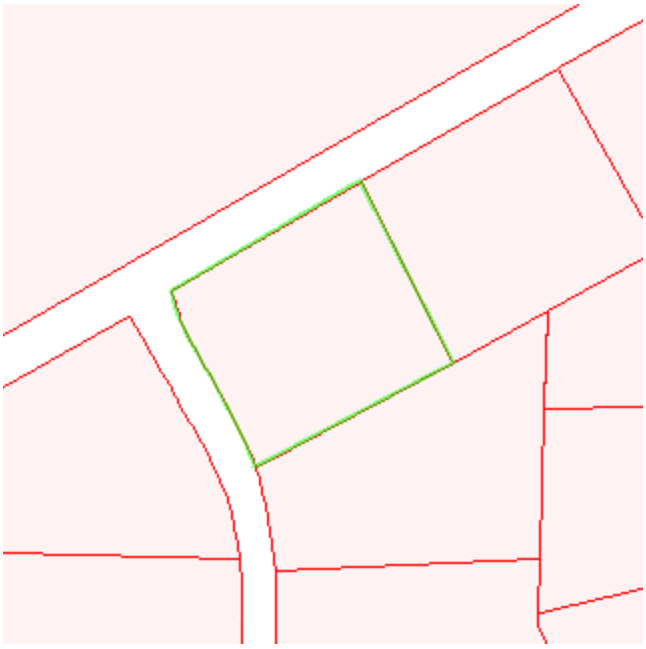
Sale Date	Doc Description
	WARRANTY DEED
	QUIT CLAIM DEED

Tax Year	Taxes
*2022	$0.00
2021	No Tax Values

* Estimated

Images

- GIS



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Account: R111729

Location

Parcel Number 1-015-072-510-476

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 81 Lot: 1 Unit: 17 SUB: RIO RANCHO ESTATES UNIT: 17 BLK: 81 LOT: 1 BK: 408 PG: 2523

Owner Information

Owner Name BARCENA, NORBERT

Owner Address PO BOX 892
PLACITAS, NM 87043
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $19,837

Primary Taxable $6,612

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$19,837	$6,612	5.060	220413.600	1.000

Transfers

Sale Date	Doc Description
	WARRANTY DEED
	PLAT

Images

- GIS

Tax Year	Taxes
2022	$275.76
2021	$272.96

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Account: R057124

Location

Parcel Number 1-015-072-473-470

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: MONTE BELLA Lot: 1 SUB: MONTE BELLA LOT: 1 BK: 409 PG: 10587

Owner Information

Owner Name YI, EUNHEE NICOLE

Owner Address 1528 N EVERGREEN AVE UNIT 481
LOS ANGELES, CA 90033-1517

Assessment History

Actual Value (2022) $75,000

Primary Taxable $25,000

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$75,000	$25,000	1.610	70131.600	1.000

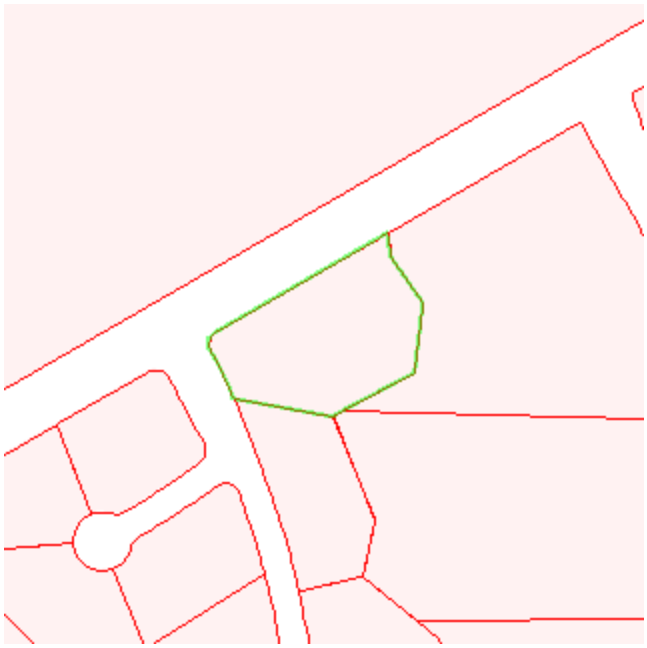
Transfers

Sale Date	Doc Description
	WARRANTY DEED
	WARRANTY DEED
	PLAT
	PLAT

Tax Year	Taxes
2022	$1,042.64
2021	$414.96

Images

- GIS



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Account: R092267

Location

Parcel Number 1-015-072-441-452

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: MONTE BELLA Lot: 19 SUB: MONTE BELLA LOT: 19 BK: 409 PG: 26981

Owner Information

Owner Name BOWLES, ROBERT J AND NANCY MURPHY

Owner Address 4811 HARDWARE DR NE STE D-5
ALBUQUERQUE, NM 87109-2023
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $75,000

Primary Taxable $25,000

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$75,000	$25,000	0.890	38768.000	1.000

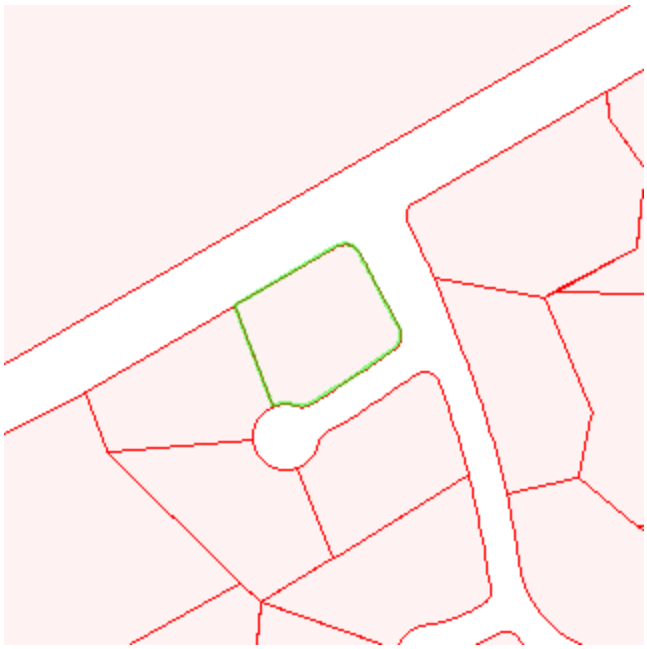
Transfers

Sale Date	Doc Description
04/25/2022	WARRANTY DEED
12/13/2018	SPECIAL MASTER DEED
	NOTICE OF LIS PENDENS
	WARRANTY DEED
	RELEASE OF LIS PENDENS
	NOTICE OF LIS PENDENS
	NOTICE OF LIS PENDENS
	WARRANTY DEED
	PLAT
	PLAT
	PLAT

Tax Year	Taxes
2022	$1,042.64
2021	$229.40

Images

- GIS



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Account: R092266

Location

Parcel Number 1-015-072-421-441

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: MONTE BELLA Lot: 18

Owner Information

Owner Name BOWLES, JASON AND NANCY MURPHY

Owner Address 4811 HARDWARE DR NE STE D5
ALBUQUERQUE, NM 87109-2023
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $75,000

Primary Taxable $25,000

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$75,000	$25,000	0.810	35283.000	1.000

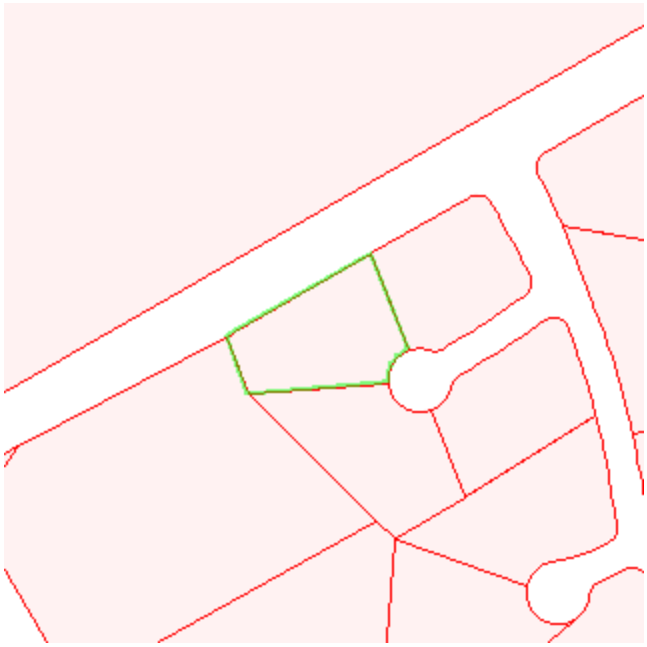
Transfers

Sale Date	Doc Description
04/26/2022	WARRANTY DEED
12/13/2018	SPECIAL MASTER DEED
	NOTICE OF LIS PENDENS
	WARRANTY DEED
	RELEASE OF LIS PENDENS
	NOTICE OF LIS PENDENS
	NOTICE OF LIS PENDENS
	WARRANTY DEED
	PLAT
	PLAT
	PLAT

Tax Year	Taxes
2022	$1,042.64
2021	$208.76

Images

- GIS



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Account: R040088

Location

Parcel Number 1-015-072-396-409

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 81 Lot: 24-A Unit: 17

Owner Information

Owner Name COLLINS, LON E & JEANNETTE R.

Owner Address 216 VILLA VERDE SE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $87,494

Primary Taxable $29,165

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$87,494	$29,165	4.367	190204.740	1.000

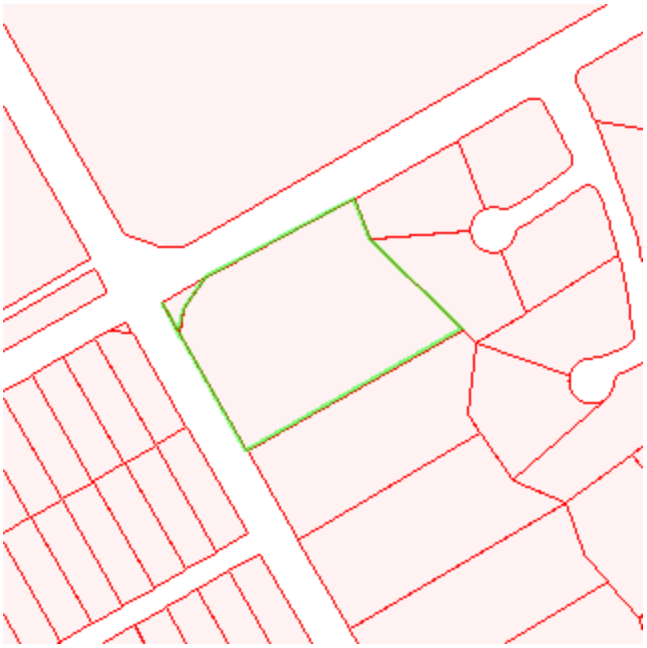
Transfers

Sale Date	Doc Description
	QUIT CLAIM DEED
	PLAT
	PLAT

Tax Year	Taxes
2022	$1,216.32
2021	$732.84

Images

- GIS



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Account: R156053

Location

Parcel Number 1-015-072-365-415

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Tract: A Subd: RIO RANCHO ESTATES Block: 81 Lot: PAR A Unit: 17

Owner Information

Owner Name CITY OF RIO RANCHO

Owner Address 3200 CIVIC CENTER CIRCLE NE
RIO RANCHO, NM 87144
UNITED STATES OF AMERICA

Assessment History

Actual Value (2018)	$1,133
Primary Taxable	$378
Exempt	($378)
Adjusted Taxable Total	$0

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	SQFT	Units
Exempt Land	$1,133	$378	3541.428	1.000

