Titan Lansing Transloading Minor Source Construction Permit Application

April 25, 2025

Non-Metallic Mineral & Aggregate Screening Plant

April 25, 2025

New Mexico Environment Department
Air Quality Bureau
Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505

Re: Application for Minor Source Construction Permit
Titan Lansing Transloading, LLC Carlsbad Facility
NOI #5226R2; AIRS No. 350150844

Dear Permit Writer:

Enclosed, please find a construction permit application for the Titan Lansing Transloading facility (Facility). The Facility is located approximately 27 miles NE of the Carlsbad, Eddy County, New Mexico.

The Facility is currently operating under New Mexico Environment Department's Notice of Intent (NOI) # 5226R2, dated March 19, 2025. The NOI covers our warehouse mineral aggregate activities and frac sand system (Manifest system). The Minor Source construction permit application is being submitted to add additional screening equipment and add a crushing line to the mineral aggregate handling system, as well as three 1-MW diesel-fired gensets.

The universal application (UA) being submitted in support of our request for a construction permit includes copies of UA1, UA2 (Tables), UA3, UA4, and the signed notarized Certification Page. The complete application submittal, including all calculations, are stored on the enclosed flash drive.

Should you have any questions or comments pertaining to this application, please call our environmental consultant, Ebenezer Sada of T&M associates at (614) 579-0021 or me at (913) 748-3018. Thank you in advance for your time and consideration of this permit application. We look forward to receiving your feedback and the written authorization that the permit has been approved.

Very truly yours,

Craig Dabovich
Project Manager- Fuels/Transload

Enclosures

Cc: Ebenezer Sada, T&M

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

☑ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.

☑ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).

☑ Check No.: **29791687285** 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: **20.2.73.200.A NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 29171	Updating Permit/NOI #: 5226R1
1	Facility Name: Titan Lansing Transloading – Carlsbad Facility	Plant primary SIC Code (4 digits): 4789	
		Plant NAIC code (6 digits): 488210	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): Intersection of US Hwy 62 & NM243. 44 Buffalo Grass Rd, Carlsbad, NM 88220		
2	Plant Operator Company Name: Titan Lansing Transloading, LLC	Phone/Fax: Facility 575-200-6617 Operator 806-993-0554	
a	Plant Operator Address: 11350 Switzer Road, Suite 300, Overland Park, KS 66210		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 46-2421678	
3	Plant Owner(s) name(s): Andersons, Inc	Phone/Fax: 419-893-5050
a	Plant Owner(s) Mailing Address(s): 1947 Briarfield Blvd, Maumee, OH 43537	
4	Bill To (Company): Titan Lansing Transloading, LLC	Phone/Fax: 913-748-3018
a	Mailing Address: 11350 Switzer Road, Suite 300, Overland Park, KS 66210	E-mail: craig_dabovich@andersonsinc.com
5	☑ Preparer: ☑ Consultant: T&M Associates	Phone/Fax: (614) 579-0021
a	Mailing Address: 4675 Lakehurst Court, Suite 250, Columbus, OH 43016	E-mail: ESada@tandmassociates.com
6	Plant Operator Contact: Craig Dabovich	Phone/Fax: 913-748-3018
a	Address: 11350 Switzer Road, Suite 300, Overland Park, KS 66210	E-mail: craig_dabovich@andersonsinc.com
7	Air Permit Contact: Craig Dabovich	Title: Senior Project Manager
a	E-mail: craig_dabovich@andersonsinc.com	Phone/Fax: 913-748-3018
b	Mailing Address: 11350 Switzer Road, Suite 300, Overland Park, KS 66210	
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: #5226R1
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☐ Yes ☑ No	If yes, the permit No. is:
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 15 TPH (Sand)	Daily: 360 TPD	Annually: 131,400 TPY
b	Proposed	Hourly: 15 TPH (Sand), 85 TPH (Aggregate)	Daily: 360 TPD (Sand), 2040 TPD (Aggregate)	Annually: 131,400 TPY (Sand), 744,600 TPY (Aggregate)
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: 15 TPH (Sand)	Daily: 360 TPD	Annually: 131,400 TPY

b	Proposed	Hourly: 15 TPH (Sand), 85 TPH (Aggregate)	Daily: 360 TPD (Sand), 2040 TPD (Aggregate)	Annually: 131,400 TPY (Sand), 744,600 TPY (Aggregate)

