20.2.72 NMAC
AIR QUALITY
PERMIT # 3426
MODIFICATION APPLICATION

For

MENEFEE MINING CORPORATION

MENEFEE - CUBA FACILITY
Cuba, NM

PREPARED BY
MONTROSE ENVIRONMENTAL SOLUTIONS, INC.
ALBUQUERQUE, NM
OCTOBER 2024

MONTROSE
ENVIRONMENTAL

October 30, 2024

RECEIVED
NOV 12 2024
Air Quality Bureau

New Mexico Environment Department
Air Quality Bureau
Permits Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87507-3313

Subject: Permit Revision Application for Menefee Mining Corporation's Cuba Facility Permit #3426

To Whom it May Concern:

Attached please find two (2) hardcopies of the 20.2.72 NMAC Permit Revision Application for Menefee Mining Corporation's Cuba Facility. Electronic files will be submitted to the bureau under a file share program. This letter is attached to the application copy that has the original notarized signature page (Section 22), along with an application submittal fee of $500.

Menefee Mining Corporation (Menefee) is applying for a revision to 20.2.72 NMAC Air Quality Permit #3426 for the Menefee – Cuba Facility operated within county of Sandoval, state of New Mexico. Regulation governing this permit revision application is 20.2.72.200.A(2) NMAC. The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product bagging screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

Please let me know if you have any questions or need additional information. If you have any questions regarding this significant permit revision application please call Paul Wade of Montrose Environmental Solutions, Inc. at (505) 830-9680 ext 6 or Tyler Lown Vandenburg of Menefee Mining Corporation at (214) 750-4696

Sincerely,

Paul Wade
Senior Associate Engineer
Montrose Environmental Solutions, Inc.

Cc: Tyler Lown Vandenburg, Menefee

Montrose Environmental Solutions, Inc.
9100 2nd Street NW, Suite 200
Albuquerque, NM 87114-1664

T: 505.830.9680 ext. 6
F: 505.830.9678
Pwade@montrose-env.com
www.montrose-env.com

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		RECEIVED NOV 12 2024 Air Quality Bureau

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: ☐ 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.: 14722 in the amount of $500

☒ 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: **20.2.72.200.A.2 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: 24760	Updating Permit/NOI #: 3426
1	Facility Name: Menefee – Cuba Facility	Plant primary SIC Code (4 digits): 3295	
		Plant NAIC code (6 digits): 212393	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 36 Duke City Road, Cuba, NM		
2	Plant Operator Company Name: Menefee Mining Corporation	Phone/Fax: (575) 289-0259/	
a	Plant Operator Address: 36 Duke City Road, Cuba, NM 87013		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 75-2393006	
3	Plant Owner(s) name(s): John F Lown	Phone/Fax: 214-750-4696
a	Plant Owner(s) Mailing Address(s): 8144 Walnut Hill Lane, Suite 987, Dallas, TX 75231	
4	Bill To (Company): Menefee Mining Corporation	Phone/Fax: 214-750-4696
a	Mailing Address: 8144 Walnut Hill Lane, Suite 987, Dallas, TX 75231	E-mail: tyler.lown@menefeemining.com
5	☐ Preparer: ☒ Consultant: Paul Wade, Montrose Environmental Solutions, Inc.	Phone/Fax: 505-830-9680 x6/505-830-9678
a	Mailing Address: 9100 2nd St NW, Suite 200, Albuquerque, NM 87114-1664	E-mail: pwade@montrose-env.com
6	Plant Operator Contact: Tyler Lown Vandenburg	Phone/Fax: 214-750-4696
a	Address: 8144 Walnut Hill Lane, Suite 987, Dallas, TX 75231	E-mail: tyler.lown@menefeemining.com
7	Air Permit Contact: Tyler Lown Vandenburg	Title: Vice President
a	E-mail: tyler.lown@menefeemining.com	Phone/Fax: 214-750-4696
b	Mailing Address: 8144 Walnut Hill Lane, Suite 987, Dallas, TX 75231	
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):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 3426
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)						
a	Current	Hourly:	Screen Input - 70 cuyd Dryer – 229 lbs	Daily:	Screen Input - 700 cuyd Dryer – 5500 lbs	Annually:	Screen Input – 182,000 cuyd Dryer – 715,000 lbs
b	Proposed	Hourly:	Screen Input - 60 cuyd Dryer – 229 lbs	Daily:	Screen Input - 480 cuyd Dryer – 5500 lbs	Annually:	Screen Input - 124,800 cuyd Dryer – 731,500 lbs
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:	Screen Output – 8 tons Dryer – 229 lbs	Daily:	Screen Output – 80 tons Dryer – 5500 lbs	Annually:	Screen Output – 20,800 tons Dryer – 715,000 lbs
b	Proposed	Hourly:	Screen Output – 35.3 tons Dryer – 229 lbs	Daily:	Screen Output – 282.5 tons Dryer – 5500 lbs	Annually:	Screen Output – 73,439 tons Dryer – 731,500 lbs

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 35.987855	Longitude (decimal degrees): -106.955808	County: Sandoval	Elevation (ft): 6900
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☒ NAD 83 ☐ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 323,690	UTM N (in meters, to nearest 10 meters): 3,984,370		
3	Name and zip code of nearest New Mexico town: Cuba, 87013			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Cuba travel south on Highway 550 and turn east onto County Road 11 (Old Highway 44). Travel south on County Road 11 for 1.8 miles to Duke City Road. Turn east on Duke City Road and the facility is on the south side of the road.			
5	The facility is 1.9 miles south-southeast of Cuba, NM.			
6	Land Status of facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Government ☐ BLM ☐ Forest Service ☐ Military			
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: Sandoval County, Village of Cuba			
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: 9.0 km; San Pedro Parks Wilderness Area			
9	Name nearest Class I area: San Pedro Parks Wilderness Area			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 9.00 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: 0.45 miles			
12	Method(s) used to delineate the Restricted Area: Fencing surrounds facility "**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 ($\frac{hours}{day}$): Screens – 11 Dryer - 24	($\frac{days}{week}$): Screens – 5 Dryer - 7	($\frac{weeks}{year}$): Screens – 52 Dryer - 19	($\frac{hours}{year}$): Screens – 2860 Dryer - 3192			
2	Facility's maximum daily operating schedule (if less than 24 $\frac{hours}{day}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM			
3	Month and year of anticipated start of construction: Existing Facility						
4	Month and year of anticipated construction completion: May, 2025						
5	Month and year of anticipated startup of new or modified facility: July, 2025						
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:		NOV Tracking No:
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:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☒ Yes ☐ 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.) (20.2.70.300.D.2 NMAC):		Phone:
a	R.O. Title:	R.O. e-mail:	
b	R. O. Address:		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC):		Phone:
a	A. R.O. Title:	A. R.O. e-mail:	
b	A. R. O. Address:		
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):		
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.):		
a	Address of Parent Company:		
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.):		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations:		
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:		

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 Paul Wade, Email pwade@montrose-env.com Phone number (505) 830-9680 x6.

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

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

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

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

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

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

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

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

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

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

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Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	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	Run of Mine Storage Pile	NA	NA	NA	480 CuYd/Day	480 CuYd/Day	NA / NA	NA / NA	30500203	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
Green Screen												
2	Feeder	Terex Powerscreen	Turbo Chieftain	50 10 601	480 CuYd/Day	480 CuYd/Day	approx 1997 / April 2000	NA / NA	30502031	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
3	Feeder Conveyor						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
4	2- Deck Screen						approx 1997 / April 2000	NA / NA	30502002	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
5	Screen Conveyor - Oversize						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
6	Screen Conveyor - Fines						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
7	Screen Conveyor - Product						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
8	Stacker Drop to Piles						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
9	Finish Storage Piles - Green Screen						approx 1997 / April 2000	NA / NA	30502006	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
10	Green Screen Engine	Cummins	3.9 liter diesel	Unknown	80 hp	80 hp	approx 1997 / April 2000	NA / GSE	30502099	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	NA
Blue Screen												
11	Feeder	Terex PowerScreen	Chieftain 2100X	TBD	312 CuYd/Day	312 CuYd/Day	2022 / TBD	NA / NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
12	Feeder Conveyor						2022 / TBD	NA / NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
13	2- Deck Screen						2022 / TBD	NA / NA	30502002	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
14	Screen Conveyor - Oversize						2022 / TBD	NA / NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA

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.
15	Screen Conveyor - Fines						2022 TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
16	Screen Conveyor - Product						2022 TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
17	Stacker Drop to Piles						2022 TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
18	Finish Storage Piles - Blue Screen						2022 TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
19	Blue Screen Engine	CAT	C4.4	TBD	83 kW 111 hp	83 kW 111 hp	2022 TBD	NA BSE	30502099	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	NA
Red Screen												
20	Feeder	Tet-Westinghouse	Unknown	Unknown	185.7 tons/day	185.7 tons/day	1985 May 1995	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
21	Feeder Conveyor						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
22	2-Deck Screen						1985 May 1995	NA NA	30502021	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
23	Screen Conveyor - Oversize						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
24	Screen Conveyor - Fines						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
25	Screen Conveyor - Product						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
26	Stack Conveyor Fines Tote Loading						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
27	Stack Conveyor Return Material Pile						1985 May 1995	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
28	Bagging Hoper Loading						1985 May 1995	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
29	Granular product bagging machine, weigh cell and bag sticher	Jim International	N/A	N/A			May 2000 May 2000	NA NA	30503814	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA

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.
	Bulk granular bagging system	ShopMade	Shop Made	N/A			May 2000 May 2000	NA NA	30503814	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
Gray Screen												
30	Feeder	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
31	Feeder Conveyor	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
32	2-Deck Screen	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502021	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
33	Screen Conveyor - Oversize	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
34	Screen Conveyor - Fines	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
35	Screen Conveyor - Product	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
36	Stack Conveyor Fines Tote Loading	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
37	Stack Conveyor Return Material Pile	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
38	Bagging Hoper Loading	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
39	Bulk granular bagging system	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30503814	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
Orange Screen												
40	Feeder	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
41	Feeder Conveyor	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
42	2-Deck Screen	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502021	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
43	Screen Conveyor - Oversize	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA

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.
44	Screen Conveyor - Fines	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
45	Screen Conveyor - Product	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
46	Stack Conveyor Fines Tote Loading	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
47	Stack Conveyor Return Material Pile	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502006	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
48	Bagging Hoper Loading	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30502031	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
49	Bulk granular bagging system	TBD	TBD	TBD	Note 5	Note 5	TBD TBD	NA NA	30503814	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
Dryer												
50	Soluble product curing dryer system with intergral product capture cyclone	APV Anhydro Engineering	APVY1349	APVY1349	5500 lbs/day	5500 lbs/day	1996 1997	NA D1	30503835	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
Truck Haul Road												
51	Run of Mine Haul Road	NA	NA	NA	18 truck/day	18 truck/day	NA NA	Road NA	30602011	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
52	Product Haul Road	NA	NA	NA	45 truck/day	45 truck/day	NA NA	Road NA	30602011	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
53	Return Material Haul Road	NA	NA	NA	8 truck/day	8 truck/day	NA NA	Road NA	30602011	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA
54	Return Material Storage Pile	NA	NA	NA	125 tons/day	125 tons/day	NA NA	NA NA	30500203	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	NA	NA

[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] The combined throughput for the Gray Screen and Orange Screen is 678 tons/day. Emission rates were calculated as if 50% went to the Gray Screen and 50% went to the Orange Screen.

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

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
T1	Off road diesel tank	Unknown	Unknown	1000	20.2.72.20.B.2	Unknown	☑ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
			Unknown	gal		1998	
T2	On road diesel tank	Unknown	Unknown	1000	20.2.72.20.B.2	Unknown	☑ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
			Unknown	gal		1998	
T3	Unleaded gasoline tank						☐ xisting (unchanged) T ☑ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
T4	Dryer diesel fuel tank	Unknown	Unknown	10,000	20.2.72.20.B.2	Unknown	☑ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
			Unknown	gal		1998	
							☑ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e Replaced
							☐ xisting (unchanged) T ☐ e Removed ☐ ew/Additional R ☐ acement Unit ☐ o Be Modified T ☐ e 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. Emiss ☐ s from these insignificant a ☐ ivities 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
Road	Base Course Material or Watering	1998	Particulate	51, 52, 53	60%	NMED Default

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals																		

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1									0.35	0.36	0.16	0.17	0.025	0.026				
2									0.35	0.36	0.16	0.17	0.025	0.026				
3									0.16	0.16	0.058	0.060	0.0088	0.0091				
4									1.32	1.37	0.46	0.48	0.069	0.072				
5									0.079	0.082	0.029	0.030	0.0044	0.0046				
6									0.024	0.025	0.009	0.009	0.0013	0.0014				
7									0.055	0.057	0.020	0.021	0.0031	0.0032				
8									0.35	0.36	0.16	0.17	0.025	0.026				
9									0.35	0.36	0.16	0.17	0.025	0.026				
10	2.48	3.55	0.53	0.76	0.20	0.28	0.030	0.043	0.18	0.25	0.18	0.25	0.18	0.25			5.04E-06	7.21E-06
11									0.23	0.23	0.11	0.11	0.016	0.017				
12									0.10	0.11	0.038	0.039	0.0057	0.0059				
13									0.86	0.89	0.30	0.31	0.045	0.047				
14									0.010	0.011	0.0038	0.0039	0.00057	0.00059				
15									0.041	0.043	0.015	0.016	0.0023	0.0024				
16									0.051	0.053	0.019	0.020	0.0029	0.0030				
17									0.23	0.23	0.11	0.11	0.016	0.017				
18									0.23	0.23	0.11	0.11	0.016	0.017				
19	0.70	0.99	0.91	1.31	0.037	0.052	0.042	0.060	0.055	0.078	0.055	0.078	0.055	0.078			7.01E-06	1.00E-05
20									0.073	0.16	0.035	0.075	0.0052	0.011				
21									0.033	0.072	0.012	0.027	0.0018	0.0040				
22									3.32	7.24	0.80	1.74	0.12	0.26				
23									0.0050	0.011	0.0018	0.0040	0.00028	0.00060				
24									0.0050	0.011	0.0018	0.0040	0.00028	0.00060				
25									0.023	0.051	0.0085	0.019	0.0013	0.0028				
26									0.011	0.024	0.0052	0.011	0.00079	0.0017				
27									0.011	0.024	0.0052	0.011	0.00079	0.0017				
28									0.0208	0.045	0.0098	0.0214	0.00149	0.0032				
29									0.0208	0.045	0.0098	0.0214	0.00149	0.0032				
30									0.14	0.29	0.066	0.14	0.010	0.021				
31									0.064	0.13	0.023	0.048	0.0035	0.0073				
32									6.36	13.22	1.53	3.17	0.23	0.48				
33									0.016	0.033	0.0058	0.012	0.00088	0.0018				
34									0.0064	0.013	0.0023	0.0048	0.00035	0.00073				

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
35									0.041	0.086	0.015	0.032	0.0023	0.0048				
36									0.014	0.029	0.0066	0.014	0.0010	0.0021				
37									0.035	0.073	0.017	0.034	0.0025	0.0052				
38									0.037	0.077	0.0175	0.036	0.00264	0.0055				
39									0.037	0.077	0.0175	0.036	0.00264	0.0055				
40									0.14	0.29	0.066	0.14	0.010	0.021				
41									0.064	0.13	0.023	0.048	0.0035	0.0073				
42									6.36	13.22	1.53	3.17	0.23	0.48				
43									0.016	0.033	0.0058	0.012	0.00088	0.0018				
44									0.0064	0.013	0.0023	0.0048	0.00035	0.00073				
45									0.041	0.086	0.015	0.032	0.0023	0.0048				
46									0.014	0.029	0.0066	0.014	0.0010	0.0021				
47									0.035	0.073	0.017	0.034	0.0025	0.0052				
48									0.037	0.077	0.0175	0.036	0.00264	0.0055				
49									0.037	0.077	0.0175	0.036	0.00264	0.0055				
50	0.96	1.53	0.24	0.38	0.027	0.043	0.34	0.54	20.00	31.92	20.00	31.92	20.00	31.92			5.57E-05	8.89E-05
51									3.15	2.65	0.80	0.68	0.080	0.068				
52									0.62	1.11	0.16	0.28	0.016	0.028				
53									0.94	0.79	0.24	0.20	0.024	0.020				
54									0.081	0.17	0.038	0.080	0.0058	0.012				
Totals	4.14	6.07	1.69	2.46	0.26	0.38	0.41	0.65	46.80	77.68	27.67	44.48	21.30	34.04			6.78E-05	1.06E-04

[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 scehduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
None																		
Totals																		

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☐ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
None																	
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)			
GSE	10	H	No	10	745	6.6	****	****	135.0	0.25
RSE	19	H	No	10	745	6.6	****	****	135.0	0.25
D1	50	V	No	70	229	283.1	154.9	10	38.0	3.08

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
GSE	10	0.0036	0.0052																
BSE	19	0.0050	0.0072																
D1	50	0.0036	0.0058																
Totals:		0.012	0.018																

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
GSE	Diesel	Purchased Commercial	128,000 BTU/Gallon	4.34 Gallons	12,412 Gallons	0.05	nil
BSE	Diesel	Purchased Commercial	128,000 BTU/Gallon	6.04 Gallons	17,274 Gallons	0.05	nil
D1	Diesel	Purchased Commercial	128,000 BTU/Gallon	48.00 Gallons	153,216 Gallons	0.05	nil

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)
T1	30500298	Diesel Fuel	Diesel Fuel	7.05	130	58.54	0.0062	65.66	0.0079
T2	30500298	Diesel Fuel	Diesel Fuel	7.05	130	58.54	0.0062	65.66	0.0079
T4	30500298	Diesel Fuel	Diesel Fuel	7.05	130	58.54	0.0062	65.66	0.0079

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			
T1	1998	Diesel Fuel	FX	FX	23.8	2.34	1.37		LG	LG	Good		
T2	1998	Diesel Fuel	FX	FX	23.8	2.34	1.37		LG	LG	Good		
T4	1998	Diesel Fuel	FX	FX	238.1	23.44	2.44	1.95	LG	LG	Good	153,216	15.32

* See TANK Output for T3 in Section 7

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)**
Run of Mine Humate	Mixed Organic	S	124,800 CuYd	Humate sized granular bagged product	Mixed Organic Granular	S	62.1 tons/day
				Humate sized granular bulk product	Mixed Organic Granular	S	220.4 tons/day
				Humate soluable product	Humate Acid Powder	S	5500 lbs/day

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
None									

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
None								

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**										
10	mass GHG	139.8	0.0011	0.0056											139.8	
	CO_2e	139.8	0.33	0.14												140.3
19	mass GHG	194.5	0.0015	0.0078											194.5	
	CO_2e	194.5	0.45	0.20												195.1
50	mass GHG	1724.4	0.014	0.069											1724.5	
	CO_2e	1724.4	4.0	1.7												1730.1
	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															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO2e															
Total	mass GHG	2058.7	0.017	0.082											2058.8	
	CO_2e	2058.7	4.78	2.04												2065.5

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

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

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

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

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

Section 3

Application Summary

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

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

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

Menefee Mining Corporation (Menefee) is applying for a revision to 20.2.72 NMAC Air Quality Permit #3426 for the Menefee – Cuba Facility operated within county of Sandoval, state of New Mexico. Regulation governing this permit revision application is 20.2.72.200.A(2) NMAC. Menefee has retained Montrose Environmental Solutions, Inc. (Montrose) to assist with the permit revision application.

The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product bagging screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

The Menefee – Cuba Facility accepts raw humate material currently mined from the Star Lake mine located approximately 50 miles away. The run of mine humate material is screened through the "green" Terex PowerScreen Turbo Chieftain Standard screen to produce a granular humate product or granular humate fine. The green screen oversize and fines material are then screened through the "blue" Terex PowerScreen Chieftain Standard screen to produce a granular humate product or granular humate fine. Rejected oversize material is recycled back to the green and blue screens until all of the granular humate material is extracted. Product material is stored in covered storage or is fed directly into the one of two ("gray or orange") bagging screen systems. Fine material is stored in covered storage or is fed directly into the "red" bagging screen system. Some of the fine material from the red screen is loaded directly into tote bags for use in the soluble humic acid micronutrient process.

Granulated product material from the stored product area or obtained from either the green or blue screen product stacker pile is fed to either the gray or orange bagging screen hopper. The gray or orange bagging screen removes any clumps or foreign material and the small remaining amount of fine material that was not completely removed in either the green or blue screens, and conveys the remaining product to a product hopper. The hopper diverts the product to either the granular humate sewn bagging machines, or to the bulk loading into tote bags. The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Excess fines are loaded into the red screen and used up oversize materials are moved into outside return storage piles. The piles are initially watered or rain/snow moistens the piles and they crust over.

Fine material from the stored product area or obtained from either the green, blue, gray or orange screen fine stacker piles are fed to the red bagging screen hopper. The red bagging screen removes any clumps or foreign material and the small remaining amount of fine material that was not completely removed in the other screens, and conveys the remaining product to a bagging hopper. The hopper diverts the product to either the granular humate sewn bagging machines, or to the bulk loading into tote bags. The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Excess fines are loaded into totes for the soluble humic acid micronutrient process and used up oversize materials are moved into outside return storage piles. The piles are initially watered or rain/snow moistens the piles and they crust over.

The soluble product process uses the fine material stored in the tote bags, and this is loaded into a wet leaching process that concentrates the various humic acids. The concentrated solution is then run through a dryer where the remaining water is driven away and the remaining soluble product is captured in a product cyclone. The collected product from the cyclone is piped into 55 gallon drums and hand loaded into smaller consumer containers. Operating hours, five days per week (2860 hours per year), for the facility screening and bagging operations is found in Table 3-1 and the operating hours, seven days per week (3192 hours per year), for the soluble humic acid micronutrient process (Dryer/Cyclone, Unit 50) is found in Table 3-2.

TABLE 3-1: Screening Plant Production Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	1	1	1	1	1	1	1	0	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	1	0
8:00 AM	0	0	1	1	1	1	1	1	1	1	1	0
9:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
10:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
11:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
12:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
1:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
2:00 PM	0	0	1	1	1	1	1	1	1	1	1	0
3:00 PM	0	0	1	1	1	1	1	1	1	1	1	0
4:00 PM	0	0	0	1	1	1	1	1	1	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	**5**	**5**	**9**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**9**	**5**

TABLE 3-2: Dryer Production Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
1:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
2:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
3:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
4:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
5:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
6:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
7:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
8:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
9:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
10:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
11:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
12:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
1:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
2:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
3:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
4:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
5:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
6:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
7:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
8:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
9:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
10:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
11:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
Total	**24**	**24**	**24**	**24**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**24**

Haul truck traffic entering the facility will be controlled with base course or road watering. Haul trucks for raw ore delivery and material return to mine operates during Screening and Bagging processing hours, five days per week. Haul trucks for product material operates during 24 hours per day year round.

If you have any questions regarding this significant permit revision application please call Paul Wade of Montrose Environmental Solutions, Inc. at (505) 830-9680 ext 6 or Tyler Lown Vandenburg of Menefee Mining Corporation at (214) 750-4696.

Routine or predictable emissions during Startup, Shutdown, and Maintenance (SSM)

No SSM emissions are proposed or submitted for this facility. For material processing equipment, Menefee will follow normal industry practices in minimizing emissions during startup, shutdown, normal operations, and maintenance to not exceed the maximum hourly or annual emission rates submitted in Table 2-E.

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.

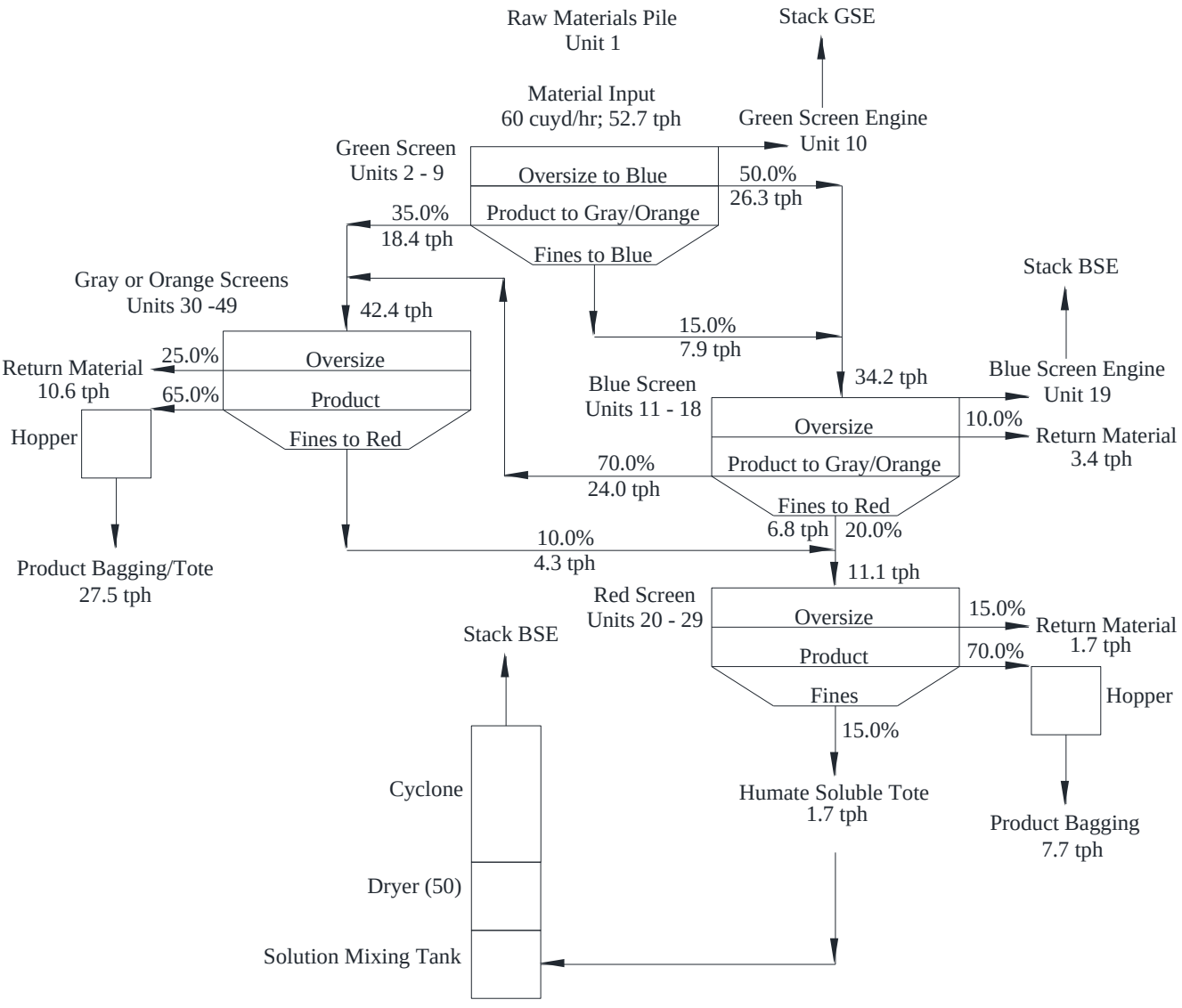

Figure 4-1: Menefee Process Flow Diagram

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.

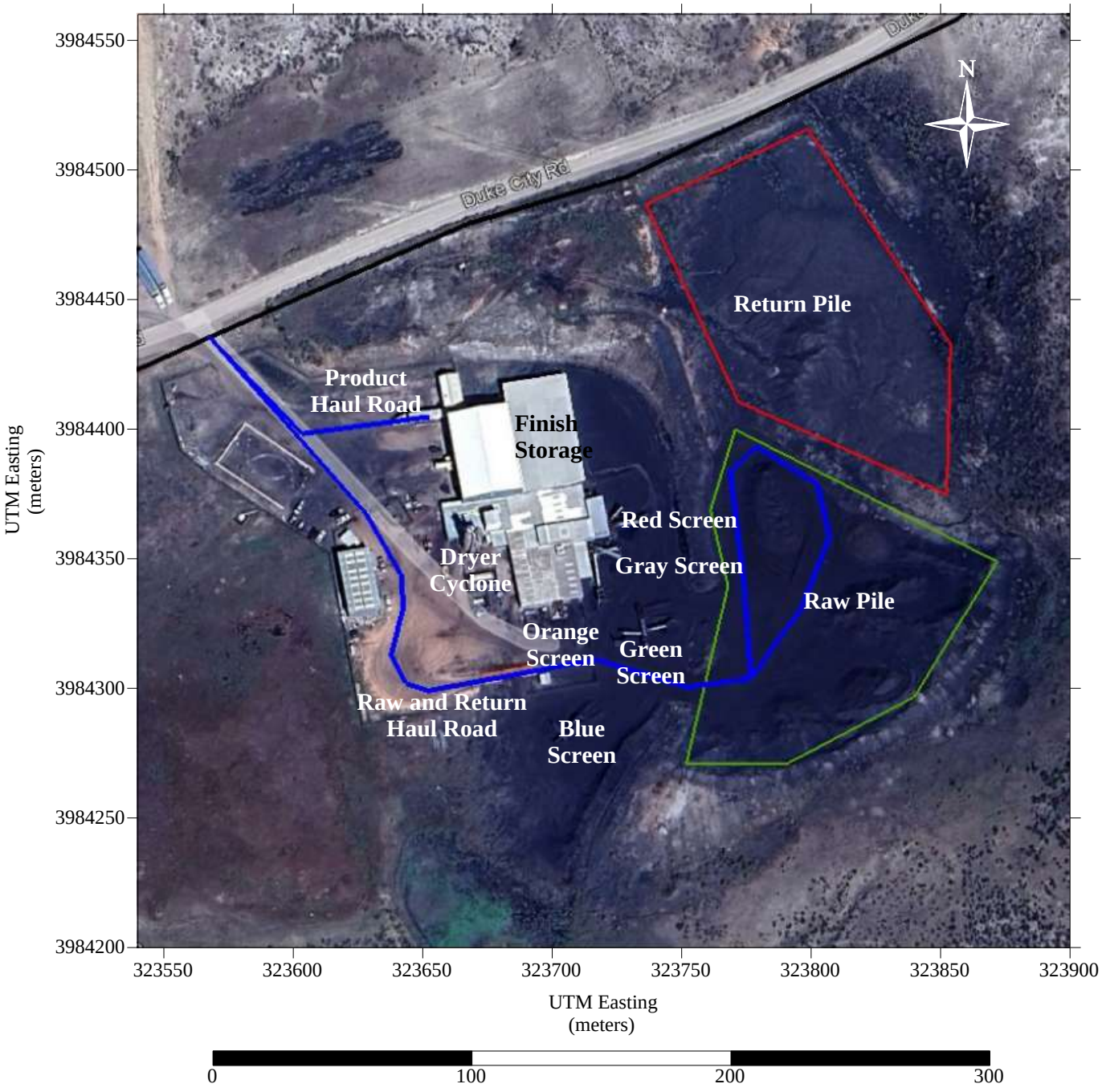

Figure 5-1: Location of Site Equipment

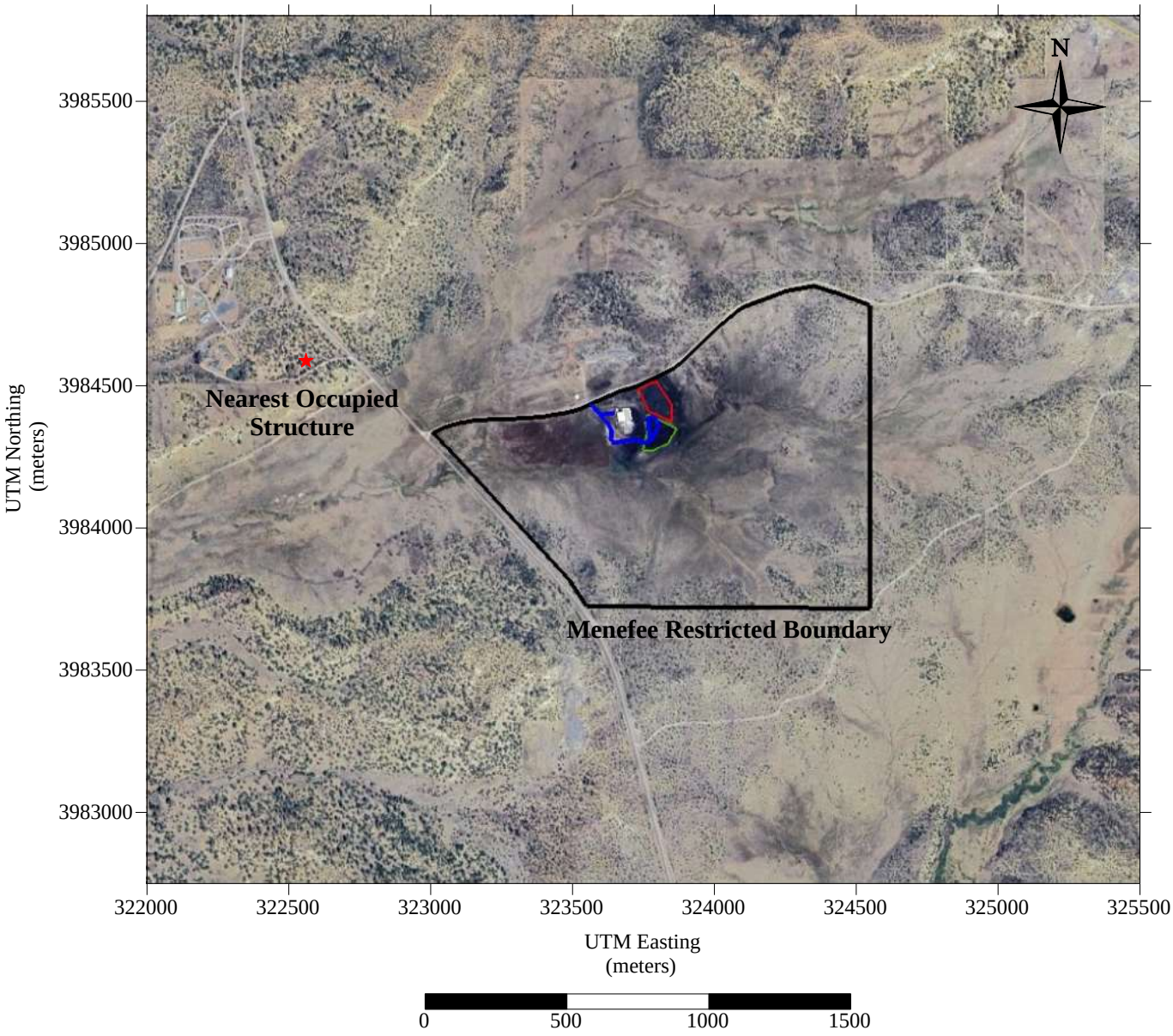

Figure 5-2: Area Around Site Half Mile

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

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

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

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

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

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

Material handling through the screening system begins with loading the green or blue screens with run of mine ore delivered from the mine. Oversized material may be re-screened through either the green or blue screens to further remove granular humate fines or granular humate product. After initial screening through the green and blue screens, oversized material is stored in the return material pile and will be returned to the mine. Granular humate product material from the green and blue screens is then re-screened through the gray and orange screens; to finish removing oversized which will be stored in the return material pile and will be returned to the mine, fines are stored in covered storage piles or loaded into the red screen, and granular humate product material that is loaded into totes. Granular humate fines from the green, blue, gray and orange screens or the granular humate fines storage piles, is loaded into the red screen for re-screening. Red screen oversized material is stored in the return material pile and will be returned to the mine. Red screen granular humate fines are loaded in soluble humate totes to be used later in the soluble humic acid micronutrient process. Red screen granular humate product material is bagged through the bagging system. The following table outlines the material process flow through the various screens (green, blue, red, gray, and orange). Oversized material will be stored in the return pile until taken back to the mine. Product stored in the facility warehouse until loaded into product trucks throughout the year.