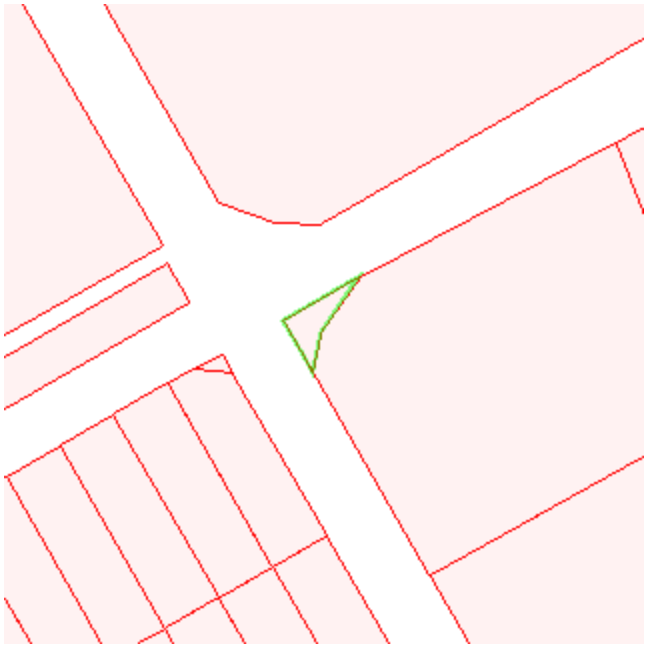
Transfers

Sale Date	Doc Description
	PLAT

Tax Year	Taxes
2022	$0.00
2021	$0.00

Images

- GIS



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Account: R156052

Location

Parcel Number 1-015-072-352-409

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 60 Lot: PAR A Unit: 17

Owner Information

Owner Name CITY OF RIO RANCHO

Owner Address 3200 CIVIC CENTER CIRCLE NE
RIO RANCHO, NM 87144
UNITED STATES OF AMERICA

Assessment History

Actual Value (2018)	$166
Primary Taxable	$55
Exempt	($55)
Adjusted Taxable Total	$0

Tax Area: 510CSH_NR **Mill Levy:** 41.705

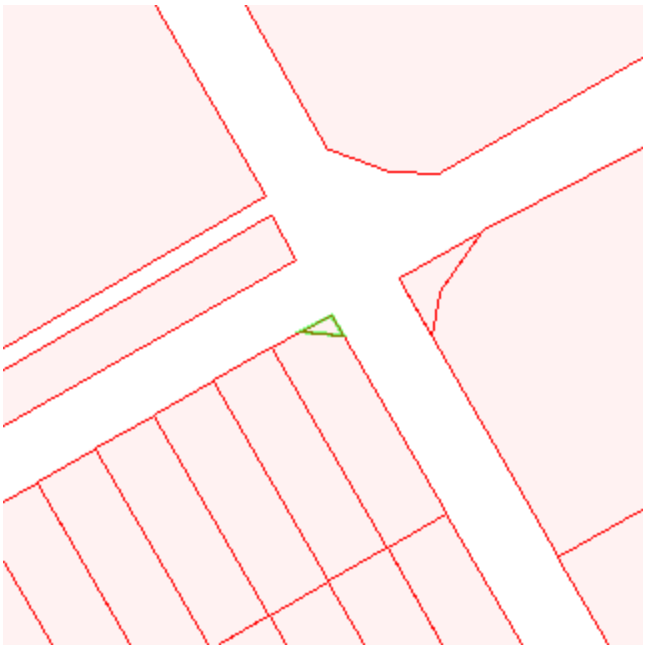
Type	Actual	Assessed	SQFT	Units
Exempt Land	$166	$55	518.364	1.000

Transfers

Sale Date	Doc Description
	PLAT

Images

- GIS



Tax Year	Taxes
2022	$0.00
2021	$0.00

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Account: R118024

Location

Parcel Number 1-015-072-357-395

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 60 Lot: 13-A Unit: 17 PLAT: 3008

Owner Information

Owner Name CITY OF RIO RANCHO

Owner Address 3200 CIVIC CENTER CIR NE
RIO RANCHO, NM 87144-4503
UNITED STATES OF AMERICA

Assessment History

Actual Value (2018)	$6,804
Primary Taxable	$2,268
Exempt	($2,268)
Adjusted Taxable Total	$0

Tax Area: 510CSH_NR **Mill Levy:** 41.705

Type	Actual	Assessed	SQFT	Units
Exempt Land	$6,804	$2,268	21261.636	1.000

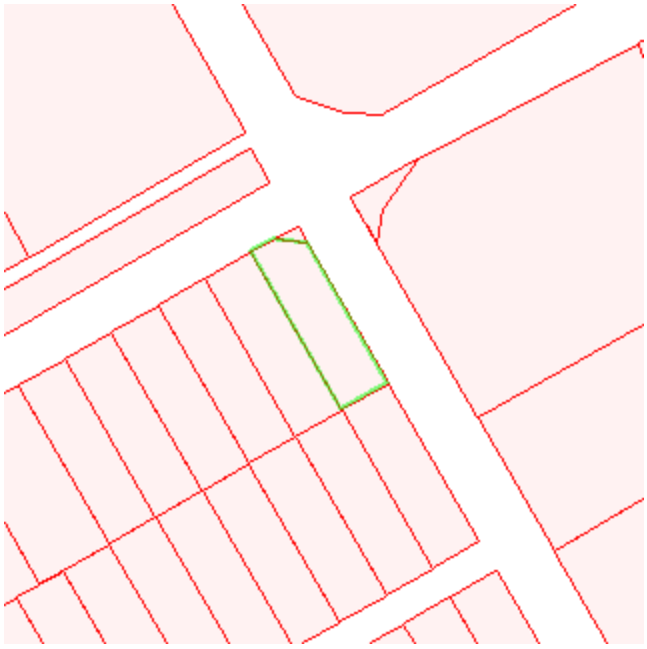
Transfers

Sale Date	Doc Description
02/17/2009	CASH SALE
	PLAT

Tax Year	Taxes
2022	$0.00
2021	$0.00

Images

- GIS



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Account: R188300

Location

Parcel Number 1-014-071-022-462

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 4 T: 12N R: 3E S: 5 T: 12N R: 3E S: 7 T: 12N R: 3E S: 8 T: 12N R: 3E Subd: RIO RANCHO ESTATES Block: 34 Unit: 17, Subd: RIO RANCHO ESTATES Block: 32 Unit: 17, Subd: RIO RANCHO ESTATES Block: 31 Unit: 17, Subd: RIO RANCHO ESTATES Block: 30 Unit: 17, Subd: RIO RANCHO ESTATES Block: 24 Unit: 17, Subd: RIO RANCHO ESTATES Block: 22 Unit: 17, Subd: RIO RANCHO ESTATES Block: 18 Unit: 17 GAS LINE EASEMENT TRACT

Owner Information

Owner Name AMREP SOUTHWEST INC

Owner Address 409 NM HWY 528 NE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022)	$45,550
Primary Taxable	$15,183
Tax Area: 510CSH_NR **Mill Levy**: 41.705	

Type	Actual	Assessed
Non-Residential Land	$45,550	$15,183

Transfers

Sale Date	Doc Description
	QUIT CLAIM DEED
	PLAT
	PLAT
	PLAT

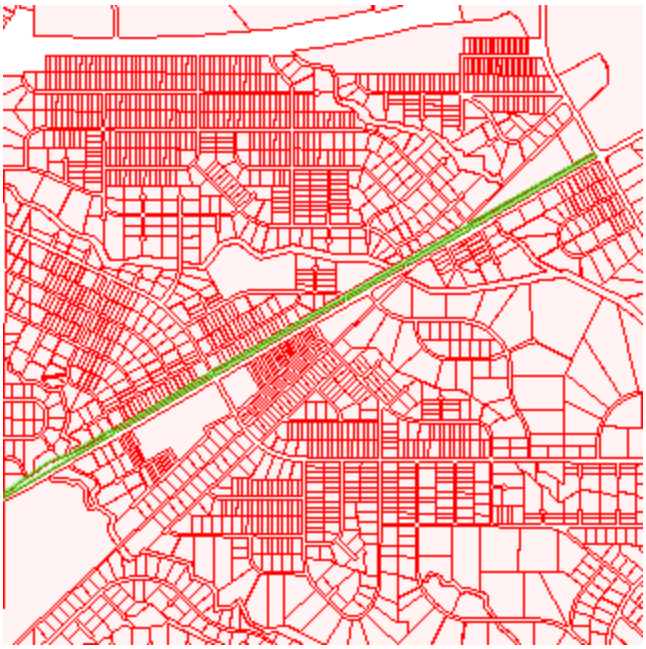
Tax Year	Taxes
2022	$633.20
2021	$412.24

Two-year TRC history:

2021 Processed by Treasurer

Images

- GIS



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Account: R052675

Location

Parcel Number 1-015-072-333-440

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 4 T: 12N R: 3E Subd: RIO RANCHO ESTATES Unit: 17 Tract: G1

Owner Information

Owner Name SHADY VENTURES LLC

Owner Address 9600 TENNYSON ST NE
ALBUQUERQUE, NM 87122-2282
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $100,188

Primary Taxable $33,396

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$100,188	$33,396	5.000	217800.000	1.000

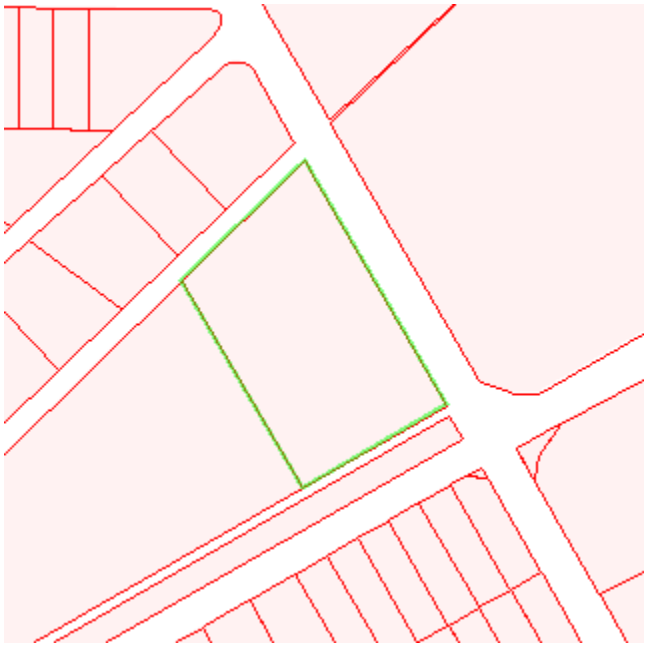
Transfers

Sale Date	Doc Description
04/22/2021	WARRANTY DEED
12/31/2020	WARRANTY DEED
	SPECIAL WARRANTY DEED
	PLAT
	QUIT CLAIM DEED
	PLAT

Tax Year	Taxes
2022	$1,392.80
2021	$839.20

Images

- Photo
- GIS



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Account: C066873

Location

Parcel Number

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Subd: RIO RANCHO ESTATES Block: 62 Lot: 38 Unit: 17, Subd: RIO RANCHO ESTATES Block: 177 Lot: 1 Unit: 20 AND:- Lot: 2 Unit: 20 AND:- Lot: 3 Unit: 20 AND:- Lot: 4 Unit: 20 AND:- Lot: 5 Unit: 20 AND:- Lot: 6 Unit: 20 AND:- Lot: 10 Unit: 20 AND:- Lot: 11 Unit: 20 AND:- Lot: 12 Unit: 20 AND:- Lot: 13 Unit: 20, Subd: RIO RANCHO ESTATES Unit: 21 AND:- Unit: 20 Tract: CC-2, 8-A, Subd: RIO RANCHO ESTATES Block: 97 Lot: 41 Unit: 20 AND:- Lot: 42 Unit: 20, Subd: RIO RANCHO ESTATES Block: BB Lot: 33 Unit: 17 AND:- Lot: 34 Unit: 17 CENTRAL ASSESSED 94-IN (SSCAFCA)

Owner Information

Owner Name PUBLIC SERVICE COMPANY OF NEW MEXICO

Owner Address CORPORATE HEADQUARTERS MS 1025
ALBUQUERQUE, NM 87158-0001
UNITED STATES OF AMERICA

Assessment History

Actual (2022)	$58,738,143
Primary Taxable	$19,579,381

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed
Central Assessed	$58,738,143	$19,579,381

Transfers

Sale Date	Doc Description
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED
	WARRANTY DEED

Images

Tax Year	Taxes
2022	$816,558.08
2021	$883,338.40

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Account: R069599

Location

Parcel Number 1-015-072-279-499

Tax Area 510CSH_R - 510CSH_R

Situs Address 5194 27TH AVE NE

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 63 Lot: 12 Unit: 17

Owner Information

Owner Name BACA, DEBRA

Owner Address 5194 27TH AVE NE
RIO RANCHO, NM 87144-4702
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022 - Residential Cap applied)	$131,981
Primary Taxable	$43,994
Exemption Adjustments:	
Head of Family Exemption	($2,000)
Adjusted Taxable Total	$41,994