Section 1-D: Facility Location Information

1	Section: 36	Range: 31E	Township: 205	County: Eddy	Elevation (ft): 3581
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 610476.92 E			UTM N (in meters, to nearest 10 meters): 3600211.14 N	
b	**AND** Latitude (deg., min., sec.): 32° 32' 01.72" N			Longitude (deg., min., sec.): -103° 49' 26.01" N	
3	Name and zip code of nearest New Mexico town: Carlsbad 88220				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): See road map in Section 8.				
5	The facility is **27** (distance) miles Northeast (direction) of Carlsbad (nearest town).				
6	Status of land at facility (check one): ☑ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Eddy County, Lea County				
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	Name nearest Class I area: Carlsbad Caverns				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 75.48km				
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: 200m (Next business across the street)				
12	Method(s) used to delineate the Restricted Area: Fencing & Signage "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: 24	☐AM ☐PM	End: 7	☐AM ☐PM		
3	Month and year of anticipated start of construction: N/A					
4	Month and year of anticipated construction completion: N/A					
5	Month and year of anticipated startup of new or modified facility: November 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: N/A		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: Jerrod Shackelford, Email: jshackelford@tandmassociates.com Phone number: 614-408-1515.

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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Change Log – Do **not** submit this page with your application.

If you are using a form older than the most current form posted on the website, you are required to incorporate the changes listed. Periodically, AQB will announce when older form versions will no longer be accepted.

Version Date	Changes Incorporated
4/1/2021	Current version of this form. Older versions are not accepted.