Green Screen		**Throughput %**	**Revised Application**				**Revised Application**		**At Maximum Operations Hours/Day**	
Total Input	60 cuyd/hr	100.0%	52.7	tons/hr	480	cuyd/day	421.2	tons/day	8	Hours Between 6 AM to 5 PM
Oversized Stacker	Recycle through Green/Blue	50.0%	26.3	tons/hr						
Fines Stacker	Recycle through Blue	15.0%	7.9	tons/hr						
Product Stacker	to Gray and Orange	35.0%	18.4	tons/hr						

Blue Screen			Revised Application				Revised Application			
Total Input	39 cuyd/hr	100.0%	34.2	tons/hr	312	cuyd/hr	273.8	tons/day	8	Hours Between 6 AM to 5 PM
Oversized Stacker	Return Pile after Recycle	10.0%	3.4	tons/hr						
Fines Stacker	to Red or storage pile	20.0%	6.84	tons/hr						
Product Stacker	to Gray and Orange	70.0%	24.0	tons/hr						

Red Bagging Screen			Revised Application		Revised Application			
Total Input		100.0%	11.1	tons/hr	185.7	tons/day	8	Hours Between 6 AM to 5 PM
Oversize Stacker	Return Pile	15.0%	1.7	tons/hr				
Fines Stacker	Soluble	15.0%	1.7	tons/hr				
Product Bagging Loading	Product	70.0%	7.8	tons/hr				

Gray Bagging Screen			Revised Application		Revised Application		8	Hours Between 6 AM to 5 PM
Total Input		100.0%	21.2	tons/hr	339.1	tons/day		
Oversize Stacker	Return Pile	25.0%	5.3	tons/hr				
Fines Stacker	to Red or storage pile	10.0%	2.1	tons/hr				
Product Tote Loading	Product	65.0%	13.8	tons/hr				

Orange Bagging Screen			Revised Application		Revised Application		8	Hours Between 6 AM to 5 PM
Total Input		100.0%	21.2	tons/hr	339.1	tons/day		
Oversize Stacker	Return Pile	25.0%	5.3	tons/hr				
Fines Stacker	to Red or storage pile	10.0%	2.1	tons/hr				
Product Tote Loading	Product	65.0%	13.8	tons/hr				

Soluble Humate Product		1.7	tons/hr	13.3	tons/day
Product Bagging		7.8	tons/hr	62.1	tons/day
Product Tote Loading		27.5	tons/hr	220.4	tons/day
Material Return Pile		15.7	tons/hr	125.4	tons/day
		52.7	tons/hr	421.2	tons/hr

Density Humate 65 lbs/cuft

	Green Screen		**Blue Screens**		**Red Bagging Screen**		**Gray Bagging Screen**		**Orange Bagging Screen**	
January	84.2	tons/day	54.8	tons/day	37.1	tons/day	67.8	tons/day	67.8	tons/day
February	84.2	tons/day	54.8	tons/day	37.1	tons/day	67.8	tons/day	67.8	tons/day
March	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
April	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
May	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
June	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
July	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
August	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
September	421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day

October			421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
November			421.2	tons/day	273.8	tons/day	185.7	tons/day	339.1	tons/day	339.1	tons/day
December			84.2	tons/day	54.8	tons/day	37.1	tons/day	67.8	tons/day	67.8	tons/day
Days Per Year Screening	260	days										
Hours Per Year Screening	2860	Hours/Year	109512	tons/yr	71183	tons/yr	48295	tons/yr	88157	tons/yr	88157	tons/yr
			124800	cuyd/yr								
Dryer	3192	Hours/Year	5500.0	lbs/day	133	days/yr						
			365.75	tons/yr								
Screen Engines	2860	Hours/Year										
Raw Ore Material Haul Road			2.3	truck/hour	4761	truck/yr						
Return Material			12.3	tons/hr	51323	tons/yr						
Return Material Haul Road			0.7	truck/hour	2231	truck/yr						
Product Haul Road			1.9	truck/hour	8294	truck/yr						

Allowable Particulate Emission Rates

Since the facility presently is limited in operation by Permit #3426, both maximum and requested allowable emission rates are the same. No controls are proposed for the facility with the exception of the plant haul road.

Material Handling ($PM_{2.5}$, PM_{10}, and PM)

To estimate material handling pre-control particulate emissions rates for screening, fine screening, and conveyor transfer operations, emission factors were obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Aug. 2004, Section 11.19.2, Table 11.19.2-2. To determine missing $PM_{2.5}$ emission factors the ratio of 0.35/0.053 from $PM_{10}/PM_{2.5}$ *k* factors found in AP-42 Section 13.2.4 (11/2006) were used.

To estimate material handling particulate emission rates for material handling operations (storage piles/ loading feed bins, stacker conveyor to storage piles, bagging hopper loading, bag tote loading), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (TSP = 0.74, PM_{10} = 0.35, $PM_{2.5}$ = 0.053), wind speed for determining emission rate is based on the average wind speed for Cuba, NM (Webpage) of 8.0 mph (see Section 7), and the NMED default moisture content of 2 percent. For operations that occur within the warehouse building (Red, Gray, and Orange Screens Bagging Hopper Loading and Bag Tote Loading) windspeed is adjusted to a conservative 50% (4 MPH) of the annual average wind speed.

Annual emissions for tons per year (tpy) were calculated assuming annual throughput based on maximum hourly throughput and annual hours of operation.

Hourly Material Handling – Stacker Drop to Storage Piles, Storage Piles, and Feeder Loading Emission Equation:
Maximum Hour Emission Factor

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$
E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$
E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$
$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$
E_{PM} (lbs/ton) = 0.00660 lbs/ton;
E_{PM10} (lbs/ton) = 0.00312 lbs/ton
$E_{PM2.5}$ (lbs/ton) = 0.00047 lbs/ton

Annual Material Handling – Stacker Drop to Storage Piles, Storage Piles, and Feeder Loading Emission Equation:
Annual Emission Factor

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$
E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(8/5)^{1.3}$ / $(2/2)^{1.4}$
E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8/5)^{1.3}$ / $(2/2)^{1.4}$
$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8/5)^{1.3}$ / $(2/2)^{1.4}$
E_{PM} (lbs/ton) = 0.00436 lbs/ton;
E_{PM10} (lbs/ton) = 0.00206 lbs/ton
$E_{PM2.5}$ (lbs/ton) = 0.00031 lbs/ton

Passive reduction during loading the bagging hopper and loading the totes occurs because these operations are located within the warehouse. The operations in the building are predicted to reduce the wind speed by 50% or from 8 MPH to 4 MPH. The following calculation for PM10 AP-42 Section 13.2.4 emission equation and wind speed of 4 MPH.

PM_{10} Annual Material Handling – Conveyor Drop to Bagging Hopper and Tote Emission Equation:

Annual Emission Factor with Reduced Wind Speed

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(4/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.00084 lbs/ton

Calculating emission reduction of the AP-42 Section 13.2.4 emission equation with a wind speed of 8 MPH to 4 MPH is as follows:

1-emission factor 4 MPH/emission factor 8 MPH

1-0.00084/0.00206 = 0.594 (59.4%) passive emission reduction

AP-42 Section 11.19.2 Table 11.19.2-2 Emission Factors:

All Bin Unloading and Conveyor Transfers = Uncontrolled Conveyor Transfer Point Emission Factor

Screening = Uncontrolled Screening Emission Factor

Fine Screening = Uncontrolled Fine Screening Emission Factor

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)
Uncontrolled Screening	0.02500	0.00870	0.00130
Uncontrolled Fines Screening	0.30000	0.07200	0.01091
Feeder Unloading and Conveyor Transfer Points	0.00300	0.00110	0.00017
Uncontrolled Maximum Hourly Material Storage Piles, Stacker/Material Drop to Piles, Feeder Loading	0.00660	0.00312	0.00047
Uncontrolled Annual Material Storage Piles, Stacker/Material Drop to Piles, Feeder Loading	0.00436	0.00206	0.00031
Uncontrolled Maximum Hourly Bagging Hopper Loading and Tote Loading within Warehouse	0.00268	0.00127	0.00019
Uncontrolled Annual Bagging Hopper Loading and Tote Loading within Warehouse	0.00177	0.00084	0.00013

The following equation was used to calculate the hourly emission rate for each process unit:

Emission Rate (lbs/hour) = Process Rate (tons/hour) * Emission Factor (lbs/ton)

The following equation was used to calculate the annual emission rate for each process unit:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{\text{2000 lbs/ton}}$$

Table 6-1 Pre-Controlled Regulated Process Equipment Emission Rates

Unit #	Process Unit Description	Process Rate (tph/tpy)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
1	Raw Material Storage Pile	52.7/ 109512	0.35	0.36	0.16	0.17	0.025	0.026
Green Screen								
2	Feeder	52.7/ 109512	0.35	0.36	0.16	0.17	0.025	0.026
3	Conveyor Transfer Point	52.7/ 109512	0.16	0.16	0.058	0.060	0.0088	0.0091
4	Screen	52.7/ 109512	1.32	1.37	0.46	0.48	0.069	0.072
5	Conveyor Transfer Point-Oversize to Green/Blue	26.3/ 54756	0.079	0.082	0.029	0.030	0.0044	0.0046
6	Conveyor Transfer Point-Fines to Blue	7.9/ 16427	0.024	0.025	0.0087	0.0090	0.0013	0.0014
7	Conveyor Transfer Point-Product to Gray/Orange	18.4/ 38329	0.055	0.057	0.020	0.021	0.0031	0.0032
8	Stacker Conveyor Drop to Piles	52.7/ 109512	0.35	0.36	0.16	0.17	0.025	0.026
9	Finish Storage Piles or Transfer to Screen	52.7/ 109512	0.35	0.36	0.16	0.17	0.025	0.026
Blue Screen								
11	Feeder	34.2/ 71183	0.23	0.23	0.11	0.11	0.016	0.017
12	Conveyor Transfer Point	34.2/ 71183	0.10	0.11	0.038	0.039	0.0057	0.0059
13	Screen	34.2/ 71183	0.86	0.89	0.30	0.31	0.045	0.047
14	Conveyor Transfer Point-Oversize	3.4/ 7118	0.010	0.011	0.0038	0.0039	0.00057	0.00059
15	Conveyor Transfer Point-Fines to Red	13.7/ 28473	0.041	0.043	0.015	0.016	0.0023	0.0024
16	Conveyor Transfer Point-Product to Gray/Orange	17.1/ 35591	0.051	0.053	0.019	0.020	0.0029	0.0030

Unit #	Process Unit Description	Process Rate (tph/tpy)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
17	Stacker Conveyor Drop to Piles	34.2/ 71183	0.23	0.23	0.11	0.11	0.016	0.017
18	Finish Storage Piles or Transfer to Screen	34.2/ 71183	0.23	0.23	0.11	0.11	0.016	0.017
Red Screen								
20	Feeder	11.1/ 48295	0.073	0.16	0.035	0.075	0.0052	0.011
21	Conveyor Transfer Point	11.1/ 48295	0.033	0.072	0.012	0.027	0.0018	0.0040
22	Fine Screen	11.1/ 48295	3.32	7.24	0.80	1.74	0.12	0.26
23	Conveyor Transfer Point-Oversize	1.7/ 7244	0.0050	0.011	0.0018	0.0040	0.00028	0.00060
24	Conveyor Transfer Point-Fines	1.7/ 7244	0.0050	0.011	0.0018	0.0040	0.00028	0.00060
25	Conveyor Transfer Point-Product	7.8/ 33806	0.023	0.051	0.0085	0.019	0.0013	0.0028
26	Stacker Drop to Fine Tote Loading	1.7/ 7244	0.011	0.024	0.0052	0.011	0.00079	0.0017
27	Stacker Drop to Screen Return Material Storage Pile	1.7/ 7244	0.011	0.024	0.0052	0.011	0.00079	0.0017
28	Bagging Hopper Loading	7.8/ 33806	0.021	0.045	0.010	0.021	0.0015	0.0032
29	Bag Tote	7.8/ 33806	0.021	0.045	0.010	0.021	0.0015	0.0032
Gray Screen								
30	Feeder	21.2/ 88157	0.14	0.29	0.066	0.14	0.010	0.021
31	Conveyor Transfer Point	21.2/ 88157	0.064	0.13	0.023	0.048	0.0035	0.0073
32	Fine Screen	21.2/ 88157	6.36	13.22	1.53	3.17	0.231	0.481
33	Conveyor Transfer Point-Oversize	5.3/ 22039	0.016	0.033	0.0058	0.012	0.00088	0.0018
34	Conveyor Transfer Point-Fines	2.1/ 8816	0.0064	0.013	0.0023	0.0048	0.00035	0.00073
35	Conveyor Transfer Point-Product	13.8/ 57302	0.041	0.086	0.015	0.032	0.0023	0.0048
36	Stacker Drop to Fine Pile to Red Screen	2.1/ 8816	0.014	0.029	0.0066	0.014	0.0010	0.0021
37	Stacker Drop to Screen Return Material Storage Pile	5.3/ 22039	0.035	0.073	0.0165	0.034	0.0025	0.0052

Unit #	Process Unit Description	Process Rate (tph/tpy)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
38	Bagging Hopper Loading (Warehouse)	13.8/ 57302	0.037	0.077	0.017	0.036	0.0026	0.0055
39	Bag Tote (Warehouse)	13.8/ 57302	0.037	0.077	0.017	0.036	0.0026	0.0055
Orange Screen								
40	Feeder	21.2/ 88157	0.14	0.29	0.066	0.14	0.010	0.021
41	Conveyor Transfer Point	21.2/ 88157	0.064	0.13	0.023	0.048	0.0035	0.0073
42	Fine Screen	21.2/ 88157	6.36	13.22	1.53	3.17	0.231	0.481
43	Conveyor Transfer Point-Oversize	5.3/ 22039	0.016	0.033	0.0058	0.012	0.00088	0.0018
44	Conveyor Transfer Point-Fines	2.1/ 8816	0.0064	0.013	0.0023	0.0048	0.00035	0.00073
45	Conveyor Transfer Point-Product	13.8/ 57302	0.041	0.086	0.015	0.032	0.0023	0.0048
46	Stacker Drop to Fine Pile to Red Screen	2.1/ 8816	0.014	0.029	0.0066	0.014	0.0010	0.0021
47	Stacker Drop to Screen Return Material Storage Pile	5.3/ 22039	0.035	0.073	0.0165	0.034	0.0025	0.0052
48	Bagging Hopper Loading (Warehouse)	13.8/ 57302	0.037	0.077	0.017	0.036	0.0026	0.0055
49	Bag Tote (Warehouse)	13.8/ 57302	0.037	0.077	0.017	0.036	0.0026	0.0055
54	Return Material Storage Pile	12.3/ 51323	0.081	0.17	0.038	0.080	0.0058	0.012
		TOTALS	**21.86**	**40.88**	**6.24**	**11.07**	**0.95**	**1.68**

Unit 10 Green Screen Engine
Estimates for 80 hp Green Screening Plant Diesel-Fired Engine (NO_X, CO, SO_2, VOC, PM, and CO_2)

A 80 horsepower (hp) engine (Unit 10) provides power to the green screening plant. Emission rates for NO_X, CO, PM and VOC are based on EPA AP-42 Section 3.3 emission factors (See Section 7). Sulfur dioxide (SO_2) emissions are estimated based on sulfur content of diesel fuel, not to exceed 0.05% fuel content and a fuel usage rate of 4.34 gal/hr. CO_2 emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024). Annual emissions in tons per year (tpy) were calculated assuming 2860 hours per year.

EPA AP-42 Section 3.3:

Pollutant	EPA Tier 2 Emission Factor (lbs-hr/hr)
Nitrogen Oxide (NOx)	0.03100
Carbon Monoxides (CO)	0.00668
Particulate (PM)	0.00220
Hydrocarbons (VOC)	0.00247

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 4.34 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 500 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO_2).

Emission Rate (lbs/hr) = Fuel (gal/hr) * Density lbs/gal * % Sulfur Content * Factor

$$\text{Emission Rate (lbs/hr)} = \frac{4.34 \text{ gallons}}{\text{hr}} \mid \frac{7.0 \text{ lbs}}{\text{gallon}} \mid \frac{0.0005 \text{ lbs Sulfur}}{\text{lbs of fuel}} \mid \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

Emission Rate (lbs/hr) = 0.030 lbs/hr

CO_2 emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).
CO2 = 10.21 kg/gal (GWP = 1)
CH4 = 0.41 g/gal (GWP = 28)
N2O = 0.08 g/gal (GWP = 265)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{\text{2000 lbs/ton}}$$

Table 6-2: Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (hp)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
10	NO_X	80	2.48	3.55
	CO	80	0.53	0.76
	SO_2	80	0.030	0.043
	VOC	80	0.20	0.28
	PM	80	0.18	0.25

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g
GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-3: GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
10	CO_2	10.21 kg/gal	4.34	1	97.8	139.8
	CH_4	0.41 g/gal	4.34	28	0.10	0.14
	N_2O	0.08 g/gal	4.34	265	0.23	0.33
	GHG				98.1	140.3

Unit 19 Blue Screen Engine
Estimates for 111 hp Blue Screening Plant Diesel-Fired Engine (NO_X, CO, SO_2, VOC, PM, and CO_2)

A 111 horsepower (hp), 83 kilowatt (kW) engine (Unit 19) provides power to the blue screening plant. Emission rates for NO_X, CO, PM and NMHC are based on EPA Tier 3 emission factors (See Section 7). Tier 3 emission factors lists NMHC+NOx. NOx emission factor is 95% of the NMHC+NOx emission factor and Hydrocarbons (VOC) is 5% of the NMHC+NOx emission factor. Sulfur dioxide (SO_2) emissions are estimated based on sulfur content of diesel fuel, not to exceed 0.05% fuel content and a fuel usage rate of 6.04 gal/hr. CO_2 emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024). Annual emissions in tons per year (tpy) were calculated assuming 2860 hours per year.

EPA Tier 3:

Pollutant	EPA Tier 2 Emission Factor (g-kW/hr)
NMHC+NOx	4.00
Nitrogen Oxide (NOx)	3.80
Carbon Monoxides (CO)	5.00
Particulate (PM)	0.30
Hydrocarbons (VOC)	0.20

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 6.04 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 500 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO_2).

Emission Rate (lbs/hr) = Fuel (gal/hr) * Density lbs/gal * % Sulfur Content * Factor

$$\text{Emission Rate (lbs/hr)} = \frac{6.04 \text{ gallons}}{\text{hr}} \left| \frac{7.0 \text{ lbs}}{\text{gallon}} \right| \frac{0.0005 \text{ lbs Sulfur}}{\text{lbs of fuel}} \left| \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}} \right.$$

Emission Rate (lbs/hr) = 0.042 lbs/hr

CO_2 emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).
CO2 = 10.21 kg/gal (GWP = 1)
CH4 = 0.41 g/gal (GWP = 28)
N2O = 0.08 g/gal (GWP = 265)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{\text{2000 lbs/ton}}$$

Table 6-4: Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
19	NO_X	83	0.70	0.99
	CO	83	0.91	1.31
	SO_2	83	0.042	0.060
	VOC	83	0.037	0.052
	PM	83	0.055	0.078

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g
GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-5: GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
19	CO_2	10.21 kg/gal	4.34	1	136.0	194.5
	CH_4	0.41 g/gal	4.34	28	0.14	0.20
	N_2O	0.08 g/gal	4.34	265	0.32	0.45
	GHG				136.5	195.1

Estimates for Truck Traffic ($PM_{2.5}$, PM_{10} and PM) (Units 51, 52, 53)

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. Haul roads for all plant roads use base course or watering as the control method (60% control efficiency allowed). Truck trips include granular humate product trucks, run of mine trucks, and return to mine trucks. Present permit requires base course or watering on all plant haul roads, so all emission rates are calculated based on 60% control efficiency

Hourly Emission Equation

$$\mathrm{E} = k * (\mathrm{s}/12)^a * (W/3)^b * VMT * (1 - \frac{CE}{100})$$

Annual Emission Equation

$$\mathrm{E} = k * (\mathrm{s}/12)^a * (W/3)^b * [(365 - p)/365] * VMT * (1 - \frac{CE}{100})$$

Where k = constant PM2.5 = 0.15
PM10 = 1.5
PM = 4.9

s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight - mine and return (26.5 tons) (Truck Tare - 15 tons; Load Weight - 23 tons)
W = mean vehicle weight - product (24.5 tons) (Truck Tare - 15 tons; Load Weight - 19 tons)
p = number of days with at least 0.01 in of precip. (NMED Policy = 70 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
PM = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
PM = 0.45
% Control CE = 60%

$VMT_{Product}$ = Vehicle Miles Traveled (road length = 0.125051 miles round trip)
$VMT_{Run\ of\ Mine}$ = Vehicle Miles Traveled (road length = 0.500467 miles round trip)
$VMT_{Return\ to\ Mine}$ = Vehicle Miles Traveled (road length = 0.500467 miles round trip)

Product Trucks per hour = 1.9 trucks; annual = 8294 trucks/yr
Mine Trucks per hour = 2.3 trucks; annual = 2383 trucks/yr
Return Trucks per hour = 0.7 trucks; annual = 1418 trucks/yr

Product Truck Hourly Emission Rate Factor Controlled
PM = 2.6553 lbs/VMT
PM10 = 0.6767 lbs/VMT
PM2.5 = 0.0677 lbs/VMT

Product Truck Annual Emission Rate Factor Controlled
PM = 2.1461 lbs/annual VMT
PM10 = 0.5470 lbs/annual VMT
PM2.5 = 0.0.547 lbs/annual VMT

Mine and Return Truck Hourly Emission Rate Factor Controlled
PM = 2.7508 lbs/VMT
PM10 = 0.7011 lbs/VMT
PM2.5 = 0.0701 lbs/VMT

Mine and Return Truck Annual Emission Rate Factor Controlled

PM = 2.2232 lbs/annual VMT
PM10 = 0.5666 lbs/annual VMT
PM2.5 = 0.0.0567 lbs/annual VMT

Table 6-6: Haul Road Fugitive Dust Emission Rates

Process Unit Description	Miles Traveled	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
Unit 51 Run of Mine Haul Truck Travel	1.14564 miles/hr 2,383 miles/yr	3.15	2.65	0.80	0.68	0.080	0.068
Unit 52 Product Haul Truck Travel	0.23313 miles/hr 1,037 miles/yr	0.62	1.11	0.16	0.28	0.016	0.028
Unit 53 Return to Mine Haul Truck Travel	0.34120 miles/hr 710 miles/yr	0.94	0.79	0.24	0.20	0.024	0.020

Unit 50 Soluble Humate Dryer/Cyclone

Soluble humate fines from the red screen is loaded directly into tote bags for use in the soluble humic acid micronutrient process. Soluble humate material stored in the tote bags is loaded into a wet leaching process that concentrates the various humic acids. The concentrated solution is then run through a dryer where the remaining water is driven away and the remaining soluble product is captured in a product cyclone. The collected product from the cyclone is piped into 55 gallon drums and hand loaded into smaller consumer containers. The only emission source is the dryer and cyclone (Unit 50) with emissions exhausted through the cyclone stack. After the humic acid material is dried, the cyclone will capture the dried material and load into 55 gallon drums. This process and hourly emissions will not change with this permit revision. Annual hours will increase from 3120 hour to 3192 hours per year increasing the annual emission rates.

Dryer combustion emissions (NO_X, CO, SO_2, VOC, and CO_2) are estimated using EPA's AP-42 Section 1.3 "Distillate oil fired".

EPA AP-42 Section 1.3:

Pollutant	AP-42 1.3 Emission Factor (lbs/10^3 gal)
Nitrogen Oxide (NOx)	20
Carbon Monoxides (CO)	5
Hydrocarbons (TOC)	0.556

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this dryer of 48 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 500 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO_2).

Emission Rate (lbs/hr) = Fuel (gal/hr) * Density lbs/gal * % Sulfur Content * Factor

$$\text{Emission Rate (lbs/hr)} = \frac{48 \text{ gallons}}{\text{hr}} \left| \frac{7.0 \text{ lbs}}{\text{gallon}} \right| \frac{0.0005 \text{ lbs Sulfur}}{\text{lbs of fuel}} \left| \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}} \right.$$

Emission Rate (lbs/hr) = 0.34 lbs/hr

CO_2 emission rates are found in EPA's "Emission Factors for Greenhouse Gas Inventories" (February 13, 2024).

CO2 = 10.21 kg/gal (GWP = 1)
CH4 = 0.41 g/gal (GWP = 28)
N2O = 0.08 g/gal (GWP = 265)

The following equation was used to calculate the annual emission rate for each engine pollutant:

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Rate (lbs/hour)} * \text{Operating Hour (hrs/year)}}{2000 \text{ lbs/ton}}$$

Table 6-7: Combustion Emission Rates

Process Unit Number	Pollutant	Gallons/Hour	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
50	NO_X	48	0.96	1.53
	CO	48	0.24	0.38
	SO_2	48	0.34	0.54
	VOC	48	0.027	0.043

GHG emission rate hourly (lbs/hr) = Emission Factor * gallon/hour * GWP * 2.20462 lbs/kg or 0.0020462 lbs/g
GHG emission rate annual (tons/yr) = lbs/hr * annual hours/2000 lbs/ton

Table 6-8: GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
50	CO_2	10.21 kg/gal	48	1	1080.4	1724.4
	CH_4	0.41 g/gal	48	28	1.08	1.73
	N_2O	0.08 g/gal	48	265	2.52	4.03
	GHG				1084.0	1730.1

Table 6-9 Summary of Requested Allowable NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1	Raw Material Storage Pile	-	-	-	-	-	-	-	-	0.35	0.36	0.16	0.17	0.025	0.026
Green Screen															
2	Feeder	-	-	-	-	-	-	-	-	0.35	0.36	0.16	0.17	0.025	0.026
3	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.16	0.16	0.058	0.060	0.0088	0.0091
4	Screen	-	-	-	-	-	-	-	-	1.32	1.37	0.46	0.48	0.069	0.072
5	Conveyor Transfer Point-Oversize to Green/Blue	-	-	-	-	-	-	-	-	0.079	0.082	0.029	0.030	0.0044	0.0046
6	Conveyor Transfer Point-Fines to Blue	-	-	-	-	-	-	-	-	0.024	0.025	0.0087	0.0090	0.0013	0.0014
7	Conveyor Transfer Point-Product to Gray/Orange	-	-	-	-	-	-	-	-	0.055	0.057	0.020	0.021	0.0031	0.0032
8	Stacker Conveyor Drop to Piles	-	-	-	-	-	-	-	-	0.35	0.36	0.16	0.17	0.025	0.026
9	Finish Storage Piles or Transfer to Screen	-	-	-	-	-	-	-	-	0.35	0.36	0.16	0.17	0.025	0.026
10	Green Screen Engine	2.48	3.55	0.53	0.76	0.030	0.043	0.20	0.28	0.18	0.25	0.18	0.25	0.18	0.25
Blue Screen															
11	Feeder	-	-	-	-	-	-	-	-	0.23	0.23	0.11	0.11	0.016	0.017
12	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.10	0.11	0.038	0.039	0.0057	0.0059
13	Screen	-	-	-	-	-	-	-	-	0.86	0.89	0.30	0.31	0.045	0.047
14	Conveyor Transfer Point-Oversize	-	-	-	-	-	-	-	-	0.010	0.011	0.0038	0.0039	0.00057	0.00059
15	Conveyor Transfer Point-Fines to Red	-	-	-	-	-	-	-	-	0.041	0.043	0.015	0.016	0.0023	0.0024

Table 6-9 Summary of Requested Allowable NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
16	Conveyor Transfer Point-Product to Gray/Orange	-	-	-	-	-	-	-	-	0.051	0.053	0.019	0.020	0.0029	0.0030
17	Stacker Conveyor Drop to Piles	-	-	-	-	-	-	-	-	0.23	0.23	0.11	0.11	0.016	0.017
18	Finish Storage Piles or Transfer to Screen	-	-	-	-	-	-	-	-	0.23	0.23	0.11	0.11	0.016	0.017
19	Blue Screen Engine	0.70	0.99	0.91	1.31	0.042	0.060	0.055	0.078	0.055	0.078	0.055	0.078	0.055	0.078
Red Screen															
20	Feeder	-	-	-	-	-	-	-	-	0.073	0.16	0.035	0.075	0.0052	0.011
21	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.033	0.072	0.012	0.027	0.0018	0.0040
22	Fine Screen	-	-	-	-	-	-	-	-	3.32	7.24	0.80	1.74	0.12	0.26
23	Conveyor Transfer Point-Oversize	-	-	-	-	-	-	-	-	0.0050	0.011	0.0018	0.0040	0.00028	0.00060
24	Conveyor Transfer Point-Fines	-	-	-	-	-	-	-	-	0.0050	0.011	0.0018	0.0040	0.00028	0.00060
25	Conveyor Transfer Point-Product	-	-	-	-	-	-	-	-	0.023	0.051	0.0085	0.019	0.0013	0.0028
26	Stacker Drop to Fine Tote Loading	-	-	-	-	-	-	-	-	0.011	0.024	0.0052	0.011	0.00079	0.0017
27	Stacker Drop to Return Material Storage Pile	-	-	-	-	-	-	-	-	0.011	0.024	0.0052	0.011	0.00079	0.0017
28	Bagging Hopper Loading	-	-	-	-	-	-	-	-	0.021	0.045	0.010	0.021	0.0015	0.0032
29	Bag Tote Loading	-	-	-	-	-	-	-	-	0.021	0.045	0.010	0.021	0.0015	0.0032
Gray Screen															
30	Feeder	-	-	-	-	-	-	-	-	0.14	0.29	0.066	0.14	0.010	0.021
31	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.064	0.13	0.023	0.048	0.0035	0.0073

Table 6-9 Summary of Requested Allowable NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
32	Fine Screen	-	-	-	-	-	-	-	-	6.36	13.22	1.53	3.17	0.231	0.481
33	Conveyor Transfer Point-Oversize	-	-	-	-	-	-	-	-	0.016	0.033	0.0058	0.012	0.00088	0.0018
34	Conveyor Transfer Point-Fines	-	-	-	-	-	-	-	-	0.0064	0.013	0.0023	0.0048	0.00035	0.00073
35	Conveyor Transfer Point-Product	-	-	-	-	-	-	-	-	0.041	0.086	0.015	0.032	0.0023	0.0048
36	Stacker Drop to Fine Pile to Red Screen	-	-	-	-	-	-	-	-	0.014	0.029	0.0066	0.014	0.0010	0.0021
37	Stacker Drop to Return Material Storage Pile	-	-	-	-	-	-	-	-	0.035	0.073	0.0165	0.034	0.0025	0.0052
38	Bagging Hopper Loading	-	-	-	-	-	-	-	-	0.037	0.077	0.017	0.036	0.0026	0.0055
39	Bag Tote Loading	-	-	-	-	-	-	-	-	0.037	0.077	0.017	0.036	0.0026	0.0055
Orange Screen															
40	Feeder	-	-	-	-	-	-	-	-	0.14	0.29	0.066	0.14	0.010	0.021
41	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.064	0.13	0.023	0.048	0.0035	0.0073
42	Fine Screen	-	-	-	-	-	-	-	-	6.36	13.22	1.53	3.17	0.231	0.481
43	Conveyor Transfer Point-Oversize	-	-	-	-	-	-	-	-	0.016	0.033	0.0058	0.012	0.00088	0.0018
44	Conveyor Transfer Point-Fines	-	-	-	-	-	-	-	-	0.0064	0.013	0.0023	0.0048	0.00035	0.00073
45	Conveyor Transfer Point-Product	-	-	-	-	-	-	-	-	0.041	0.086	0.015	0.032	0.0023	0.0048
46	Stacker Drop to Fine Pile to Red Screen	-	-	-	-	-	-	-	-	0.014	0.029	0.0066	0.014	0.0010	0.0021
47	Stacker Drop to Return Material Storage Pile	-	-	-	-	-	-	-	-	0.035	0.073	0.0165	0.034	0.0025	0.0052
48	Bagging Hopper Loading	-	-	-	-	-	-	-	-	0.037	0.077	0.017	0.036	0.0026	0.0055
49	Bag Tote Loading	-	-	-	-	-	-	-	-	0.037	0.077	0.017	0.036	0.0026	0.0055

Table 6-9 Summary of Requested Allowable NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
Unit #	Description	NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Dryer/Cyclone															
50	Dryer (5500 lb/day)	0.96	1.53	0.24	0.38	0.34	0.54	0.027	0.043	20.00	31.92	20.00	31.92	20.00	31.92
Haul Roads															
51	Run of Mine Haul Road	-	-	-	-	-	-	-	-	3.15	2.65	0.80	0.68	0.080	0.068
52	Product Haul Road Traffic	-	-	-	-	-	-	-	-	0.62	1.11	0.16	0.28	0.016	0.028
53	Return to Mine Haul Road Traffic	-	-	-	-	-	-	-	-	0.94	0.79	0.24	0.20	0.024	0.020
	Total	**4.14**	**6.07**	**1.69**	**2.46**	**0.41**	**0.65**	**0.26**	**0.38**	**46.72**	**77.51**	**27.64**	**44.40**	**21.29**	**34.03**

Estimates for Federal HAPs Air Pollutants

The Green Screen Engine (10), Blue Screen Engine (19), and Dryer (50) are sources of HAPs as it appears in Section 112 (b) of the 1990 CAAA. Emissions of HAPs were determined for the plant engine using AP-42 Section 3.3 Table 3.3-2; Section 1.3 Table 1.3-10. Emissions of HAPs were determined for the dryer using AP-42 Section 1.3.