Tax Area: 510CSH_R **Mill Levy**: 36.551

Type	Actual	Assessed	Acres	SQFT	Units
Residential Land	$46,835	$15,612	1.210	52707.600	1.000
Residential Improvement	$85,146	$28,382		1318.000	

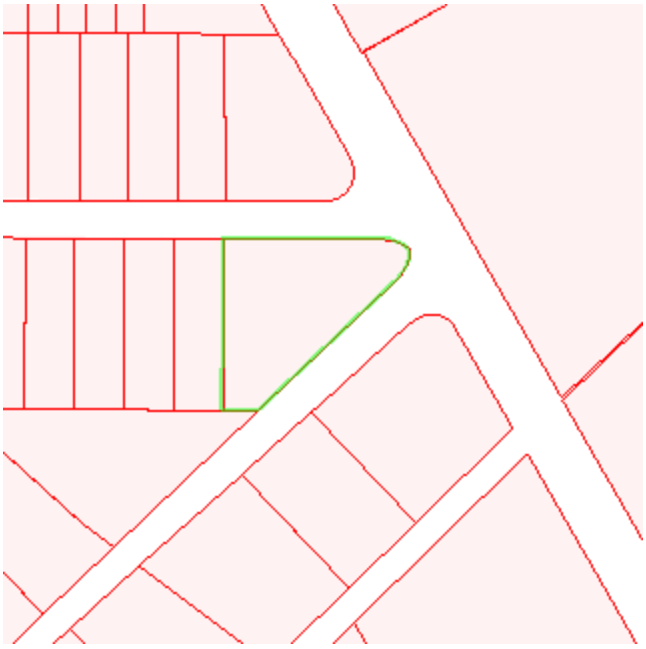
Transfers

Sale Date	Doc Description
05/18/2015	WARRANTY DEED
	WARRANTY DEED
	PLAT

Tax Year	Taxes
2022	$1,608.04
2021	$1,576.96

Images

- Map
- Photo
- Sketch
- GIS



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Account: R069804

Location

Parcel Number 1-015-073-276-008

Tax Area 510CSH_R - 510CSH_R

Situs Address 5195 27TH AVE NE

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: 65 Lot: 17 Unit: 17

Owner Information

Owner Name SALAIS, RIGBERTO & ROSA MARIE

Owner Address 5195 27TH AVE
RIO RANCHO, NM 87124
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022 - Residential Cap applied) $123,646

Primary Taxable $41,215

Tax Area: 510CSH_R **Mill Levy**: 36.551

Type	Actual	Assessed	Acres	SQFT	Units
Residential Land	$38,665	$12,888	1.010	43995.600	1.000
Residential Improvement	$84,981	$28,327		1562.000	

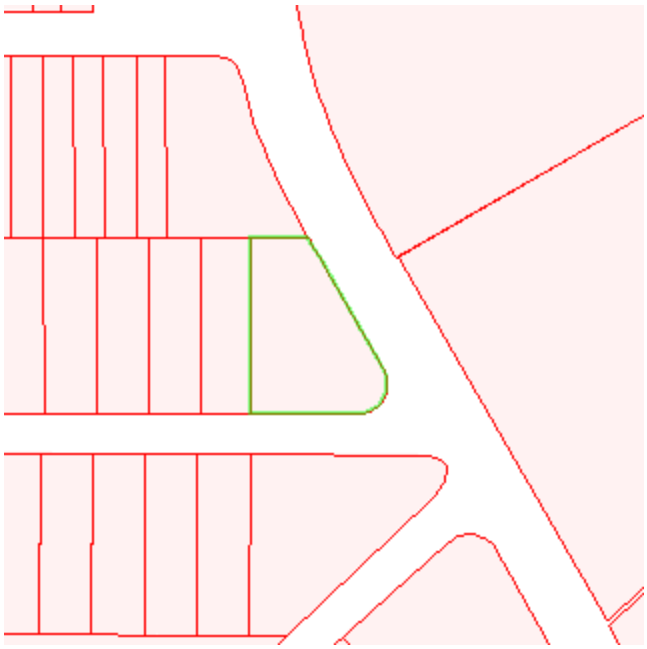
Transfers

Sale Date	Doc Description
	WARRANTY DEED
	PLAT

Tax Year	Taxes
2022	$1,506.44
2021	$1,477.40

Images

- Map
- Photo
- Sketch
- GIS



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Account: R102855

Location

Parcel Number 1-015-073-264-035

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: Subd: RIO RANCHO ESTATES Block: N Lot: 24 Unit: 17 SUB: RIO RANCHO ESTATES UNIT: 17 BLK: N LOT: 24 PG: 0

Owner Information

Owner Name MC DONALD, DONALD P & ADELE

Owner Address 26 HARTFORD AVE
STATEN ISLAND, NY 10310
UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $11,953

Primary Taxable $3,984

Tax Area: 510CSH_NR **Mill Levy**: 41.705

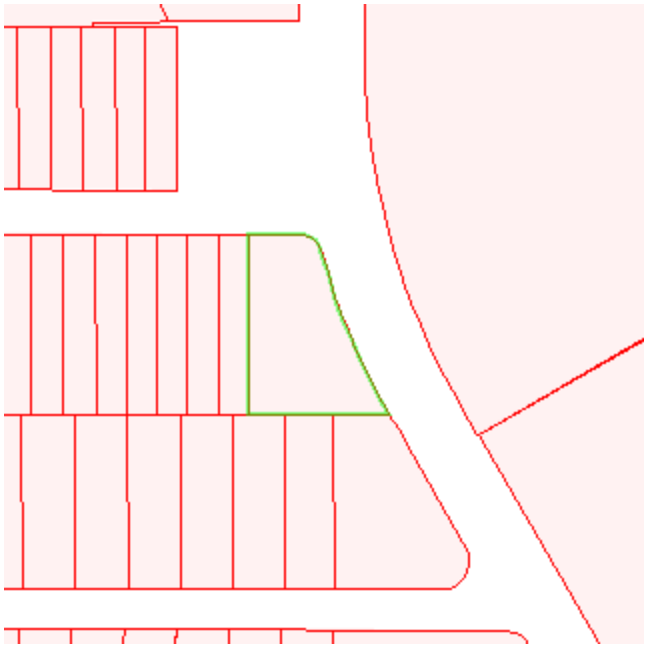
Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$11,953	$3,984	0.980	42688.800	1.000

Transfers

Sale Date	Doc Description
	MISCELLANEOUS
	PLAT

Images

- GIS



Tax Year	Taxes
2022	$166.16
2021	$117.48

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Account: R183297

Location

Parcel Number 1-015-073-472-105

Tax Area 510CSH_NR - 510CSH_NR

Situs Address

Legal Summary Legal: S: 33 T: 13N R: 3E S: 34 T: 13N R: 3E S: 3 T: 12N R: 3E S: 4 T: 12N R: 3E Subd: SANDOVAL COUNTY LANDFILL Tract: A1A LANDFILL

Owner Information

Owner Name SANDOVAL COUNTY

Owner Address PO BOX 40
BERNALILLO, NM 87004-0040
UNITED STATES OF AMERICA

Assessment History

Actual Value (2021)	$7,765,297
Primary Taxable	$2,588,432
Exempt	($2,588,432)
Adjusted Taxable Total	$0

Tax Area: 510CSH_NR **Mill Levy**: 41.705

Type	Actual	Assessed	Acres	SQFT	Units
Exempt Land	$7,765,297	$2,588,432	178.267	7765297.400	1.000

Transfers

Sale Date	Doc Description
	PLAT
	STIPULATED ORDER
05/16/2014	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
	QUIT CLAIM DEED
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	PLAT
	PLAT

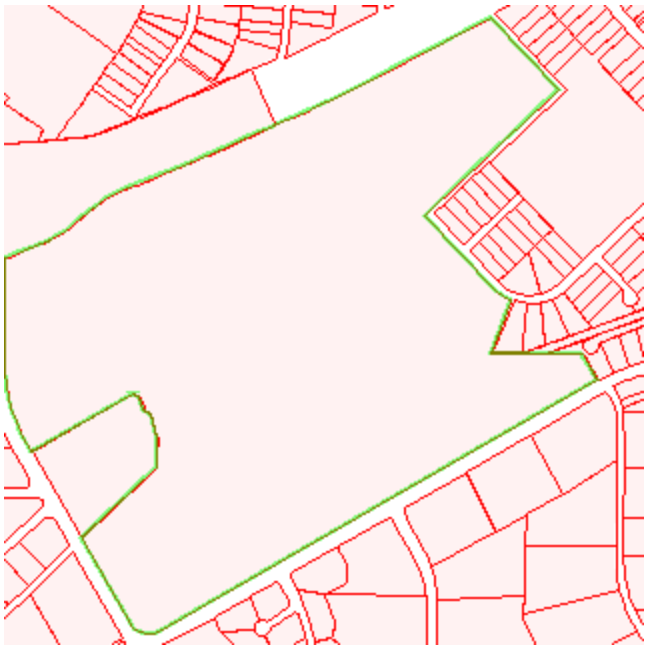
PLAT

PLAT

Tax Year	Taxes
2022	$0.00
2021	$0.00

Images

- GIS



ATTACHMENT 9.7

Sample of letters Sent to Owners of Record

Parkhill

March 3, 2023

To whom it may concern;

Sandoval County Landfill announces its application submittal to the New Mexico Environment Department for a significant revision of the Sandoval County Landfill Air Quality Permit. Expected date of application submittal to the Air Quality Bureau is March 7, 2023.

The exact location for the Sandoval County Landfill is 2708 Iris Road, NE, Rio Rancho, NM 87124. The facility is located immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of intersection of NM 528 and Iris Road in Sandoval County NM.

The proposed revision consists of the following

> The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes.

The estimated maximum site-wide quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	31.4 pph	25.6 tpy
$PM_{2.5}$	4.5 pph	3.5 tpy
Sulfur Dioxide (SO_2)	0.83 pph	0.58 tpy
Nitrogen Oxides (NO_x)	12.84 pph	8.94 tpy
Carbon Monoxide (CO)	5.1 pph	2.4 tpy
Volatile Organic Compounds (VOC)	5.8 pph	24.98 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	5.6 pph	24.5 tpy
Green House Gas Emissions as Total CO_2e	n/a	83,209 tpy

The standard and maximum operating schedule of the facility will be from 7:00 a.m. to 4:00 p.m. 6 days a week and a maximum of 52 weeks per year.

The owner and operator of the facility are:

Sandoval County Department of Public Works (Owner)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operator)
2708 Iris Road NE
Rio Rancho, NM 87124

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Other comments and questions may be submitted verbally 505.476.4300; 1.800.224.7009.

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Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505.629.3395.

Sincerely,

Sandoval County Landfill
2708 Iris Rd. NE
Rio Rancho, NM 87124

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ to learn how and where to file a complaint of discrimination.

Parkhill

3 de Marzo de 2023

A quien le interese;

El Relleno Sanitario del Condado de Sandoval (Sandoval County Landfill) anuncia la presentación de su solicitud ante el Departamento del Medio Ambiente de Nuevo México para una revisión significativa del Permiso relativo a la calidad del aire del Relleno Sanitario del Condado de Sandoval. La fecha prevista para la presentación de la solicitud ante la Oficina para la Calidad del Aire (Air Quality Bureau) es el 7 de marzo de 2023.

La ubicación exacta del Relleno Sanitario del Condado de Sandoval es 2708 Iris Road, NE, Rio Rancho, NM 87124. Las instalaciones se encuentran inmediatamente al norte de la intersección de Iris Road e Idalia Road, aproximadamente 1.5 millas al noroeste de la intersección de la carretera NM 528 e Iris Road en el Condado de Sandoval, NM.

Revisión propuesta:

> El Relleno Sanitario del Condado de Sandoval solicita una Modificación significativa del Permiso con una Revisión de Fuente Nueva (NSR por sus siglas en inglés) para incorporar las modificaciones planeadas para la ruta de depósito de las instalaciones y otras modificaciones en la orientación de la carretera de las instalaciones, además de cambios en el volumen del tráfico.

A continuación se detallan las cantidades máximas estimadas en todo el sitio para los contaminantes regulados del aire en libras por hora (lph) y en toneladas por año (tpa), que podrán cambiar levemente durante el transcurso de la revisión del Departamento.