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] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
RU 1	Covered, Subgrade Railcar Unloading Pit	Trident Structures	N/A	N/A	85	85	2014	DC-970 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RU 2	Covered, Subgrade Conveyor	Trident Structures	N/A	N/A	85	85	2014	DC-970 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RU 3	Covered, Above Grade Bucket Elevator	Trident Structures	N/A	N/A	85	85	2014	DC-970 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RU 4	Covered Tripper Conveyor into enclosed building	Trident Structures	N/A	N/A	85	85	2014	DC-970 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
B N (Formerly SB	Roll Up Doors - North End	Trident Structures	N/A	N/A	—	—	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
B S (Formerly SB	Roll Up Doors - South End	Trident Structures	N/A	N/A	—	—	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOC E1	East #1 Truck Load-Out Conveyor	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOTS E1	East #1 Truck Load-Out Telescopic Spout	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOC E2	East #2 Truck Load-Out Conveyor	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOTS E2	East #2 Truck Load-Out Telescopic Spout	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOC W1	West #1 Truck Load-Out Conveyor	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOTS W1	West #1 Truck Load-Out Telescopic Spout	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOC W2	West #2 Truck Load-Out Conveyor	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
LOTS W2	West #2 Truck Load-Out Telescopic Spout	Trident Structures	N/A	N/A	21.25	21.25	2014	N/A	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
HR	Haul Road	N/A	N/A	N/A	N/A	N/A	2014	N/A	30588801	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit X To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 1	Railcar Unloading to Conveyor 1	Trident Structures	N/A	N/A	15	15	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 2	Conveyor 1 Transfer to Conveyor 2	Trident Structures	N/A	N/A	15	15	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 3	Conveyor 2 Transfer to Bucket Elevator	Trident Structures	N/A	N/A	15	15	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 4A	Bucket Elevator to Storage Silo #1	Trident Structures	N/A	N/A	15	15	11/1/2018	MF-BV3	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 4B	Bucket Elevator to Storage Silo #2	Trident Structures	N/A	N/A	15	15	11/1/2018	MF-BV4	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 4C	Bucket Elevator to Storage Silo #3	Trident Structures	N/A	N/A	15	15	11/1/2018	MF-BV3	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 4D	Bucket Elevator to Storage Silo #4	Trident Structures	N/A	N/A	15	15	11/1/2018	MF-BV4	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 5A	Storage Silo Transfer to Truck Trailer Spouts - North A (Dust Suppression Equipment)	Trident Structures	N/A	N/A	3.75	3.75	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 5B	Storage Silo Transfer to Truck Trailer Spouts - North B (Dust Suppression Equipment)	Trident Structures	N/A	N/A	3.75	3.75	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 5C	Storage Silo Transfer to Truck Trailer Spouts - South A (Dust Suppression Equipment)	Trident Structures	N/A	N/A	3.75	3.75	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MNFS 5D	Storage Silo Transfer to Truck Trailer Spouts - South B (Dust Suppression Equipment)	Trident Structures	N/A	N/A	3.75	3.75	11/1/2018	N/A	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BC-110	Belt Conveyor	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-970 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BC-115	Belt Conveyor	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-970 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
BE-120	Bucket Elevator	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-930 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
SL-200	Silo	Trident Structures	N/A	N/A	120	120	3/25/2025	BV-200 Bin Vent Filter	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
SL-250	Silo	Trident Structures	N/A	N/A	120	120	3/25/2025	BV-250 Bin Vent Filter	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
BC-220	Belt Conveyor	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-930 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
BC-270	Belt Conveyor	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-930 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
BC-300	Belt Conveyor	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-930 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
BE-310	Bucket Elevator	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-930 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
HP-320	Hopper	Trident Structures	N/A	N/A	80	80	9/26/2025	BV-320 Bin Vent Filter	30502760	□ Existing (unchanged) □ To be Removed X New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	HP-360
HP-325	Hopper	Trident Structures	N/A	N/A	80	80	9/26/2025	BV-325 Bin Vent Filter	30502760	□ Existing (unchanged) □ To be Removed X New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	HP-360
BF-350	Belt Feeder	Trident Structures	N/A	N/A	40	40	3/25/2025	DC-950 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
SC-350	Screener	Trident Structures	N/A	N/A	40	40	3/25/2025	DC-950 Dust Collector	30502760	X Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
BC-420	Belt Conveyor (in-spec)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-940 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BC-440	Belt Conveyor (in-spec)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-970 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BE-460	Bucket Elevator (in-spec)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-970 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BC-640	Belt Conveyor (Fines)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-940 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BE-650	Bucket Elevator (Fines)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-950 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SL-660	Silo (Fines)	Trident Structures	N/A	N/A	120	120	3/25/2025	BV-660 Bin Vent Filter	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-700	Screw Conveyor (Fines)	Trident Structures	N/A	N/A	120	120	3/25/2025	DC-960 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-810	Screw Conveyor	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-930 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
SC-820	Screw Conveyor	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-930 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BF-330	Belt Feeder	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-940 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BF-340	Belt Feeder	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-940 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BF-360	Belt Feeder	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-950 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-330	Screener	Trident Structures	N/A	N/A	40	40	8/5/2025	DC-940 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-340	Screener	Trident Structures	N/A	N/A	40	40	8/5/2025	DC-940 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-360	Screener	Trident Structures	N/A	N/A	40	40	8/5/2025	DC-950 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BC-525	Belt Conveyor (Overs)	Trident Structures	N/A	N/A	60	60	9/26/2025	DC-980 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BE-530	Bucket Elevator (Overs)	Trident Structures	N/A	N/A	60	60	9/26/2025	DC-980 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HP-535	Hopper (Overs)	Trident Structures	N/A	N/A	15	15	9/26/2025	BV-535 Bin Vent Filter	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
CR-540	Crusher (Overs)	Trident Structures	N/A	N/A	35	35	1/14/2026	DC-505 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-560	Screw Conveyor (Overs)	Trident Structures	N/A	N/A	60	60	9/26/2025	DC-980 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BE-570	Bucket Elevator (Overs)	Trident Structures	N/A	N/A	60	60	9/26/2025	DC-980 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HP-575	Hopper (Overs)	Trident Structures	N/A	N/A	60	60	9/26/2025	N/A- Fugitive Emissions	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-580	Screener (Overs)	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-980 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SC-670	Screw Conveyor (Fines)	Trident Structures	N/A	N/A	40	40	9/26/2025	DC-950 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
BE-710	Bucket Elevator (Fines)	Trident Structures	N/A	N/A	150	150	9/26/2025	DC-960 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HP-730	Hopper (Fines)	Trident Structures	N/A	N/A	50	50	9/26/2025	BV-730 Bin Vent Filter	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
LS-730	Rail Loading Spout (Fines)	Trident Structures	N/A	N/A	100	100	9/26/2025	DC-960 Dust Collector	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (TPH) Unless indicated	Requested Permitted Capacity[3] (TPH) Unless indicated	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.
HP-720	Hopper (Fines)	Trident Structures	N/A	N/A	50	50	9/26/2025	BV-720 Bin Vent Filter	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
LS-720	Rail Loading Spout (Fines)	Trident Structures	N/A	N/A	100	100	9/26/2025	DC-960 Dust Collector	30502760	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CAT Diesel-Fired Genset 1	1-MW Diesel-Fired Genset	CAT	C18	Not Yet Acquired	455 kW	455 kW	7/22/2025	Gen1	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
CAT Diesel-Fired Genset 2	1-MW Diesel-Fired Genset	CAT	C18	Not Yet Acquired	455 kW	455 kW	7/22/2025	Gen2	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
CAT Diesel-Fired Genset3	1-MW Diesel-Fired Genset	CAT	C18	Not Yet Acquired	455 kW	455 kW	7/22/2025	Gen3	30502760	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A