The following tables summarize the HAPs emission rates from the green screen engine, blue screen engine, and dryer. Total combined HAPs emissions from Menefee's Cuba Facility is 0.012 pounds per hour and 0.018 tons per year.

Table 6-10 Summary of Allowable HAPS Emission Rates for Whole Facility

Description	HAPS	
	lbs/hr	tons/yr
Unit 10: Green Screen Engine	**0.0036**	**0.0052**
Unit 19: Blue Screen Engine	**0.0050**	**0.0072**
Unit 50: Dryer	**0.0036**	**0.0058**
Total	**0.012**	**0.018**

Table 6-11: HAPs Emission Rates from the Green Screen Engine (10)

Horsepower Rating:	80	horsepower	
Fuel Usage:	4.34	gallons/hr	
MMBtu/hr:	0.55552	Btu	(based on 128000 Btu/gallon)
Btu x 10^-12/hr:	5.5552E-07	Btu x10^-12	(based on 128000 Btu/gallon)
Yearly Operating Hours:	2860	hours per year	

Type of Fuel: Diesel
Emission Factors AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.000426	0.000609
Acrolein	107-02-8	9.25E-05	0.000051	0.000073
Benzene	71-43-2	9.33E-04	0.000518	0.000741
1,3-Butadiene	106-99-0	3.91E-05	0.000022	0.000031
Formaldehyde	50-00-0	1.18E-03	0.000656	0.000937
Propylene	115-07-1	2.58E-03	0.001433	0.002050
Toluene	108-88-3	4.09E-04	0.000227	0.000325
Xylene	1330-20-7	2.85E-04	0.000158	0.000226
	Total Non-PAH HAPS	6.29E-03	0.003492	0.004993

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000001	0.000001
Acenaphthylene	208-96-8	5.06E-06	0.000003	0.000004
Anthracene	120-12-7	1.87E-06	0.000001	0.000001
Benzo(a)anthracene	56-55-3	1.68E-06	0.000001	0.000001
Benzo(a)pyrene	50-32-8	1.88E-07	0.000000	0.000000
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000000
Benzo(a)pyrene	192-97-2	1.55E-07	0.000000	0.000000
Benzo(g,h,I)perylene	191-24-2	4.89E-07	0.000000	0.000000
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000000	0.000000
Dibenz(a,h)anthracene		5.83E-07	0.000000	0.000000
Chrysene	218-01-9	3.53E-07	0.000000	0.000000
Fluoranthene	206-44-0	7.61E-06	0.000004	0.000006
Fluorene	86-73-7	2.92E-05	0.000016	0.000023
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000000	0.000000
Naphthalene	91-20-3	8.48E-05	0.000047	0.000067
Phenanthrene	85-01-8	2.94E-05	0.000016	0.000023
Pyrene	129-00-0	4.78E-06	0.000003	0.000004
	Total PAH HAPS	1.68E-04	0.000093	0.000134

HAPS Metals		Emission Factor (lbs/Btu^12)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		4	0.000002	0.000003
Beryllium		3	0.000002	0.000002
Cadmium		3	0.000002	0.000002
Chromium		3	0.000002	0.000002
Lead		9	0.000005	0.000007
Manganese		6	0.000003	0.000005
Mercury		3	0.000002	0.000002
Nickel		3	0.000002	0.000002
Selenium		15	0.000008	0.000012
	Total Metals HAPS	49	0.000027	0.000039
	Total HAPS		**0.00361**	**0.00517**

Table 6-12: HAPs Emission Rates from the Blue Screen Engine (19)

Horsepower Rating:	111	horsepower	
Fuel Usage:	6.04	gallons/hr	
MMBtu/hr:	0.77312	Btu	(based on 128000 Btu/gallon)
Btu x 10^-12/hr:	7.7312E-07	Btu x10^-12	(based on 128000 Btu/gallon)
Yearly Operating Hours:	2860	hours per year	

Type of Fuel: Diesel
Emission Factors AP-42 Section 3.3 and Section 1.3

Non-PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.000593	0.000848
Acrolein	107-02-8	9.25E-05	0.000072	0.000102
Benzene	71-43-2	9.33E-04	0.000721	0.001031
1,3-Butadiene	106-99-0	3.91E-05	0.000030	0.000043
Formaldehyde	50-00-0	1.18E-03	0.000912	0.001305
Propylene	115-07-1	2.58E-03	0.001995	0.002852
Toluene	108-88-3	4.09E-04	0.000316	0.000452
Xylene	1330-20-7	2.85E-04	0.000220	0.000315
	Total Non-PAH HAPS	6.29E-03	0.004860	0.006949

PAH HAPS	CAS#	Emission Factor (lbs/mmBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000001	0.000002
Acenaphthylene	208-96-8	5.06E-06	0.000004	0.000006
Anthracene	120-12-7	1.87E-06	0.000001	0.000002
Benzo(a)anthracene	56-55-3	1.68E-06	0.000001	0.000002
Benzo(a)pyrene	50-32-8	1.88E-07	0.000000	0.000000
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000000
Benzo(a)pyrene	192-97-2	1.55E-07	0.000000	0.000000
Benzo(g,h,I)perylene	191-24-2	4.89E-07	0.000000	0.000001
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000000	0.000000
Dibenz(a,h)anthracene		5.83E-07	0.000000	0.000001
Chrysene	218-01-9	3.53E-07	0.000000	0.000000
Fluoranthene	206-44-0	7.61E-06	0.000006	0.000008
Fluorene	86-73-7	2.92E-05	0.000023	0.000032
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000000	0.000000
Naphthalene	91-20-3	8.48E-05	0.000066	0.000094
Phenanthrene	85-01-8	2.94E-05	0.000023	0.000033
Pyrene	129-00-0	4.78E-06	0.000004	0.000005
	Total PAH HAPS	1.68E-04	0.000130	0.000186

HAPS Metals		Emission Factor (lbs/Btu^12)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		4	0.000003	0.000004
Beryllium		3	0.000002	0.000003
Cadmium		3	0.000002	0.000003
Chromium		3	0.000002	0.000003
Lead		9	0.000007	0.000010
Manganese		6	0.000005	0.000007
Mercury		3	0.000002	0.000003
Nickel		3	0.000002	0.000003
Selenium		15	0.000012	0.000017
	Total Metals HAPS	49	0.000038	0.000054
	Total HAPS		**0.00503**	**0.00719**

Table 6-13: HAPs Emission Rates from the Dryer (50)

Btu Rating	6.144	mmBtu/hr	(based on 128000 Btu/gallon)
Fuel Usage:	48	gallons/hr	
Btu x 10^-12/hr:	6.144E-06	Btu x10^-12	(based on 128000 Btu/gallon)
Yearly Operating Hours:	3192	hours per year	

Type of Fuel: Diesel
Emission Factors AP-42 Section 1.3

Organic Compounds	CAS#		Emission Factor (lbs/10^3 gal)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9		2.11E-05	0.000001	0.000002
Acenaphthylene	208-96-8		2.53E-07	0.000000	0.000000
Anthracene	120-12-7		1.22E-06	0.000000	0.000000
Benzene	71-43-2		2.14E-04	0.000010	0.000016
Benzo(a)anthracene	56-55-3		4.01E-06	0.000000	0.000000
Benzo(b,k)fluoranthene	205-99-2		1.48E-06	0.000000	0.000000
Benzo(g,h,I)perylene	191-24-2		2.26E-06	0.000000	0.000000
Chrysene	218-01-9		2.38E-06	0.000000	0.000000
Dibenz(a,h)anthracene			1.67E-06	0.000000	0.000000
Ethylbenzene	100-41-4		6.36E-05	0.000003	0.000005
Fluoranthene	206-44-0		4.84E-06	0.000000	0.000000
Fluorene	86-73-7		4.47E-06	0.000000	0.000000
Formaldehyde	50-00-0		6.10E-02	0.002928	0.004673
Indeno(1,2,3-cd)pyrene	193-39-5		2.14E-06	0.000000	0.000000
Naphthalene	91-20-3		1.13E-03	0.000054	0.000087
Phenanthrene	85-01-8		1.05E-05	0.000001	0.000001
Pyrene	129-00-0		4.25E-06	0.000000	0.000000
Toluene	108-88-3		6.20E-03	0.000298	0.000475
Xylene	1330-20-7		1.09E-04	0.000005	0.000008
		Total Organic Compounds	6.88E-02	0.003301	0.005269

HAPS Metals		Emission Factor (lbs/Btu^12)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		4	0.000025	0.000039
Beryllium		3	0.000018	0.000029
Cadmium		3	0.000018	0.000029
Chromium		3	0.000018	0.000029
Lead		9	0.000055	0.000088
Manganese		6	0.000037	0.000059
Mercury		3	0.000018	0.000029
Nickel		3	0.000018	0.000029
Selenium		15	0.000092	0.000147
	Total Metals HAPS	49	0.000301	0.000480
	Total HAPS		**0.00360**	**0.00575**

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

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.

A-3426-7-AP42S1-3	Unit 50: Dryer Combustion Emissions, Diesel-Fired Engine HAPs Emission Factors
A-3426-7-AP42S3-3	Unit 10: Green Screen Engine, Diesel-Fired Engine HAPs Emission Factors
A-3426-7-AP42S11-19-2	Screen, Fine Screen, and Transfer Point Emission Factors
A-3426-7-AP42S13-2-2	Unpaved Road Emission Factors
A-3426-7-AP42S13-2-4	Material Handling Emission Factors
A-3426-7-WindSpeedCuba	Cuba Wind Speed Average
A-3426-7-Unit19Tier3	Unit 19: Blue Screen Engine
A-3426-7-MenefeeEI.xls	Menefee – Cuba Facility Emissions Spreadsheet (Electronic File)

1.3 Fuel Oil Combustion

1.3.1 General[1-3]

Two major categories of fuel oil are burned by combustion sources: distillate oils and residual oils. These oils are further distinguished by grade numbers, with Nos. 1 and 2 being distillate oils; Nos. 5 and 6 being residual oils; and No. 4 being either distillate oil or a mixture of distillate and residual oils. No. 6 fuel oil is sometimes referred to as Bunker C. Distillate oils are more volatile and less viscous than residual oils. They have negligible nitrogen and ash contents and usually contain less than 0.3 percent sulfur (by weight). Distillate oils are used mainly in domestic and small commercial applications, and include kerosene and diesel fuels. Being more viscous and less volatile than distillate oils, the heavier residual oils (Nos. 5 and 6) may need to be heated for ease of handling and to facilitate proper atomization. Because residual oils are produced from the residue remaining after the lighter fractions (gasoline, kerosene, and distillate oils) have been removed from the crude oil, they contain significant quantities of ash, nitrogen, and sulfur. Residual oils are used mainly in utility, industrial, and large commercial applications.

1.3.2 Firing Practices[4]

The major boiler configurations for fuel oil-fired combustors are watertube, firetube, cast iron, and tubeless design. Boilers are classified according to design and orientation of heat transfer surfaces, burner configuration, and size. These factors can all strongly influence emissions as well as the potential for controlling emissions.

Watertube boilers are used in a variety of applications ranging from supplying large amounts of process steam to providing space heat for industrial facilities. In a watertube boiler, combustion heat is transferred to water flowing through tubes which line the furnace walls and boiler passes. The tube surfaces in the furnace (which houses the burner flame) absorb heat primarily by radiation from the flames. The tube surfaces in the boiler passes (adjacent to the primary furnace) absorb heat primarily by convective heat transfer.

Firetube boilers are used primarily for heating systems, industrial process steam generators, and portable power boilers. In firetube boilers, the hot combustion gases flow through the tubes while the water being heated circulates outside of the tubes. At high pressures and when subjected to large variations in steam demand, firetube units are more susceptible to structural failure than watertube boilers. This is because the high-pressure steam in firetube units is contained by the boiler walls rather than by multiple small-diameter watertubes, which are inherently stronger. As a consequence, firetube boilers are typically small and are used primarily where boiler loads are relatively constant. Nearly all firetube boilers are sold as packaged units because of their relatively small size.

A cast iron boiler is one in which combustion gases rise through a vertical heat exchanger and out through an exhaust duct. Water in the heat exchanger tubes is heated as it moves upward through the tubes. Cast iron boilers produce low pressure steam or hot water, and generally burn oil or natural gas. They are used primarily in the residential and commercial sectors.

Another type of heat transfer configuration used on smaller boilers is the tubeless design. This design incorporates nested pressure vessels with water in between the shells. Combustion gases are fired into the inner pressure vessel and are then sometimes recirculated outside the second vessel.

Table 1.3-9. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM FUEL OIL COMBUSTION[a]

Organic Compound	Average Emission Factor[b] ($lb/10^3$ Gal)	EMISSION FACTOR RATING
Benzene	2.14E-04	C
Ethylbenzene	6.36E-05[c]	E
Formaldehyde[d]	3.30E-02	C
Naphthalene	1.13E-03	C
1,1,1-Trichloroethane	2.36E-04[c]	E
Toluene	6.20E-03	D
o-Xylene	1.09E-04[c]	E
Acenaphthene	2.11E-05	C
Acenaphthylene	2.53E-07	D
Anthracene	1.22E-06	C
Benz(a)anthracene	4.01E-06	C
Benzo(b,k)fluoranthene	1.48E-06	C
Benzo(g,h,i)perylene	2.26E-06	C
Chrysene	2.38E-06	C
Dibenzo(a,h) anthracene	1.67E-06	D
Fluoranthene	4.84E-06	C
Fluorene	4.47E-06	C
Indo(1,2,3-cd)pyrene	2.14E-06	C
Phenanthrene	1.05E-05	C
Pyrene	4.25E-06	C
OCDD	3.10E-09[c]	E

[a] Data are for residual oil fired boilers, Source Classification Codes (SCCs) 1-01-004-01/04.
[b] References 64-72. To convert from $lb/10^3$ gal to $kg/10^3$ L, multiply by 0.12.
[c] Based on data from one source test (Reference 67).
[d] The formaldehyde number presented here is based only on data from utilities using No. 6 oil. The number presented in Table 1.3-7 is based on utility, commercial, and industrial boilers.

Table 1.3-10. EMISSION FACTORS FOR TRACE ELEMENTS FROM DISTILLATE FUEL OIL COMBUSTION SOURCES[a]

EMISSION FACTOR RATING: E

Firing Configuration (SCC)	Emission Factor (lb/10^{12} Btu)										
	As	Be	Cd	Cr	Cu	Pb	Hg	Mn	Ni	Se	Zn
Distillate oil fired (1-01-005-01, 1-02-005-01, 1-03-005-01)	4	3	3	3	6	9	3	6	3	15	4

[a] Data are for distillate oil fired boilers, SCC codes 1-01-005-01, 1-02-005-01, and 1-03-005-01. References 29-32, 40-44 and 83. To convert from lb/10^{12} Btu to pg/J, multiply by 0.43.

Table 1.3-11. EMISSION FACTORS FOR METALS FROM UNCONTROLLED NO. 6 FUEL OIL COMBUSTION[a]

Metal	Average Emission Factor[b, d] ($lb/10^3$ Gal)	EMISSION FACTOR RATING
Antimony	5.25E-03[c]	E
Arsenic	1.32E-03	C
Barium	2.57E-03	D
Beryllium	2.78E-05	C
Cadmium	3.98E-04	C
Chloride	3.47E-01	D
Chromium	8.45E-04	C
Chromium VI	2.48E-04	C
Cobalt	6.02E-03	D
Copper	1.76E-03	C
Fluoride	3.73E-02	D
Lead	1.51E-03	C
Manganese	3.00E-03	C
Mercury	1.13E-04	C
Molybdenum	7.87E-04	D
Nickel	8.45E-02	C
Phosphorous	9.46E-03	D
Selenium	6.83E-04	C
Vanadium	3.18E-02	D
Zinc	2.91E-02	D

[a] Data are for residual oil fired boilers, Source Classification Codes (SCCs) 1-01-004-01/04.

[b] References 64-72. 18 of 19 sources were uncontrolled and 1 source was controlled with low efficiency ESP. To convert from $lb/10^3$ gal to $kg/10^3$ L, multiply by 0.12.

[c] References 29-32,40-44.

[d] For oil/water mixture, reduce factors in proportion to water content of the fuel (due to dilution). To adjust the listed values for water content, multiply the listed value by 1-decimal fraction of water (ex: For fuel with 9 percent water by volume, multiply by 1-0.9=.91).

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	0.439	62.7	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.

11.19.2 Crushed Stone Processing and Pulverized Mineral Processing

11.19.2.1 Process Description [24, 25]

Crushed Stone Processing

Major rock types processed by the crushed stone industry include limestone, granite, dolomite, traprock, sandstone, quartz, and quartzite. Minor types include calcareous marl, marble, shell, and slate. Major mineral types processed by the pulverized minerals industry, a subset of the crushed stone processing industry, include calcium carbonate, talc, and barite. 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 and 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 bin. A feeder is used 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 undersized 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, to open area stock piles, 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 (3/16 th 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 returned to the fines screen for resizing.

In certain cases, stone washing is required to meet particulate end product specifications or demands.

Pulverized Mineral Processing

Pulverized minerals are produced at specialized processing plants. These plants supply mineral products ranging from sizes of approximately 1 micrometer to more than 75 micrometers aerodynamic diameter. Pharmaceutical, paint, plastics, pigment, rubber, and chemical industries use these products. Due to the specialized characteristics of the mineral products and the markets for these products, pulverized mineral processing plants have production rates that are less than 5% of the production capacities of conventional crushed stone plants. Two alternative processing systems for pulverized minerals are summarized in Figure 11-19.2-2.

In dry processing systems, the mineral aggregate material from conventional crushing and screening operations is subject to coarse and fine grinding primarily in roller mills and/or ball mills to reduce the material to the necessary product size range. A classifier is used to size the ground material and return oversized material that can be pulverized using either wet or dry processes. The classifier can either be associated with the grinding operation, or it can be a stand-alone process unit. Fabric filters control particulate matter emissions from the grinding operation and the classifier. The products are stored in silos and are shipped by truck or in bags.

In wet processing systems, the mineral aggregate material is processed in wet mode coarse and fine grinding operations. Beneficiation processes use flotation to separate mineral impurities. Finely ground material is concentrated and flash dried. Fabric filters are used to control particulate matter emissions from the flash dryer. The product is then stored in silos, bagged, and shipped.

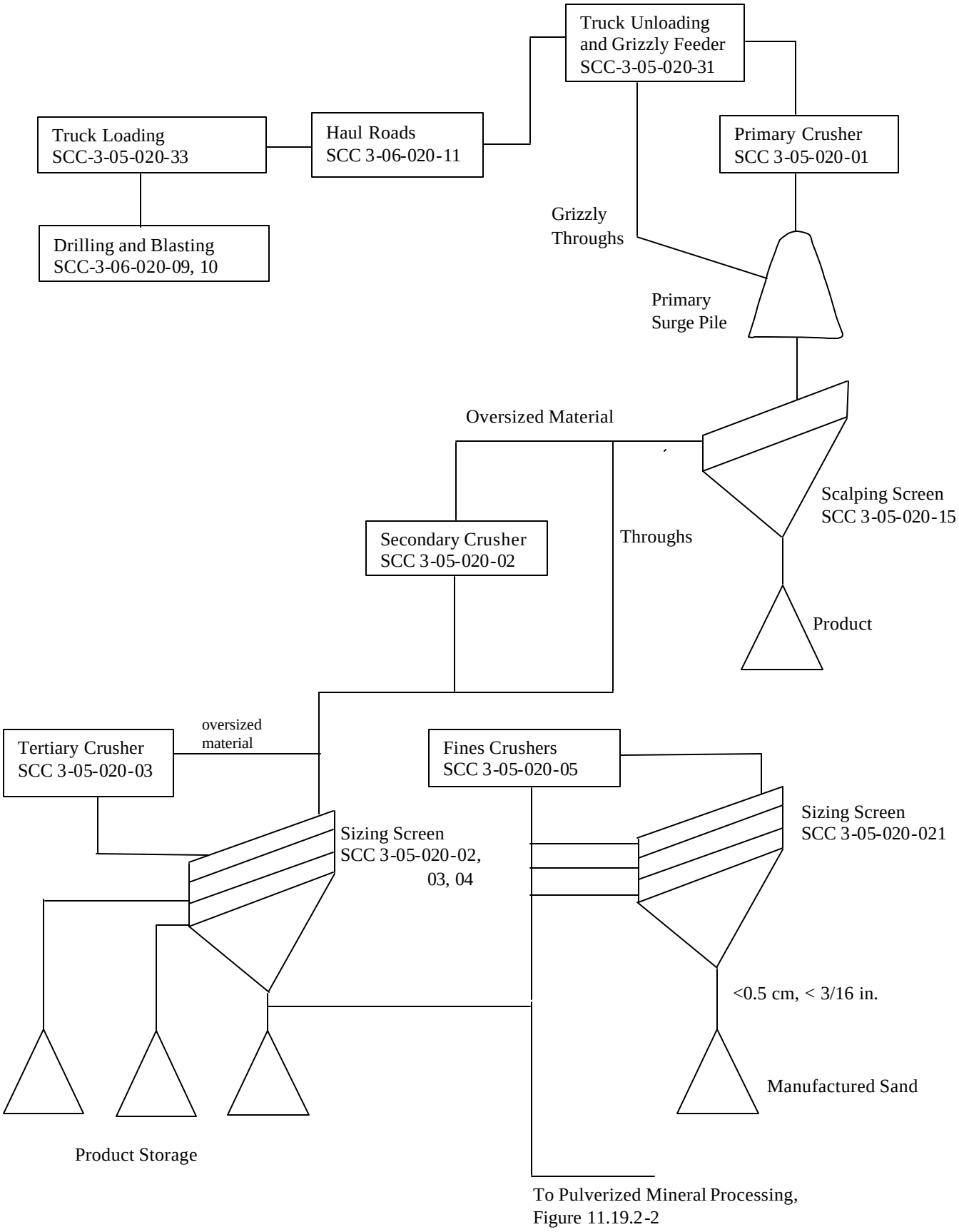

Figure 11.19.2-1. Typical stone processing plant

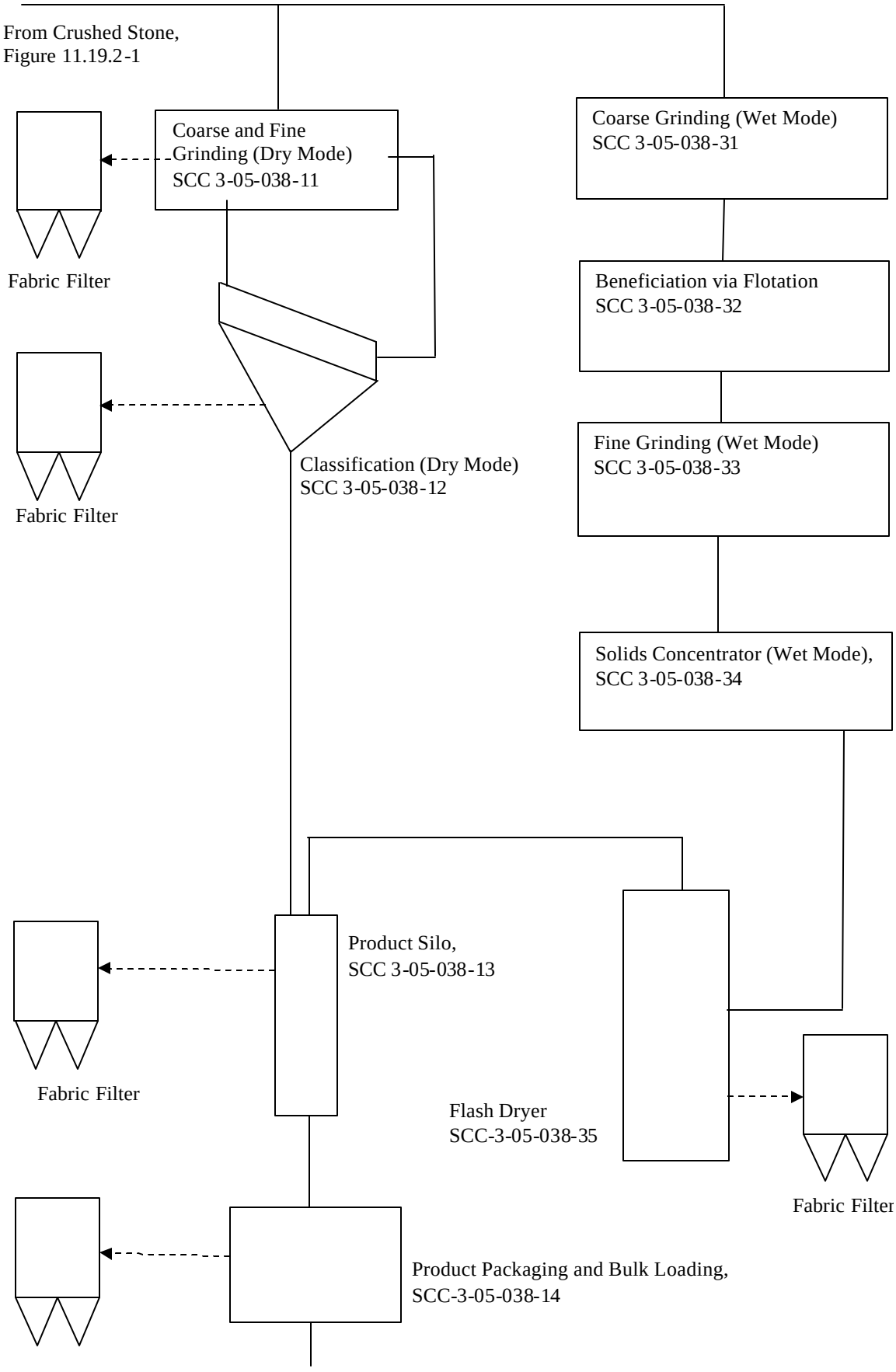

Figure 11.19.2-2 Flowchart for Pulverized Mineral Processing

11.19.2.2 Emissions and Controls [10, 11, 12, 13, 14, and 26]

Crushed Stone Processing

Emissions of PM, PM-10, and PM-2.5 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 the 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 graphical 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 geographical 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 geographical and climatic conditions, the moisture content of mined rock can 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. 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 percent water.

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 and PM-2.5 emissions from limestone and granite processing operations are similar. Therefore, the emission factors developed from the emissions data gathered at limestone and granite processing facilities are considered to be representative of typical crushed stone processing operations. Emission factors for filterable PM, PM-10, and PM-2.5 emissions from crushed stone processing operations are presented in Tables 11.19.2-1 (Metric units) and 11.19.2-2 (English units.)

Table 11.19.2-1 (Metric Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (kg/Mg)[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)	0.0027[d]	E	0.0012[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0006[d]	E	0.00027[p]	C	0.00005[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0195[e]	E	0.0075[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0015[f]	E	0.0006[f]	E	0.000035[q]	E
Screening (SCC 3-05-020-02, 03)	0.0125[c]	E	0.0043[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0011[d]	E	0.00037[m]	C	0.000025[q]	E
Fines Screening (SCC 3-05-020-21	0.15[g]	E	0.036[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0018[g]	E	0.0011[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0015[h]	E	0.00055[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00007[i]	E	2.3×10^{-5}[i]	D	6.5×10^{-6}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		4.0×10^{-5}[j]	E	ND	
Truck Unloading - Fragmented Stone (SCC 3-05-020-31)	ND		8.0×10^{-6}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		5.0×10^{-5}[k]	E	ND	

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 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 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 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[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[t]	E	4.6×10^{-5}[t]	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.

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Emission factor estimates for stone quarry blasting operations are not presented because of the sparsity and unreliability of available tests. 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. 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.

The data used in the preparation of the controlled PM calculations was derived from the individual A-rated tests for PM-2.5 and PM-10 summarized in the Background Support Document. For conveyor transfer points, the controlled PM value was derived from A-rated PM-2.5, PM-10, and PM data summarized in the Background Support Document.

The extrapolation line was drawn through the PM-2.5 value and the mean of the PM-10 values. PM emission factors were calculated for PM-30, PM-50, and PM-100. Each of these particle size limits is used by one or more regulatory agencies as the definition of total particulate matter. The graphical extrapolations used in calculating the emission factors are presented in Figures 11.19.2-3, -4, -5, and -6.

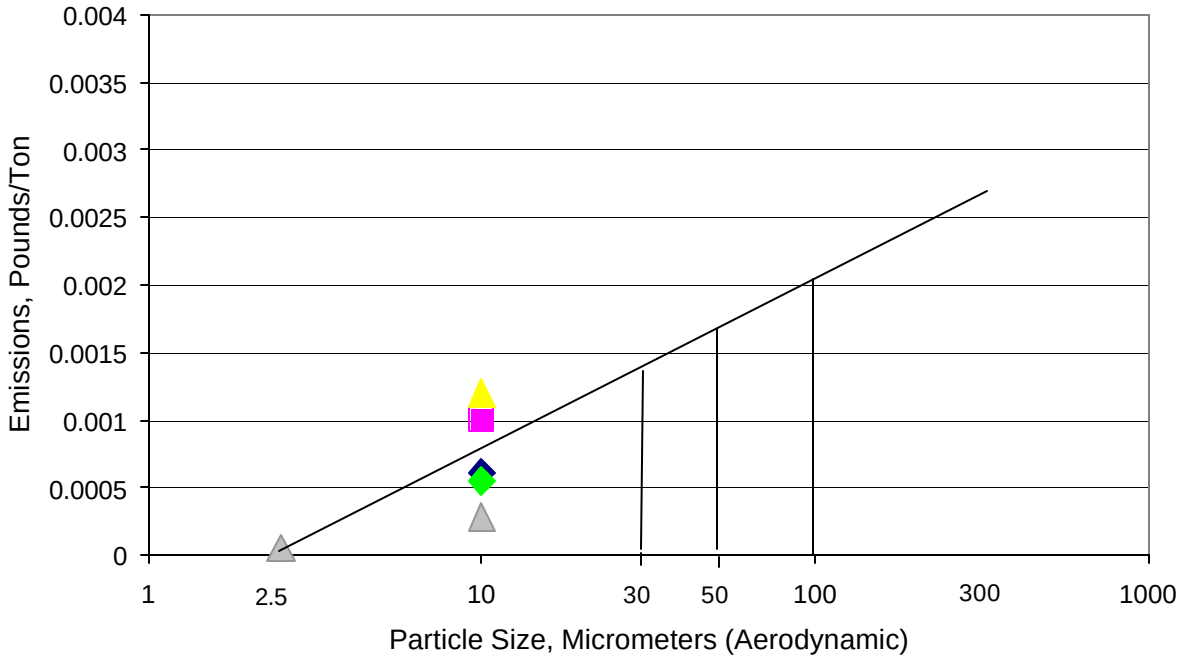

Figure 11-19-3. PM Emission Factor Calculation, Screening (Controlled)

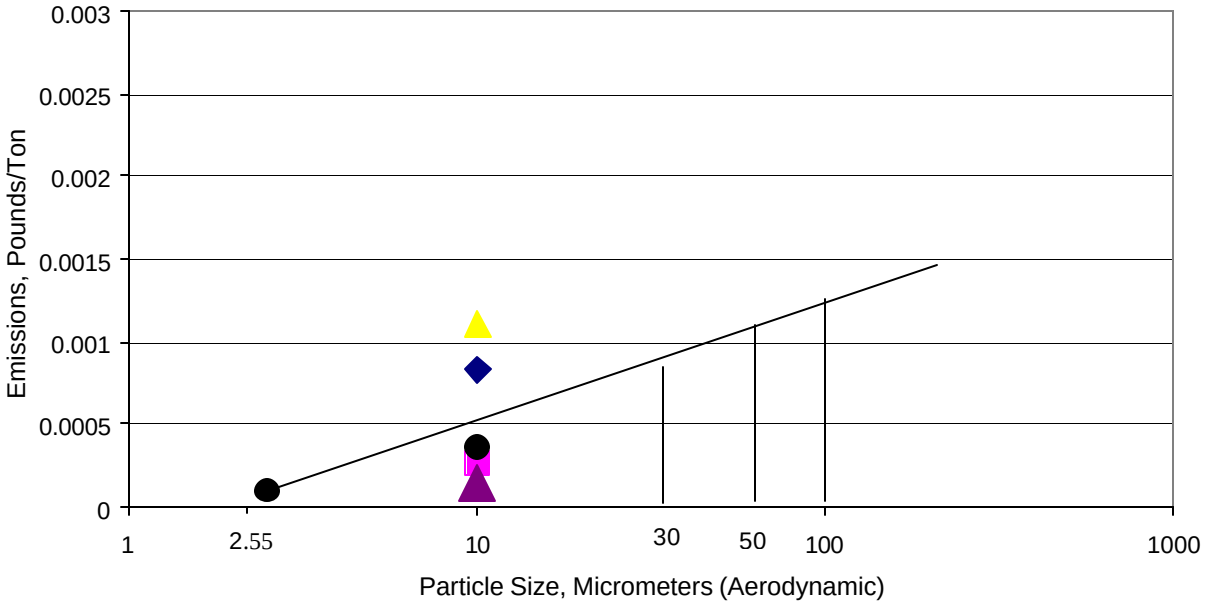

Figure 11.19-4. PM Emission Factor Calculation, Tertiary Crushing (Controlled)