Contaminante:	Libras por hora	Toneladas por año
Material particulado PM_{10}	31.4 lph	25.6 tpa
Material particulado $PM_{2.5}$	4.5 lph	3.5 tpa
Dióxido de azufre (SO_2)	0.83 lph	0.58 tpa
Óxidos de nitrógeno (NO_x)	12.84 lph	8.94 tpa
Monóxido de carbono (CO)	5.1 lph	2.4 tpa
Compuestos Volátiles Orgánicos	5.8 lph	24.98 tpa
Suma total de todos los contaminantes peligrosos en el aire	5.6 lph	24.5 tpa
Emisiones de gases de efecto invernadero (CO_2 equivalente total)	n/a	83,209 tpa

El horario de funcionamiento estándar y máximo de las instalaciones será de 7:00 a.m. a 4:00 p.m. 6 días por semana y un máximo de 52 semanas por año.

El propietario y el operador de las instalaciones son:

Sandoval County Department of Public Works (Propietario)
2708 Iris Rd. NE
Rio Rancho, NM 87124

Sandoval County Landfill (Operador)
2708 Iris Road NE
Rio Rancho, NM 87124

333 Rio Rancho Boulevard NE | Suite 400 | Rio Rancho, New Mexico 87124 | 505.867.6990 Parkhill.com

Si tiene comentarios acerca de la construcción o del funcionamiento de estas instalaciones y desea que sus comentarios formen parte del proceso de revisión del permiso, deberá presentar sus comentarios por escrito al Administrador de Programas de Permisos de la Oficina para la Calidad del Aire del Departamento del Medio Ambiente de Nuevo México: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; https://coda.io/@todd-hochman-work/current-permitting-actions-under-review. Otros comentarios y preguntas podrán presentarse verbalmente 505.476.4300; 1.800.224.7009;.

Sírvase hacer referencia al nombre de la empresa y al nombre de las instalaciones, o envíe una copia de este aviso junto con sus comentarios ya que el Departamento podría no haber recibido aún la solicitud del permiso. Por favor, incluya con sus comentarios una dirección de retorno legible. Una vez que el Departamento haya hecho una revisión preliminar de la solicitud y de su impacto en la calidad del aire, se publicará el aviso del Departamento en la sección legal de un periódico de circulación en la zona cercana a las instalaciones.

Atención
Este es un aviso de la Oficina para la Calidad de Aire del Departamento del Medio Ambiente de Nuevo México, relativo a las emisiones producidas por instalaciones ubicadas en esa zona. Si desea recibir información en español, sírvase comunicarse con esa oficina llamando al 505.629.3395.

Sinceramente,

Sandoval County Landfill
2708 Iris Rd. NE
Rio Rancho, NM 87124

Aviso de no discriminación
El Departamento del Medio Ambiente de Nuevo México (NMED por sus siglas en inglés) no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo exigido por las leyes y los reglamentos correspondientes. El NMED es responsable de la coordinación de esfuerzos para el cumplimiento de las reglas y la recepción de indagaciones relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, que incluye el Título VI de la Ley de Derechos Civiles de 1964, como fuera enmendado; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975; el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas a la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene preguntas sobre este aviso o sobre los programas, las normas o los procedimientos de no discriminación del NMED, o si cree que ha sido discriminado con respecto a un programa o actividad del NMED, puede comunicarse con la Coordinadora de No Discriminación: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, PO Box 5469, Santa Fe, NM 87502, 505.827.2855, nd.coordinator@state.nm.us. También puede visitar nuestro sitio web en https://www.env.nm.gov/general/environmental-justice-in-new-mexico/ para saber cómo y dónde presentar una queja por discriminación.

ATTACHMENT 9.8

Copy and Documentary Proof of PSA Submittal to Local Radio Station

Public Service Announcement

NOTICE:

The Sandoval County Department of Public Works announces its application to the New Mexico Environment Department for a modification to the Sandoval County Landfill Air Quality Permit. The date of application submittal to the Air Quality Bureau is expected to be March 7, 2023.

The Sandoval County Landfill is located at 2700 Iris Road NE, Rio Rancho, NM 87124, which is immediately north of the intersection of Iris and Idalia Roads, approximately 1.5 miles northwest of the intersection of NM 528 and Iris Rd. in Rio Rancho.

The Sandoval County Landfill is Applying for a New Source Review (NSR) Significant Permit Modification to accommodate planned modifications to the facility disposal route and other facility roadway orientation modifications, as well as changes in traffic volumes..

Notice of this filing has been posted in the following locations:

1. Sandoval County Landfill scalehouse, 2700 Iris Road NE, Rio Rancho, NM, 87124
2. Sandoval County Department of Public Works Office, 2708 Iris Road Ne, Rio Rancho, NM 87124
3. Rio Rancho City Hall, 3200 Civic Center Circle NE, Rio Rancho, NM 87144
4. Bernalillo Town Hall, 829 Camino del Pueblo, Bernalillo, NM 87004

Questions and comments regarding this notice may be directed to:

Permit Programs Manager
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505-1816
Phone: (505) 476-4300 or 1 800 224-7009

Submittal of Public Service Announcement – Certification

I, Andrew N Yuhas, the undersigned, certify that on March 3, 2023, I submitted a public service announcement to KKOB 770 AM that serves the Town of Bernalillo and the City of Rio Rancho, Sandoval County, New Mexico, in which the source is located or is proposed to be located.

Signed this 3 day of March, 2023.

Signature

3/3/2023
Date

Andrew N. Yuhas
Printed Name

Professional Geologist
Title

ATTACHMENT 9.9

Map of Facility and Surrounding Owners of Record

351784 304723
352284 304723
352784 304723
353284 304723
3908689 294091
3908189 294091

1016073098298
1016073104292
1016073120275
1016073076217
1016073115280
1016073110288
1016073114225
1015073257083
1015073058194
1015073041178
1015073053189
1015073035172
1015073047183
1015073051143
1015073057148
1015073030167
1015073071135
1015073063101
1015073091121
1016073186108
1015073079100
1015073472105
1015073079100
1016073153085
1015073103109
1016073144057
1016073165106
1016073141081
1015073326010
1015073264035
1016073102029
1015073276008
1016073066001
Idalia Rd NE
1016072025501
1015072296483
1015072510476
Iris Rd NE
1015072441452
1015072473470
1015072333440
1015072421441
1015072262362
1015072396409
1015072396409
1015072365415

SANDOVAL COUNTY LANDFILL
Rio Rancho, NM 87144

Legend

- 140-foot Buffer
- Landfill Property
- Surrounding Properties

Coordinate System: Transverse Mercator

Service Layer Credits:

1,000 500 0 1,000 Feet

PARKHILLSMITH&COOPER

Section 10

Written Description of the Routine Operations of the Facility

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A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

10.0 Operational Plan

10.1 Solid Waste Permit Operational Plans

The April 2015 (Updated February 2016) Solid Waste Permit Application for the Sandoval County Landfill includes detailed operating and construction plans for the Landfill. For example, the following Plans are included in Volume II (Landfill Management Plans) of both Permit Applications:

Section 1: Engineering Drawings

Section 2: Plan of Operations

Section 3: Contingency Plan

Section 4: Construction Quality Assurance (CQA) Plan

Section 5: Closure/Post-Closure Plan

Section 6: Landfill Gas Management Plan

Section 7: Leachate Management Plan

Section 8: Sludge Disposal Management Plan

Section 9: Petroleum Contaminated Soils Management Plan

Section 10: Transportation Plan

Section 11: Composting Plan of Operations

The 2016 Plans have been approved by NMED Solid Waste Bureau (SWB), and are incorporated by reference in the facility's Permit (Solid Waste Facility I.D. No. SWM-0123365). A copy of the 2016 Plan is available at SWB, and will be made available by Sandoval County Landfill upon request. **Section 14** contains a description of measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies for landfill operations that have the potential to emit pollutants of concern (e.g., particulates, NMOCs, VOCs). There are no known major bottlenecks that limit production at SCLF.

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)**:**

Sandoval County Landfill and all associated activities occur on-site within the property boundaries of the facility.

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☒ **Yes** ☐ **No**

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

☒ **Yes** ☐ **No**

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

☒ **Yes** ☐ **No**

C. Make a determination:

☒ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

This document represents an application being submitted under 20.2.70 NMAC, and is not subject to the requirements of this part

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☒ **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

This document represents an application being submitted for a minor source under the provisions of 20.2.70 NMAC, and is not subject to the requirements of this part.

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/

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	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	Compliance with NMAAQS is demonstrated in the Air Dispersion Modeling Analysis Report (Submitted to NMED AQB as part of this application)
20.2.7 NMAC	Excess Emissions	Yes	Facility	Facility is subject to 20.2.70, 20.2.72 and 20.2.73 NMAC, but is not subject to established enforceable fugitive emissions limits
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	No affected facilities
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This facility has oil burning equipment which consists of waste oil burners for personal comfort. These heaters have design rates less than 1,000,000 BTU/yr/unit
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	No affected facilities
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	No	N/A	No affected facilities
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	No affected facilities
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	No affected facilities
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	2B, 2C, 5D, 6	Units 2B, 2C, 5D, and 6 (diesel engines) are subject to periodic opacity observation requirements.
20.2.64 NMAC	Municipal Solid Waste Landfills	Yes	Facility	Facility is an Active Municipal Solid Waste Landfill as defined by and subject to this Part.
20.2.70 NMAC	Operating Permits	Yes	Facility	Source is submitting a permit Renewal which falls under the requirements of 20.2.70.300 NMAC. This Permit Renewal satisfies applicable requirements of this Part.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	Facility is subject to 20.2.70 NMAC and is in turn subject to 20.2.71 NMAC. The facility will submit required fees as assessed by NMED.
20.2.72 NMAC	Construction Permits	Yes	Facility	This facility is subject to 20.2.72 NMAC (NSR Permit No. 4111-M2).

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.)
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The facility will submit emissions inventory as requested by NMED.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This facility is not a PSD major source as defined by: 20.2.74 NMAC.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This facility is subject to 20.2.72 NMAC and is in turn subject to 20.2.75 NMAC. The issuance of NSR Permit No. 4111-M2 includes annual permit fees.
20.2.77 NMAC	New Source Performance	Yes	Facility	The facility is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended through September 21, 2006. Operating Permit No. P-243L-R2 satisfies NSPS requirements.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	The facility is not a major source for HAPs (NMOC emissions are < 50 Mg/yr, facility-wide HAP emissions <10tpy individually and < 25tpy in the aggregate).
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	The facility is not a major source, and is not located in a Non-attainment Area.
20.2.80 NMAC	Stack Heights	No	N/A	No affected units
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Units 2B, 2C	Units 2B and 2C (Wood Chipper and Compost Screen diesel engines) are subject to the provisions of 40 CFR 63 Subpart ZZZZ, and are, therefore subject to this part. The units are considered stationary RICE located at an area source of HAP emissions that were constructed on or before June 12, 2006.