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

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

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
	Yard Loaders						X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
					20.2.72.202 A.(3)		
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
DC-930	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	BE-120 BC-220 BC-270 BC-300 BE-310 SC-810 SC-820	99.9%	Manufacturer Specifications
DC-940	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	BF-330 BF-340 SC-330 SC-340 BC-640 BC-420	99.9%	Manufacturer Specifications
DC-950	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	BF-350 BF-360 SC-350 SC-360 BE-650 SC-670	99.9%	Manufacturer Specifications
DC-960	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	SC-700 BE-710 LS-720 LS-730	99.9%	Manufacturer Specifications
DC-970	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	RU 1 RU 2 RU 3 BC-110 BC-115 BC-440 BE-460 RU 4	99.9%	Manufacturer Specifications
DC-980	C&W DustTech Dust Collector	10/14/2025	PM-10 & PM-2.5	BC-525 BE-530 SC-560 BE-570 SC-580	99.9%	Manufacturer Specifications
BV-200	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	SL-200	99.9%	Manufacturer Specifications
BV-250	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	SL-250	99.9%	Manufacturer Specifications

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
BV-320	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-320	99.9%	Manufacturer Specifications
BV-325	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-325	99.9%	Manufacturer Specifications
BV-535	Donaldson Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-535	99.9%	Manufacturer Specifications
DC-550	Donaldson Dust Collector	10/14/2025	PM-10 & PM-2.5	CR-540	99.9%	Manufacturer Specifications
BV-575	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-575	99.9%	Manufacturer Specifications
BV-660	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	SL-660	99.9%	Manufacturer Specifications
BV-720	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-720	99.9%	Manufacturer Specifications
BV-730	C&W DustTech Bin Vent Filter	10/14/2025	PM-10 & PM-2.5	HP-730	99.9%	Manufacturer Specifications
MF-BV3	C&W DustTech Bin Vent Filter	12/1/2018	PM-10 & PM-2.5	MNFS 4A MNFS 4C	98.0%	Manufacturer Specifications
MF-BV4	C&W DustTech Bin Vent Filter	12/1/2018	PM-10 & PM-2.5	MNFS 4B MNFS 4D	98.0%	Manufacturer Specifications