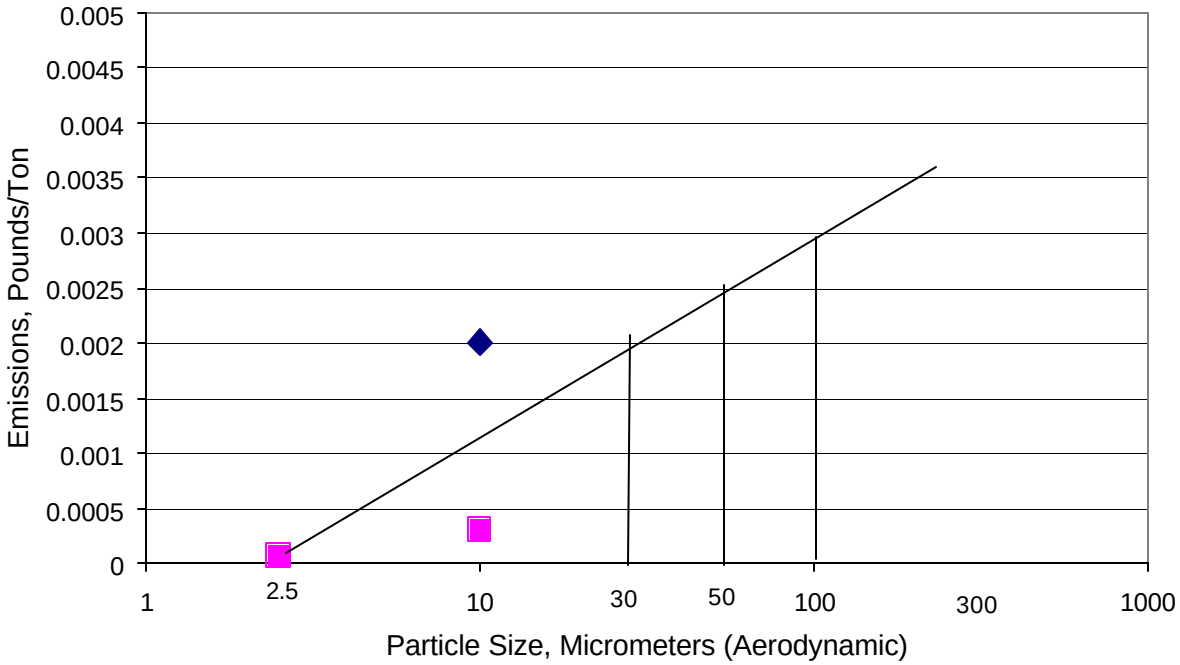

Figure 11-19.5. PM Emission Factor Calculation, Fines Crushing (Controlled)

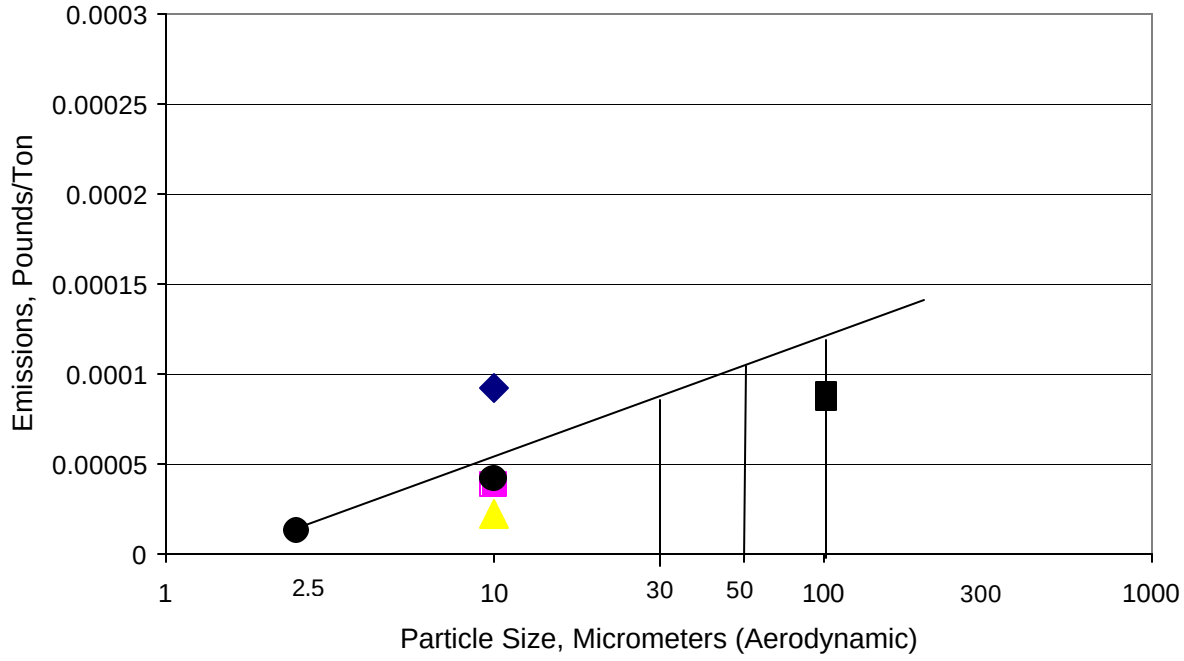

Figure 11.19-6. PM Emission Factor Calculation, Conveyor Transfer Points (Controlled)

The uncontrolled PM emission factors have been calculated from the controlled PM emission factors calculated in accordance with Figures 11.19.2-3 through 11.19.2-6. The PM-10 control efficiencies have been applied to the PM controlled emission factor data to calculate the uncontrolled PM emission rates.

Screening PM-10

Controlled = 0.00073 Lbs./Ton.

Uncontrolled = 0.00865 Lbs./Ton.

Efficiency = 91.6%

Tertiary Crushing PM-10

Controlled = 0.00054

Uncontrolled = 0.00243

Efficiency = 77.7%

Fines Crushing PM-10:

Controlled = 0.0012

Uncontrolled = 0.015

Efficiency = 92.0%

Conveyor Transfer Points PM-10

Controlled = 0.000045

Uncontrolled = 0.0011

Efficiency = 95.9%

The uncontrolled total particulate matter emission factor was calculated from the controlled total particulate matter using Equation 1:

$$\text{Uncontrolled emission factor} = \frac{\text{Controlled total particulate emission factor}}{(100\% - \text{PM-10 Efficiency }\%)/100\%}$$

Equation 1

The Total PM emission factors calculated using Figures 11.19.2-3 through 11.19.2-6 were developed because (1) there are more A-rated test data supporting the calculated values and (2) the extrapolated values provide the flexibility for agencies and source operators to select the most appropriate definition for Total PM. All of the Total PM emission factors have been rated as E due to the limited test data and the need to estimate emission factors using extrapolations of the PM-2.5 and PM-10 data.

Pulverized Mineral Processing

Emissions of particulate matter from dry mode pulverized mineral processing operations are controlled by pulse jet and envelope type fabric filter systems. Due to the low-to-moderate gas temperatures generated by the processing equipment, conventional felted filter media are used. Collection efficiencies for fabric filter-controlled dry process equipment exceed 99.5%. Emission factors for pulverized mineral processing operations are presented in Tables 11.19.2-3 and 11.19.2-4.

Table 11.19.2-3 (Metric Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS [a]

Source [b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Grinding (Dry) with Fabric Filter Control (SCC 3-05-038-11)	0.0202	D	0.0169	B	0.0060	B
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0112	E	0.0052	E	0.0020	E
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0134	C	0.0073	C	0.0042	C
Product Storage with Fabric Filter Control (SCC 3-05-38-13)	0.0055	E	0.0008	E	0.0003	E

a. Emission factors represent controlled emissions unless noted. Emission factors are in kg/Mg of material throughput.

b. Date from references 16 through 23

Table 11.19.2-4 (English Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS [a]

Source [b]	Total Particulate Matter	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Grinding (Dry) with Fabric Filter Control (SCC 3-05-038-11)	0.0404	D	0.0339	B	0.0121	B
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0225	E	0.0104	E	0.0041	E
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0268	C	0.0146	C	0.0083	C
Product Storage with Fabric Filter Control (SCC 3-05-038-13)	0.0099	E	0.0016	E	0.0006	E

a. Emission factors represent controlled emissions unless noted. Emission factors are in lb/Ton of material throughput.

b. Data from references 16 through 23

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2. J. Richards, T. Brozell, and W. Kirk, *PM-10 Emission Factors for a Stone Crushing Plant Tertiary Crusher*, EPA Contract No. 68-D1-0055, Task 2.84, U. S. Environmental Protection Agency, Research Triangle Park, NC, February 1992.

3. W. Kirk, T. Brozell, and J. Richards, *PM-10 Emission Factors for a Stone Crushing Plant Deister Vibrating Screen and Crusher*, National Stone Association, Washington DC, December 1992.

4. T. Brozell, J. Richards, and W. Kirk, *PM-10 Emission Factors for a Stone Crushing Plant Tertiary Crusher and Vibrating Screen*, EPA Contract No. 68-DO-0122, U. S. Environmental Protection Agency, Research Triangle Park, NC, December 1992.

5. T. Brozell, *PM-10 Emission Factors for Two Transfer Points at a Granite Stone Crushing Plant*, EPA Contract No. 68-DO-0122, U. S. Environmental Protection Agency, Research Triangle Park, NC, January 1994.

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8. 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.

9. *Air Pollution Control Techniques for Nonmetallic Minerals Industry*, EPA-450/3-82-014, U. S. Environmental Protection Agency, Research Triangle Park, NC, August 1982.

10. *Review Emission Data Base and Develop Emission Factors for the Construction Aggregate Industry*, Engineering-Science, Inc., Arcadia, CA, September 1984.

11. P. K. Chalekode *et al., Emissions from the Crushed Granite Industry: State of the Art*, EPA-600/2-78-021, U. S. Environmental Protection Agency, Washington, DC, February 1978.

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13. *An Investigation of Particulate Emissions from Construction Aggregate Crushing Operations and Related New Source Performance Standards*, National Crushed Stone Association, Washington, DC, December 1979.

[1] References 1 through 23 are identical to References 1 through 23 in the Background Support Document for AP-42, Section 11.19-2.

14. F. Record and W. T. Harnett, *Particulate Emission Factors for the Construction Aggregate Industry, Draft Report*, GCA-TR-CH-83-02, EPA Contract No. 68-02-3510, GCA Corporation, Chapel Hill, NC, February 1983.

15. T. Brozell, T. Holder, and J. Richards, *Measurement of PM-10 and PM2.5 Emission Factors at a Stone Crushing Plant*, National Stone Association, December 1996.

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17. Frank Ward & Company, *A Report of Particulate Source Sampling Performed for Franklin Industrial Minerals Located in Sherwood, Tennessee,* Report to Franklin Industrial Minerals, August 1994.

18. Advanced Industrial Resources, LLC. *Performance Test Report of Baghouse No. 37 at Franklin Industrial Minerals, Report to Franklin Industrial Minerals,* November 1999.

19. Advanced Industrial Resources, LLC. *Performance Test Report of BH-750Limestone System at Franklin Industrial Minerals, Report to Franklin Industrial Minerals,* May 2000.

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21. Air Quality Technical Services, *Performance Testing for Flash Dryer #2, Omya, Inc. Plant in Florence, Vermont,* March 1998.

22. Air Quality Technical Services. *Performance Testing for Flash Dryer #3, Omya, Inc. Plant in Florence, Vermont,* August 2000.

23. Air Quality Technical Services. *Performance Testing for Flash Dryer #3, Omya, Inc. Plant in Florence, Vermont,* September 2000.

24. *Air Pollution Control Techniques for Nonmetallic Minerals Industry*, EPA-450/3-82-014, U.S. Environmental Protection Agency, Research Triangle Park, NC, August 1982.

25. Written communication from J. Richards, Air Control Techniques, P.C. to B. Shrager, MRI, March 18, 1994.

26. C. Cowherd, Jr. et. al., *Development of Emission Factors For Fugitive Dust Sources*, EPA-450/3-74-037, U.S. Environmental Protection Agency, Research Triangle Park, NC, June 1974.

13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material[25]. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material [23, 26]. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2 [24]. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters[1-6]

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.[1] The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

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

as shown in Table 13.2.2-4

Table 13.2.2-4. EMISSION FACTOR FOR 1980'S VEHICLE FLEET EXHAUST, BRAKE WEAR AND TIRE WEAR

Particle Size Range[a]	*C*, Emission Factor for Exhaust, Brake Wear and Tire Wear[b] lb/VMT
$PM_{2.5}$	0.00036
PM_{10}	0.00047
PM_{30}[c]	0.00047

[a] Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.
[b] Units shown are pounds per vehicle mile traveled (lb/VMT).
[c] PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. For example, if 98 percent of traffic on the road are 2-ton cars and trucks while the remaining 2 percent consists of 20-ton trucks, then the mean weight is 2.4 tons. More specifically, Equations 1a and 1b are *not* intended to be used to calculate a separate emission factor for each vehicle class within a mix of traffic on a given unpaved road. That is, in the example, one should *not* determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks. Instead, only one emission factor should be calculated that represents the "fleet" average of 2.4 tons for all vehicles traveling the road.

Moreover, to retain the quality ratings when addressing a group of unpaved roads, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt and moisture contents are given in AP-42 Appendices C.1 and C.2. Vehicle-related parameters should be developed by recording visual observations of traffic. In some cases, vehicle parameters for industrial unpaved roads can be determined by reviewing maintenance records or other information sources at the facility.

In the event that site-specific values for correction parameters cannot be obtained, then default values may be used.In the absence of site-specific silt content information, an appropriate mean value from Table 13.2.2-1 may be used as a default value, but the quality rating of the equation is reduced by two letters. Because of significant differences found between different types of road surfaces and between different areas of the country, use of the default moisture content value of 0.5 percent in Equation 1b is discouraged. The quality rating should be downgraded two letters when the default moisture content value is used. (It is assumed that readers addressing industrial roads have access to the information needed to develop average vehicle information in Equation 1a for their facility.)

The effect of routine watering to control emissions from unpaved roads is discussed below in Section 13.2.2.3, “Controls”. However, all roads are subject to some natural mitigation because of rainfall and other precipitation. The Equation 1a and 1b emission factors can be extrapolated to annual

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;

2. Surface improvement, by measures such as (a) paving or (b) adding gravel or slag to a dirt road; and
3. Surface treatment, such as watering or treatment with chemical dust suppressants.

Available control options span broad ranges in terms of cost, efficiency, and applicability. For example, traffic controls provide moderate emission reductions (often at little cost) but are difficult to enforce. Although paving is highly effective, its high initial cost is often prohibitive. Furthermore, paving is not feasible for industrial roads subject to very heavy vehicles and/or spillage of material in transport. Watering and chemical suppressants, on the other hand, are potentially applicable to most industrial roads at moderate to low costs. However, these require frequent reapplication to maintain an acceptable level of control. Chemical suppressants are generally more cost-effective than water but not in cases of temporary roads (which are common at mines, landfills, and construction sites). In summary, then, one needs to consider not only the type and volume of traffic on the road but also how long the road will be in service when developing control plans.

Vehicle restrictions. These measures seek to limit the amount and type of traffic present on the road or to lower the mean vehicle speed. For example, many industrial plants have restricted employees from driving on plant property and have instead instituted bussing programs. This eliminates emissions due to employees traveling to/from their worksites. Although the heavier average vehicle weight of the busses increases the base emission factor, the decrease in vehicle-miles-traveled results in a lower overall emission rate.

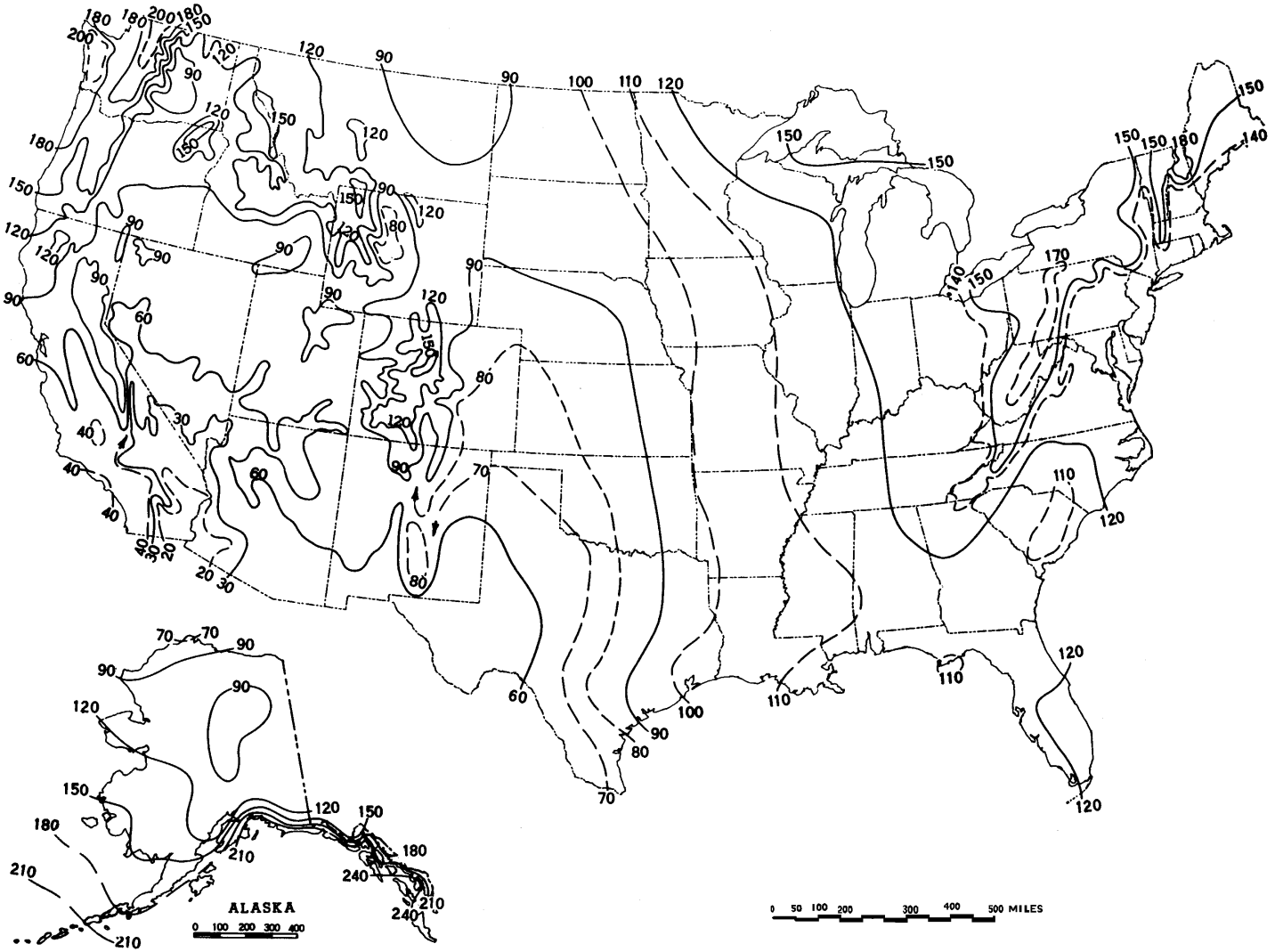

Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Surface improvements. Control options in this category alter the road surface. As opposed to the "surface treatments" discussed below, improvements are relatively "permanent" and do not require periodic retreatment.

The most obvious surface improvement is paving an unpaved road. This option is quite expensive and is probably most applicable to relatively short stretches of unpaved road with at least several hundred vehicle passes per day. Furthermore, if the newly paved road is located near unpaved areas or is used to transport material, it is essential that the control plan address routine cleaning of the newly paved road surface.

The control efficiencies achievable by paving can be estimated by comparing emission factors for unpaved and paved road conditions. The predictive emission factor equation for paved roads, given in Section 13.2.1, requires estimation of the silt loading on the traveled portion of the paved surface, which in turn depends on whether the pavement is periodically cleaned. Unless curbing is to be installed, the effects of vehicle excursion onto unpaved shoulders (berms) also must be taken into account in estimating the control efficiency of paving.

Other improvement methods cover the road surface with another material that has a lower silt content. Examples include placing gravel or slag on a dirt road. Control efficiency can be estimated by comparing the emission factors obtained using the silt contents before and after improvement. The silt content of the road surface should be determined after 3 to 6 months rather than immediately following placement. Control plans should address regular maintenance practices, such as grading, to retain larger aggregate on the traveled portion of the road.

Surface treatments refer to control options which require periodic reapplication. Treatments fall into the two main categories of (a) "wet suppression" (i. e., watering, possibly with surfactants or other additives), which keeps the road surface wet to control emissions and (b) "chemical stabilization/ treatment", which attempts to change the physical characteristics of the surface. The necessary reapplication frequency varies from several minutes for plain water under summertime conditions to several weeks or months for chemical dust suppressants.

Watering increases the moisture content, which conglomerates particles and reduces their likelihood to become suspended when vehicles pass over the surface. The control efficiency depends on how fast the road dries after water is added. This in turn depends on (a) the amount (per unit road surface area) of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during the period.

Figure 13.2.2-2 presents a simple bilinear relationship between the instantaneous control efficiency due to watering and the resulting increase in surface moisture. The moisture ratio "M" (i.e., the x-axis in Figure 13.2.2-2) is found by dividing the surface moisture content of the watered road by the surface moisture content of the uncontrolled road. As the watered road surface dries, both the ratio M and the predicted instantaneous control efficiency (i.e., the y-axis in the figure) decrease. The figure shows that between the uncontrolled moisture content and a value twice as large, a small increase in moisture content results in a large increase in control efficiency. Beyond that, control efficiency grows slowly with increased moisture content.

Given the complicated nature of how the road dries, characterization of emissions from watered roadways is best done by collecting road surface material samples at various times between water truck passes. (Appendices C.1 and C.2 present the sampling and analysis procedures.) The moisture content measured can then be associated with a control efficiency by use of Figure 13.2.2-2. Samples that reflect average conditions during the watering cycle can take the form of either a series of samples between water applications or a single sample at the midpoint. It is essential that samples be collected during periods with active traffic on the road. Finally, because of different evaporation rates, it is recommended that samples be collected at various times during the year. If only one set of samples is to be collected, these must be collected during hot, summertime conditions.

When developing watering control plans for roads that do not yet exist, it is strongly recommended that the moisture cycle be established by sampling similar roads in the same geographic area. If the moisture cycle cannot be established by similar roads using established watering control plans, the more complex methodology used to estimate the mitigation of rainfall and other precipitation can be used to estimate the control provided by routine watering. An estimate of the maximum daytime Class A pan evaporation (based upon daily evaporation data published in the monthly Climatological Data for the state by the National Climatic Data Center) should be used to insure that adequate watering capability is available during periods of highest evaporation. The hourly precipitation values in the spreadsheet should be replaced with the equivalent inches of precipitation (where the equivalent of 1 inch of precipitation is provided by an application of 5.6 gallons of water per square yard of road). Information on the long term average annual evaporation and on the percentage that occurs between May and October was published in the Climatic Atlas (Reference 16). Figure 13.2.2-3 presents the geographical distribution for "Class A pan evaporation" throughout the United States. Figure 13.2.2-4 presents the geographical distribution of the percentage of this evaporation that occurs between May and October. The U. S. Weather Bureau Class A evaporation pan is a cylindrical metal container with a depth of 10 inches and a diameter of 48 inches. Periodic measurements are made of the changes of the water level.

The above methodology should be used only for prospective analyses and for designing watering programs for existing roadways. The quality rating of an emission factor for a watered road that is based on this methodology should be downgraded two letters. Periodic road surface samples should be collected and analyzed to verify the efficiency of the watering program.

As opposed to watering, chemical dust suppressants have much less frequent reapplication requirements. These materials suppress emissions by changing the physical characteristics of the existing road surface material. Many chemical unpaved road dust suppressants form a hardened surface that binds particles together. After several applications, a treated road often resembles a paved road except that the surface is not uniformly flat. Because the improved surface results in more grinding of small particles, the silt content of loose material on a highly controlled surface may be substantially higher than when the surface was uncontrolled. For this reason, the models presented as Equations 1a and 1b cannot be used to estimate emissions from chemically stabilized roads. Should the road be allowed to return to an

uncontrolled state with no visible signs of large-scale cementing of material, the Equation 1a and 1b emission factors could then be used to obtain conservatively high emission estimates.

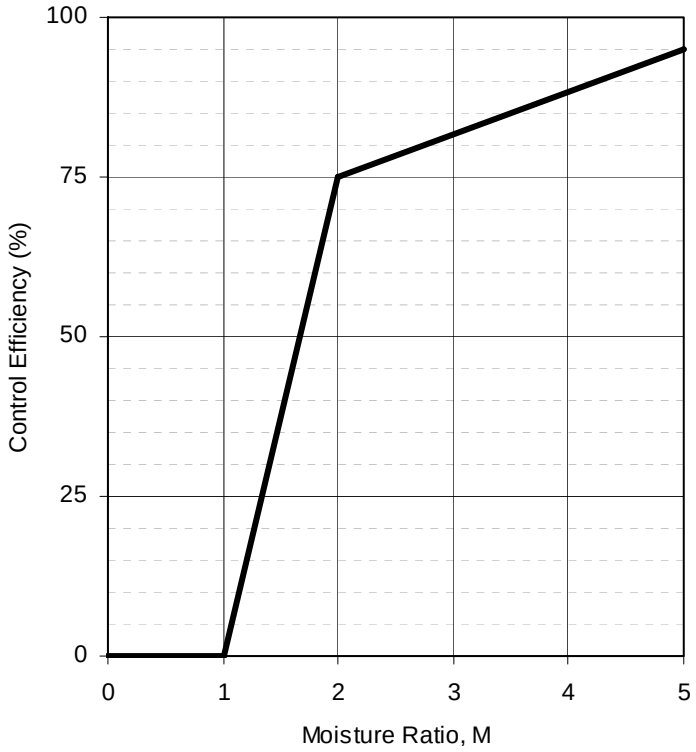

Figure 13.2.2-2. Watering control effectiveness for unpaved travel surfaces

The control effectiveness of chemical dust suppressants appears to depend on (a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period. Other factors that affect the performance of dust suppressants include other traffic characteristics (e. g., cornering, track-on from unpaved areas) and road characteristics (e. g., bearing strength, grade). The variabilities in the above factors and differences between individual dust control products make the control efficiencies of chemical dust suppressants difficult to estimate. Past field testing of emissions from controlled unpaved roads has shown that chemical dust suppressants provide a PM-10 control efficiency of about 80 percent when applied at regular intervals of 2 weeks to 1 month.

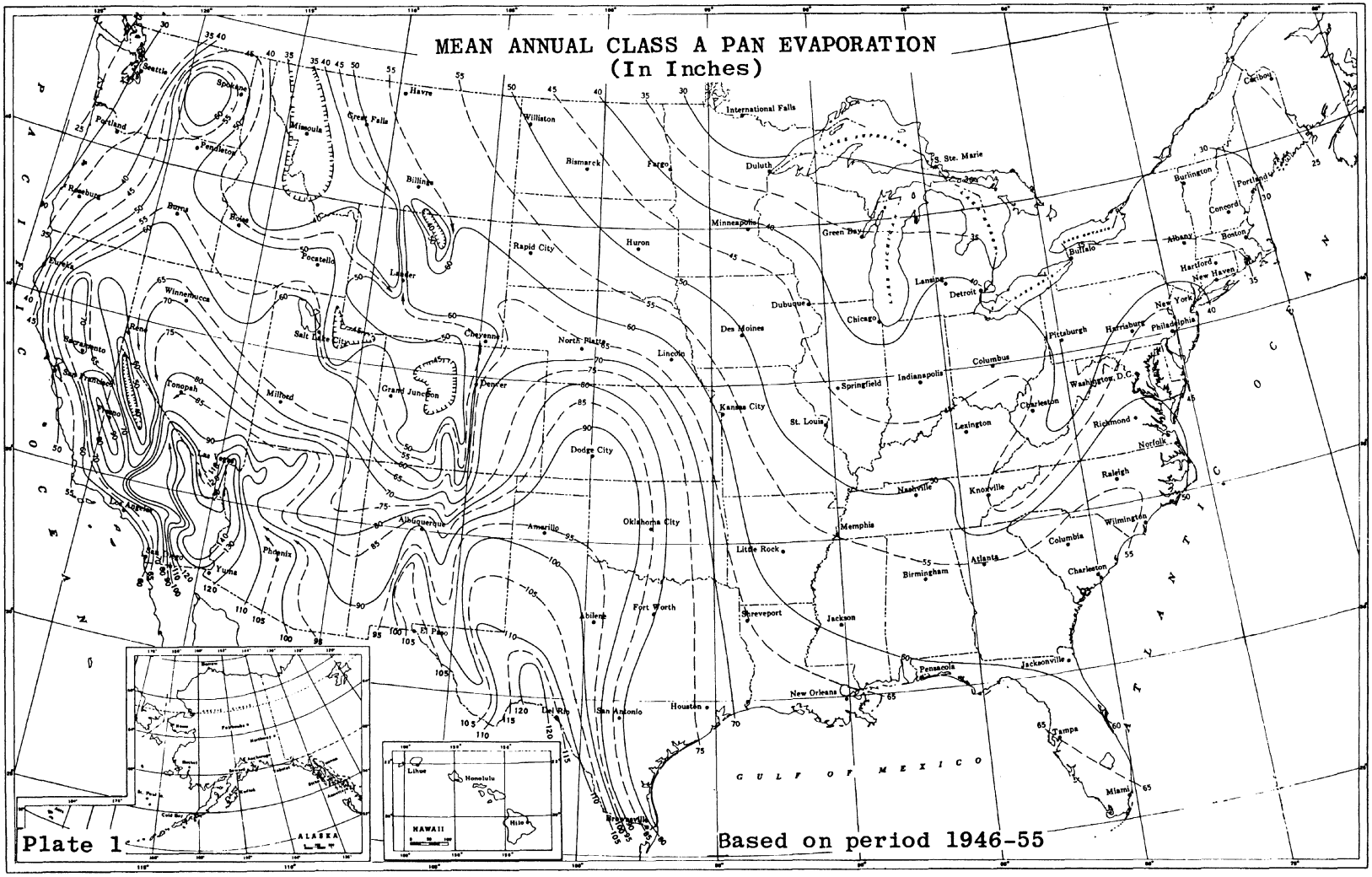

Figure 13.2.2-3. Annual evaporation data.

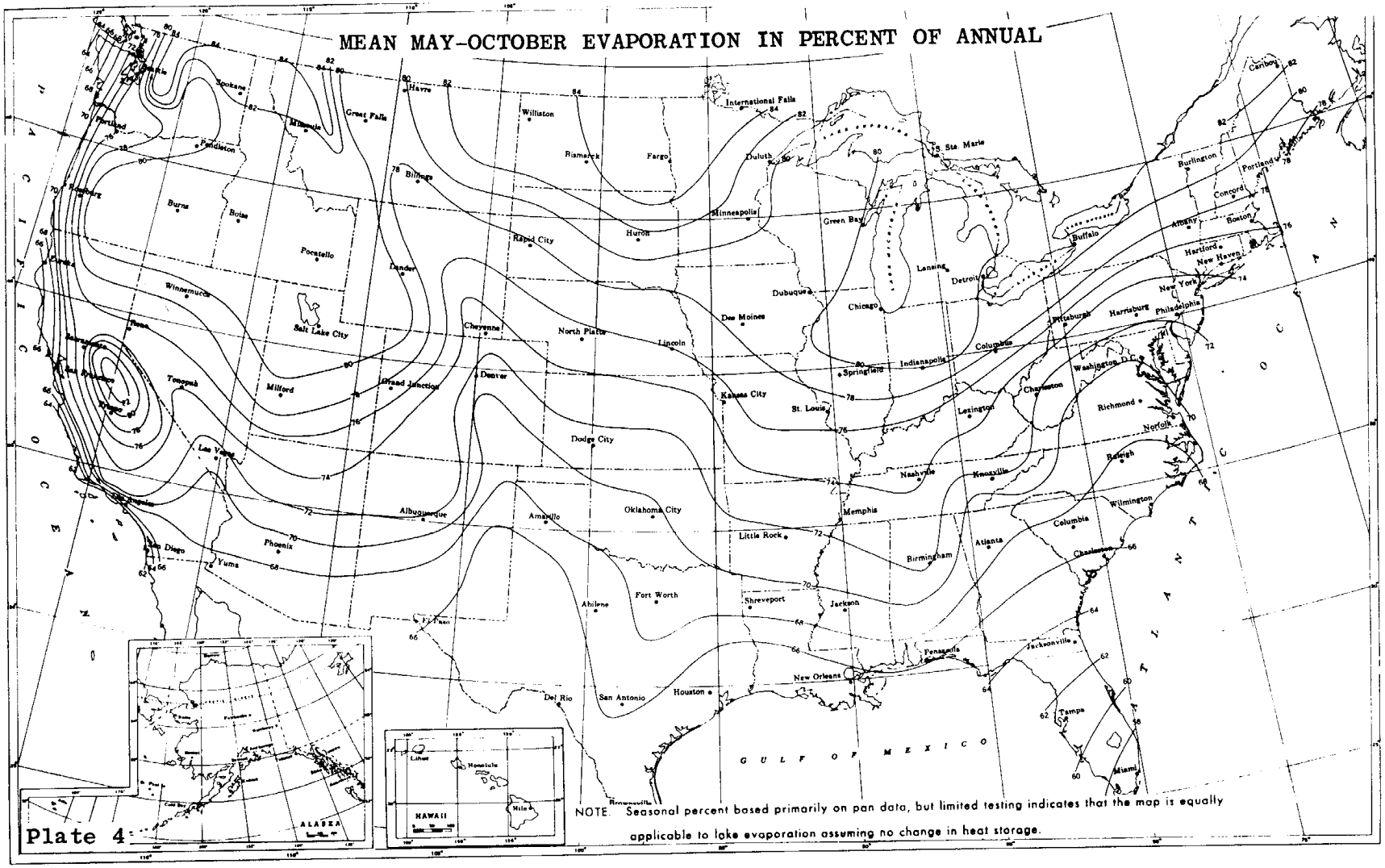

Figure 13.2.2-4. Geographical distribution of the percentage of evaporation occurring between May and October.

Petroleum resin products historically have been the dust suppressants (besides water) most widely used on industrial unpaved roads. Figure 13.2.2-5 presents a method to estimate average control efficiencies associated with petroleum resins applied to unpaved roads.[20] Several items should be noted:

1. The term "ground inventory" represents the total volume (per unit area) of petroleum resin concentrate (*not solution*) applied since the start of the dust control season.