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	Compliance with NAAQS is demonstrated in the Air Dispersion Modeling Analysis Report (Submitted to NMED AQB as part of this application)
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Facility	The facility will comply with applicable sections.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	N/A	The facility does not own any storage vessels with capacities > 40,000 gallons.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No	N/A	The facility does not own any storage vessels with capacities > 40,000 gallons.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	N/A	No affected units.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	5D and 6	Units 5D and 6 (Crusher/Shredder Engine and Portable Rock Crusher (Rental)) are subject to the provisions of this part. The units are considered stationary compression ignition (CE that commenced construction after April 1, 2006).
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	N/A	No affected units
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for	No	N/A	No affected units

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Electric Generating Units			
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	No affected units
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	Yes	Facility	Facility is subject to 40 CFR 60 Subpart WWW. The facility will comply with applicable sections.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	No affected facilities
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	N/A	No affected facilities
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	N/A	No affected facilities
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units 2B, 2C and Vehicle Fueling	Units 2B, 2C and the vehicle fueling operations are subject to various subparts of 40 CFR 63, and are, therefore, subject to requirements of this part.
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	No	N/A	No affected facilities
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	No affected facilities
MACT 40 CFR 63 Subpart AAAA	National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills	No	N/A	Overall facility emissions do not exceed 10 tons/year for any individual HAP; or 25 tons/year of aggregate HAPs on a site-wide basis
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	No affected facilities

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	N/A	No affected facilities
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	2B, 2C	Units 2B and 2C (Wood Chipper and Compost Screen diesel engines) are subject to the provisions of this part. The units are considered stationary RICE located at an area source of HAP emissions that were constructed on or before June 12, 2006.
MACT 40 CFR 63 Subpart CCCCCC	Nathinal Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	Yes	Vehicle Fueling Operations	The gasoline dispensing facility at SCLF is subject to the requirements of 40 CFR 63, Subpart CCCCCC, §63.11111(c) as a Gasoline Dispensing Facility (GDF) with throughput of greater than 10,000 gal/month, but less than 100,000 gal / month.
40 CFR 64	Compliance Assurance Monitoring	No	N/A	This facility does not have an emissions source subject to the provisions of 40 CFR 64.
40 CFR 68	Chemical Accident Prevention	No	N/A	The facility does not have more than a threshold quantity of a regulated substance as determined under 40 CFR 68.115, and, therefore, is not required to comply with the requirements of this part.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No	N/A	Does not apply to this application
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	N/A	No affected facilities
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	N/A	No affected facilities
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	N/A	No affected facilities
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	Yes	Facility	SCLF does not service refrigerant-containing devices, but does disposes of or recycle formerly-refrigerant-containing devices, and requires a certification that all refrigerant has been removed prior to acceptance.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☐ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

SCLF has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, Scheduled Maintenance, and Emergencies. This Plan is summarized in **Section 3**, and is maintained on-site as part of the Facility Operating Record.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

Alternative Operating Scenarios

The Sandoval County Landfill disposes of municipal solid waste (MSW), construction and demolition (C&D) debris and wastewater treatment plant (WWTP) sludge; and processes and disposes of petroleum contaminated soils (PCS). In addition, the Landfill operates an in-vessel composting system that will be constructed and operated in "Phases". With the expanding population of the Landfill's service area, it is reasonable to expect an increase in the acceptance rates of MSW, WWTP sludge, PCS, and green waste (compost feedstock) at the Landfill over the lifetime of the facility.

Composting Operation – Phase I of the Composting Operation processes chipped green waste, woody C&D debris and manure using water as a feedstock, and can produce up to 10 tons of compost per day. The aerobic composting system uses a computerized control system of blowers and dampers to maintain ideal temperatures and oxygen levels for the production of compost.

The Composting Operation also includes provisions to utilize WWTP sludge as a feedstock upon implementation of Phase II (total design capacity production rate of 50 tons/day). Chipped green waste and woody C&D debris are mixed with water and manure in ratios necessary to achieve an ideal carbon/nitrogen ratio, and then loaded into sealed compost digesters.

The compost mix for each Phase is allowed to digest for 14 to 21 days, at which time it is unloaded from the digesters and deposited into windrows to cure for a minimum of 90 days. Process odors produced by the aerobic composting processes are minimized by processing the air through a biofilter containing select chipped green waste.

Control Measures for Disposal Routes and Control Efficiency – The Sandoval County Landfill may elect to apply select fugitive dust control measures to on-site roads to achieve greater control efficiencies in the future. The following control efficiencies, recommended by the AQB, will be applied if and when such control measures are warranted:

Haul Road Dust Control Measures and Control Efficiency:

Control Measure	**Control Efficiency**
None	0%
Base course **or** watering	60%
Basecourse and watering	80%
Chip seal – swept and watered	85%
Base course **and** surfactant	90%
Paved **and** Swept	95%

Section 16

Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	N/A
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.	**X**
Reporting existing pollutants that were not previously reported.	N/A
Reporting existing pollutants where the ambient impact is being addressed for the first time.	N/A
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	N/A
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	N/A
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	N/A
Other: i.e. SSM modeling. See #2 above.	N/A
This application does not require modeling since this is a No Permit Required (NPR) application.	N/A
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	N/A
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.	N/A

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☒ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☐ No modeling is required.

Air Dispersion Modeling in support of Title V Operating Permit P243L-R2 was last performed and approved in 2018, and modeling in support of NSR Permit 4111-M2 was last performed and approved in 2021.

An Air Dispersion Modeling (ADM) is included with this Application, and is intended to support both this Application for NSR Permit Revision, and previously-submitted Title V Operating Permit Renewal Application. Modeling is required due to changes in emissions and source locations per 20.2.72.219.D NMAC. This Application for NSR Permit Revision incorporates those changes to be included in the Title V Operating Permit Renewal.

Attachment 16.1

Section UA4

Air Dispersion Modeling Report

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

Introduction

The modifications in this application affect only particulate emissions (PM_{10} and $PM_{2.5}$). There are changes in the permitted particulate emission rates and relocations of a significant number of the particulate sources.

There are no modifications to the combustion sources (engines) at the facility. They are not being relocated, emission rates are not being changed, and as stated in the current permit only one engine will be in operation at the facility at any given time. As a result, NO_2, CO, and SO_2 modeling is not required.

16-A: Identification

1	Name of facility:	**Sandoval County Landfill**
2	Name of company:	**Sandoval County**
3	Current Permit number:	**4111-M2 & P243L-R2**
4	Name of applicant's modeler:	**James Newby**
5	Phone number of modeler:	**(801) 294-3024**
6	E-mail of modeler:	**jnewby@cirrusllc.com**

16-B: Brief

1	Was a modeling protocol submitted and approved?	**Yes☒**	No☐
2	Why is the modeling being done?	**Moving Equipment**	
3	Describe the permit changes relevant to the modeling.		
	The facility is both updating emissions and changing the location of sources.		
4	What geodetic datum was used in the modeling?	**WGS84**	

5	How long will the facility be at this location?	**Indefinitely**	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	**No☒**
7	Identify the Air Quality Control Region (AQCR) in which the facility is located:	**152**	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	**N/A as NO2 modeling is not required**	
	SO2	**N/A as SO2 modeling is not required**	
	PM10	**03/26/1997**	
	PM2.5	**02/11/2013**	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Bandelier Wilderness Area (49.7 km)		
10	Is the facility located in a non-attainment area? If so, describe below	Yes☐	**No☒**
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

1 Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	**P243L-R2**	**9/28/2018**	**Modeled for NAAQS and NMAAQS**
NO_2	**P243L-R2**	**9/28/2018**	**Modeled for NAAQS and NMAAQS**
SO_2	**P243L-R2**	**9/28/2018**	**Modeled for NAAQS and NMAAQS**
H_2S	**N/A**	**N/A**	**N/A**
PM2.5	**P243L-R2**	**9/28/2018**	**Modeled for NAAQS and NMAAQS**
PM10	**P243L-R2**	**9/28/2018**	**Modeled for NAAQS and NMAAQS**
Lead	**N/A**	**N/A**	**N/A**
Ozone (PSD only)	**N/A**	**N/A**	**N/A**
NM Toxic Air Pollutants (20.2.72.402 NMAC)	**N/A**	**N/A**	**N/A**

16-D: Modeling performed for this application

1 For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.

	CO	☐	☐	☐	☐	☒
	NO_2	☐	☐	☐	☐	☒
	SO_2	☐	☐	☐	☐	☒
	H_2S	☐	☐	☐	☐	☒
	PM2.5	☐	☒	☐	☐	☐
	PM10	☐	☒	☐	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

The modeling was conducted in accordance with the modeling protocol and the current NMAQB modeling guidelines. A copy of the modeling protocol is provided as a part of this report.

16-E: New Mexico toxic air pollutants modeling

1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. **N/A**					
2	List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.					
	Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
	N/A					

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	**Yes☒**	No☐
	N/A		

Both significant and cumulative impact modeling were conducted using the latest version of the AMS/EPA Regulatory Model (AERMOD). The Beeline Software BEEST for Windows modeling manager was used to prepare the input files and manage processing. The EPA recommended defaults were used. As the station is located in a rural area, urban area modeling was not conducted.

16-G: Surrounding source modeling

1	Date of surrounding source retrieval:	**January 26, 2023**
2	If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.	
	AQB Source ID	Description of Corrections
	1128E2	**This source from MergeMaster was not included in the modeling as no emission rate was identified.**
	1103E92	**This source from MergeMaster was not included in the modeling as no emission rate was identified.**

The modeling was conducted using both background concentrations and neighboring sources. The neighboring sources were obtained from the NMAQB (Eric Peters) using MergeMaster, from an email dated 1/26/2023.

Cumulative PM_{10}, and $PM_{2.5}$ impacts used to demonstrate compliance with the NAAQS were calculated as facility impacts plus neighboring source impacts plus background concentrations. Neighboring sources were all those within 10 km of the facility.

Cumulative PM_{10}, and $PM_{2.5}$ impacts used to demonstrate compliance with the PSD increment were calculated as facility impacts plus neighboring source impacts. Class II neighboring sources were all those within 25 kilometers of the facility, plus sources emitting over 1,000 pounds per hour within 50 kilometers of the facility. Note that Class I neighboring sources were not needed, as there were no significant impacts at the Bandelier Wilderness Area.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	**≈40**		
2	How many above ground storage tanks are present at the facility?	**0**		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☐	**No☒**
	The buildings are not located near any of the point sources.			
4	Building comments	**The one diesel engine included in the modeling, the shredder engine, is located on the shredder. This piece of equipment was assumed to be a structure creating downwash. Since the future orientation of the equipment can vary, the engine stack was modeled as though it was located in the center of the structure (though it is actually located near one end of the structure).**		

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.						
	Fence						
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?					Yes☐	**No☒**
3	Are restricted area boundary coordinates included in the modeling files?					**Yes☒**	No☐
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.						
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments	
	Cartesian	**Rectangle**	**50 m**	**0 m**	**500 m**		
	Cartesian	**Rectangle**	**100 m**	**500 m**	**1,000 m**		
	Cartesian	**Rectangle**	**250 m**	**1,000 m**	**3,000 m**		
	Cartesian	**Rectangle**	**500 m**	**3,000 m**	**5,000 m**		
5	Describe receptor spacing along the fence line.						

	Maximum 50 meter spacing
6	Describe the PSD Class I area receptors.
	To model significant impacts at the Bandelier Wilderness Area, a single receptor was placed on the border of the Class I area at the point nearest the Sandoval Landfill. Since there were no significant impacts, no other receptors were needed.

A Cartesian grid with variable receptor spacing was used to evaluate significant impacts around the facility. The grid contained the receptors identified in the table above. There were no significant impacts beyond 5,000 meters from the fence line.

All PM_{10} cumulative impact modeling was conducted using only those receptors within the Scenario 1 24-hour significant impact area. This scenario and averaging period produced the largest PM_{10} radius of impact.

All $PM_{2.5}$ cumulative impact modeling was conducted using only those receptors within the Scenario 3 24-hour significant impact area. This scenario and averaging period produced the largest $PM_{2.5}$ radius of impact.

There were no impacts greater than or equal to 75 percent of the applicable standard within the 100-meter, 250-meter or 500-meter interval portions of the grid.

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☐	**No☒**
	N/A		
2	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	**No☒**

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).
	It is expected that the disposal area will move during the five-year term of the permit. During this time, the disposal area might be located anywhere within the area created by Cell 4B and the three disposal areas shown on the plot plan (see the attached plot plan). **Modeling was conducted using three scenarios, one for each of the disposal area locations shown on the plot plan. As these locations are nearest the property boundaries, they identify the high facility impacts associated with operation of the disposal areas.** **Scraper operations will occur during three consecutive hours each day (modeled as 1000-1300 or 1300-1600). The scraper will not operate from 0700-1000. Preliminary modeling was conducted to determine which time period produced the highest impacts and more importantly which time period produced the highest impacts in the areas of facility high impacts. As a result, scraper operations were modeled from 1300-1600 ((the time period contributing most to the facility high impacts).** **Only one engine will be in operation at the facility during any given hour. The compost screen engine will operate only one hour per day, but that can occur any time from 0700-1600. The wood chipper and shredder engines will operate five hours per day (modeled as 0700-1200 or 1100-1600). The crusher engine will operate a maximum of nine hours per day. Preliminary modeling was conducted to determine which engine, location and time period produced the highest impacts and more importantly which engine, location and time period produced the highest impacts in the areas**

of facility high impacts. As a result, modeling was conducted with the shredder engine located at the northern most shredder location (the location contributing most to the facility high impacts) from 0700-1200.