[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
RU 1	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
RU 2	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
RU 3	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
RU 4	-	-	-	-	-	-	-	-	0.48	2.09	0.23	0.988	0.03	0.150	-	-	-	-
SB N (Formerly SB E)	-	-	-	-	-	-	-	-	0.38	1.65	0.18	0.780	0.03	0.118	-	-	-	-
SB S (Formerly SB W)	-	-	-	-	-	-	-	-	0.38	1.65	0.18	0.780	0.03	0.118	-	-	-	-
LOC E1	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOTS E1	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOC E2	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOTS E2	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOC W1	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOTS W1	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOC W2	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
LOTS W2	-	-	-	-	-	-	-	-	0.12	0.52	0.06	0.247	0.01	0.037	-	-	-	-
HR	-	-	-	-	-	-	-	-	5.46	23.92	1.39	6.097	0.14	0.610	-	-	-	-
MNFS 1	-	-	-	-	-	-	-	-	0.03	0.14	0.01	0.064	0.00	0.010	-	-	-	-
MNFS 2	-	-	-	-	-	-	-	-	0.03	0.14	0.01	0.065	0.00	0.010	-	-	-	-
MNFS 3	-	-	-	-	-	-	-	-	0.03	0.14	0.01	0.065	0.00	0.010	-	-	-	-
MNFS 4A	-	-	-	-	-	-	-	-	0.01	0.03	0.00	0.016	0.00	0.002	-	-	-	-
MNFS 4B	-	-	-	-	-	-	-	-	0.01	0.03	0.00	0.016	0.00	0.002	-	-	-	-
MNFS 4C	-	-	-	-	-	-	-	-	0.01	0.03	0.00	0.016	0.00	0.002	-	-	-	-
MNFS 4D	-	-	-	-	-	-	-	-	0.01	0.03	0.00	0.016	0.00	0.002	-	-	-	-
MNFS 5A	-	-	-	-	-	-	-	-	0.02	0.08	0.01	0.046	0.00	0.007	-	-	-	-
MNFS 5B	-	-	-	-	-	-	-	-	0.02	0.08	0.01	0.046	0.00	0.007	-	-	-	-
MNFS 5C	-	-	-	-	-	-	-	-	0.02	0.08	0.01	0.046	0.00	0.007	-	-	-	-
MNFS 5D	-	-	-	-	-	-	-	-	0.02	0.08	0.01	0.046	0.00	0.007	-	-	-	-
BC-110	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
BC-115	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
BE-120	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
SL-200	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-
SL-250	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-

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
BC-220	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-
BC-270	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-
BC-300	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
BE-310	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
HP-320	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-
HP-325	-	-	-	-	-	-	-	-	0.28	1.23	0.13	0.581	0.02	0.088	-	-	-	-
BF-350	-	-	-	-	-	-	-	-	0.14	0.61	0.07	0.291	0.01	0.044	-	-	-	-
SC-350	-	-	-	-	-	-	-	-	0.53	2.33	0.18	0.810	0.05	0.215	-	-	-	-
BC-420	-	-	-	-	-	-	-	-	0.48	2.09	0.23	0.988	0.03	0.150	-	-	-	-
BC-440	-	-	-	-	-	-	-	-	0.48	2.09	0.23	0.988	0.03	0.150	-	-	-	-
BE-460	-	-	-	-	-	-	-	-	0.48	2.09	0.23	0.988	0.03	0.150	-	-	-	-
BC-640	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
BE-650	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SL-660	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SC-700	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SC-810	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
SC-820	-	-	-	-	-	-	-	-	0.56	2.46	0.27	1.162	0.04	0.176	-	-	-	-
BF-330	-	-	-	-	-	-	-	-	0.14	0.61	0.07	0.291	0.01	0.044	-	-	-	-
BF-340	-	-	-	-	-	-	-	-	0.14	0.61	0.07	0.291	0.01	0.044	-	-	-	-
BF-360	-	-	-	-	-	-	-	-	0.14	0.61	0.07	0.291	0.01	0.044	-	-	-	-
SC-330	-	-	-	-	-	-	-	-	0.53	2.33	0.18	0.810	0.05	0.215	-	-	-	-
SC-340	-	-	-	-	-	-	-	-	0.53	2.33	0.18	0.810	0.05	0.215	-	-	-	-
SC-360	-	-	-	-	-	-	-	-	0.53	2.33	0.18	0.810	0.05	0.215	-	-	-	-
BC-525	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
BE-530	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
HP-535	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-