2. Because petroleum resin products must be periodically reapplied to unpaved roads, the use of a time-averaged control efficiency value is appropriate. Figure 13.2.2-5 presents control efficiency values averaged over two common application intervals, 2 weeks and 1 month. Other application intervals will require interpolation.

3. Note that zero efficiency is assigned until the ground inventory reaches 0.05 gallon per square yard (gal/yd^2). Requiring a minimum ground inventory ensures that one must apply a reasonable amount of chemical dust suppressant to a road before claiming credit for emission control. Recall that the ground inventory refers to the amount of petroleum resin concentrate rather than the total solution.

As an example of the application of Figure 13.2.2-5, suppose that Equation 1a was used to estimate an emission factor of 7.1 lb/VMT for PM-10 from a particular road. Also, suppose that, starting on May 1, the road is treated with 0.221 gal/yd^2 of a solution (1 part petroleum resin to 5 parts water) on the first of each month through September. Then, the average controlled emission factors, shown in Table 13.2.2-5, are found.

Table 13.2-2-5. EXAMPLE OF AVERAGE CONTROLLED EMISSION FACTORS FOR SPECIFIC CONDITIONS

Period	Ground Inventory, gal/yd^2	Average Control Efficiency, %[a]	Average Controlled Emission Factor, lb/VMT
May	0.037	0	7.1
June	0.073	62	2.7
July	0.11	68	2.3
August	0.15	74	1.8
September	0.18	80	1.4

[a] From Figure 13.2.2-5, $\leq$10 µm. Zero efficiency assigned if ground inventory is less than 0.05 gal/yd^2. 1 lb/VMT = 281.9 g/VKT. 1 gal/yd^2 = 4.531 L/m^2.

Besides petroleum resins, other newer dust suppressants have also been successful in controlling emissions from unpaved roads. Specific test results for those chemicals, as well as for petroleum resins and watering, are provided in References 18 through 21.

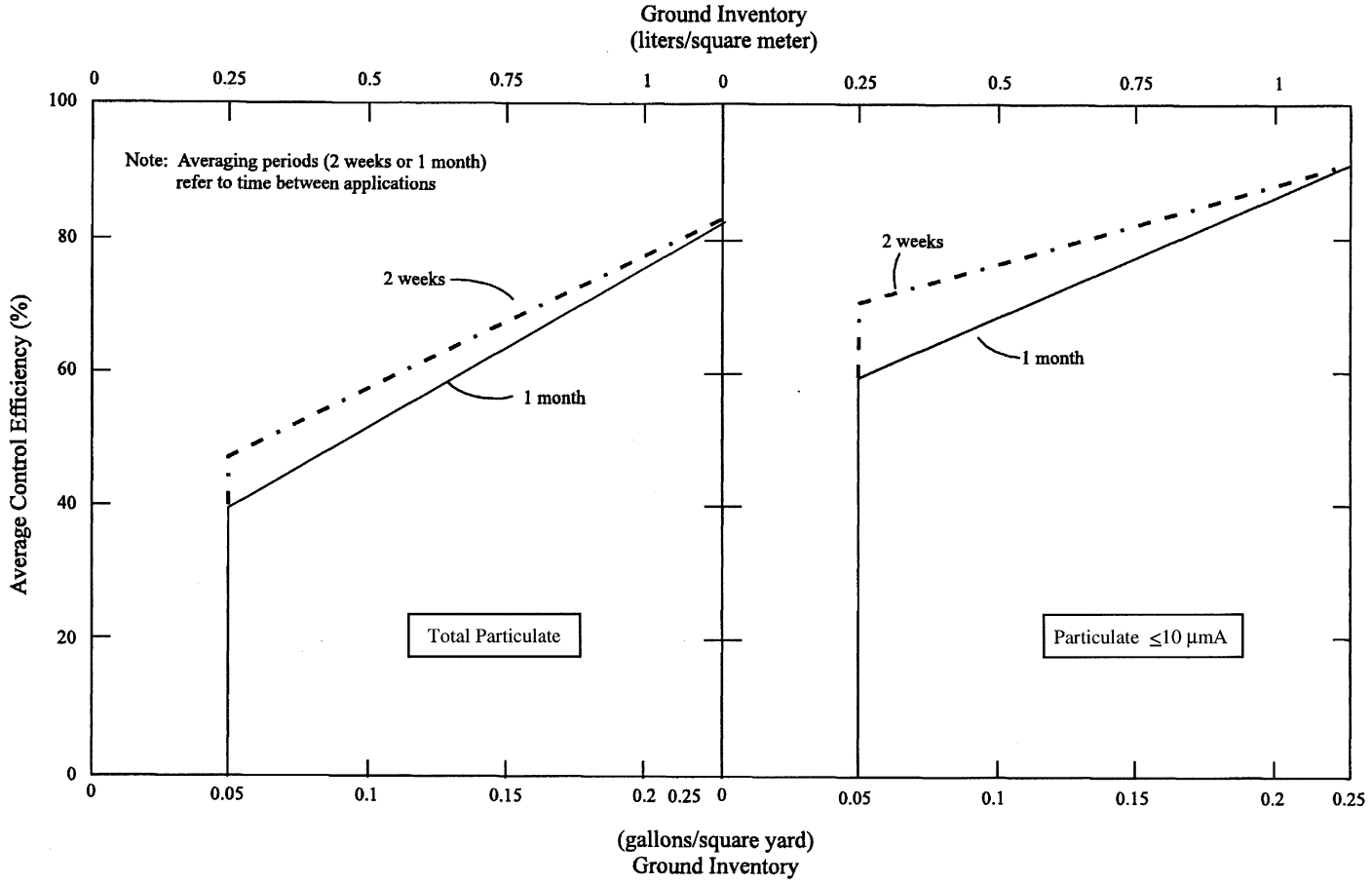

Figure 13.2.2-5. Average control efficiencies over common application intervals.

13.2.2.4 Updates Since The Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section (Reference 6).

October 1998 (Supplement E)– This was a major revision of this section. Significant changes to the text and the emission factor equations were made.

October 2001 – Separate emission factors for unpaved surfaces at industrial sites and publicly accessible roads were introduced. Figure 13.2.2-2 was included to provide control effectiveness estimates for watered roads.

December 2003 – The public road emission factor equation (equation 1b) was adjusted to remove the component of particulate emissions from exhaust, brake wear, and tire wear. The parameter C in the new equation varies with aerodynamic size range of the particulate matter. Table 13.2.2-4 was added to present the new coefficients.

January 2006 – The PM-2.5 particle size multipliers (i.e., factors) in Table 13.2.2-2 were modified and the quality ratings were upgraded from C to B based on the wind tunnel studies of a variety of dust emitting surface materials.

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13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

Inherent in operations that use minerals in aggregate form is the maintenance of outdoor storage piles. Storage piles are usually left uncovered, partially because of the need for frequent material transfer into or out of storage.

Dust emissions occur at several points in the storage cycle, such as material loading onto the pile, disturbances by strong wind currents, and loadout from the pile. The movement of trucks and loading equipment in the storage pile area is also a substantial source of dust.

13.2.4.2 Emissions And Correction Parameters

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on 3 parameters of the condition of a particular storage pile: age of the pile, moisture content, and proportion of aggregate fines.

When freshly processed aggregate is loaded onto a storage pile, the potential for dust emissions is at a maximum. Fines are easily disaggregated and released to the atmosphere upon exposure to air currents, either from aggregate transfer itself or from high winds. As the aggregate pile weathers, however, potential for dust emissions is greatly reduced. Moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and then the drying process is very slow.

Silt (particles equal to or less than 75 micrometers [μm] in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM-C-136 method.[1] Table 13.2.4-1 summarizes measured silt and moisture values for industrial aggregate materials.

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.

13.2.4.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles result from several distinct source activities within the storage cycle:

1. Loading of aggregate onto storage piles (batch or continuous drop operations).
2. Equipment traffic in storage area.
3. Wind erosion of pile surfaces and ground areas around piles.
4. Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).

Either adding aggregate material to a storage pile or removing it usually involves dropping the material onto a receiving surface. Truck dumping on the pile or loading out from the pile to a truck with a front-end loader are examples of batch drop operations. Adding material to the pile by a conveyor stacker is an example of a continuous drop operation.

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

correction parameters cannot be obtained, the appropriate mean from Table 13.2.4-1 may be used, but the quality rating of the equation is reduced by 1 letter.

For emissions from equipment traffic (trucks, front-end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 13.2.2). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst-case emissions from storage pile areas occur under dry, windy conditions. Worst-case emissions from materials-handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for Section 13.2.2, vehicle traffic, "Unpaved Roads", follows the methodology described in that section centering on parameter p. A separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity also may be justified for the worst-case averaging period.

13.2.4.4 Controls[12-13]

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical agents (such as surfactants) that permit more extensive wetting. Continuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.[12]

References For Section 13.2.4

1. C. Cowherd, Jr., *et al., Development Of Emission Factors For Fugitive Dust Sources*, EPA-450/3-74-037, U. S. Environmental Protection Agency, Research Triangle Park, NC, June 1974.

2. R. Bohn, *et al., Fugitive Emissions From Integrated Iron And Steel Plants*, EPA-600/2-78-050, U. S. Environmental Protection Agency, Cincinnati, OH, March 1978.

3. C. Cowherd, Jr., *et al., Iron And Steel Plant Open Dust Source Fugitive Emission Evaluation*, EPA-600/2-79-103, U. S. Environmental Protection Agency, Cincinnati, OH, May 1979.

4. *Evaluation Of Open Dust Sources In The Vicinity Of Buffalo, New York*, EPA Contract No. 68-02-2545, Midwest Research Institute, Kansas City, MO, March 1979.

5. C. Cowherd, Jr., and T. Cuscino, Jr., *Fugitive Emissions Evaluation*, MRI-4343-L, Midwest Research Institute, Kansas City, MO, February 1977.

6. T. Cuscino, Jr., *et al., Taconite Mining Fugitive Emissions Study*, Minnesota Pollution Control Agency, Roseville, MN, June 1979.

7. *Improved Emission Factors For Fugitive Dust From Western Surface Coal Mining Sources*, 2 Volumes, EPA Contract No. 68-03-2924, PEDCo Environmental, Kansas City, MO, and Midwest Research Institute, Kansas City, MO, July 1981.

8. *Determination Of Fugitive Coal Dust Emissions From Rotary Railcar Dumping*, TRC, Hartford, CT, May 1984.

9. *PM-10 Emission Inventory Of Landfills In the Lake Calumet Area*, EPA Contract No. 68-02-3891, Midwest Research Institute, Kansas City, MO, September 1987.

10. *Chicago Area Particulate Matter Emission Inventory — Sampling And Analysis*, EPA Contract No. 68-02-4395, Midwest Research Institute, Kansas City, MO, May 1988.

11. *Update Of Fugitive Dust Emission Factors In AP-42 Section 11.2*, EPA Contract No. 68-02-3891, Midwest Research Institute, Kansas City, MO, July 1987.

12. G. A. Jutze, *et al., Investigation Of Fugitive Dust Sources Emissions And Control*, EPA-450/3-74-036a, U. S. Environmental Protection Agency, Research Triangle Park, NC, June 1974.

13. C. Cowherd, Jr., *et al., Control Of Open Fugitive Dust Sources*, EPA-450/3-88-008, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1988.

14. C. Cowherd, *Background Document for Revisions to Fine Fraction Ratios &sed for AP-42 Fugitive Dust Emission Factors*. Prepared by Midwest Research Institute for Western Governors Association, Western Regional Air Partnership, Denver, CO, February 1, 2006.

Wind Speed

In Cuba, the wind speed remains relatively consistent throughout the year, with an average of 8 mph in the winter months (January, February, March, and December). In the summer months (June, July, and August), the average wind speed changes to 8 mph. Overall, the variation in wind speed ranges between 7 mph and 10 mph across the months.

Average Monthly Wind speed

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Wind Speed (mph)	7	8	9	10	9	9	8	7	7	7	7	7	8

https://myperfectweather.com/api/cityinfo/35043Cub/degF/Average-Weather-in-Cuba-New-Mexico-United-States-Year-Round

Nonroad Compression-Ignition Engines: Exhaust Emission Standards

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Smoke [a] (Percentage)	Useful Life (hours /years) [b]	Warranty Period (hours /years) [b]
Federal	kW < 8	1	2000-2004	-	10.5	-	1.0	8.0	20/15/50	3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	8.0			
		4	2008+	-	7.5	-	0.40 [c]	8.0			
	8 ≤ kW < 19	1	2000-2004	-	9.5	-	0.80	6.6		3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	6.6			
		4	2008+	-	7.5	-	0.40	6.6			
	19 ≤ kW < 37	1	1999-2003	-	9.5	-	0.80	5.5		5,000/7 [d]	3,000/5 [e]
		2	2004-2007	-	7.5	-	0.60	5.5			
		4	2008-2012	-	7.5	-	0.30	5.5			
			2013+	-	4.7	-	0.03	5.5			
	37 ≤ kW < 56	1	1998-2003	-	-	9.2	-	-		8,000/10	3,000/5
		2	2004-2007	-	7.5	-	0.40	5.0			
		3 [f]	2008-2011	-	4.7	-	0.40	5.0			
		4 (Option 1) [g]	2008-2012	-	4.7	-	0.30	5.0			
		4 (Option 2) [g]	2012	-	4.7	-	0.03	5.0			
		4	2013+	-	4.7	-	0.03	5.0			
	56 ≤ kW < 75	1	1998-2003	-	-	9.2	-	-			
		2	2004-2007	-	7.5	-	0.40	5.0			
		3	2008-2011	-	4.7	-	0.40	5.0			
		4	2012-2013 [h]	-	4.7	-	0.02	5.0			
			2014+ [i]	0.19	-	0.40	0.02	5.0			
	75 ≤ kW < 130	1	1997-2002	-	-	9.2	-	-			
		2	2003-2006	-	6.6	-	0.30	5.0			
		3	2007-2011	-	4.0	-	0.30	5.0			
		4	2012-2013 [h]	-	4.0	-	0.02	5.0			
			2014+	0.19	-	0.40	0.02	5.0			

Continued

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr	NOx (g/kW-hr	PM (g/kW-hr	CO (g/kW-hr)	Smoke [a] (Percentage)	Useful Life (hours /years) [b]	Warranty Period (hours /years) [b]
Federal	130 ≤ kW < 225	1	1996-2002	1.3 [j]	-	9.2	0.54	11.4	20/15/50	8,000/10	3,000/5
		2	2003-2005	-	6.6	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	225 ≤ kW < 450	1	1996-2000	1.3 [j]	-	9.2	0.54	11.4			
		2	2001-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	450 ≤ kW < 560	1	1996-2001	1.3 [j]	-	9.2	0.54	11.4			
		2	2002-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	560 ≤ kW < 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4			
		2	2006-2010	-	6.4	-	0.20	3.5			
		4	2011-2014	0.40	-	3.5	0.10	3.5			
			2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5			
	kW > 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4			
		2	2006-2010	-	6.4	-	0.20	3.5			
		4	2011-2014	0.40	-	3.5 [k]	0.10	3.5			
			2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5			

Notes on following page.

Notes:

- For Tier 1, 2, and 3 standards, exhaust emissions of nitrogen oxides (NOx), carbon monoxide (CO), hydrocarbons (HC), and non-methane hydrocarbons (NMHC) are measured using the procedures in 40 Code of Federal Regulations (CFR) Part 89 Subpart E. For Tier 1, 2, and 3 standards, particulate matter (PM) exhaust emissions are measured using the California Regulations for New 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines.
- For Tier 4 standards, engines are tested for transient and steady-state exhaust emissions using the procedures in 40 CFR Part 1039 Subpart F. Transient standards do not apply to engines below 37 kilowatts (kW) before the 2013 model year, constant-speed engines, engines certified to Option 1, and engines above 560 kW.
- Tier 2 and later model naturally aspirated nonroad engines shall not discharge crankcase emissions into the atmosphere unless these emissions are permanently routed into the exhaust. This prohibition does not apply to engines using turbochargers, pumps, blowers, or superchargers.
- In lieu of the Tier 1, 2, and 3 standards for NOX, NMHC + NOX, and PM, manufacturers may elect to participate in the averaging, banking, and trading (ABT) program described in 40 CFR Part 89 Subpart C.

a Smoke emissions may not exceed 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent during the peaks in either mode. Smoke emission standards do not apply to single-cylinder engines, constant-speed engines, or engines certified to a PM emission standard of 0.07 grams per kilowatt-hour (g/kW-hr) or lower. Smoke emissions are measured using procedures in 40 CFR Part 86 Subpart I.

b Useful life and warranty period are expressed hours and years, whichever comes first.

c Hand-startable air-cooled direct injection engines may optionally meet a PM standard of 0.60 g/kW-hr. These engines may optionally meet Tier 2 standards through the 2009 model years. In 2010 these engines are required to meet a PM standard of 0.60 g/kW-hr.

d Useful life for constant speed engines with rated speed 3,000 revolutions per minute (rpm) or higher is 5 years or 3,000 hours, whichever comes first.

e Warranty period for constant speed engines with rated speed 3,000 rpm or higher is 2 years or 1,500 hours, whichever comes first.

f These Tier 3 standards apply only to manufacturers selecting Tier 4 Option 2. Manufacturers selecting Tier 4 Option 1 will be meeting those standards in lieu of Tier 3 standards.

g A manufacturer may certify all their engines to either Option 1 or Option 2 sets of standards starting in the indicated model year. Manufacturers selecting Option 2 must meet Tier 3 standards in the 2008-2011 model years.

h These standards are phase-out standards. Not more than 50 percent of a manufacturer's engine production is allowed to meet these standards in each model year of the phase out period. Engines not meeting these standards must meet the final Tier 4 standards.

i These standards are phased in during the indicated years. At least 50 percent of a manufacturer's engine production must meet these standards during each year of the phase in. Engines not meeting these standards must meet the applicable phase-out standards.

j For Tier 1 engines the standard is for total hydrocarbons.

k The NOx standard for generator sets is 0.67 g/kW-hr.

l The PM standard for generator sets is 0.03 g/kW-hr.

Citations: Code of Federal Regulations (CFR) citations:

- 40 CFR 89.112 = Exhaust emission standards
- 40 CFR 1039.101 = Exhaust emission standards for after 2014 model year
- 40 CFR 1039.102 = Exhaust emission standards for model year 2014 and earlier
- 40 CFR 1039 Subpart F = Exhaust emissions transient and steady state test procedures
- 40 CFR 86 Subpart I = Smoke emission test procedures
- 40 CFR 1065 = Test equipment and emissions measurement procedures

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	

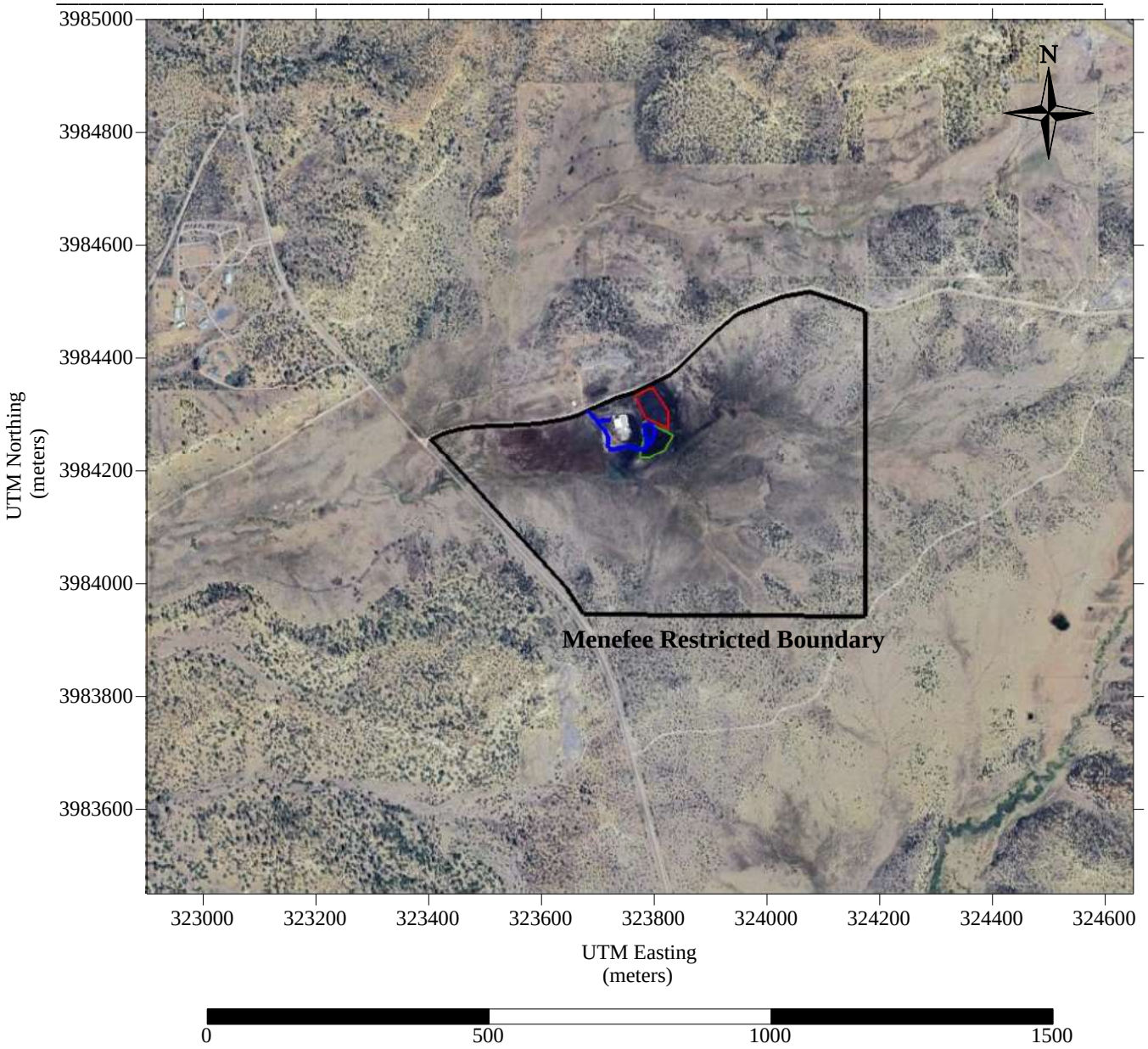

Figure 8-1: Aerial Map of Menefee and Surrounding 0.5 mile

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

X I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. X A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. X 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. X A copy of the property tax record (20.2.72.203.B NMAC).
4. X A sample of the letters sent to the owners of record.
5. X A sample of the letters sent to counties, municipalities, and Indian tribes.
6. X A sample of the public notice posted and a verification of the local postings.
7. X A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. X A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. X 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. X 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. X 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.

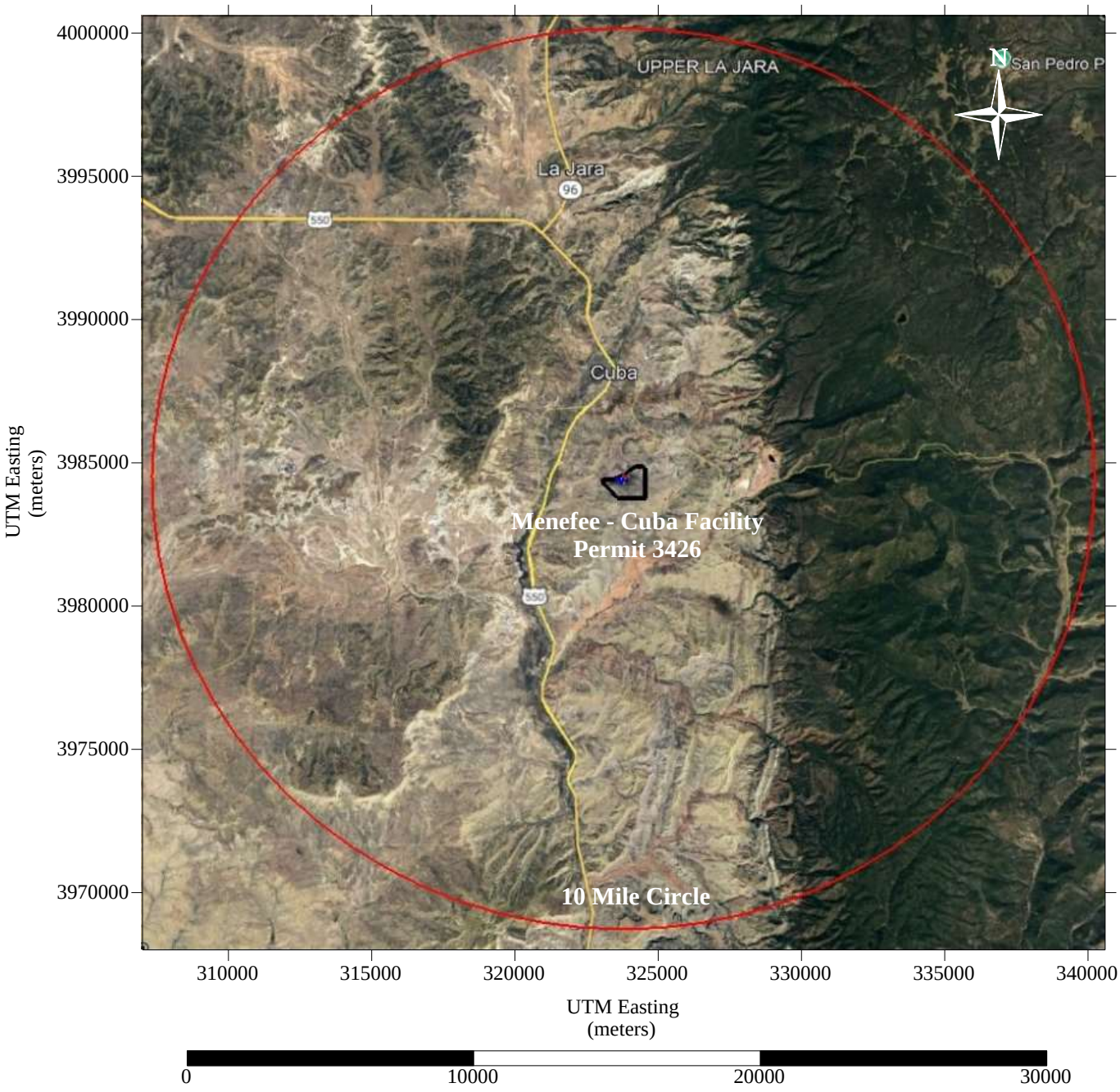

Figure 9-1: Ten-Mile Radius around Site

Government List within 10 Miles

GOVERNMENT ENTITY	GOVERNMENT REPRESENTATIVE	MAILADD	MCITY	STATE	ZIP
Sandoval County	Anne Brady-Romero, County Clerk	1500 Idalia Rd, Building D, 1st Floor	Bernalillo	NM	87004
Village of Cuba	Denny Herrera, Mayor	16B East Cordova Ave	Cuba	NM	87013

Landowner List within 100 Feet (Sandoval County - Class A county)

Acct_No	UPC	OWNNAME	MAILADD	MCITY	STATE	ZIP
GOVEXP BLM	2004120132132	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87701
GOVEXP BLM	2005118326132	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87701
GOVEXP BLM	20090000128494	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87174
GOVEXP BLM	20090000128834	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87701
GOVEXP BLM	20090000128868	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87701
R001909	2005119369462	HERNANDEZ & COOK & C & H INV CO	PO BOX 38	ESPANOLA	NM	87701
R036247	2005120054138	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	NM	87701
R040178	2004120220383	MORALES, ANTHONY G & LINDA K	P.O. BOX 65	LA JARA	KS	66223
R093665	2005119200447	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	NM	87701
R093666	2004119400471	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	NM	87701
R093667	2004120331129	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	NM	87732
R094294	2005120066462	HERNANDEZ, JOHN SEBASTIAN	2469 CORRALES RD STE A5	CORRALES	NM	87701

NOTICE

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

The address for the facility known as, Menefee – Cuba Facility, is 36 Duke City Road, Cuba, NM. The exact location of the Menefee – Cuba Facility is at Latitude (decimal degrees): 35.987855 and Longitude (decimal degrees): -106.955808. The approximate location of this facility is 1.9 miles south-southeast of Cuba in Sandoval county.

The function of the facility is to receive humate ore from the mine, initial screening the material to one of two different sizes and placed in piles for storage. The material is then screened a 2nd time and bagged as product into bulk bags for sales. Some of the fines from the screens is dissolved in liquids and dried to form a concentrate for product sales in 55-gallon drums.

The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and maximum tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Maximum Pounds per hour	Maximum Tons per year
PM_{10}	27.5 pph	44.4 tpy
$PM_{2.5}$	21.3 pph	34.0 tpy
Sulfur Dioxide (SO_2)	0.41 pph	0.65 tpy
Nitrogen Oxides (NO_x)	4.14 pph	6.07 tpy
Carbon Monoxide (CO)	1.69 pph	2.46 tpy
Volatile Organic Compounds (VOC)	0.26 pph	0.38 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.02 pph	0.007 tpy
Toxic Air Pollutant (TAP)	0.0003 pph	0.0005 tpy
Green House Gas Emissions as Total CO_2e	n/a	2066 tpy

The maximum and standard operating schedule for screen processing is 11 hours per day, 5 days per week, and 52 weeks per year. The maximum and standard operating schedule for dryer processing is 24 hours per day, 7 days per week, and 19 weeks per year from the months of November through April. The maximum and standard operating schedule for product haul trucks is 24 hours per day, 7 days per week, and 52 weeks per year.

The owner and/or operator of the Facility is:

Menefee Mining Corporation
8144 Walnut Hill Lane, Suite 987
Dallas, TX 75231

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. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its 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: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

General Posting of Notices – Certification

I, ____Caroline Lovato_____, the undersigned, certify that on **October, 4, 2024** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the Village of Cuba of Sandoval, State of New Mexico on the following dates:

1. Facility entrance {10/04/24}
2. City Hall {10/04/24}
3. Post Office {10/04/24}
4. Public Notice Board at Mickey's {10/04/24}

Signed this 4th day of October, 2024.

Caroline Lovato

Signature

10/4/24

Date

Caroline Lovato

Printed Name

Operations Manager, Menefee Mining Corporation's Production & Distribution Plant
Cuba, NM

Facility Entrance

36 Duke City Road, Cuba NM


NOTICE
02/09/2013

City Hall

16B Cordova Ave., Cuba NM

NOTICE

Menefee Mining Corporation announces its application submitted to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3436. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

The address for the facility known as, Menefee – Cuba Facility, is 36 Duke City Road, Cuba, NM. The exact location of the Menefee – Cuba Facility is at Latitude (decimal degrees): 35.987855 and Longitude (decimal degrees): -106.955808. The approximate location of this facility is 1.9 miles south-southeast of Cuba in Sandoval county.

The function of the facility is to receive humate ore from the mine, initial screening the material to one of two different sizes and placed in piles for storage. The material is then screened a 2nd time and bagged as product into bulk bags for sales. Some of the fines from the screens is dissolved in liquids and dried to form a concentrate for product sales in 55-gallon drums.

The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product screens (Gray Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 3860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and maximum tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant	Maximum Pounds per hour	Maximum Tons per year
PM 10	37.5 pph	44.4 tpy
PM 2.5	31.3 pph	34.6 tpy
Sulfur Dioxide (SO2)	0.41 pph	0.65 tpy
Nitrogen Oxides (NOx)	4.14 pph	6.67 tpy
Carbon Monoxide (CO)	1.69 pph	3.46 tpy
Volatile Organic Compounds (VOC)	0.36 pph	0.38 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.03 pph	0.007 tpy
Toxic Air Pollutant (TAP)	0.0003 pph	0.0005 tpy
Green House Gas Emissions as Total CO2e	n/a	3666 tpy

The maximum and standard operating schedule for screen processing is 11 hours per day, 5 days per week, and 52 weeks per year. The maximum and standard operating schedule for dryer processing is 24 hours per day, 7 days per week, and 19 weeks per year from the months of November through April. The maximum and standard operating schedule for product haul trucks is 24 hours per day, 7 days per week, and 52 weeks per year.

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DONATE LIFE

Organ, Eye and Tissue Donation

Every **10** minutes another person is added to the waiting list.

83% of patients waiting are in need of a kidney.

12% of patients waiting are in need of a liver.

22 people die each day because the organs they need are not donated in time.

3-5 years is the average waiting time for a kidney from a deceased donor.

*Living donation is an option for these patients and is not included in your donor registration.

Donor

Can save up to **8** lives

Restores sight to **2** people

Heal the lives of more than **75** people

More than **84,000** corneal transplants help restore sight each year.

More than **1.75** million tissue transplants heal lives each year.

Top 5 Frequently Asked Questions

Does registering as a donor change my patient care?
No, doctors work hard to save every patient's life, but sometimes there is a complete and irreversible loss of brain function. The patient is declared clinically and legally dead. Only then is organ donation an option.

Will I be able to have an open casket funeral if I donate?
An open casket funeral is possible for organ, eye and tissue donors.

Does my religion support organ, eye and tissue donation?
All major religions support donation as a final act of compassion and generosity.

Does my social or financial status play any part in whether or not I will receive an organ?
A national system matches available organs from the donor with people on the waiting list based on many factors, including: blood type, body size, how sick they are, distance from donor hospital and time on the list. Race, income, gender, celebrity and social status are never considered.

Why register your decision to be a donor?
You can save up to 8 lives and heal the lives of more than 75 people. Your registration serves as a symbol of hope to patients waiting, and sharing it with your family lets them know your decision.

What can I do to increase organ, eye and tissue donation?

1. Register your decision to be a donor at Register
2. Tell your family and friends about Donate Life
3. Ask others to visit DonateLife.net to learn more and register.

COURT ROOM RULES

1. **TURN OFF** all cell phones.

Sat/Sun October 19-20, 2024

Jemez Mountain

TRAIL SALE

02/07/2013

- Yard Sales
- Flea Markets
- Food Sales
- Crafters
- Artists
- Indigenous Makers

Locations in

CUBA, New Mexico

- Herrera Cannabis Co.,
6404 US-550
- NAPA

US Post Office

6358 Main St., Cuba NM

address in the country – 159 million addresses and 470 million pieces of mail each day – no matter who we are or where we live. In contrast, private delivery companies go where they can make a profit.