Crushing and shredding operations at the landfill are limited to two specific areas. The operations are mutually exclusive, crushing operations and shredding operations cannot be located at the same place at the same time. Also, while crushing operations can occur during the entire day, shredding operations are limited to five hours per day (modeled as 0700-1200 or 1100-1600). Preliminary modeling was conducted to determine which operation, location, and time period produced the highest impacts and more importantly which operation, location, and time period produced the highest impacts in the areas of facility high impacts. As a result, modeling was conducted with the shredder being located at the northern most shredder location (the location contributing most to the facility high impacts) from 0700-1200. The crusher operations were modeled as occurring at the remaining location during the entire day (0700-1600).

2 Which scenario produces the highest concentrations? Why?

Scenario 3 produced the highest NAAQS and PSD impacts. This occurred because of the disposal area was near the property boundary in the area where the wind direction produced high impacts.

3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	**Yes☒**	No☐

4 If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.)

The landfill will operate from 7:00 a.m. to 4:00 p.m. Monday through Saturday. The HRDOW flag was used to identify the appropriate emission rate factors for each emission source. Since there are 740 facility sources included in the modeling files, no attempt is made to list them individually in this table. However, a general description is provided below.

Modeling was conducted as follows:

- **Except as noted in the bullets below, facility sources were assumed to operate from 0700-1600 (see the first set of factors below).**
- **The shredder engine, shredder and associated loader were assumed to operate from 0700-1200 (see the second set of factors below).**
- **The scraper was assumed to operate from 1300-1600 (see the third set of factors below).**
- **Wind erosion emission were assumed to be present 24 hours per day. No HRDOW factors were used.**
- **Neighboring sources were assumed to operate as identified by the MergeMaster input files. The numerous HROFDY factors are not provided in the body of this report (see the NAAQS and PSD modeling files provided with this report).**

5

Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor	Hour of Day	Factor
1	**0**	13	**1**	1	**0**	13	**0**	1	**0**	13	**0**
2	**0**	14	**1**	2	**0**	14	**0**	2	**0**	14	**1**
3	**0**	15	**1**	3	**0**	15	**0**	3	**0**	15	**1**
4	**0**	16	**1**	4	**0**	16	**0**	4	**0**	16	**1**
5	**0**	17	**0**	5	**0**	17	**0**	5	**0**	17	**0**
6	**0**	18	**0**	6	**0**	18	**0**	6	**0**	18	**0**
7	**0**	19	**0**	7	**0**	19	**0**	7	**0**	19	**0**

	8	**1**	20	**0**	8	**1**	20	**0**	8	**0**	20	**0**
	9	**1**	21	**0**	9	**1**	21	**0**	9	**0**	21	**0**
	10	**1**	22	**0**	10	**1**	22	**0**	10	**0**	22	**0**
	11	**1**	23	**0**	11	**1**	23	**0**	11	**0**	23	**0**
	12	**1**	24	**0**	12	**1**	24	**0**	12	**0**	24	**0**
	If hourly, variable emission rates were used that were not described above, describe them below.											
	N/A											

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☐	**No☒**
	N/A		

A summary of the preliminary modeling results for the scraper, engine, shredder and crusher operations is provided on the Operating Time tab in the "Sandoval – Modeling – Input Data & Results.xlsx" file.

The distribution of emissions to the various sources can also be seen in the "Sandoval – Modeling – Input Data & Results.xlsx" file. First, emission rates from the application were inserted into the Emissions tab (see the emission rates in red font). Second, where needed, road dust emissions for three scenarios were distributed to the various source groups based on the applicable road lengths (see road lengths in red font). Finally, emissions from the Emissions tab were linked to the individual sources on the Point, Area, Volume#1 and Volume#2 tabs. The road lengths applicable to the three scenarios can be seen on the Road Summary tab.

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply. **N/A**.	
	☐	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	N/A	

3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	**Yes☐**	No☐
	N/A		

4	Describe the design value used for each averaging period modeled. **N/A**
	1-hour: Choose an item. Annual: Choose an item.

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☒	PM10

	☐ None	
2	Describe the particle size distributions used. Include the source of information.	
	The particle size distributions were obtained from the NMAQB. See Tables 2 & 3 in the Model Options section of the modeling protocol. Point sources were modeled using the Table 2 size distributions. Volume and area sources were modeled using the Table 3 size distributions.	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☐ **No☒**
4	Was secondary PM modeled for PM2.5?	Yes☐ **No☒**

5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.			
	NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-}hour}$
	N/A	**N/A**	**N/A**	**N/A**
	N/A			

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☐	**No☒**
	Unit Number in UA-2	Unit Number in Modeling Files	
2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	**Yes☒**	No☐
	The emission rates in Tables 2-E and 2-F of the application were taken from the calculations submitted with the application. These same calculations were used to identify the emissions rates assigned to all the facility sources in the modeling. Allocation of these emission rates to the various sources can be seen in Tabs 2-5 in the "Sandoval – Modeling – Data & Results (2023-03).xlsx" file.		
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	**No☒**
4	Which units consume increment for which pollutants? I**t was assumed that all PM_{10} and $PM_{2.5}$ sources at the facility consume increment.**		

Unit ID	NO_2	SO_2	PM10	PM2.5

	N/A				

5	PSD increment description for sources (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	**N/A**	
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	**Yes☒**	No☐
	It was assumed that all PM_{10} and $PM_{2.5}$ sources at the facility consume increment.		

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following:			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	N/A			

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☐	**No☒**
	N/A		
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	See the Conversions tab in the "Sandoval – Modeling – Data & Results (2023-03).xlsx" file.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	In the model, there are 727 volume sources used to represent facility emissions. Since most emissions from the facility are represented by multiple volume sources, and since each source name in the model must be unique, it is not possible to match the unit numbers in the model with those of the application. **The emission rates in Tables 2-E and 2-F of the application were taken from the calculations submitted with the application. These same calculations were used to identify the emissions rates assigned to all the facility sources in the modeling. Allocation of these emission rates to the various sources can be seen in Tabs 2-5 in the "Sandoval – Modeling – Data & Results (2023-03).xlsx" file.**		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		
	N/A		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	**Yes☒**	No☐
	CO: Choose an item.		

	NO_2: Choose an item.	
	PM2.5: Del Norte High School (350010023)	
	PM10: Choose an item.	
	SO_2: Choose an item.	
	Other:	
	Comments:	**Note that the Del Norte High School background data was used for the PM_{10} modeling, but it is not available on the PM_{10} dropdown menu.**
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐ **No☒**
	N/A	

As identified in the modeling protocol, background concentrations were taken from Tables 33 & 34 of the July 2022 Modeling Guidelines (Del Norte High School (350010023)).

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so, select the station used.**Bernalillo**	**Yes☒**	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		
	N/A		

As recommended by Eric Peters, NMAQB, and as approved in the modeling protocol, modeling was conducted using Bernalillo meteorological data collected during 2011 and 2012. This is consistent with the NMAQB Modeling Guidelines. The facility is located in Rio Rancho and is on top of the mesa west of the Rio Grande. The meteorological data was obtained from the NMAQB web site.

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	**Yes☒**	No☐
	N/A		
2	What was the source of the terrain data?		
	Terrain elevation data within the landfill was obtained from a plot plan provided by the Landfill. **Terrain elevation data beyond the landfill fence line was obtained from National Elevation Data (NED) data (1/3 second) taken from the United States Geological Survey (USGS) website. The AERMOD Terrain Preprocessor (AERMAP) was used to calculate the receptor elevations and terrain maximums. The domain used to calculate terrain maximums was sufficient to identify all terrain nodes that create a slope greater than or equal to 10 percent.**		

16-U: Modeling Files

1	Describe the modeling files:		
	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
	Sandoval – Modeling – AERMAP Files.zip	**N/A**	**Files used to determine receptor and neighboring source elevations**
	Sandoval – Modeling – AERMOD Files (Engine Ops).zip	**PM**	**Preliminary modeling files used to determine maximum engine impacts**

	Sandoval – Modeling – AERMOD Files (Scraper Ops).zip	**PM**	**Preliminary modeling files used to determine maximum scraper impacts**
	Sandoval – Modeling – AERMOD Files (Shredder & Loader Ops).zip	**PM**	**Preliminary modeling files used to determine maximum shredder impacts**
	Sandoval – Modeling – AERMOD Files (ROI).zip	**PM**	**ROI/SIA**
	Sandoval – Modeling – AERMOD Files (NAAQS).zip	**PM**	**Cumulative**
	Sandoval – Modeling – AERMOD Files (PSD).zip	**PM**	**Cumulative**
	Sandoval – Modeling – AERMOD Files (Neighbors).zip	**PM**	**N/A**
	Sandoval – Modeling – Input Data & Results.xlsx	**N/A**	**Input data and summary of results**
	Sandoval – Modeling – Report Files.xlsx	**N/A**	**Report files**
	Sandoval – Modeling – Protocol.zip	**N/A**	**Approved modeling Protocol**

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	**No☒**
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	**No☒**
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
	N/A – PSD modeling for a major modification was not required.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	N/A		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☐	**No☒**
	N/A		

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so, describe below.	Yes☐	**No☒**
	N/A		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary. **For a breakdown of the ROI and cumulative impact modeling results by scenario, see Tab 1 (S&I) in the "Sandoval – Modeling – Data & Results (2023-03).xlsx" file.**		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
PM10 24-Hr NAAQS	**29.39**	**33.07**	**N/A**	**58.7**	**91.77**	**150**	**61.2**	**352521**	**3908773**	**5380**
PM10 24-Hr PSD (Class I)	**No significant impacts**	--	--	--	--	--	--	--	--	--
PM10 Annual PSD (Class I)	**No significant impacts**	--	--	--	--	--	--	--	--	--
PM10 24-Hr PSD (Class II)	**25.64**	**26.05**	**N/A**	--	**26.05**	**30**	**86.8**	**352521**	**3908773**	**5380**
PM10 Annual PSD (Class II)	**7.23**	**7.62**	**N/A**	--	**7.62**	**17**	**44.8**	**352565**	**3908793**	**5376**
PM2.5 24-Hr NAAQS	**5.02**	**5.46**	**N/A**	**15.7**	**21.16**	**35**	**60.5**	**352521**	**3908773**	**5380**
PM2.5 Annual NAAQS	**1.00**	**1.29**	**N/A**	**5.8**	**7.09**	**12**	**59.1**	**352565**	**3908793**	**5376**
PM2.5 24-Hr PSD (Class I)	**No significant impacts**									
PM2.5 Annual PSD (Class I)	**No significant impacts**									
PM2.5 24-Hr PSD (Class II)	**5.02**	**5.03**	**N/A**	--	**5.03**	**9**	**55.9**	**352521**	**3908773**	**5380**
PM2.5 Annual PSD (Class II)	**1.00**	**1.02**	**N/A**	--	**1.02**	**4**	**25.4**	**352565**	**3908793**	**5376**

16-X: Summary/conclusions/	
1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	The modeling requirements have been satisfied and the permit can be issued.

February 13, 2023

Mr. Sufi Mustafa
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505

Re: **Air Dispersion Modeling Protocol for the Sandoval County Landfill**

Dear Mr. Mustafa:

Sandoval County is preparing to submit a construction permit application to the New Mexico Air Quality Bureau (NMAQB) requesting a modification to the Sandoval County Landfill. In support of this application, air dispersion modeling is being conducted for the following two pollutants: particulate matter less than or equal to 10 microns (PM_{10}) and particulate matter less than or equal to 2.5 microns ($PM_{2.5}$). The analysis will evaluate compliance with the National Ambient Air Quality Standards (NAAQS), New Mexico Ambient Air Quality Standards (NMAAQS), and prevention of significant deterioration (PSD) increment consumption. This protocol outlines the proposed air dispersion modeling techniques that will be used to assess impacts around the facility.

Facility

The Sandoval County Landfill is located in Sections 33 & 34 of Township 13 North, Range 3 East in Rio Rancho, Sandoval County, New Mexico. The Universal Transverse Mercator (UTM) coordinates for the facility are approximately 352,470 meters easting, 3,908,390 meters northing, zone 13 (North American Datum 1983 [NAD83]). The facility is situated at an elevation of approximately 5,350 feet above mean sea level. The facility disposes of municipal solid wastes and special wastes.

Sources at the facility include the following:

- vehicle traffic along the disposal routes and access roads;
- fill face operations and daily cell construction (scraper, compactor & bulldozer);
- waste crushing operations (front-end loader, crusher, conveyor & truck);
- reciprocating internal combustion engines (RICE); and
- wind erosion.

Standards

Modifications in the forthcoming application will only affect particulate emissions. There will be changes in the permitted particulate emission rates and relocations of a significant number of the particulate sources.