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
CR-540	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SC-560	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
BE-570	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
HP-575	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SC-580	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
SC-670	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
BE-710	-	-	-	-	-	-	-	-	0.08	0.37	0.04	0.174	0.01	0.026	-	-	-	-
HP-730	-	-	-	-	-	-	-	-	0.04	0.18	0.02	0.087	0.00	0.013	-	-	-	-
LS-730	-	-	-	-	-	-	-	-	0.04	0.18	0.02	0.087	0.00	0.013	-	-	-	-
HP-720	-	-	-	-	-	-	-	-	0.04	0.18	0.02	0.087	0.00	0.013	-	-	-	-
LS-720	-	-	-	-	-	-	-	-	0.04	0.18	0.02	0.087	0.00	0.013	-	-	-	-
CAT Diesel-Fired Genset 1	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.031	0.137	0.031	0.137	-	-	-	-
CAT Diesel-Fired Genset 2	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.031	0.137	0.031	0.137	-	-	-	-
CAT Diesel-Fired Genset3	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.031	0.137	0.031	0.137	-	-	-	-
Total (PTE)	**2.06**	**9.02**	**24.44**	**107.06**	**0.09**	**0.41**	**0.05**	**0.23**	**20.69**	**90.64**	**8.39**	**36.74**	**1.36**	**5.97**	**0**	**0**	**0**	**0**
Total (Two Genset Synethetic Limit)[2]	**1.37**	**6.02**	**16.30**	**71.37**	**0.06**	**0.27**	**0.03**	**0.15**	**20.66**	**90.50**	**8.36**	**36.60**	**1.33**	**5.83**	**0**	**0**	**0**	**0**

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

2. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

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
SB N (Formerly SB E)	-	-	-	-	-	-	-	-	0.04	0.16	0.02	0.08	0.003	0.012	-	-	-	-
SB S (Formerly SB W)	-	-	-	-	-	-	-	-	0.04	0.16	0.02	0.08	0.003	0.012	-	-	-	-
HR	-	-	-	-	-	-	-	-	0.27	1.20	0.07	0.305	0.007	0.030	-	-	-	-
MNFS 1	-	-	-	-	-	-	-	-	0.02	0.07	0.01	0.03	0.001	0.005	-	-	-	-
MNFS 2	-	-	-	-	-	-	-	-	0.01	0.04	0.004	0.020	0.001	0.003	-	-	-	-
MNFS 3	-	-	-	-	-	-	-	-	0	0	0	0	0	0	-	-	-	-
MNFS 4A	-	-	-	-	-	-	-	-	1.58E-04	6.90E-04	7.43E-05	3.25E-04	1.12E-05	4.91E-05	-	-	-	-
MNFS 4B									1.58E-04	6.90E-04	7.43E-05	3.25E-04	1.12E-05	4.91E-05				
MNFS 4C									1.58E-04	6.90E-04	7.43E-05	3.25E-04	1.12E-05	4.91E-05				
MNFS 4D	-	-	-	-	-	-	-	-	1.58E-04	6.90E-04	7.43E-05	3.25E-04	1.12E-05	4.91E-05	-	-	-	-
MNFS 5A	-	-	-	-	-	-	-	-	3.60E-04	1.58E-03	2.10E-04	9.20E-04	3.17E-05	1.39E-04	-	-	-	-
MNFS 5B	-	-	-	-	-	-	-	-	3.60E-04	1.58E-03	2.10E-04	9.20E-04	3.17E-05	1.39E-04	-	-	-	-
MNFS 5C	-	-	-	-	-	-	-	-	3.60E-04	1.58E-03	2.10E-04	9.20E-04	3.17E-05	1.39E-04	-	-	-	-
MNFS 5D	-	-	-	-	-	-	-	-	3.60E-04	1.58E-03	2.10E-04	9.20E-04	3.17E-05	1.39E-04	-	-	-	-
BE-120 BC-220 BC-270 BC-300 BE-310 SC-810 SC-820	-	-	-	-	-	-	-	-	N/A	N/A	0.21	0.94	0.04	0.19	-	-	-	-
BF-330 BF-340 SC-330 SC-340 BC-640 BC-420	-	-	-	-	-	-	-	-	N/A	N/A	0.17	0.75	0.03	0.15	-	-	-	-
BF-350 BF-360 SC-350 SC-360 BE-650 SC-670	-	-	-	-	-	-	-	-	N/A	N/A	0.21	0.94	0.04	0.19	-	-	-	-
SC-700 BE-710 LS-720 LS-730	-	-	-	-	-	-	-	-	N/A	N/A	0.09	0.39	0.02	0.08	-	-	-	-