FACT: Multiple polls consistently rate the Postal Service as the most trusted U.S. agency. It rates highest among young adults.

FACT: Package volume is increasing. In these days of rising on-line shopping, the public Postal Service is as needed as ever.

Management and Budget's plan to privatize USPS to private companies for corporate profit goes through, it will result in higher costs, reduced mail days, and the end of delivery to every address.

Go to usmailnotforsale.org or call 202-224-3121 to contact your members of Congress. Tell them you support your public Postal Service!

The Public Postal

U.S. NOT FOR SALE

forsale.org

THE LAW! Men who fail to register can be
federal student financial aid, job training benefits,
loyment, and U.S. citizenship for immigrants.

o The Right Thing.

FILL IT.

MAIL IT.

Want a FREE iPad?

JOIN OUR FACE PROGRAM

KEEPING THE CIRCLE STRONG

FACE Center Based is now accepting applications for children 3-4 years ol

Other incentives include:
- Field trips
- Wolfpack attire
- Child/Parent shopping spree
- & so much more

NOTICE

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

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Toxic Air Pollutant (TAP)	0.00003 pph	0.0005 tpy
Green House Gas Emissions as Total CO_2e	n/a	2066 tpy

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Weight: 115 lbs

Ingrid was last seen on Sunday, October 15, 2023 north of Jemez Springs, NM, on Forest Road 144, 11 miles north of Highway 126. Her black Subaru Impreza hatchback was found broken down and abandoned at the same location with a broken rear window.
Ingrid was last seen wearing a grey fleece jacket, black jogger pants, and a

Blue Cross Blue Shield Care Van

WITH FREE
Biometric Screenings
Flu & Covid Inoculations

JOIN US!

10 Sept, 2024 | 10:00Am
6376 US-550, Cuba, NM 87013

CONTACT US!

505-730-2111
melvroy@gmail.com

NM Senior Resource

NOW HIRING!

Observe New Mexico Elections is currently recruiting for a range of positions to support its work in 2024.

ELECTION OBSERVERS

Election Observers are neutral watchers at polling sites during in-person early voting (10/8/24) and on Election Day (11/5/24). Election Observers collect data using a standardized set of questions about the election. Election Observers must be registered to vote in the NM county in which they will be

COUNTY COORDINATOR

County Coordinators identify and support the Election Observers in their county and are responsible for ensuring that Election Observers attend trainings and receive needed project materials. This position will be part-time and will operate on a fixed fee contract. Coordinators must be registered to vote in the

IF PUBLIC COMMENT PERIOD

CUBA HOUSING AUTHORITY

HA) is providing an opportunity for public review and comment
using Utility Allowances Survey and Study-2024. The proposed
and revisions. The documents are available for public review

of Cuba Housing Authority
29 Rainbow Loop
Cuba, NM 87013

posed document. CHA residents and the general public are
the Hearing and/ or to submit written comments during the
is scheduled for the following time and location:

F:

ansactions with strangers

nises easy money and
iving money or packages.

-home opportunity or money
n a trusted family member or
contact your Better Business
access your state's corporation
verify if the business is legitimate.

nule activity/scams as soon as possible.

rmation, or to report a money mule scam, visit *usps.gov/money-mule* or call 1-877-876-2455.

UNITED STATES POSTAL INSPECTION SERVICE

PMS
PRESBYTERIAN MEDICAL SERVICES

Presbyterian Medical Services Home Visiting Program

Parents as Teachers Model Affiliate

WHAT IS HOME VISITING?

- Voluntary FREE program intended to promote healthy parent/child relationships.
- Supports pregnant women and improves pregnancy outcomes.
- Provides developmental activities to strengthen parent-child bonding and build positive parenting practices.
- Promotes school readiness using assessment tools to monitor child development and identify developmental concerns.
- Provides strengths-based support to caregivers to promote family stability.
- Identifies and assists families with accessing community resources and stabilizing family support systems.

WHO ARE HOME VISITORS?

PMS Home Visitors are qualified parent educators certified through the nationally recognized, evidence-based *Parents as Teachers* model.

WHO CAN RECEIVE HOME VISITING SERVICES?

LOCATIONS

Flores del Sol Head Start

Start

ncia 87016

What can I expect from my home visitor?

02/07/2013

Mickey’s Save-Way Market

6392-B US-550, Cuba NM

Sat/Sun October 19-20, 2024

Jemez Mountain

TRAIL SALE

- Yard Sales
- Flea Markets
- Food Sales
- Crafters
- Artists
- Indigenous Makers
- School and Church Fundraisers

Sale Locations in

CUBA, New Mexico:

- **Herrera Cannabis Co.,** 6404 US-550
- **NAPA Auto Parts,** 6379 US-550
- **Eichwald Center at St. Francis of Assisi Park,** 146 NM-126

Follow on Instagram and Facebook

Enjoy fall colors, shop unique gifts, and try tasty foods around the scenic byway!

Contact Carey Beam for more info:
Text/Call 1-321-693-6810

CUBA, NM 87013

NEW MEXICO RODEO ASSOCIATION

FINALS RODEO

EVENTS

ENTRY FEE $250 PER EVENT

BREAKAWAY
TEAM ROPING
#10 TEAM ROPING
BARREL RACING
INC. BARREL RACING
BULL RIDING

INFORMATION

CALL IN ENTRY:
MONDAY SEPT. 23, 2024 6-9P.M.
TE: 505-864-9426
RS/TE: 505-864-9427
TEAM ROPING: 505-864-7200

YOU ARE NOT IN THE TOP TEN CALL IN TO BE PUT ON AN ALTERNATE LIST.

BARREL RACERS ENTER ONLY ONCE IN THE DIVISION YOU HAVE WON THE MOST MONEY.

VE ENTERED I NMRA RODEO AS A MEMEBER TO PARTICIPATE IN THE FINALS.

PERS MAY ENTER. THE CATTLE WILL BE CHUTE RUN

S WILL BE AT 1:00 P.M.
T 10:30 A.M.

newmexicorodeoassociation.org

NOTICE

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PMS

Presbyterian Medical Services
Home Visiting Program

WHAT IS HOME VISITING?

- Voluntary FREE program intended to promote healthy parent/child relationships.
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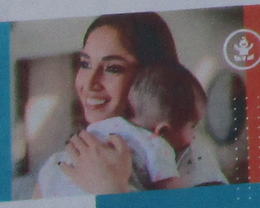
- Promotes school readiness using assessment tools to monitor child development and identify developmental concerns.
- Provides strengths-based support to caregivers to promote family stability.
- Identifies and assists families with accessing community resources and stabilizing family support systems.

WHO ARE HOME VISITORS?

PMS Home Visitors are qualified parent educators certified through the nationally recognized, evidence-based *Parents as Teachers* model.



WHO CAN RECEIVE HOME VISITING SERVICES?

Women who are pregnant or has a child under the age of three years old.

LOCATIONS

Flores del Sol Head Start
Santa Fe County
5600 Agua Fria St., Santa Fe 87507
505-660-7454

Rio Rancho Head Start/ Early Head Start
Sandoval County
32 Unser Blvd., Rio Rancho 87124
505-891-5162

Estancia Head Start
Torrance County
600 10th St., Estancia 87016
505-384-2302

What can I expect from my home visitor?

- Weekly visits either in-person or virtual
- Developmental assessments yearly or as needed
- Developmental activities
- Education and handouts on parenting topics such as discipline, attachment, health, nutrition, etc
- Community resources and referral support as needed

We are able to build relationships with families and watch their children grow and be ready for Head Start.

PMSNM.ORG

Tues
OCTOBER

All Fo

We will have a verity of *fresh* *flowers, bedding plants, trees and fru* our greenhouse available for purchase. St *student artwork* and *baked goods* available fo *(free of charge)* for additional vendors who would like to participate in the market.

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nts in
o have
hase.
Tables will be available
would like to participate in the market.

CUBA COYOTES 4-H

02/07/2013

NOTICE OF AIR QUALITY PERMIT APPLICATION

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

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Notice of Non-Discrimination
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Elder Abuse

CALL THE NEW MEXICO INTAKE TOLL FREE NUMBER FOR REPORTING ADULT ABUSE, NEGLECT OR EXPLOITATION AT 1-866-654-3219.

A REPRESENTATIVE IS AVAILABLE 24 HOURS THROUGHOUT THE YEAR TO RECEIVE CALLS & TAKE REPORTS.

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PM 2.5	21.3 pph	34.0 tpy
Sulfur Dioxide (SO2)	0.41 pph	0.65 tpy
Nitrogen Oxides (NOx)	4.14 pph	6.07 tpy
Carbon Monoxide (CO)	1.69 pph	2.46 tpy
Volatile Organic Compounds (VOC)	0.26 pph	0.38 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.02 pph	0.007 tpy
Toxic Air Pollutant (TAP)	*0.0003 pph*	0.0005 tpy
Green House Gas Emissions as Total CO2e	n/a	2066 tpy

The maximum and standard operating schedule for screen processing is 11 hours per day, 5 days per week, and 52 weeks per year. The maximum and standard operating schedule for dryer processing is 24 hours per day, 7 days per week, and 19 weeks per year from the months of November through April. The maximum and standard operating schedule for product haul trucks is 24 hours per day, 7 days per week, and 52 weeks per year.

The owner and/or operator of the Facility is:
Menefee Mining Corporation
8144 Walnut Hill Lane, Suite 987
Dallas, TX 75231

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. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009. With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its 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

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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: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at

https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file acomplaint of discrimination.

WEATHER REPORT

Wolf Canyon Station
C. Melgaard, Observer

Maximum temperature in September 2024 was 79° on the 4th. Minimum was 28° on the 22nd. Precipitation for September was 2.00".

NOTICE

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Departmentfor a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

The address for the facility known as, Menefee – Cuba Facility, is 36 Duke City Road, Cuba, NM. The exact location of the Menefee – Cuba Facility is at Latitude (decimal degrees): 35.987855 and Longitude (decimal degrees): -106.955808. The approximate location of this facility is 1.9 miles south-southeast of Cuba in Sandoval county.

The function of the facility is to receive humate ore from the mine, initial screening the material to one of two different sizes and placed in piles for storage. The material is then screened a 2nd time and bagged as product into bulk bags for sales. Some of the fines from the screens is dissolved in liquids and dried to form a concentrate for product sales in 55-gallon drums.

The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and maximum tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Maximum Pounds per Hour	Maximum Tons per year
PM 10	27.5 pph	44.4 tpy
PM 2.5	21.3 pph	34.0 tpy
Sulfur Dioxide (SO2)	0.41 pph	0.65 tpy
Nitrogen Oxides (NOx)	4.14 pph	6.07 tpy
Carbon Monoxide (CO)	1.69 pph	2.46 tpy
Volatile Organic Compounds (VOC)	0.26 pph	0.38 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.02 pph	0.007 tpy
Toxic Air Pollutant (TAP)	0.0003 pph	0.0005 tpy
Green House Gas Emissions as Total CO2e	n/a	2066 tpy

The maximum and standard operating schedule for screen processing is 11 hours per day, 5 days per week, and 52 weeks per year. The maximum and standard operating schedule for dryer processing is 24 hours per day, 7 days per week, and 19 weeks per year from the months of November through April. The maximum and standard operating schedule for product haul trucks is 24 hours per day, 7 days per week, and 52 weeks per year.

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Dallas, TX 75231

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With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published inthe legal section of a newspaper circulated near the facility location.

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Reasons to Call 988:

- Worried about your safety or someone you know
- Having a hard time managing strong emotions
- Feeling hopeless, confused, angry or lonely
- Worried about alcohol or drug use (substance use)
- Need information or referrals for local community services
- Have something on your mind that you want to talk over with someone outside of current situation
- Service member or veteran and their families in need
- Experiencing abuse or neglect
- Dating issues or domestic violence
- Struggling with eating disorders
- Dealing with discrimination
- Worried about parental discord or bullying
- Stressed about work and having high anxiety

October 4, 2024

CERTIFIED MAIL

Dear **[Neighbor/Environmental Director/county or municipal official]**

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

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PM_{10}	27.5 pph	44.4 tpy
$PM_{2.5}$	21.3 pph	34.0 tpy
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Nitrogen Oxides (NO_x)	4.14 pph	6.07 tpy
Carbon Monoxide (CO)	1.69 pph	2.46 tpy
Volatile Organic Compounds (VOC)	0.26 pph	0.38 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	0.02 pph	0.007 tpy
Toxic Air Pollutant (TAP)	0.0003 pph	0.0005 tpy
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Sincerely,

Menefee Mining Corporation

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Government Entities within 10 Miles
October 2024

Sandoval County	Anne Brady-Romero, County Clerk	1500 Idalia Rd, Building D, 1st Floor	Bernalillo	NM	87004
Village of Cuba	Denny Herrera, Mayor	16B East Cordova Ave	Cuba	NM	87013

7022 3330 0001 7203 7736

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- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

ALBUQUERQUE, NM 87110-3801 USPS OCT - 8 2024 Postmark Here

Ser Sandoval County
Stre Anne Brady-Romero, County Clerk
1500 Idalia Rd, Building D, 1st Floor
City Bernalillo, NM 87004

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7022 3330 0001 7203 7743

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- ☐ Return Receipt (hardcopy) $
- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

ALBUQUERQUE, NM 87110-3801 USPS OCT 8 2024 Postmark Here

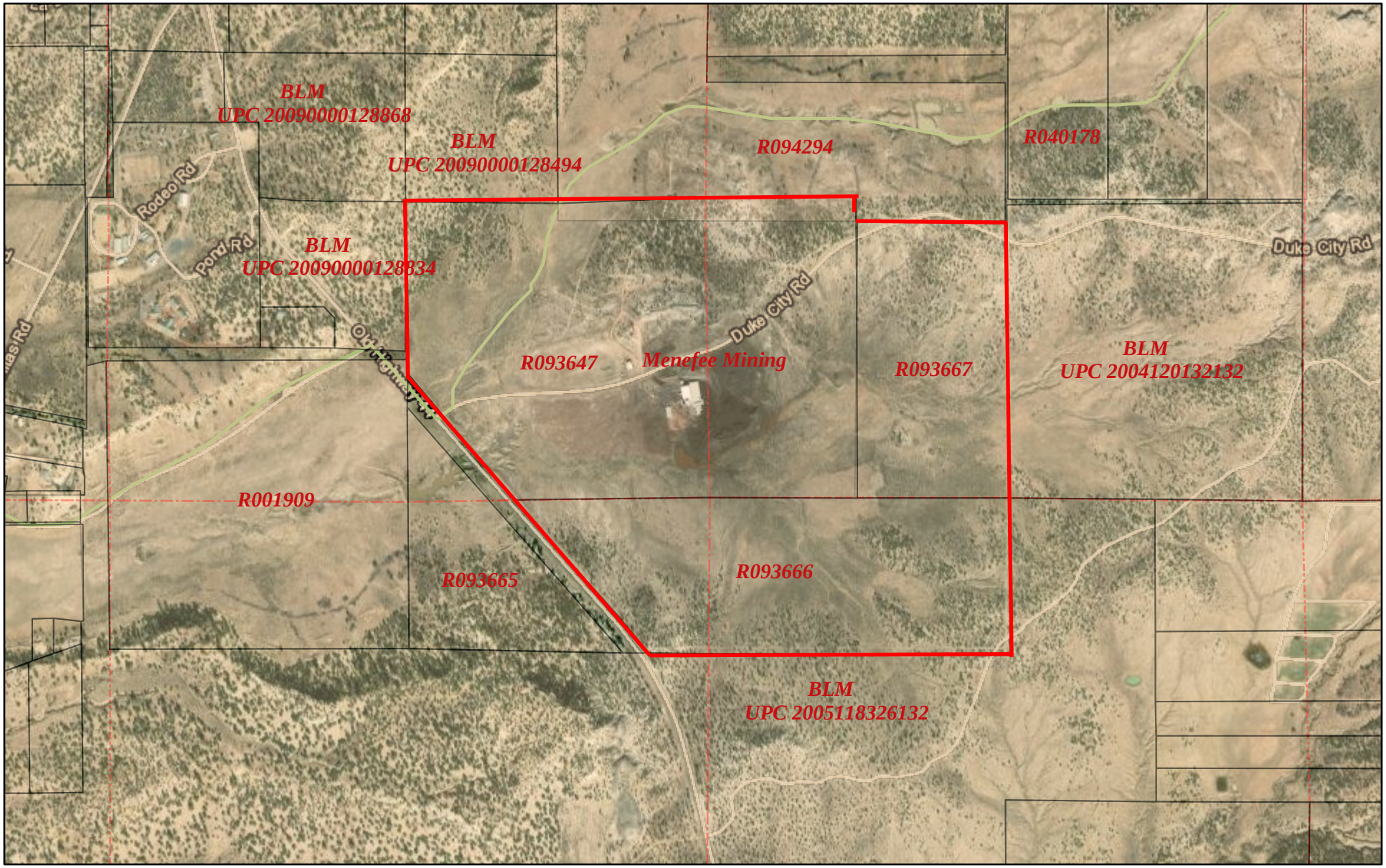
Sen Village of Cuba
Str Denny Herrera, Mayor
16B East Cordova Ave
Cit Cuba, NM 87013

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Landowners within 100 FEET
October 2024

ACCOUNTNO	UPC	NAME	ADDRESS1	CITY	STATE	ZIPCODE
GOVEXP BLM	2004120132132	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87013
GOVEXP BLM	2005118326132	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87013
GOVEXP BLM	20090000128494	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87013
GOVEXP BLM	20090000128834	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87013
GOVEXP BLM	20090000128868	BUREAU OF LAND MANAGEMENT (BLM)	231 NM-126	CUBA	NM	87013
R001909	2005119369462	HERNANDEZ & COOK & C & H INV CO	PO BOX 38	ESPANOLA	NM	87532-0038
R036247	2005120054138	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	TX	75231-4466
R040178	2004120220383	MORALES, ANTHONY G & LINDA K	P.O. BOX 65	LA JARA	NM	87027-0065
R093665	2005119200447	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	TX	75231-4466
R093666	2004119400471	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	TX	75231-4466
R093667	2004120331129	MENEFEE MINING CORPORATION	8144 WALNUT HILL LN STE 987	DALLAS	TX	75231-4466
R094294	2005120066462	HERNANDEZ, JOHN SEBASTIAN	2469 CORRALES RD STE A5	CORRALES	NM	87048-9104

Menefee Mining Corporation Neighboring Landowners Map



October 2, 2024

Sandoval County Parcels

Sandoval County Projected PLSS

YES

NO

Cuba Soil and Water District Boundary

County Boundary

<all other values>

Land Grants for Sandoval County

USA ZIP Codes

World Transportation

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri, HERE, iPC, Maxar

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Account: R001909

Location

Parcel Number 2-005-119-369-462

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 5 T: 20N R: 01W S 1/2 SW1/4 SEC 5 N 1/2 NW 1/4 SEC 8 Subd: SECT-TWNSHP-RNGE

Owner Information

Owner Name HERNANDEZ & COOK & C & H INV CO

Owner Address PO BOX 38 ESPANOLA, NM 87532-0038 UNITED STATES OF AMERICA

Assessment History

Actual Value (2024) $576

Primary Taxable $192

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Agriculture Land	$576	$192	160.000	6969600.000	1.000

Transfers

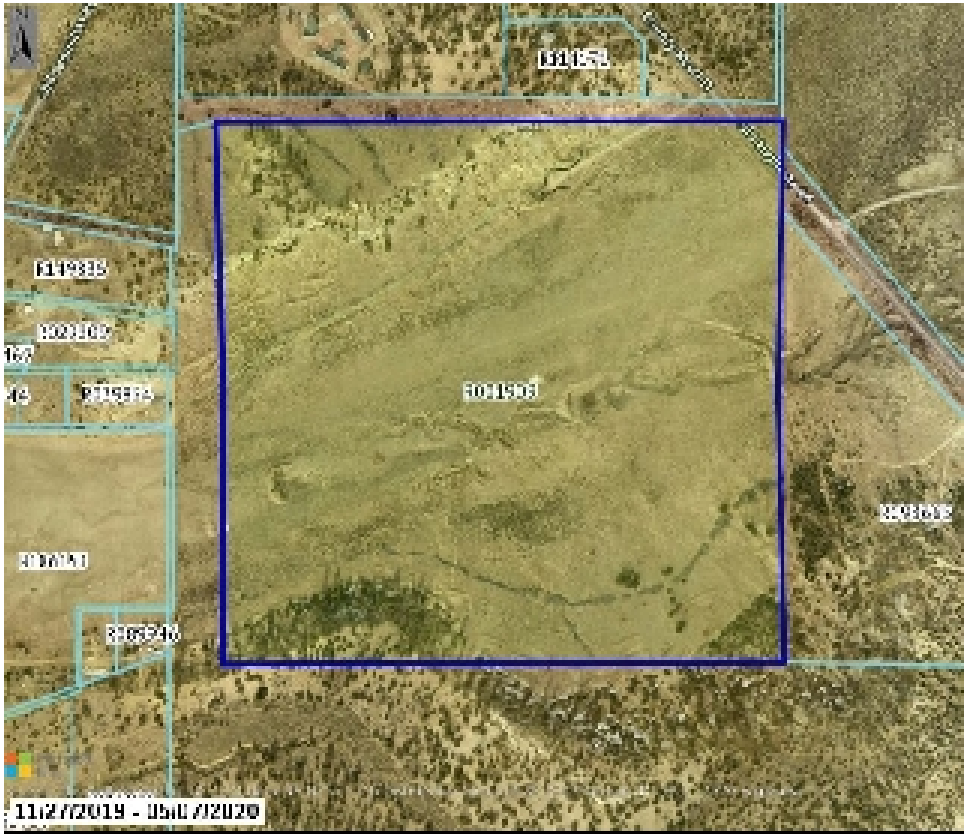
No Transfer Documents

Images

- Photo
- GIS

Tax Year	Taxes
*2024	$4.76
2023	$5.36

* Estimated


11/2/2019 - 05/0/2020

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Account: R040178

Location

Parcel Number 2-004-120-220-383

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 4 T: 20N R: 1W Subd: LANDS OF RAMIREZ A E AND R H AND L E Tract: 1

Owner Information

Owner Name MORALES, ANTHONY G & LINDA K

Owner Address P.O. BOX 65
LA JARA, NM 87027-0065
UNITED STATES OF AMERICA

Assessment History

Actual Value (2024) $167

Primary Taxable $56

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Agriculture Land	$167	$56	46.270	2015521.200	1.000

Transfers

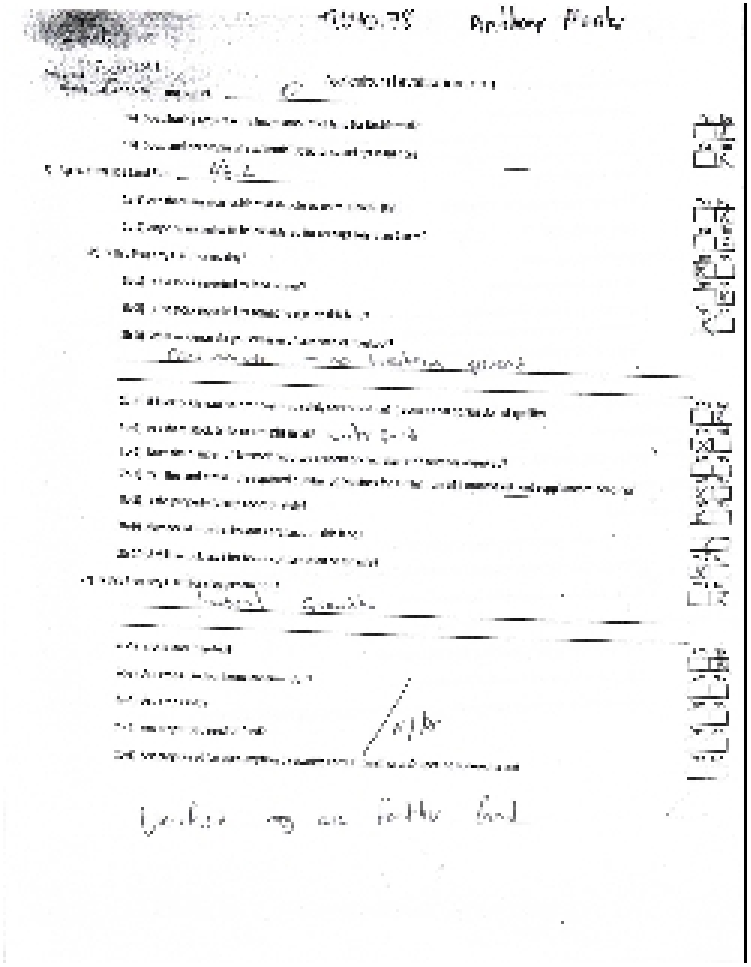
Sale Date	Doc Description
	TRANSFER ON DEATH DEED
	WARRANTY DEED
	REAL ESTATE CONTRACT
	WARRANTY DEED
	WARRANTY DEED
	PLAT

Tax Year	Taxes
*2024	$1.40
2023	$1.56

Images

- Photo
- GIS

* Estimated



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Account: R036247

<-Prev 36 of 256 Results Next->

Location

Parcel Number 2-005-120-054-138

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 4 T: 20N R: 1W S: 5 T: 20N R: 1W Subd: LANDS OF GREVEY LIBERMAN Lot: A

Owner Information

Owner Name MENEFEE MINING CORPORATION

Owner Address 8144 WALNUT HILL LN STE 987 DALLAS, TX 75231-4466 UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $354,412

Primary Taxable $118,137

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$67,165	$22,388	228.454	9951456.240	1.000
Non-Residential Improvement	$287,247	$95,749		8707.000	2.000

Transfers

Sale Date	Doc Description
	SPECIAL WARRANTY DEED
	SPECIAL WARRANTY DEED
	WARRANTY DEED
	PARTIAL ASSIGNMENT SELLERS
	CONTRACT
	PLAT

PLAT

SPECIAL WARRANTY DEED

MISCELLANEOUS

MISCELLANEOUS

MISCELLANEOUS

MISCELLANEOUS

Tax Year	Taxes
*2024	$2,916.92
2023	$3,293.20

* Estimated

Images

- Photo
- Sketch
- GIS

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Account: R093665

Location

Parcel Number 2-005-119-200-447

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 8 T: 20N R: 1W Subd: LANDS OF GREVEY LIBERMAN Lot: B

Owner Information

Owner Name LYNCH ENTERPRISES LLC

Owner Address PO BOX 2061 CUBA, NM 87013-2061 UNITED STATES OF AMERICA

Assessment History

Actual Value (2024) $45,954

Primary Taxable $15,318

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Non-Residential Land	$45,954	$15,318	45.680	1989820.800	1.000

Transfers

Sale Date	Doc Description
09/01/2017	WARRANTY DEED
	QUIT CLAIM DEED
	AFFIDAVIT OF HEIRSHIP
	AFFIDAVIT OF DEATH
	REVOCATION TRANSFER ON DEATH
	TRANSFER ON DEATH DEED
	WARRANTY DEED
	PLAT

Tax Year	Taxes

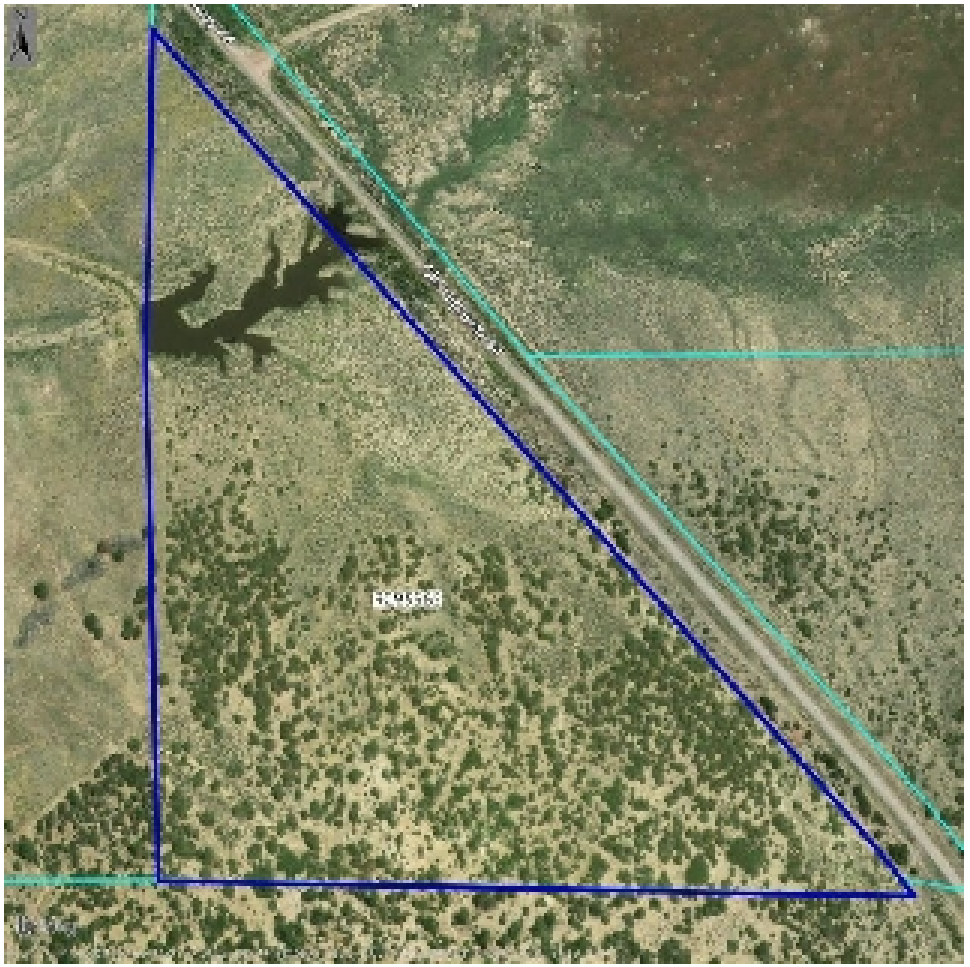
Images

- Photo

*2024	$378.20	
2023	$427.00	

* Estimated

- GIS



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Account: R093666

<-Prev 132 of 256 Results Next->

Location

Parcel Number 2-004-119-400-471

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 9 T: 20N R: 1W Subd: LANDS OF GREVEY LIBERMAN Lot: C

Owner Information

Owner Name MENFEE MINING CORPORATION

Owner Address 8144 WALNUT HILL LANE STE 1075 DALLAS, TX 75231-4343 UNITED STATES OF AMERICA

Assessment History

Actual Value (2022) $121,500

Primary Taxable $40,500

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Agriculture Land	$121,500	$40,500	113.023	4923281.880	1.000

Transfers

Sale Date	Doc Description
	SPECIAL WARRANTY DEED
	SPECIAL WARRANTY DEED
	CONTRACT
	PLAT

Images

- GIS

Tax Year	Taxes
*2024	$1,000.00
2023	$1,128.96

* Estimated

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Account: R093667

<-Prev 133 of 256 Results Next->

Location

Parcel Number 2-004-120-331-129

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 4 T: 20N R: 1W Subd: LANDS OF GREVEY LIBERMAN Lot: D

Owner Information

Owner Name MENFEE MINING CORPORATION

Owner Address 8144 WALNUT HILL LANE STE 1075 DALLAS, TX 75231-4343 UNITED STATES OF AMERICA

Assessment History

Actual Value (2018) $54,243

Primary Taxable $18,081

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Agriculture Land	$54,243	$18,081	80.360	3500481.600	1.000

Transfers

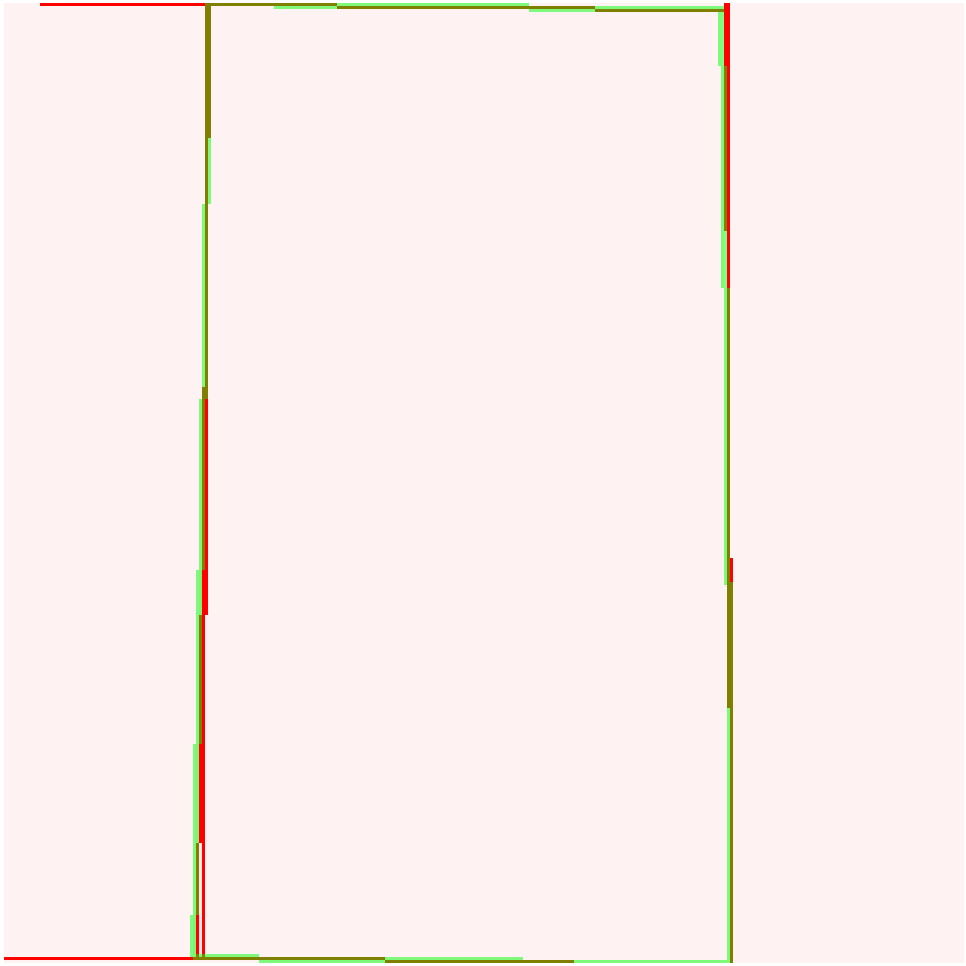
Sale Date	Doc Description
	SPECIAL WARRANTY DEED
	SPECIAL WARRANTY DEED
	CONTRACT
	PLAT

Images

- GIS

Tax Year	Taxes
*2024	$446.44
2023	$504.04

* Estimated



This page can be printed using your internet browser or by CTL + P
Account: R094294

Location

Parcel Number 2-005-120-066-462

Tax Area 805WH_NR - 805WH_NR

Situs Address

Legal Summary Legal: S: 4 T: 20N R: 01W Subd: SECT-TWNSHP-RNGE SECT: 4 TWNSHP: 20N RANGE: 01W PG: 0 S1/2 NW1/4 OF SEC 4 SE1/4 NE1/4 & LOT 1 OF SEC 5 TOTAL ACS 148.88 (FENTON PLACE / LE DESMA)

Owner Information

Owner Name HERNANDEZ, JOHN SEBASTIAN

Owner Address 2469 CORRALES RD STE A5 CORRALES, NM 87048-9104 UNITED STATES OF AMERICA

Assessment History

Actual Value (2024) $536

Primary Taxable $179

Tax Area: 805WH_NR **Mill Levy**: 24.691

Type	Actual	Assessed	Acres	SQFT	Units
Agriculture Land	$536	$179	148.880	6485212.800	1.000

Transfers

Sale Date	Doc Description
09/14/2021	DEATH CERTIFICATE
	QUIT CLAIM DEED
	DEED
	QUIT CLAIM DEED

Tax Year	Taxes

Images

- Photo

*2024	$4.40	• GIS
2023	$5.00	

* Estimated

7022 3330 0001 7203 7712

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PUBLIC SERVICE ANNOUNCEMENT

Menefee Mining Corporation announces its application submittal to the New Mexico Environment Department for a permit revision application for Air Quality Permit #3426. The revised permit is for the Menefee – Cuba Facility which processes humate material into several products. The expected date of application submittal to the Air Quality Bureau is October 18, 2024.