No modifications to the combustion sources (engines) at the facility are expected. They are not being relocated, emission rates will be unchanged, and as stated in the current permit only one engine will be in

operation at the facility at any given time. As a result, nitrogen dioxide (NO_2), carbon monoxide (CO), and sulfur dioxide (SO_2) modeling is not required.

Table 1 identifies the applicable significant impact levels (SIL), NAAQS and NMAAQS:

Table 1
SIL, NAAQS and NMAAQS

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	NMAAQS ($\mu g/m^3$)
PM_{10}	24-Hour	5.0	150	--
$PM_{2.5}$	24-Hour	1.2	35	--
$PM_{2.5}$	Annual	0.2	12	--

Compliance with these standards will be evaluated using the methodologies identified for each pollutant and averaging period as identified in Section 2.6 of the most recent NMAQB Modeling Guidelines.

As the facility is not a significant source of $PM_{2.5}$ precursors, the $PM_{2.5}$ 24-hour average evaluation will not include precursors.

The Sandoval County Landfill is located in Air Quality Control Region (AQCR) 152, an attainment area for all pollutants. Therefore, non-attainment modeling will not be conducted.

Table 2 identifies the applicable SIL and allowable PSD increments:

Table 2
SIL & Allowable PSD Increments

Pollutant	Averaging Period	Area Type	SIL ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
PM_{10}	24-Hour	Class I	0.3	8
PM_{10}	Annual	Class I	0.2	4
PM_{10}	24-Hour	Class II	5.0	30
PM_{10}	Annual	Class II	1.0	17
$PM_{2.5}$	24-Hour	Class I	0.07	2
$PM_{2.5}$	Annual	Class I	0.06	1
$PM_{2.5}$	24-Hour	Class II	1.2	9
$PM_{2.5}$	Annual	Class II	0.2	4

Again, compliance with these standards will be evaluated using the methodologies identified for each pollutant and averaging period as identified in Section 2.6 of the most recent NMAQB Modeling Guidelines.

The nearest Class I area is the Bandelier Wilderness Area located approximately 49.7 kilometers from the landfill. As it is closer than 50 kilometers, PSD increment modeling is required.

Dispersion Model

Both significant and cumulative impact modeling will be conducted using the latest version of the AMS/EPA Regulatory Model (AERMOD). The Beeline Software BEEST for Windows modeling manager will be used to prepare the input files and manage processing. All Environmental Protection Agency (EPA) recommended defaults will be used. As the station is located in a rural area, urban area modeling will not be conducted.

Methodology

The modeling will be conducted in accordance with this protocol and the NMAQB Modeling Guidelines. First, emissions from the Sandoval County Landfill sources will be modeled to determine if there are significant impacts. For pollutant averaging periods where impacts are less than the SIL, no additional modeling will be conducted. Second, where pollutant impacts exceed the SIL, cumulative impacts for comparison with the NAAQS and PSD increment will be determined using methodologies identified in the modeling guidelines.

Model Options

The HRDOW and HROFDY flags will be used to identify the operating times for the various equipment at the landfill and for the neighboring sources.

If needed to demonstrate compliance with the standards, impacts will be calculated using the dry plume depletion (DPD) algorithm. Tables 2-4 identify the particle deposition values that will be used.

Table 2
Particle Deposition Values for PM_{10} & $PM_{2.5}$ (Combustion)

Size Range (microns)	Diameter (microns)	Mass Fraction	Density (g/cm^3)
0-2.5	1.57	1.00	1.5

Table 3
Particle Deposition Values for PM_{10} (Vehicles)

Size Range (microns)	Diameter (microns)	Mass Fraction	Density (g/cm^3)
0-2.5	1.57	0.25	2.5
2.5-10	6.91	0.75	2.5

Table 4
Particle Deposition Values for $PM_{2.5}$ (Vehicles)

Size Range (microns)	Diameter (microns)	Mass Fraction	Density (g/cm^3)
0-2.5	1.57	1.00	2.5

The Table 2 values will be used for combustion sources at the landfill and all neighboring point sources. The Tables 3 & 4 values will be used for non-combustion sources at the facility and for neighboring volume sources.

The coordinate system used to reference source and receptor locations will be of the UTM convention, NAD83.

Facility Sources

The modeled sources and emission rates for the Sandoval County Landfill will be those identified in the permit application.

Source Types

All fugitive dust emission sources at the landfill will be modeled using volume and area sources. The disposal routes and access roads will be modeled as alternating volume sources (due to the large number of sources needed to define the roads). Crushing/shredding operations will also be modeled as volume sources. Compactor, bulldozer, scraper loading and unloading, disturbed areas and storage piles will be modeled as area sources. Wind erosion emissions from the roads will be modeled as alternating volume sources and wind erosion emissions from the other landfill operations areas will be modeled as area sources.

Road source parameters will be calculated from the road widths and estimated average vehicle heights, as specified in the NMAQB Modeling Guidelines. Other volume and area source parameters will be selected so as to be representative of operations at the facility.

Engine emissions will be modeled using point sources and the applicable stack parameters as identified in the application.

Scenarios

It is expected that the disposal area will move during the five-year term of the permit. During the term of the permit, the disposal area might be located anywhere within the area created by Cell 4B and the three disposal areas shown on the plot plan (see the attached plot plan).

Modeling will be conducted using three scenarios, one for each of the disposal area locations shown on the plot plan. As these locations are nearest the property boundaries, they will identify the high facility impacts associated with operation of the disposal areas.

Location of Crushing & Shredding Operations

Crushing and shredding operations at the landfill are limited to two specific areas. The operations are mutually exclusive, crushing operations and shredding operations cannot be located at the same place at the same time. The two areas are identified on the plot plan by the number 5 located within a square. Modeling will be conducted using the operation (crushing or shredding) and location producing the highest impacts in the areas of highest facility total impacts. The operation producing the second highest impacts will be modeled at the remaining location.

Location of Engines

Since the engines can be at different locations, modeling will be conducted using the location that produces the highest impacts in areas with the highest facility total impacts.

Hours of Operation

The Sandoval County Landfill will operate nine hours per day Monday through Saturday from 7:00 a.m. until 4:00 p.m. As the landfill will be open 304 days per year, it will operate a total of 2,736 hour per year. Except as noted below, all sources will be modeled as operating as operating Monday through Saturday from 0700-1600.

Wind erosion emissions will be modeled at 24 hours per day, seven days a week, and 8,760 hours per year.

Sources operating less than nine hours per day will be modeled using the time periods producing the highest impacts in the areas of highest facility total impacts.

- Since the scraper operates only three hours per day, it will be tested for impacts from 0700-1000, 1000-1300, and 1300-1600.

- Since the shredding operations are limited to five hours per day, it will be tested for impacts from 0700-1200 or 1100-1600.

- Since the compost screen engine will operate a maximum of one hour per day, it will be tested for impacts during each hour of the nine-hour day.

- Since the wood chipper and shredder engines will operate a maximum of 5 hours per day, they will be tested for impacts from 0700-1200 and 1100-1600.

Building Downwash

The EPA Building Profile Input Program - Prime (BPIP-Prime) will be used to evaluate structures for building downwash impacts. All structures close enough (of sufficient height and/or width) to produce downwash effects from the stacks will be included in the evaluation.

Receptor Selection

A Cartesian grid with variable receptor spacing will be used to evaluate significant impacts around the facility. The grid will contain receptors with 50-meter spacing around the fence line and from the fence line out to at least 500 meters, 100-meter spacing from the 500 meters beyond the fence line out to at least 1,000 meters, 250-meter spacing from 1,000 meters beyond the fence line out to at least 3,000 meters, and 500-meter spacing from 3,000 meters beyond the fence line out to at least 5,000 meters. If significant impact areas extend beyond 5,000 meters from the fence line, the grid will also include receptors with 1,000-meter spacing sufficient to cover the entire significant impact area.

Cumulative impact modeling will be conducted using only those receptors from the grid defined in the paragraph above for which there were significant impacts. If maximum cumulative impacts greater than

or equal to 75 percent of the applicable standard are calculated at receptors located in the 100-meter, 250-meter or 500-meter interval portions of the grid, then refined grids with 50-meter spacing will be centered on these receptors to identify the local high. These refined grids will be large enough to include adjacent receptors in all directions (200 meters square in the 100-meter interval portion of the grid, 500 meters square in the 250-meter interval portion of the grid, 1,000 meters square in the 500-meter interval portion of the grid, and 2,000 meters square in the 1,000-meter interval portion of the grid).

To model significant impacts at the Bandelier Wilderness Area, a single receptor will be placed on the border of the Class I area at the point nearest the Sandoval Landfill. If there are significant impacts, a grid with 1,000-meter spacing will be used to determine impacts within the Class I area. If concentrations are above 75% of the allowable increment, grids with 50 and 100-meter spacing will be used around the hot spots to determine the high impacts.

The coordinate system used to reference receptor locations will be of the UTM convention (NAD83). Terrain elevation data will be obtained from NED data (1/3 second) taken from the USGS website. The AERMOD Terrain Preprocessor (AERMAP) will be used to calculate the receptor elevations and terrain maximums. The domain used to calculate terrain maximums will be sufficient to identify all terrain nodes that create a slope greater than or equal to 10 percent.

Meteorological Data

In accordance with a recommendation by Eric Peters, NMAQB, modeling will be conducted using Bernalillo meteorological data collected during 2011 and 2012. This is consistent with the NMAQB Modeling Guidelines. The facility is located in Rio Rancho and is on top of the mesa west of the Rio Grande. The meteorological data will be obtained from the NMAQB web site.

Neighboring Sources

Cumulative PM_{10}, and $PM_{2.5}$ impacts used to demonstrate compliance with the NAAQS must be calculated as facility impacts plus neighboring source impacts plus background concentrations. Therefore, if particulate impacts from the Sandoval County Landfill exceed the SIL, neighboring sources must be used to evaluate compliance with the NAAQS. For particulate modeling, neighboring sources are all those within 10 kilometers of the facility.

Cumulative PM_{10}, and $PM_{2.5}$ impacts used to demonstrate compliance with the Class II PSD increment must be calculated as facility impacts plus neighboring source impacts. Therefore, if particulate impacts from the Sandoval County Landfill exceed the SIL, neighboring sources must be used to evaluate compliance with PSD increment. Neighboring sources are all those within 25 kilometers of the facility, plus sources emitting over 1,000 pounds per hour within 50 kilometers of the facility.

Cumulative PM_{10}, and $PM_{2.5}$ impacts used to demonstrate compliance with the Class I PSD increment must be calculated as facility impacts plus neighboring source impacts. Therefore, if particulate impacts from the Sandoval County Landfill exceed the SIL, neighboring sources must be used to evaluate compliance with PSD increment. Neighboring sources are all those within 25 kilometers of the Class I area, plus sources emitting over 1,000 pounds per hour within 50 kilometers of the Class I area.

Neighboring sources will be obtained from the MergeMaster database in accordance with requirements established by the NMAQB Modeling Guidelines (the neighboring source data we are currently expecting to use was obtained from Eric Peters on January 26, 2023).

Background Concentrations

Where PM_{10}, and $PM_{2.5}$ impacts exceed the SIL, cumulative impacts for comparison with the NAAQS must be calculated as facility impacts plus neighboring source impacts plus background concentrations as identified in the modeling guidelines.

Table 5 below identifies the applicable background concentrations that will be used.

Table 5
Background Concentrations

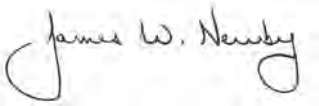
Pollutant	Averaging Period	Background ($\mu g/m^3$)	Source ID
PM_{10}	24-Hour	58.7 (2nd high)	350010023
$PM_{2.5}$	24-Hour	15.7 (98th%ile)	350010023
$PM_{2.5}$	Annual	5.8	350010023

In accordance with a recommendation by Eric Peters, NMAQB, Del Norte High School background concentrations will be used.

If you have any questions or comments, please contact me at (801) 294-3024. Thank you for your assistance.

Sincerely,

CIRRUS CONSULTING, LLC



James W. Newby

jwnewby@comcast.net

From: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Sent: Monday, February 13, 2023 3:58 PM
To: jwnewby@comcast.net
Subject: RE: Comments RE: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Thank you. The updated modeling protocol looks good to me.

I appreciate your time and response.