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
RU 1 RU 2 RU 3 BC-110 BC-115 BC-440 BE-460 RU 4	-	-	-	-	-	-	-	-	N/A	N/A	0.21	0.94	0.04	0.19	-	-	-	-
BC-525 BE-530 SC-560 BE-570 SC-580	-	-	-	-	-	-	-	-	N/A	N/A	0.17	0.75	0.03	0.15	-	-	-	-
SL-200	-	-	-	-	-	-	-	-	N/A	N/A	0.02	0.09	0.00	0.02	-	-	-	-
SL-250	-	-	-	-	-	-	-	-	N/A	N/A	0.02	0.09	0.00	0.02	-	-	-	-
HP-320	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.05	0.00	0.01	-	-	-	-
HP-325	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.05	0.00	0.01	-	-	-	-
HP-535	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.03	0.00	0.01	-	-	-	-
CR-540	-	-	-	-	-	-	-	-	N/A	N/A	0.18	0.78	0.04	0.16	-	-	-	-
HP-575	-	-	-	-	-	-	-	-	N/A	N/A	0.00	0.02	0.00	0.00	-	-	-	-
SL-660	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.05	0.00	0.01	-	-	-	-
HP-720	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.05	0.00	0.01	-	-	-	-
HP-730	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.05	0.00	0.01	-	-	-	-
LOC E1	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.02	0.00	0.00	-	-	-	-
LOTS E1	-	-	-	-	-	-	-	-	N/A	N/A	0.00	0.00	0.00	0.00	-	-	-	-
LOC E2	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.02	0.00	0.00	-	-	-	-
LOTS E2	-	-	-	-	-	-	-	-	N/A	N/A	0.00	0.00	0.00	0.00	-	-	-	-
LOC W1	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.02	0.00	0.00	-	-	-	-
LOTS W1	-	-	-	-	-	-	-	-	N/A	N/A	0.00	0.00	0.00	0.00	-	-	-	-
LOC W2	-	-	-	-	-	-	-	-	N/A	N/A	0.01	0.02	0.00	0.00	-	-	-	-
LOTS W2	-	-	-	-	-	-	-	-	N/A	N/A	0.00	0.00	0.00	0.00	-	-	-	-
CAT Diesel-Fired Genset 1	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	N/A	N/A	0.03	0.14	0.03	0.14	-	-	-	-
CAT Diesel-Fired Genset 2	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	N/A	N/A	0.03	0.14	0.03	0.14	-	-	-	-
CAT Diesel-Fired Genset 3	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	N/A	N/A	0.03	0.14	0.03	0.14	-	-	-	-
	-	-	-	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-	-	-
Totals	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**N/A**	**N/A**	**1.59**	**6.98**	**0.38**	**1.68**	**-**	**-**	**-**	**-**