The address for the facility known as, Menefee – Cuba Facility, is 36 Duke City Road, Cuba, NM. The approximate location of this facility is 1.9 miles south-southeast of Cuba in Sandoval county.

The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

Public notices have been posted in the following locations for review by the public:

1. At City Hall at 16B Cordova Ave, Cuba, NM;
2. At US Post Office at 6358 Main St, Cuba, NM;
3. At and Mickey's Save-Way Market at 6392-B US-550, Cuba, NM;
4. At the main entrance to Menefee – Cuba Facility at 36 Duke City Road, Cuba, NM.

The owner and/or operator of the Facility is:

Menefee Mining Corporation
8144 Walnut Hill Lane, Suite 987
Dallas, TX 75231

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
Telephone Number (505) 476-4300 or 1 800 224-7009

Submittal of Public Service Announcement – Certification

I, Paul Wade, the undersigned, certify that on 10/08/2024, submitted a public service announcement to KISS Radio that serves the Village of Cuba, Sandoval County, New Mexico, in which the source is or is proposed to be located and that KISS Radio DID NOT RESPOND THAT IT WOULD AIR THE ANNOUNCEMENT.

Signed this 8 day of October, 2024.

Paul Wade
Signature

10/8/2024
Date

Paul Wade
Printed Name

Air Quality Consultant – Montrose Environmental Solutions, Inc.
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

October 8, 2024

KISS Radio
212 West Apache Street
Farmington, NM 87401

CERTIFIED MAIL

Dear KISS Radio:

SUBJECT: PSA Request - Proposed Air Quality Construction Permit #3426 Revision Application for Menefee Mining Corporation's Menefee – Cuba Facility at 36 Duke City Road, Cuba, NM.

Attached is a copy of a public service announcement regarding a proposed air quality construction permit revision application for Menefee Mining Corporation's Menefee – Cuba Facility. This announcement is being submitted by Montrose Environmental Solutions, Inc., Albuquerque, NM on behalf of Menefee Mining Corporation.

The announcement request is being made to fulfill the requirements of the New Mexico Environmental Department air quality permitting regulations. Please consider reading the attached announcement as a public service message.

If you have any questions or need additional information, please contact me at (505) 830-9680 ext 6 (voice), (505) 830-9678 (fax) or email at pwade@montrose-env.com.

Thank you.

Sincerely,

Paul Wade

Paul Wade
Principal/Senior Associate Engineer

Montrose Environmental Solutions, Inc.
9100 2nd St., Suite 200
Albuquerque, NM 87114-1664

T: 505.830.9680 ext. 6
F: 505.830.9678
Pwade@montrose-env.com
www.montrose-env.com

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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.

The Menefee – Cuba Facility accepts raw humate material to the run of mine storage pile (Unit 1) currently mined from the Star Lake mine located approximately 50 miles away. The run of mine humate material is loaded to the "green" Terex PowerScreen Turbo Chieftain Standard through a feeder (Unit 2) and feeder conveyor (Unit 3) to the 2-deck screen (Unit 4). From the screen the material is dropped to one of three screen conveyors (Units 5, 6, 7) to oversize pile, granular humate fines pile, or granular humate product pile stacker drops (Unit 8). Oversized material is sent back to the green or blue screening plant. Granular humate fines are sent to the blue screening plant or the granular humate fines storage pile (Unit 9). Granular humate product material is sent to the gray or orange screens or to the product storage pile (Unit 9).

The green screen oversize and granular humate fines material are then screened through the "blue" Terex PowerScreen Chieftain Standard through a feeder (Unit 11) and feeder conveyor (Unit 12) to the 2-deck screen (Unit 13). From the screen the material is dropped to one of three screen conveyors (Units 14, 15, 16) to oversize pile, granular humate fines pile, or granular humate product pile stacker drops (Unit 17). Rejected oversize material is recycled back to the green and blue screens until all of the granular humate material is extracted or sent to the return material pile (Unit 54). Product material is stored in covered storage (Unit 18) or is fed directly into the one of two ("gray or orange") bagging screen systems. Fine material is stored in covered storage (Unit 18) or is fed directly into the "red" bagging screen system.

Granular humate fine material from the stored product area (Unit 18) or obtained from either the green, blue, gray or orange screen fine stacker piles are fed to the "red" screen through a feeder (Unit 20) and feeder conveyor (Unit 21) to the 2-deck screen (Unit 22). The red screen removes any clumps or foreign material and the small remaining amount of granular humate fine material that was not completely removed in the other screens, and the material is dropped to one of two screen conveyors (Units 23, 24) to oversize pile (Unit 27) or granular humate fines pile (Unit 26), or to the granular humate product conveyor to bagging hopper (Unit 28). The bagging hopper diverts the product to either the granular humate sewn bagging machines, or to the bulk loading into tote bags. The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Some of the granular humate fine material from the red screen is loaded directly tote bags for use in the soluble humic acid micronutrient process. Oversize material is sent to the return pile (Unit 54). The piles are initially watered or rain/snow moistens the piles and they crust over.

Granulated product material from the stored product area or obtained from either the green or blue screen product stacker pile is fed to either the gray or orange screen feeder (Units 30 or 40). From the feeder the material to conveyed (Units 31 or 41) to the screen (Units 32 or 42). The gray or orange bagging screen removes any clumps or foreign material and the small remaining amount of granular humate fine material that was not completely removed in either the green or blue screens, and conveys (Units 35 or 45) the remaining granular humate product to a granular humate product bagging hopper (Units 38 or 48). The hopper diverts the product to either the granular humate sewn bagging machines, or to the bulk loading into tote bags (Units 39 and 49). The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Excess granular humate fines are conveyed (Units 34 or 44) to the

granular humate fines storage pile (Units 36 or 46) then loaded into the red screen and used up oversize materials are conveyed (Units 33 or 43) to the oversize pile (Unit 37 or 47) then moved into outside return storage piles (Unit 54). The piles are initially watered or rain/snow moistens the piles and they crust over.

The soluble product process uses the fine material stored in tote bags from the red screen (Unit 26), and is loaded into a wet leaching process that concentrates the various humic acids. The concentrated solution is then run through a dryer (Unit 50) where the remaining water is driven away and the remaining soluble product is captured in a product cyclone (Unit 50). The collected product from the cyclone is piped into 55 gallon drums and hand loaded into smaller consumer containers.

Section 11

Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

X Yes ☐ **No**

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

X Yes ☐ **No**

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

X Yes ☐ **No**

C. Make a determination:

X The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

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:

- **X** **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

B. **This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories.**

a. **NOx: 6.07 TPY**
b. **CO: 2.46 TPY**
c. **VOC: 0.38 TPY**
d. **SOx: 0.65 TPY**
e. **PM: 77.51 TPY**
f. **PM10: 44.40 TPY**
g. **PM2.5: 34.03 TPY**
h. **Fluorides: 0.0 TPY**
i. **Lead: 0.00011 TPY**
j. **Sulfur compounds (listed in Table 2): 0.0 TPY**
k. **GHG: 2065.5 TPY**

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/

Table for State Regulations:

State Regulation 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	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This facility is subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	10, 19, 50	Units 10, 19, and 50 is limited to opacity of 20% per 20.2.61.109 NMAC.
20.2.70 NMAC	Operating Permits	No		The facility does not have potential to emit (PTE) of 100 tpy or more of any regulated air pollutant other than HAPs; and/or a HAPs PTE of 10 tpy or more for a single HAP or 25 or more tpy for combined HAPs
20.2.71 NMAC	Operating Permit Fees	No		If subject to 20.2.70 NMAC and your permit includes numerical ton per year emission limits, you are subject to 20.2.71 NMAC and normally applies to the entire facility.
20.2.72 NMAC	Construction Permits	Yes	Facility	Menefee is applicable to “Construction Permit” 20.2.72 NMAC.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The facility is applicable to the Emissions Inventory Reporting per 20.2.73.300 NMAC since the facility is subject to 20.2.72.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		The facility is not a major PSD source
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation applies to this facility since Menefee is applying for a permit revision pursuant to 20.2.72 NMAC.
20.2.77 NMAC	New Source Performance	Yes	19	This is a stationary source which is subject to the requirements of 40 CFR Part 60, Subpart IIII.
20.2.78 NMAC	Emission Standards for HAPS	No	Units Subject to 40 CFR 61	This facility does not emit hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.80 NMAC	Stack Heights	No		No citation applicable.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	10, 19	This facility is potentially subject to the requirements of 40 CFR Part 63, Subpart ZZZZ.

Table for Applicable Federal Regulations:

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	Defined as applicable at 20.2.72, Any national ambient air quality standard
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	19	Subparts IIII in 40 CFR 60 apply to this facility.
NSPS 40 CFR 60, Subpart 000	Standards of Performance for Nonmetallic Mineral Processing Plants	No		The provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart. Menefee – Cuba Facility does not operate a crusher on site.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	19	If the plant is only located at the site for less than 12 months, the plant engine is defined by EPA as a “non-road” engine, and as such is not applicable to 40 CFR Part 60 Subpart IIII.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	Units Subject to 40 CFR 61	Applies if any other Subpart in 40 CFR 61 applies.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	10, 19	Applies if any other Subpart in 40 CFR 63 applies.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	10, 19	If the plant is only located at the site for less than 12 months, the plant engine is defined by EPA as a “non-road” engine, and as such is not applicable to 40 CFR Part 63 Subpart ZZZZ.

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.

Startups and Shutdowns

No controls are proposed for this facility with the exception of base course or watering on the plant unpaved haul truck roads. Menefee is committed to minimizing emissions. For material processing equipment at the Menefee Mining Cuba Humate Plant , Menefee will follow normal industry practices in minimizing emissions during startup, shutdown, and normal operations. Scheduled maintenance will occur during off production periods. No startup or shutdown emissions are proposed for this facility.

Malfunctions Operational Plan

During malfunctions, where excessive emissions are observed, the operator will complete successful repairs in a timely manner depending on replacement part availability.

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: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. 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.

No alternative scenario.

Section 16

Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	X
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.

☐ See attached, approved modeling **waiver for some** pollutants from the facility.

☒ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.

☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.

☐ No modeling is required.

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification

1	Name of facility:	Menefee - Cuba Facility
2	Name of company:	Menefee Mining Corporation
3	Current Permit number:	3426
4	Name of applicant's modeler:	Paul Wade
5	Phone number of modeler:	(505) 830-9689 x6
6	E-mail of modeler:	pwade@montrose-env.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes☒	No☐
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	The additional of new equipment (Blue Screen and Orange Screen) and increase in the annual hours of operation for both the screening process and dryer.		
4	What geodetic datum was used in the modeling?	NAD83	
5	How long will the facility be at this location?	Permanent	
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	03/26/1997	
	SO2	03/26/1997	
	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).		
	San Pedro Parks Wilderness Area – 9.0 km		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
11	Describe any special modeling requirements, such as streamline permit requirements.		
	None		

16-C: Modeling History of Facility

Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	Permit 3426	04/12/2011	Original Application
NO_2	Permit 3426	04/12/2011	Original Application
SO_2	Permit 3426	04/12/2011	Original Application
H_2S	None	NA	Not a source of pollutant
PM2.5	Permit 3426	04/12/2011	Original Application
PM10	Permit 3426	04/12/2011	Original Application
Lead	None	NA	Not a significant source of pollutant
Ozone (PSD only)	None	NA	Not a PSD Major Source
NM Toxic Air Pollutants (20.2.72.402 NMAC)	None	NA	Not a significant source of NM Toxic Air Pollutants

16-D: Modeling performed for this application

For each pollutant, indicate the modeling performed and submitted with this application.
Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
CO	☒	☐	☐	☐	☐

	NO_2	☒	☒	☐	☐	☐
	SO_2	☒	☐	☐	☐	☐
	H_2S	☐	☐	☐	☐	☐
	PM2.5	☒	☒	☐	☐	☐
	PM10	☒	☒	☐	☐	☐
	Lead	☐	☐	☐	☐	☐
	Ozone	☐	☐	☐	☐	☐
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☐

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.

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
None					

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes☒	No☐

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	09/24/2024

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

16-H: Building and structure downwash

1	How many buildings are present at the facility?	Building 1, 6 tiers: Building 2, 1 tier
2	How many above ground storage tanks are present at the facility?	None modeled

3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐
	All models run with building downwash		
4	Building comments	All models run with building downwash	

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.					
	Fencing exists around east, west, south property lines and fencing along the public access road, Duke City Rd, that runs from the west to northwest boundary.					
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
	Very Fine	Fence Following	50	0	500	
	Very Fine	Fence Following	100	500	1000	
	Fine	Fence Following	250	1000	2500	
	Fine	Fence Following	500	2500	5000	
	Course	Fence Following	1000	5000	50000	
5	Describe receptor spacing along the fence line.					
	25 meters					
6	Describe the PSD Class I area receptors.					
	100 meters spacing along Class I boundary; 500 meters spacing within Class I area.					

16-J: 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).

	For HMA Plant, they will limit model hours to the equivalent of 12 hours per day if operating at maximum to account for the requested permit daily production rate. For particulate modeling, 12 scenarios were run beginning with February - November months operating 12 hours starting at 12:00 AM to 12 PM. Scenario 2 modeling hours for February - November months two hours from 2 AM to 2 PM. This trend continues for all 12 scenarios. For December and January months, the operating hours will be 8 AM to 6 PM at maximum operating scenario. NO2 modeling was run for all hours of operation.		
2	Which scenario produces the highest concentrations? Why?		
	PM10 24 hour, PM2.5 24 hour, and PM2.5 annual – Scenario 1, operating early morning hours with low winds and low boundary layer		
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.) Sources: Screens – Units 1-49, Finish, Return Pile – Unit 54, RHR, and WHR; DRYER – Unit 50		

If hourly, variable emission rates were used that were not described above, describe them below.

For the Menefee – Cuba Facility, the following hours lists the maximum hours of operation.

Screen Production Hours of Operation (MST) Five days per week, Units 1-49, RHR (Unit 51), WHR (Unit 53), Unit 54

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	1	1	1	1	1	1	1	0	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	1	0
8:00 AM	0	0	1	1	1	1	1	1	1	1	1	0
9:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
10:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
11:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
12:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
1:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
2:00 PM	0	0	1	1	1	1	1	1	1	1	1	0
3:00 PM	0	0	1	1	1	1	1	1	1	1	1	0
4:00 PM	0	0	0	1	1	1	1	1	1	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	5	9	11	11	11	11	11	11	11	9	5

Dryer Production Hours of Operation (MST) Seven days per week, Unit 50

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
1:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
2:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
3:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
4:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
5:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
6:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
7:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
8:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
9:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
10:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
11:00 AM	1	1	1	1	0	0	0	0	0	0	1	1
12:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
1:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
2:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
3:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
4:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
5:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
6:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
7:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
8:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
9:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
10:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
11:00 PM	1	1	1	1	0	0	0	0	0	0	1	1
Total	24	24	24	24	0	0	0	0	0	0	24	24

The movement of product by product trucks are continuous throughput the year in the dispersion modeling analysis. Since the amount of material moved does not equal the maximum hourly emission rate throughout the year an hourly factor was included in the model for PM2.5 annual model. At maximum production this is equivalent to 4449 hour per year. Since the product haul road hours in the model is for 8760 hours per year the model hourly factor is 0.51 (4449/8760).

Product Truck (Model ID PHR) (Unit 52) Production Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
1:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
2:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
3:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
4:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
5:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51

6:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
7:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
8:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
9:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
10:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
11:00 AM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
12:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
1:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
2:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
3:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
4:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
5:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
6:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
7:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
8:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
9:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
10:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
11:00 PM	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51

The Menefee – Cuba Facility will limit production to the following daily production throughputs

Month	Dryer Pounds Per Day	Material Screens Cubic Yards Per Day
January	5500	96
February	5500	96
March	5500	480
April	0	480
May	0	480
June	0	480
July	0	480
August	0	480
September	0	480
October	0	480
November	5500	480
December	5500	96

Because the daily throughput is less than the daily hours of operation running at maximum hourly production rate is less than the total hours of operation, three (3) PM modeling scenarios will be performed for each averaging period. For each scenario the hours of operation are shifted by two hours or less.

HMA Model Scenario Time Segments

		Model Scenario	**Time Segments 8-Hour Blocks Screen Plant March and November**	**Time Segments 8-Hour Blocks Screen Plant April - October**	**Time Segments 1.6-Hour Blocks Screen Plant December - February**	**Time Segments 24-Hour Blocks Dryer November - March**
		1	7 AM to 3 PM	6 AM to 2 PM	9 AM to 11 AM	12 AM to 12 AM
		2	7 AM to 3 PM	6 AM to 2 PM	11 AM to 1 PM	12 AM to 12 AM
		3	8 AM to 4 PM	9 AM to 7 PM	1 PM to 3 PM	12 AM to 12 AM
6	Were different emission rates used for short-term and annual modeling? If so describe below.			Yes☐	No☒	

16-K: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	Both ROI and Cumulative analysis were run using ARM2	
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☐
4	Describe the design value used for each averaging period modeled.	
	1-hour: High eighth high Annual Highest Annual Average of Three Years:	

16-L: Ozone Analysis

1	NMED has performed a generic analysis that demonstrates sources that are minor with respect to PSD do not cause or contribute to any violations of ozone NAAQS. The analysis follows. The basis of the ozone SIL is documented in *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, EPA, April 17, 2018 and associated documents. NMED accepts this SIL basis and incorporates it into this permit record by reference. Complete documentation of the ozone concentration analysis using MERPS is included in the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines.
2	The MERP values presented in Table 10 and Table 11 of the NM AQB Modeling Guidelines that produce the highest concentrations indicate that facilities emitting no more than 250 tons/year of NO_X and no more than 250 tons/year of VOCs will cause less formation of O_3 than the O_3 significance level.

$$[O_3]_{8-hour} = \left(\frac{250 \frac{ton}{yr}}{340_{MERP_{NOX}}} + \frac{250 \frac{ton}{yr}}{4679_{MERP_{VOC}}} \right) \times 1.96\ \mu g/m^3$$

=1.546 µg/m^3, which is below the significance level of 1.96 µg/m^3.

Sources that produce ozone concentrations below the ozone SIL do not cause or contribute to air contaminant levels exceeding the ozone NAAQS.

3	Does the facility emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs? Sources that emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs are covered by the analysis above and require an individual analysis.	Yes☐	No☒

5 For new PSD Major Sources or PSD major modifications, if MERPs were used to account for ozone fill out the information below. If another method was used describe below.

NO_X (ton/yr)	$MERP_{NOX}$	VOCs (ton/yr)	$MERP_{VOC}$	$[O_3]_{8\text{-hour}}$

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.

Road Vehicle Fugitive Dust Deposition Parameters

Particle Size Category (µm)	Mass Mean Particle Diameter (µm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 – 2.5	1.57	25.0	2.5
2.5 – 10	6.91	75.0	2.5

Based on NMED Model Guideline – June 2024 (Vehicle Fugitive)

Combustion Source Deposition Parameters

Particle Size Category (µm)	Mass Mean Particle Diameter (µm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 - 2.5	1.57	100.0	1.5

Based on NMED Model Guideline – June 2024 (Combustion)

Dryer Stack Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm³)
PM10			
0 - 2.5	1.57	25.0	1.05
2.5 – 10	6.91	75.0	1.05

Based on NMED Model Guideline – June 2024 (Lime Silo) + Menefee Humate Density.

Material Handling (Fugitive) Dust Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm³)
PM10			
0 - 2.5	1.57	7.8	1.05
2.5 – 5	3.88	27.0	1.05
5 – 10	7.77	65.2	1.05

Based on NMED Model Guideline – June 2024 (Coal Handling) + Menefee Humite Density

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.

Pollutant	NO_X	SO_2		$[PM2.5]_{24\text{-hour}}$
$MERP_{annual}$	130260	53898		0.00025
$MERP_{24\text{-hour}}$	42498	9753		$[PM2.5]_{annual}$
Emission rate (ton/yr)	6.1	0.65		0.000012

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.

Not a portable source

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.

NA

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
8 – Stacker Conveyor Drop Points (3)	8a, 8b, 8c
17 – Stacker Conveyor Drop Points (3)	17a, 17b, 17c
26 – Stacker Conveyor Drop Points (2)	26a, 26b
36 – Stacker Conveyor Drop Points (2)	36a, 36b
46 – Stacker Conveyor Drop Points (2)	46a, 46b
Units 9 and 18 – Finish Storage Pile	Finish
51 - Raw Material Haul Road	RHR_0001-0073
52 - Product Haul Road Traffic	PHR_0001-0007
53 - Return Material Haul Road Traffic	WHR_0001-0073

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☒

3

Hourly model emission rates for material handling sources (Emissions calculated using AP-42 Section 13.2.4) are calculated using annual average windspeed for Moriarty.

4

Permit ID	Model ID	Source Description	Permit Emission Rate PM10 Lb/Hr	Permit Emission Rate PM2.5 Lb/Hr	Modeled Emission Rate PM10 Lb/Hr	Modeled Emission Rate PM2.5 Lb/Hr
1	1	Raw Material Storage Pile	0.16435	0.02489	0.10864	0.01645
2	2	Green Screen Grizzly Feeder	0.16435	0.02489	0.10864	0.01645
8	8	Stacker Conveyor Drop to Piles	0.16435	0.02489	0.10864	0.01645
9	Finish	Finish Storage Piles or Transfer to Screen	0.16435	0.02489	0.10864	0.01645
11	11	Blue Screen Grizzly Feeder	0.10683	0.01618	0.07061	0.01069
17	17	Stacker Conveyor Drop to Piles	0.10683	0.01618	0.07061	0.01069
18	Finish	Finish Storage Piles or Transfer to Screen	0.10683	0.01618	0.07061	0.01069
20	20	Red Screen Feeder	0.03460	0.00524	0.02287	0.00346
26	26	Fine Tote Loading	0.00519	0.00079	0.00343	0.00052
27	27	Stacker Drop - Return Material	0.00519	0.00079	0.00343	0.00052
28	28	Bagging Hopper Loading	0.00984	0.00149	0.00650	0.00098
29	29	Bag Tote	0.00984	0.00149	0.00650	0.00098
30	30	Gray Screen Feeder	0.06615	0.01002	0.04373	0.00662
36	36	Fine Tote Loading	0.00662	0.00100	0.00437	0.00066
37	37	Stacker Drop - Return Material	0.01654	0.00250	0.01093	0.00166
38	38	Bagging Hopper Loading	0.01746	0.00264	0.01154	0.00175
39	39	Bag Tote	0.01746	0.00264	0.01154	0.00175
40	40	Orange Screen Feeder	0.06615	0.01002	0.04373	0.00662
46	46	Fine Tote Loading	0.00662	0.00100	0.00437	0.00066
47	47	Stacker Drop - Return Material	0.01654	0.00250	0.01093	0.00166
48	48	Bagging Hopper Loading	0.01746	0.00264	0.01154	0.00175
49	49	Bag Tote	0.01746	0.00264	0.01154	0.00175
54	54	Return Material Storage Pile	0.03826	0.00579	0.02529	0.00383

Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒

Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
1			X	X
2			X	
3			X	
4			X	
5			X	
6			X	
7			X	
8			X	
9 (Finish)			X	X
10	X	X	X	X
11			X	X
12			X	X
13			X	X
14			X	X
15			X	X
16			X	X
17			X	X
18 (Finish)			X	X
19	X	X	X	X
20			X	
21			X	
22			X	
23			X	
24			X	
25			X	
26			X	
27			X	X
28			X	X
29			X	X
30			X	X
31			X	X
32			X	X
33			X	X
34			X	X
35			X	X
36			X	X
37			X	X
38			X	X
39			X	X
40			X	X
41			X	X
42			X	X
43			X	X
44			X	X

	45			X	X
	46			X	X
	47			X	X
	48			X	X
	49			X	X
	50	X	X	X	X
	51			X	X
	52			X	X
	53			X	X
	54			X	X

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	Units 11 through 18 and Unit 50 may have been operating prior to the NO2, SO2, and PM10 increment trigger date. Records are not readily available, so to be conservative theses sources were included in PSD Modeling.

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☐

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)
	NA			

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☐

2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.
	For storage piles the areapoly model inputs were based on a release height of 8 feet or a sigma-Z of 8ft*2/2.15 for Unit 1 (Raw material Storage Pile) and Unit 54 (Return Material Storage Pile). For the finish storage piles the areapoly model inputs were based on a release height of 5 feet or a sigma-Z of 5ft*2/2.15 for Units 9 and 18 (Finish Storage Pile; Model ID Finish). All others followed standard dimensions from Air Quality Bureau (AQB) Modeling Guidelines.
3	Describe how the volume sources are related to unit numbers. Or say they are the same.
	The same except Finish (Units 9 and 18)
4	Describe any open pits.
	NA
	Describe emission units included in each open pit.

5	
	NA

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: Del Norte High School (350010023)		
	NO_2: Chaco Culture National Historic Park (350450020)		
	PM2.5: Farmington Environment Department Office (350450019)		
	PM10: Shiprock Substation (350451005)		
	SO_2: Bloomfield(350450009)		
	Other:		
	Comments:		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	No☒

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used. Four Corners (Farmington)	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.		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
	Yes, for point sources only. For volume sources and areapoly sources, model was run in source selected flat terrain mode.		
2	What was the source of the terrain data?		
	USGS National Elevation Data (NED)		

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)
	Menefee_Combust_ROI	NO2, CO, SO2	ROI
	Menefee_PM_ROI_S1-3	PM10, PM2.5	ROI
	Menefee_NO2_CIA	NO2	Cumulative

	Menefee_PM10_24Hr_CIA_S1-3	PM10	Cumulative
	Menefee_PM25_24Hr_CIA_S1-3	PM2.5	Cumulative
	Menefee_PM25_Yr_CIA_S1-3	PM2.5	Cumulative
	Menefee_NO2_PSD	NO2	PSD Class I
	Menefee_PM10_PSD_S1-3	PM10	PSD Class I
	Menefee_PM25_24Hr_PSD_S1-3	PM2.5	PSD Class I
	Menefee_PM25_yr_PSD_S1-3	PM2.5	PSD Class I
	Menefee_SO2_PSD	SO2	PSD Class I

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.		
	Not a PSD Source		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	Not a PSD Source		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☒	No☐
	Secondary PM2.5 were calculated using Modeling Guideline MERPs		

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☒
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
CO 1hr	77.0	NA	NA	NA	NA	SIL – 2000	3.9	323671.0	3984482.0	2107.54
CO 8hr	9.6	NA	NA	NA	NA	SIL – 500	1.	323671.0	3984482.0	2107.54
NO2 1hr	56.8	NA	NA	8.3	65.1	188.0	34.6	323572.0	3984439.0	2102.76
NO2 Annual	0.69	NA	NA	NA	NA	SIL – 1.0	69.0	323529.0	3984421.0	2100.92
NO2 Yr Class 1	0.00043	NA	NA	NA	NA	SIL – 0.1	0.43	330132.7	3988734.4	2621.57
PM10 24hr	23.6	NA	NA	66.0	89.6	150.0	59.7	323550.5	3984430.0	2101.84
PM10 24hr Class 2	29.96	NA	NA	NA	29.96	30.0	99.87	323529.0	3984421.0	2100.92
PM10 Yr Class 2	5.3	NA	NA	NA	5.3	17.0	31.2	323529.0	3984421.0	2100.92
PM10 24hr Class 1	0.23	NA	NA	NA	NA	SIL – 0.3	76.7	330201.6	3992325.2	2794.85
PM10 Yr Class 1	0.0044	NA	NA	NA	NA	SIL – 0.2	2.2	330132.7	3988734.4	2621.57
PM2.5 24hr	8.13	NA	0.00025	11.77	19.9	35.0	56.9	323506.0	3984415.0	2100.05

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)
PM2.5 Yr	1.8	NA	0.000012	4.19	6.0	9.0	66.7	323506.0	3984415.0	2100.05
PM2.5 24hr Class 2	2.2	NA	0.00025	NA	2.2	9.0	24.4	323550.5	3984430.0	2101.84
PM2.5 Yr Class 2	0.37	NA	0.000012	NA	0.37	4.0	9.3	323550.5	3984430.0	2101.84
PM2.5 24hr Class 1	0.0067	NA	NA	NA	NA	SIL – 0.27	2.5	330203.4	3992400.7	2766.02
PM2.5 Yr Class 1	0.00012	NA	NA	NA	NA	SIL – 0.05	0.24	330132.7	3988734.4	2621.57
SO2 1hr	3.8	NA	NA	NA	NA	SIL – 7.8	48.7	323671.0	3984482.0	2107.54
SO2 3hr	1.5	NA	NA	NA	NA	SIL – 25.0	6.0	323611.6	3984456.2	2104.90
SO2 24hr	0.44	NA	NA	NA	NA	SIL – 5.0	8.8	323591.8	3984447.6	2103.83
SO2 Annual	0.031	NA	NA	NA	NA	SIL – 1.0	3.1	323506.0	3984415.0	2100.05
SO2 3hr Class 1	0.018	NA	NA	NA	NA	SIL – 1.0	1.8	330201.6	3992325.2	2794.85
SO2 24hr Class 1	0.0022	NA	NA	NA	NA	SIL – 0.2	1.1	330201.6	3992325.2	2794.85
SO2 Yr Class 1	0.00005	NA	NA	NA	NA	SIL – 0.1	0.05	330132.7	3988734.4	2621.57

16-X: Summary/conclusions

	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	Dispersion modeling was performed for the Revision of Permit 3426 application. All facility pollutants with ambient air quality standards and PSD Increment standards were modeled to show compliance with those standards. All results of this modeling showed the facility in compliance with applicable ambient air quality standards.

DISPERSION MODEL PROTOCOL
MENEFEE – CUBA FACILITY
PERMIT REVISION APPLICATION

Cuba, New Mexico

PREPARED FOR

Menefee Mining Corporation

Dated September 19, 2024

Prepared by

Montrose Environmental Solutions, Inc.

MONTROSE
ENVIRONMENTAL

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1.0 INTRODUCTION

This dispersion modeling analysis will be conducted by Montrose Environmental Solutions, Inc. (Montrose) on behalf of Menefee Mining Corporation. (Menefee), to evaluate ambient air quality impacts for the Menefee – Cuba Facility located 1.9 miles south-southeast of Cuba, NM. Menefee is applying for a 20.2.72.200.A.2 NMAC revision to Permit 3426 to add additional equipment and increase production. The UTM coordinates of the Menefee – Cuba Facility is; 323,690 meters E, 3,984,370 meters N, Zone 13, NAD 83.

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), Version 23123. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. The objective of this evaluation is to determine whether ambient air concentrations from the maximum operation of the facility for nitrogen dioxide, (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter; both 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQS) found in 40 CFR part 50 and the state of New Mexico's air quality regulation 20.2.3 NMAC from Menefee emission sources. Since Menefee – Cuba Facility is a minor source for NSR permitting and is located in AQCR Region 152, where the minor source baseline date has been triggered for NO_2 (03/26/1997), SO_2 (03/26/1997), PM_{10} (03/26/1997) and $PM_{2.5}$ (02/11/2013), a PSD Class II Increment analysis will be performed. The nearest Class I area, San Pedro Parks Wilderness Area, is located 9.0 km from the site, so PSD Class I Increment analysis will be performed.

Figure 1 below shows the location of the site with modeling boundary and plant location. The modeling boundary is created using fencing on the north, south and east sides and fencing along the public access road, Duke City Rd, that runs from the west to northwest boundary.

Menefee – Cuba Facility material handling equipment, stockpiles, and haul roads will be input into the model as volume sources. Stack sources; soluble product dryer and PowerScreen Chieftain generators/engines will be input into the model as point sources. Model input parameters for feeders, screens, and transfer points will follow the NMED model guidelines Table 41. Model input parameters for haul roads will follow the NMED model guidelines Tables 42 and 43. Model input parameters for storage piles will be based on site conditions and AERMOD areapoly source methodologies.