Best,
Mingcheng

Mingcheng Ren, Ph.D.
Air Dispersion Modeling
New Mexico Environment Department's Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
505-629-7729
mingcheng.ren@env.nm.gov
https://www.env.nm.gov/
https://www.env.nm.gov/air-quality

Science | Innovation | Collaboration | Compliance

From: jwnewby@comcast.net <jwnewby@comcast.net>
Sent: Monday, February 13, 2023 3:52 PM
To: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Subject: RE: Comments RE: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Mingcheng,

Attached is an updated modeling protocol for the Sandoval Landfill.

When I went to add the statement about not including secondary formation of PM2.5, I realized the original protocol already included it. Please see Page 2 Paragraph 4.

I added the date of the neighboring source retrieval. Please see page 7 Paragraph 1.

Thanks.

James Newby
Cirrus Consulting, LLC
Phone: (801) 294-3024

E-mail: jnewby@cirrusllc.com

From: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Sent: Monday, February 13, 2023 3:12 PM
To: jwnewby@comcast.net
Cc: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Subject: RE: Comments RE: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Hi James,

Thank you for your email. I appreciate your quick response.

Please update the modeling protocol – please only include your responses to questions 2 and 4 in the protocol.

Nice to work with you too.

Have a good one.

Best,
Mingcheng

From: jwnewby@comcast.net <jwnewby@comcast.net>
Sent: Monday, February 13, 2023 2:31 PM
To: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Subject: RE: Comments RE: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Mingcheng,

Please see my comments in red font below.

I'm not sure if you are approving the protocol and want to see the following items addressed in the final report OR if you want the protocol modified to include the following. Please clarify.

If you are looking for an update to the protocol, I propose to respond to bullet 2. I believe my responses to 1, 3 & 4 below show that no other updates are needed. If you disagree, please let me know what you would like me to provide.

Thanks for your help. I don't believe I have worked with you before. I look forward to it. Have a good day.

James Newby
Cirrus Consulting, LLC
Phone: (801) 294-3024
E-mail: jnewby@cirrusllc.com

From: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Sent: Monday, February 13, 2023 11:42 AM
To: jwnewby@comcast.net
Cc: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Subject: Comments RE: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Hi James,

I hope this email finds you well.

I have some comments regarding this modeling protocol. Please review:

1. Please list the sources' information for modifications and their PM emission rates. Please also describe the modifications/changes of these sources. We indicated in the modeling protocol that there would be changes to source emission rates and locations. What those changes will be are fluid until the modeling is complete. For example, at landfills, it is often the case that a road will cause exceedances to a standard. When that happens, the road typically has to be relocated. Therefore, the road volume sources must be relocated. And since the road length is changed, the source emission rates also change. The same thing happens with other sources.

   I'm not sure if you are asking for more information in the protocol, or if you are asking that the report provide that information. This is a level of detail that is typically provided in the permit application and the modeling report. Note that there will be over 700 facility sources in the modeling and the distribution of emissions among these sources varies with scenario and hour of the day. Beyond the scope of the protocol.

2. Per NMED-AQB-Modeling Guidelines (pages 28-30), please describe PM2.5 secondary formation in this project. The facility will not emit at least 40 tons of NOx or 40 tons of SO2. Therefore, modeling will not include the secondary formation of PM2.5. This should have been stated in the protocol. I will include it if you desire.

3. On page 4 – "The Table 2 values will be used for combustion sources at the landfill and all neighboring point sources. The Tables 3 & 4 values will be used for non-combustion sources at the facility and for neighboring volume sources."
   Will you have detailed/refined modeling of neighboring sources? Yes, if there are significant impacts. Particulate modeling requires it; please see the bottom half of page 6 of the protocol. Could you describe this part in detail? Again, please see the bottom half of page 6 of the protocol. Will you model the haul roads of neighboring sources? We will model all of the sources provided by MergeMaster. Do you differentiate neighboring source types? MergeMaster typically provides neighboring point and volume sources. We do not alter MergeMaster data in any way unless directed by NMAQB.

4. Page 6 – "Neighboring sources will be obtained from the MergeMaster database in accordance with requirements established by the NMAQB Modeling Guidelines." Please provide the date(version) you obtained the neighboring source information. That information will provided in the modeling report. Sometimes the modeling takes a long time and any date we provide in the protocol may be obsolete. The neighboring source data we are currently expecting to use was obtained from Eric Peters on 1/26/2023.

Thank you.

Best,
Mingcheng

Mingcheng Ren, Ph.D.
Air Dispersion Modeling
New Mexico Environment Department's Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
505-629-7729

mingcheng.ren@env.nm.gov
https://www.env.nm.gov/
https://www.env.nm.gov/air-quality

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From: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Sent: Tuesday, January 31, 2023 5:13 PM
To: Ren, Mingcheng, ENV <Mingcheng.Ren@env.nm.gov>
Cc: jwnewby@comcast.net
Subject: FW: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

Mingcheng
Please see email below from James and in attachment find an updated modeling protocol.
Thank you.

Sufi A. Mustafa, Ph.D.
Manager Air Dispersion Modeling and Emission Inventory Section
New Mexico Environment Department's Air Quality Bureau
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525 Camino de los Marquez
Suite 1
Santa Fe, New Mexico, 87505
https://www.env.nm.gov/air-quality/

"Innovation, Science, Collaboration, Compliance"

From: jwnewby@comcast.net <jwnewby@comcast.net>
Sent: Tuesday, January 31, 2023 4:55 PM
To: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Subject: [EXTERNAL] FW: Updated Sandoval Landfill Modeling Protocol

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From: jnewby@cirrusllc.com <jnewby@cirrusllc.com>
Sent: Tuesday, January 31, 2023 4:01 PM
To: Sufi Mustafa (sufi.mustafa@env.nm.gov) <sufi.mustafa@env.nm.gov>
Cc: Andy Yuhas (ayuhas@parkhill.com) <ayuhas@parkhill.com>
Subject: Updated Sandoval Landfill Modeling Protocol

Sufi,

I just learned that the Sandoval County Landfill is located 49.7 kilometers from the Bandelier Wilderness Area (a Class I area). This was not addressed in the modeling protocol currently under review. Attached is an updated protocol that includes Class I area modeling.

Sorry for the confusion. Thanks for your help.

James Newby
Cirrus Consulting, LLC
Phone: (801) 294-3024
E-mail: jnewby@cirrusllc.com

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Compliance Plan

The Sandoval County Landfill affirms that it is in compliance with applicable Title V regulatory requirements at the time this Application is submitted. If, however, it is determined that the Sandoval County Landfill needs to attain compliance with additional regulatory requirements, the County commits to working with the AQB to develop a schedule and compliance plan for achieving compliance.

To-date, and consistent with the provisions of Title V Operating Permit No. P243L-R2 (issued on September 28, 2018), Sandoval County Landfill has submitted six Semi-Annual Compliance Reports and three Annual Compliance Certification reports to AQB (Compliance Section) since September 28, 2018. The next Semi-Annual Report will be submitted on or before February 14, 2023. In addition, SCLF continues to submit Annual NMOC Emission Rate Estimate Reports to ABQ, consistent with the conditions of Title V Permit P243L-R2.

Compliance Schedule

In the event that compliance issues are identified, the Sandoval County Landfill will respond expeditiously to correct potential deficiencies and maintain compliance with applicable regulations. Additional compliance requirements, if any, which may be imposed by enactment of new regulations, will be addressed in accordance with applicable regulatory schedules.

The Sandoval County Landfill will continue to submit certified progress reports (i.e., Semi-Annual Compliance Reports) to AQB on a semi-annual basis (consistent with the current submittal schedule).

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No other relevant information is necessary for this application for renewal. Therefore, this section does not apply.

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? **From 15 to 20 years**			
2	Maximum operational hours per year: **2,736**			
3	Landfill Operating hours (open to the public) M-F: **7am - 4pm**	Sat. **7am – 4pm**	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**. Sandoval County Landfill was last modified after July 17, 2014, and is, therefore, subject to the requirements of 40 CFR 60, Subpart XXX.**			
5	Landfill Design Capacity. Enter all 3	Tons: **7,277,684**	Megagrams (Mg): **6,602,204**	Cubic meters: **10,116,710**
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) **N/A**	☐ 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: **100,000 to 140,000 tons/year**			
8	Is Petroleum Contaminated Soil Accepted? **Yes**	If so, what is the annual acceptance rate? **Acceptance rate limited by BTEX Concentration and calculated emissions (Section 6.7.3).**		
9	NM Solid Waste Bureau (SWB) Permit No.: **SWM-0123365**	SWB Permit Date:**09/27/2016**		

10	Describe the NM Solid Waste Bureau Permit, Status, and Type of waste deposited at the landfill. **The Sandoval County Landfill (SCLF) was initially registered as a solid waste facility in 1983, and has been a permitted solid waste facility since 1995. SCLF disposes of municipal solid waste (MSW), construction and demolition (C&D) debris, and is permitted to accept wastewater treatment plant (WWTP) sludge and petroleum contaminated soils (PCS). SCLF has not accepted any shipments of PCS to date. In April 2014, SCLF submitted an Application for Permit Renewal and Modification to include a lateral and vertical expansion, resulting in a new "Unit IV" disposal area which will overlap Units I, II, and III and include a portion of the former Public Service Company of New Mexico (PNM) utilities easement. That Application was approved, and the current Solid Waste Permit for SCLF was issued on 09/27/2016.**
11	Describe briefly any process(es) or any other operations conducted at the landfill. **In addition to the activities described in Part 10 above, SCLF operates an in-vessel composting system, and offers collection areas/bins for source separated recyclables, white goods (appliances) and electronic wastes, which are collected and periodically transported off-site by private contractors. With the expanding population of the landfill's service area, it is reasonable to expect an increase in the acceptance rates of MSW, C&D debris, WWTP sludge, PCS, and green waste (compost feedstock) at the landfill over the term of the Title V Operating Permit.**

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): **28.48 Mg/yr (31.39 tons/yr) for 2028 (projected)**
2	Tier 2 Sampling: **N/A**
3	Tier 3 Rate Constant: **N/A**
4	Tier 4 Surface Emissions Monitoring: **N/A**
5	Attach all Tier Procedure calculations, procedures, and results used to determine the Gas Collection and Control System (GCCS) requirements. **N/A**

Facilities that have a landfill GCCS must complete Section 21-C.

21-C: Landfill Gas Collection and Control System (GCCS) Design Plan	
1	Was the GCCS design certified by a Professional Engineer? **N/A**
2	Attach a copy of the GCCS Design Plan and enter the submittal date of the Plan pursuant to the deadlines in either NSPS WWW or NSPS XXX. The NMOC applicability threshold requiring a GCCS plan is 50Mg/yr for NSPS WWW and 34 Mg/yr or 500 ppm for NSPS XXX. **N/A**
3	Is/Was the GCCS planned to be operational within 30 months of reporting NMOC emission rates equal to or greater than 50 Mg/yr, 34 Mg/yr, or 500 ppm pursuant to the deadlines specified in NSPS WWW or NSPS XXX? **N/A**
4	Does the GCCS comply with the design and operational requirements found at 60.752, 60.753, and 69.759 (NSPS WWW) or at 60.762, 60.763, and 60.769 (NSPS XXX)? **N/A**
5	Enter the control device(s) to which the landfill gas will be/is routed such as an open flare, enclosed combustion device, boiler, process heater, or other. **N/A**
6	Do the control device(s) meet the operational requirements at 60.752 and 60.756 (NSPS WWW) or 60.762, 60.763, 60.766 (NSPS XXX)? **N/A**

Section 22: Certification

Company Name: Sandoval County Landfill

I, Mark Hatzenbuhler, 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 3 day of March, 2023, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

3-3-2023
Date

Mark Hatzenbuhler
Printed Name

Director of Public Works
Title

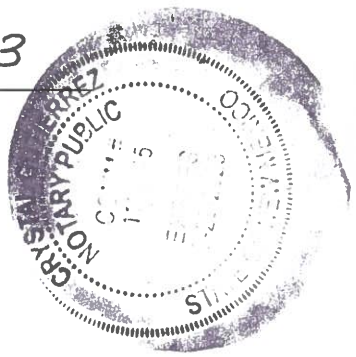
Scribed and sworn before me on this 3rd day of March, 2023.

My authorization as a notary of the State of New Mexico expires on the 29th day of July, 2023.

Cryptal Gutierrez
Notary's Signature

3/3/23
Date

Crystal Gutierrez
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.