The following limits will be requested for this permit application and will be included in the dispersion modeling analysis:

1. The Menefee – Cuba Facility will limit daily throughput to the following;

Month	Dryer Pounds Per Day	Material Screens Cubic Yards Per Day
January	5500	96
February	5500	96
March	5500	480
April	0	480
May	0	480
June	0	480
July	0	480
August	0	480
September	0	480
October	0	480
November	5500	480
December	5500	96

2. Daily operating hours for the Dryer will be 24 hours per day for the months of November through March. Daily operating hours for the Material Screens for the months of April through October will be 11 hours per day from 6 AM to 5 PM. Daily operating hours for the Material Screens for the months of March and November will be 10 hours per day from 7 AM to 5 PM. Daily operating hours for the Material Screens for the months of December through February will be 9 hours per day from 9 AM to 5 PM.

1.1 FACILITY DESCRIPTION

The Menefee – Cuba Facility accepts raw humate material currently mined from the Star Lake mine located approximately 50 miles away. The run of mine material is screened through the green PowerScreen Chieftain Standard screen to produce a granular humate product or granular humate fine. The green screen oversize and fines material are then screened through the blue PowerScreen Chieftain Standard screen to produce a granular humate product or granular humate fine. Rejected oversize material is recycled back to the green and blue screens until all of the granular material is extracted. Product material is stored in covered storage or is fed directly into the one of two (gray or orange) bagging screen systems. Fine material is stored in covered storage or is fed directly into the red bagging screen system. Some of the fine material from the red screen is loaded directly tote bags for use in the soluble humic acid micronutrient process.

Granulated product material from the stored product area or obtained from either the green or blue screen product stacker pile is fed to either the gray or orange bagging screen hopper. The gray or

orange bagging screen removes any clumps or foreign material and the small remaining amount of fine material that was not completely removed in either the green or blue screens, and conveys the remaining product to a product hopper. The hopper diverts the product to either the granular sewn bagging machines, or to the bulk loading into tote bags. The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Excess fines are loaded into the red screen and used up oversize materials are moved into outside return storage piles. The piles are initially watered or rain/snow moistens the piles and they crust over.

Fine material from the stored product area or obtained from either the green, blue, gray or orange screen fine stacker piles are fed to the red bagging screen hopper. The red bagging screen removes any clumps or foreign material and the small remaining amount of fine material that was not completely removed in the other screens, and conveys the remaining product to a bagging hopper. The hopper diverts the product to either the granular sewn bagging machines, or to the bulk loading into tote bags. The majority of product is loaded into the sewn bagging machines. The sewn or tote bags are stored in the storage building for later shipment to customers. Excess fines are loaded into totes for the soluble humic acid micronutrient process and used up oversize materials are moved into outside return storage piles. The piles are initially watered or rain/snow moistens the piles and they crust over.

The soluble product process uses the fine material stored in the tote bags, and this is loaded into a wet leaching process that concentrates the various humic acids. The concentrated solution is then run through a dryer where the remaining water is driven away and the remaining soluble product is captured in a product cyclone. The collected product from the cyclone is piped into 55 gallon drums and hand loaded into smaller consumer containers.

Since the daily hours of operation running at maximum hourly production rate is less than the total hours of operation due to daily throughput limits, four (4) PM modeling scenarios will be performed for each averaging period. For each scenario the hours of operation are shifted throughout the day. Table 1 list the hours of operation for each scenario.

TABLE 1: Model Scenario Time Segments

Model Scenario	Time Segments 8-Hour Blocks Screen Plant March and November	Time Segments 8-Hour Blocks Screen Plant April - October	Time Segments 1.6-Hour Blocks Screen Plant December - February	Time Segments 24-Hour Blocks Dryer November - March
1	7 AM to 3 PM	6 AM to 2 PM	9 AM to 11 AM	12 AM to 12 AM
2	7 AM to 3 PM	6 AM to 2 PM	11 AM to 1 PM	12 AM to 12 AM
3	9 AM to 5 PM	8 AM to 4 PM	1 PM to 3 PM	12 AM to 12 AM
4	9 AM to 5 PM	9 AM to 5 PM	3 PM to 5 PM	12 AM to 12 AM

1.2 FACILITY IDENTIFICATION AND LOCATION

Menefee – Cuba Facility located 1.9 miles south-southeast of Cuba, NM in Sandoval County. The UTM coordinates of the Menefee – Cuba Facility is; 323,690 meters E, 3,984,370 meters N, Zone 13, NAD 83 datum at an elevation of approximately 6,900 feet above mean sea level.

Figure 1 below presents an aerial view showing the surrounding area where the Menefee – Cuba Facility is located.

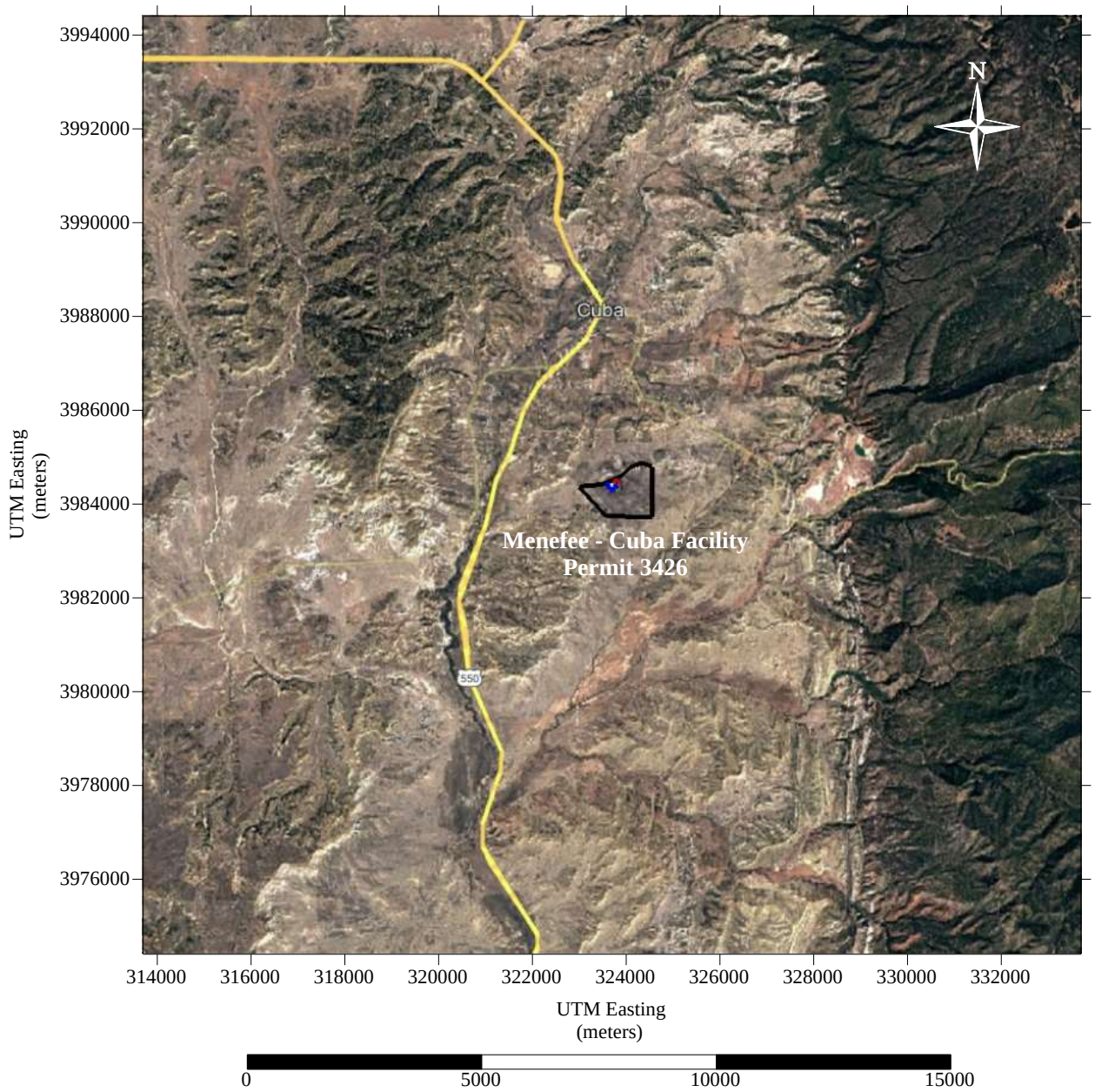

FIGURE 1: Menefee's Menefee - Cuba Facility Location Aerial View

Figure 2 below presents an aerial view showing the Menefee – Cuba Facility site layout.

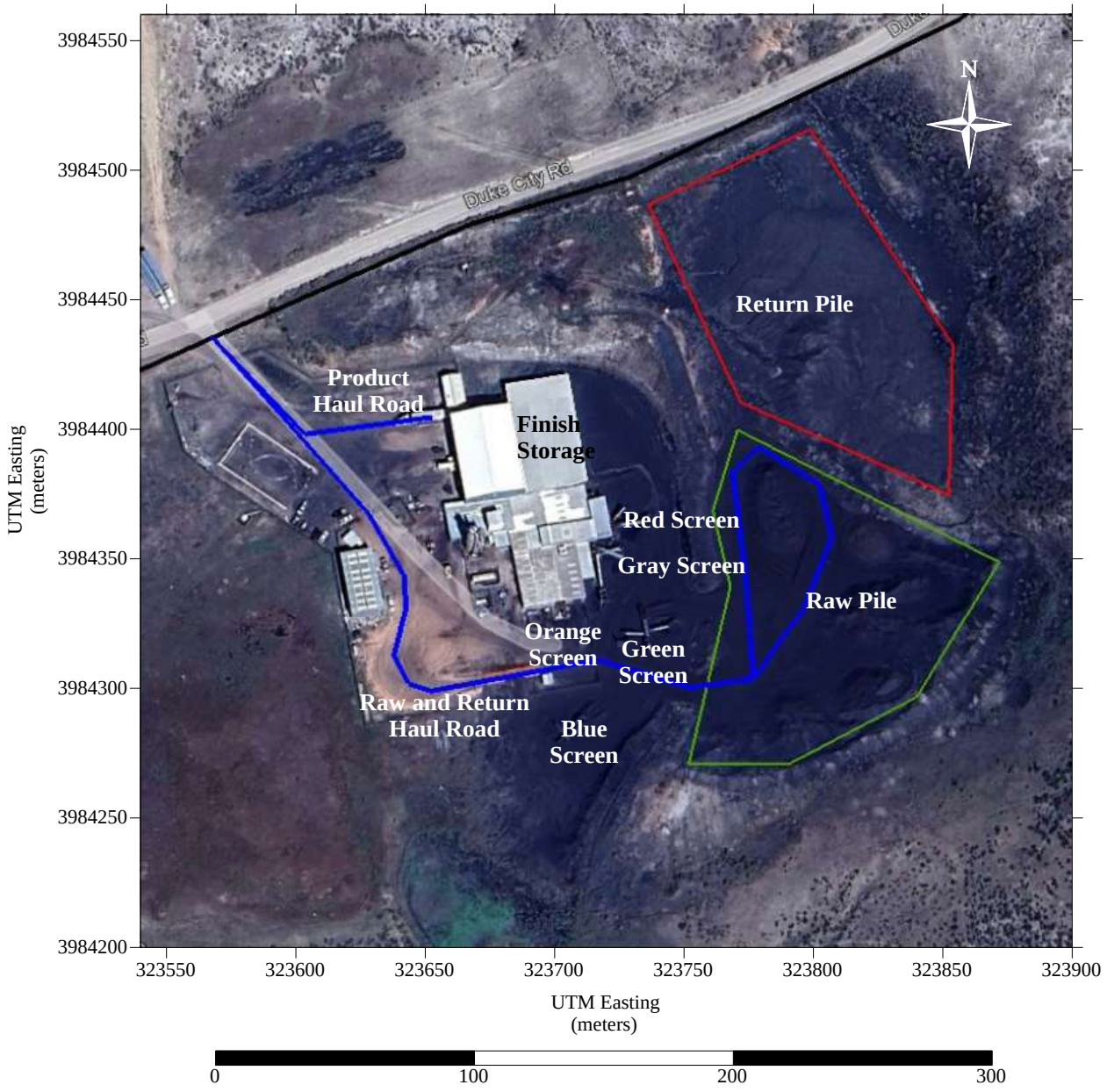

FIGURE 2: Menefee's Menefee - Cuba Facility Site Layout

2.0 SIGNIFICANT MODELING AIR QUALITY IMPACT ANALYSIS

This section identifies the technical approach and dispersion model inputs that will be used for the Class II federal and State ambient air quality standards and PSD Class I and II Increment analysis. NMED AQB requires that all applicable criteria pollutant emissions be modeled using the most recent versions of US EPA's approved models and be compared with National Ambient Air Quality Standards (NAAQS), and New Mexico Ambient Air Quality Standards (NMAAQS). Table 2 shows the NAAQS, NMAAQS and , PSD Class I and II Increment (without footnotes) that the source's ambient impacts must meet in order to demonstrate compliance. Table 2 also lists the Class I and II Significant Impact Levels (SILs) which are used to assess whether a source has a significant impact at downwind receptors. Table 3 lists all standards for which modeling is not required by NMED AQB.

The dispersion modeling analysis will be performed to estimate concentrations resulting from the operation of the Menefee – Cuba Facility using the maximum hourly emission rates while all allowed emission sources are operating. The modeling will determine maximum off-site concentrations for nitrogen dioxide, (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than 10 micrometers (PM_{10}) and particulate matter with aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$), for comparison with model significance levels, and national/New Mexico ambient air quality standards (AAQS). Menefee – Cuba Facility is located in AQCR Region 152, where the minor source baseline date has been triggered for NO_2, SO_2, PM_{10}, and $PM_{2.5}$ so PSD Class I and II Increment analysis will be performed. The modeling will follow the guidance and protocols outlined in the New Mexico Air Quality Bureau "Air Dispersion Modeling Guidelines" (Revised March 27, 2024) and the most up to date EPA's *Guideline on Air Quality Models*.

Initial modeling will be performed with Menefee – Cuba Facility sources only to determine pollutant and averaging periods that exceeds pollutant SILs. If initial modeling for any pollutant and averaging period exceeds the SILs, then cumulative impact analysis (CIA) modeling will be performed for those pollutants. The modeling will include the receptors with concentrations over the SIL, and pollutant averaging periods and significant neighboring sources along with background ambient concentrations as defined in the NMED's modeling guidelines. For the PSD Class I and II Increment analysis, Menefee – Cuba Facility sources and neighboring increment consuming source within 50 kilometers will be included.

TABLE 2: National and New Mexico Ambient Air Quality Standard Summary

Pollutant	Avg. Period	Sig. Lev. ($\mu g/m^3$)	Class I Sig. Lev. ($\mu g/m^3$)	NAAQS	NMAAQS	PSD Increment Class I	PSD Increment Class II
CO	8-hour	500		9,000 ppb(1)	8,700 ppb(2)		
	1-hour	2,000		35,000 ppb(1)	13,100 ppb(2)		
NO_2	annual	1.0	0.1	53 ppb(3)	50 ppb(2)	2.5 $\mu g/m^3$	25 $\mu g/m^3$
	24-hour	5.0			100 ppb(2)		
	1-hour	7.52		100 ppb(4)			
$PM_{2.5}$	annual	0.2	0.05	12 $\mu g/m^3$(5)		1 $\mu g/m^3$	4 $\mu g/m^3$
	24-hour	1.2	0.27	35 $\mu g/m^3$(6)		2 $\mu g/m^3$	9 $\mu g/m^3$
PM_{10}	annual	1.0	0.2			4 $\mu g/m^3$	17 $\mu g/m^3$
	24-hour	5.0	0.3	150 $\mu g/m^3$(7)		8 $\mu g/m^3$	30 $\mu g/m^3$
SO_2	annual	1.0	0.1		20 ppb(2)	2 $\mu g/m^3$	20 $\mu g/m^3$
	24-hour	5.0	0.2		100 ppb(2)	5 $\mu g/m^3$	91 $\mu g/m^3$
	3-hour	25.0	1.0	500 ppb(1)		25 $\mu g/m^3$	512 $\mu g/m^3$
	1-hour	7.8		75 ppb(8)			

Standards converted from ppb to $\mu g/m^3$ use a reference temperature of 25° C and a reference pressure of 760 millimeters of mercury.
(1) Not to be exceeded more than once each year.
(2) Not to be exceeded.
(3) Annual mean.
(4) 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
(5) Annual mean, averaged over 3 years.
(6) 98th percentile, averaged over 3 years.
(7) Not to be exceeded more than once per year on average over 3 years.
(8) 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

TABLE 3: Standards for Which Modeling Is Not Required by NMED AQB.

Standard not Modeled	Surrogate that Demonstrates Compliance
CO 8-hour NAAQS	CO 8-hour NMAAQS
CO 1-hour NAAQS	CO 1-hour NMAAQS
NO_2 annual NAAQS	NO_2 annual NMAAQS
NO_2 24-hour NMAAQS	NO_2 1-hour NAAQS
O_3 8-hour	Regional modeling
SO_2 annual NMAAQS	SO_2 1-hour NAAQS
SO_2 24-hour NMAAQS	SO_2 1-hour NAAQS
SO_2 3-hour NAAQS	SO_2 1-hour NAAQS

2.1 DISPERSION MODEL SELECTION

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), Version 23132. This model is recommended by EPA for determining Class I and II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD will be used to estimate pollutant ambient air concentrations of NO_2, CO, SO_2, PM_{10} and $PM_{2.5}$ from Menefee's Menefee - Cuba Facility emission sources and increment consuming concentrations for NO_2, SO_2, PM_{10} and $PM_{2.5}$.

AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principles for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD modeling system has three components: AERMAP, AERMET, and AERMOD. AERMAP is the terrain preprocessor program. AERMET is the meteorological data preprocessor. AERMOD includes the dispersion modeling algorithms and was developed to handle simple and complex terrain issues using improved algorithms. AERMOD uses the dividing streamline concept to address plume interactions with elevated terrain.

AERMOD will be run using all the regulatory default options including use of stack-tip downwash, buoyancy-induced dispersion, calms processing routines, upper-bound downwash concentrations for super-squat buildings, default wind speed profile exponents, vertical potential temperature gradients, no use of gradual plume rise, and horizontal release stacks. Alpha options include the use of flat terrain mode for fugitive ground release sources. The model incorporated local terrain into the calculations for point sources and neighboring sources only.

2.2 BUILDING WAKE EVALUATION

AERMOD can account for building downwash and cavity zone effects. Evaluation of building downwash on adjacent stack sources is deemed necessary, since most (if not all) of the stack source heights may be below Good Engineering Practice (GEP) heights. The formula for GEP height estimation is:

$$H_s = H_b + 1.50L_b$$

where: H_s = GEP stack height

H_b = building height

L_b = the lesser building dimension of the height, length, or width

The effects of aerodynamic downwash due to buildings and other structures will be accounted for by using wind direction-specific building parameters calculated by the USEPA-approved Building Parameter Input Program Prime (BPIP-Prime (*Version 04274*)) and the algorithms included in the AERMOD air dispersion model. All buildings at the site will be included in the dispersion

modeling analysis.

2.3 METEOROLOGICAL DATA

Dispersion model meteorological input file to be used in this modeling analysis is year 2017 - 21 Farmington met data available from the NMED AQB Modeling Section. This met set was recommended by NMED Modeling Section Staff Sahil Kassanjee.

2.4 RECEPTORS AND TOPOGRAPHY

For each pollutant, the radius of significant impact around the facility is established using a Cartesian grid. A 25-meter grid spacing is used for the facility boundary receptors. A 50-meter spacing and 100-meter spacing are extended to 500-meters and 1-km beyond the facility boundary, respectively from the facility boundary in each direction for a very fine grid resolution. Receptors for a fine grid resolution are placed with 250-meter spacing to a distance of 2.5-km from the facility boundary. Receptors for a course grid resolution are placed with 500-meter, and 1000-meter spacing to a distance of 5-km and 50-km, respectively from the facility boundary.

All model receptors will be preprocessed using the AERMAP software (*Version 18081*) associated with AERMOD. The AERMAP software establishes a base elevation and a height scale for each receptor location. The height scale is a measure of the receptor's location and base elevation and its relation to the terrain feature that has the greatest influence in dispersion for that receptor. AERMAP will be processed using U.S. Geological Survey (USGS) national elevation data (NED). Output from AERMAP will be used as input to the AERMOD runstream file for each model run. The AERMAP domain will be large enough to encompass the 10 percent slope factor required for calculating the controlling hill height.

2.5 MODELED EMISSION SOURCES INPUTS

Menefee - Cuba Facility will operate a maximum of 5 days per week, 52 weeks per year with the facility daily hours of operation discussed in Section 1.0.

2.5.1 Menefee - Cuba Facility Road Vehicle Traffic Model Inputs

The unpaved road fugitive dust for truck traffic is modeled as a line of volume sources. The AQB's approved procedure for Modeling Haul Roads was followed to develop modeling input parameters for unpaved haul roads. Volume source characterization followed the steps described in the Air Quality Bureau's Guidelines for Haul Roads (Section 5.3.3).

2.5.2 Menefee - Cuba Facility Material Handling Volume Source Model Inputs

Material handling and processing will follow the procedure found in AQB's Modeling Guidelines for Fugitive Equipment Sources (Section 5.3.2).

2.5.3 Menefee - Cuba Facility Material Handling Point Source Model Inputs

For exhaust from engines and dryer exhaust; the release height will be the height from the ground to the exhaust exit height, and the exhaust temperature, will be based on manufacture or testing information.

2.6 PARTICLE SIZE DISTRIBUTION

PM_{10} emissions may be modeled using plume deposition. Plume deposition simulates the effect of gravity as particles "fall-out" from the plume to the ground as the plume travels downwind. Therefore, the farther the plume travels from the emission point to the receptor, the greater the effect of plume deposition and the greater the decrease in modeled impacts or concentrations. Particle size distribution, particle mass fraction, and particle density are required inputs to the model to perform this function.

Particle size distribution for fugitive road dust on unpaved roads; dryer stack (lime silo) cyclone exhaust; material handling fugitive emissions; and combustion will use the particle size distribution found in the NMED Modeling Section approved values.

The mass-mean particle diameters were calculated using the formula:

$$d = ((d^3_1 + d^2_1 d_2 + d_1 d^2_2 + d^3_2) / 4)^{1/3}$$

Where: d = mass-mean particle diameter
d_1 = low end of particle size category range
d_2 = high end of particle size category range

Representative average particle densities were obtained from NMED accepted values for road dust and combustion emission, and Menefee density data for humate dust.

Material	Density (g/cm^3)	Reference
Road Dust	2.5	NMED Value
Combustion	1.5	NMED Value
Humate Dust	1.05	Menefee Value

The size distribution for PM_{10} emission sources are presented in Tables 4 - 7.

TABLE 4: Road Vehicle Fugitive Dust Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 – 2.5	1.57	25.0	2.5
2.5 – 10	6.91	75.0	2.5

Based on NMED Model Guideline – March 2024 (Vehicle Fugitive)

TABLE 5: Combustion Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 - 2.5	1.57	100.0	1.5

Based on NMED Model Guideline – March 2024 (Combustion)

TABLE 6: Dryer Stack Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 - 2.5	1.57	25.0	1.05
2.5 – 10	6.91	75.0	1.05

Based on NMED Model Guideline – March 2024 (Lime Silo) + Menefee Humate Density.

TABLE 7: Material Handling (Fugitive) Dust Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 - 2.5	1.57	7.8	1.05
2.5 – 5	3.88	27.0	1.05
5 – 10	7.77	65.2	1.05

Based on NMED Model Guideline – March 2024 (Coal Handling) + Menefee Humite Density

2.7 PM2.5 SECONDARY EMISSIONS MODELING

Particulate matter includes both "primary" PM, which is directly emitted into the air, and "secondary" PM, which forms in the atmosphere from chemical reactions involving primary gaseous emissions of precursor air contaminants. Primary PM consists of carbon (soot)—emitted from cars, trucks, heavy equipment, forest fires, and burning waste—and crustal material from unpaved roads, stone crushing, construction sites, and metallurgical operations. Secondary PM forms in the atmosphere from gases. Some of these reactions require sunlight and/or water vapor. Secondary PM includes:

- Sulfates formed from SO_2 emissions from power plants and industrial facilities;
- Nitrates formed from NO_X emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas (ROG or VOC) emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

AERMOD does not account for secondary formation of $PM_{2.5}$ for near-field modeling. Any secondary contribution of the Menefee source emissions is not explicitly accounted for in the model results. While representative background monitoring data for $PM_{2.5}$ should adequately account for secondary contribution from existing background sources, the Menefee assessment of their potential contribution to cumulative impacts as secondary $PM_{2.5}$ was performed based on guidance from the NMED Modeling Section and using prescribed equations. The permit application for Menefee - Cuba Facility emissions of precursors include:

- NO_X – 8.0 tons per year (below SER)
- SO_2 – <1.0 tons per year (below SER)
- Volatile Organic Compounds (VOC) – <1.0 tons per year (below SER)
- Particulate Matter with an aerodynamic diameter of 2.5 micron or less ($PM_{2.5}$) – 2.0 tons per year (below SER).

The $PM_{2.5}$ secondary emission concentration analysis will follow EPA and NMED AQB guidelines. Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, Menefee emissions are compared to appropriate western MERPs values (NO_X 24-Hr – 42498 tpy; NO_X Annual – 130260 tpy; SO_2 24-Hr – 9753 tpy; SO_2 Annual – 53898 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, will be added to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS.

$PM_{2.5}$ annual = ((NO_X emission rate (tpy)/130260 + (SO_2 emission rate (tpy)/53898)) x 0.2 $\mu g/m^3$

$PM_{2.5}$ annual = ((8.0/130260) + (1.0/53898)) x 0.2 µg/m^3 = **0.000016 µg/m^3**

$PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/42498 + (SO_2 emission rate (tpy)/9753)) x 1.2 µg/m^3

$PM_{2.5}$ 24 hour = ((8.0/42498) + (1.0/9753)) x 1.2 µg/m^3 = **0.00035 µg/m^3**

2.8 NO_2 DISPERSION MODELING ANALYSIS

The AERMOD model predicts ground-level concentrations of any generic pollutant without chemical transformations. Thus, the modeled NO_X emission rate will give ground-level modeled concentrations of NO_X. NAAQS values are presented as NO_2.

EPA has a three-tier approach to modeling NO_2 concentrations.

- Tier I – total conversion, or all NOx = NO_2
- Tier II –Ambient Ratio Method 2 (ARM2)
- Tier III – case-by-case detailed screening methods, such as OLM and Plume Volume Molar Ratio Method (PVMRM) and NO_2/NO_X in-stack ratio

Initial modeling will be performed using both Tier I and Tier II methodologies. If these modeling iterations demonstrate that less conservative methods for determining 1-hour and annual NO_2 compliance would be needed for this project, then ambient impact of 1-hour and annual NOx predicted by the model will use Tier III – OLM or PVMRM.

For OLM or PVMRM, three inputs can be selected in the model, the ISR, the NO_2/NO_X equilibrium ratio for the ambient air, and the ambient ozone concentration. The ISR will be determined for each source or group of sources. The NO_2/NO_X equilibrium ratio will be the EPA default of 0.90. Ozone input will be from monitored ozone data collected from an approved monitoring station.

Based on EPA's ISR databases, a proposed conservative NO_2/NO_X ISR ratio for Diesel-fired RICE is 0.15. For diesel-fired combustion dryer, the EPA ISR databases, a proposed conservative NO_2/NO_X ISR ratio for diesel-fired combustion is less than 0.20. For neighboring sources, since the ISR has a diminishing impact on ambient NO_2/NO_X ratios as a plume is transported farther downwind due to mixing and reaction towards background ambient NO_2/NO_X ratios, a default ISR of 0.30 based on the NMED Modeling Guidelines will be used. Table 8 summarizes the ISR selected for each NO_X source in the NO_2 1-hour modeling.

TABLE 8: Summary of Selected ISR

Source Description	Selected ISR
Soluble Product Dryer	0.20
Plant Generator/Engine (RICE)	0.15
Neighboring Sources	0.30

Model Ozone Data

For OLM or PVMRM, modeling of the project-generated 1-hour NO_2 concentrations requires use of ambient monitored ozone concentrations. This hourly ozone data used will be from monitoring station (Monitor ID 350450020) located at the Chaco Culture National Historical Park near Nageezi, NM.

2.9 SIGNIFICANT NEIGHBORING BACKGROUND SOURCES

For all Cumulative Impact Analysis (CIA) combustion emissions dispersion modeling (NO_X, CO, SO_2), will include all significant neighboring sources within 50 kilometers of the Menefee – Cuba Facility. PM CIA particulate dispersion modeling will include all significant neighboring sources within 10 kilometers of the Menefee - Cuba Facility and regional monitored background. These sources will be obtained from the Air Quality Bureau's database.

2.10 REGIONAL BACKGROUND CONCENTRATIONS

Ambient background concentrations represent the contribution of pollutant sources that are not included in the modeling analysis, including naturally occurring sources. If the modeled concentration of a criteria pollutant is above the modeling significance level, the background concentration for each criteria pollutant will be added to the maximum modeled concentration to calculate the total estimated pollutant concentration for comparison with the AAQS.

The ambient background concentrations are listed in the Air Quality Bureau Guidelines for NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. For CO and SO_2, Menefee is proposing using backgrounds for the generic "Rest of New Mexico". For PM_{10}, Menefee is proposing using backgrounds from the Shiprock Substation (Monitor ID 350451005). For $PM_{2.5}$, Menefee is proposing using backgrounds from the Farmington Environment Department Office (Monitor ID 350450019). For NO_2, Menefee is proposing using backgrounds from Chaco Culture National Historical Park (Monitor ID 350450020).

	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)
1 Hour			8.3	2148	3.5
8 Hour				1265	
24 Hour	11.77	66.0			
Annual	4.19		1.3		0.04

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
10, 50	Tested in accordance with EPA test method 9 for opacity and 20.2.61.109.	6/26/2024
10, 50	Tested in accordance with EPA test method 9 for opacity and 20.2.61.109.	8/28/2024

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.

None

Section 22: Certification

Company Name: Menefee Mining Corporation

I, Tyler Lown Vandenburg, 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 22 day of October, 2024, upon my oath or affirmation, before a notary of the State of Texas.

*Signature

10.22.24
Date

Tyler Lown Vandenburg
Printed Name

Vice President, Operations
Title

Scribed and sworn before me on this 22nd day of October, 2024.

My authorization as a notary of the State of Texas expires on the 23rd day of May, 2028.

Laura Lea Hern
Notary's Signature

October 22, 2024
Date

LAURA LEA HERN
Notary's Printed Name

LAURA LEA HERN
Notary Public, State of Texas
Comm. Expires 05-23-2028
Notary ID 124630621

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

Air Permit Application
Compliance History Disclosure Form

Pursuant to Subsection 74-2-7(S) of the New Mexico Air Quality Control Act ("AQCA"), NMSA §§ 74-2-1 to -17, the New Mexico Environment Department ("Department") may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant met any one of the criteria outlined below. In order for the Department to deem an air permit application administratively complete, or issue an air permit for those permits without an administrative completeness determination process, the applicant must complete this Compliance History Disclosure Form as specified in Subsection 74-2-7(P). An existing permit holder (permit issued prior to June 18, 2021) shall provide this Compliance History Disclosure Form to the Department upon request.

Permittee/Applicant Company Name		**Expected Application Submittal Date**
Menefee Mining Corporation		10/30/2024
Permittee/Company Contact	**Phone**	**Email**
Tyler Lown Vandenburg	214-750-4696	tyler.lown@menefeemining.com

Within the 10 years preceding the expected date of submittal of the application, has the permittee or applicant:		
1	Knowingly misrepresented a material fact in an application for a permit?	☐ Yes ☒ No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	☐ Yes ☒ No
3	Been convicted of a felony related to environmental crime in any court of any state or the United States?	☐ Yes ☒ No
4	Been convicted of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud in any court of any state or the United States?	☐ Yes ☒ No
5a	Constructed or operated any facility for which a permit was sought, including the current facility, without the required air quality permit(s) under 20.2.70 NMAC, 20.2.72 NMAC, 20.2.74 NMAC, 20.2.79 NMAC, or 20.2.84 NMAC?	☒ Yes ☐ No
5b	If "No" to question 5a, go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: a. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Department; or b. The operator of the facility estimated that the facility's emissions would not require an air permit, **and** the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	☒ Yes ☐ No
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	☐ Yes ☒ No
7	For each "yes" answer, please provide an explanation and documentation. *We applied for an air quality permit in 2006 and it was ruled incomplete. We then engaged the help of consultants to prepare a complete application to meet the state's air quality requirements.*	

October 30, 2024

New Mexico Environment Department
Air Quality Bureau
Permits Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87507-3313

Subject: Permit Revision Application for Menefee Mining Corporation's Cuba Facility Permit #3426

To Whom it May Concern:

Attached please find two (2) hardcopies of the 20.2.72 NMAC Permit Revision Application for Menefee Mining Corporation's Cuba Facility. Electronic files will be submitted to the bureau under a file share program. This letter is attached to the application copy that has the original notarized signature page (Section 22), along with an application submittal fee of $500.

Menefee Mining Corporation (Menefee) is applying for a revision to 20.2.72 NMAC Air Quality Permit #3426 for the Menefee – Cuba Facility operated within county of Sandoval, state of New Mexico. Regulation governing this permit revision application is 20.2.72.200.A(2) NMAC. The proposed revision to the Menefee – Cuba Facility includes the addition of a new initial processing screen, Terex PowerScreen Chieftain 2100X with 111 horsepower engine (Blue Screen), and two product bagging screens (Gray Screen and Orange Screen). Annual hours of operation will increase for screening materials from 2600 hours to 2860 hours. Annual hours of operation will increase for the dryer operations from 3120 hours to 3192 hours.

Please let me know if you have any questions or need additional information. If you have any questions regarding this significant permit revision application please call Paul Wade of Montrose Environmental Solutions, Inc. at (505) 830-9680 ext 6 or Tyler Lown Vandenburg of Menefee Mining Corporation at (214) 750-4696

Sincerely,

Paul Wade
Senior Associate Engineer
Montrose Environmental Solutions, Inc.

Cc: Tyler Lown Vandenburg, Menefee

Montrose Environmental Solutions, Inc.
9100 2nd Street NW, Suite 200
Albuquerque, NM 87114-1664

T: 505.830.9680 ext. 6
F: 505.830.9678
Pwade@montrose-env.com
www.montrose-env.com