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Not Applicable																		
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
DC-930	BE-120 BC-220 BC-270 BC-300 BE-310 SC-810 SC-820	-	-	-	-	-	-	-	-	-	-	0.21	0.94	0.04	0.19	-	-
DC-940	BF-330 BF-340 SC-330 SC-340 BC-640 BC-420	-	-	-	-	-	-	-	-	-	-	0.17	0.75	0.03	0.15	-	-
DC-950	BF-350 BF-360 SC-350 SC-360 BE-650 SC-670	-	-	-	-	-	-	-	-	-	-	0.21	0.94	0.04	0.19	-	-
DC-960	SC-700 BE-710 LS-720 LS-730	-	-	-	-	-	-	-	-	-	-	0.09	0.39	0.02	0.08	-	-
DC-970	RU 1 RU 2 RU 3 BC-110 BC-115 BC-440 BE-460 RU 4	-	-	-	-	-	-	-	-	-	-	0.21	0.94	0.04	0.19	-	-
DC-980	BC-525 BE-530 SC-560 BE-570 SC-580	-	-	-	-	-	-	-	-	-	-	0.17	0.75	0.03	0.15	-	-
BV-200	SL-200	-	-	-	-	-	-	-	-	-	-	0.02	0.09	0.00	0.02	-	-

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
BV-250	SL-250	-	-	-	-	-	-	-	-	-	-	0.02	0.09	0.00	0.02	-	-
BV-320	HP-320	-	-	-	-	-	-	-	-	-	-	0.01	0.05	0.00	0.01	-	-
BV-325	HP-325	-	-	-	-	-	-	-	-	-	-	0.01	0.05	0.00	0.01	-	-
BV-535	HP-535	-	-	-	-	-	-	-	-	-	-	0.01	0.03	0.00	0.01	-	-
DC-550	CR-540	-	-	-	-	-	-	-	-	-	-	0.18	0.78	0.04	0.16	-	-
BV-575	HP-575	-	-	-	-	-	-	-	-	-	-	0.00	0.02	0.00	0.00	-	-
BV-660	SL-660	-	-	-	-	-	-	-	-	-	-	0.01	0.05	0.00	0.01	-	-
BV-720	HP-720	-	-	-	-	-	-	-	-	-	-	0.01	0.05	0.00	0.01	-	-
BV-730	HP-730	-	-	-	-	-	-	-	-	-	-	0.01	0.05	0.00	0.01	-	-
MF-BV3	MNFS 4A MNFS 4C	-	-	-	-	-	-	-	-	-	-	1.49E-04	6.50E-04	3.15E-04	9.8E-05	-	-
MF-BV4	MNFS 4B MNFS 4D	-	-	-	-	-	-	-	-	-	-	1.49E-04	6.50E-04	3.15E-04	9.8E-05	-	-
Gen1	CAT Diesel-Fired Genset 1	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.03	0.1	0.03	0.1	-	-
Gen2	CAT Diesel-Fired Genset 2	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.03	0.14	0.03	0.14	-	-
Gen3	CAT Diesel-Fired Genset3	0.69	3.01	8.15	35.69	0.03	0.14	0.02	0.08	0.03	0.14	0.03	0.14	0.03	0.14	-	-
Totals:		2.06	9.02	24.44	107.06	0.09	0.41	0.05	0.23	0.09	0.41	1.45	6.35	0.37	1.60	0	0

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)			
Please See Table 2H Attachment										

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.

Note: No HAPs or TAPs are emitted by the facility at a rate greater than 1 TPY.

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
DC-930	BE-120 BC-220 BC-270 BC-300 BE-310 SC-810 SC-820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-940	BF-330 BF-340 SC-330 SC-340 BC-640 BC-420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-950	BF-350 BF-360 SC-350 SC-360 BE-650 SC-670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-960	SC-700 BE-710 LS-720 LS-730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-970	RU 1 RU 2 RU 3 BC-110 BC-115 BC-440 BE-460 RU 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-980	BC-525 BE-530 SC-560 BE-570 SC-580	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-200	SL-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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
BV-250	SL-250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-320	HP-320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-325	HP-325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-535	HP-535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DC-550	CR-540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-575	HP-575	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-660	SL-660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-720	HP-720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BV-730	HP-730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MF-BV3	MNFS 4A MNFS 4C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MF-BV4	MNFS 4B MNFS 4D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gen1	CAT Diesel-Fired Genset 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gen2	CAT Diesel-Fired Genset 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gen3	CAT Diesel-Fired Genset3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
Diesel-Fired Genset 1	Ultra Low Sulfur Diesel	Purchased Commercial	129,306 Btu/gal	72.2 gal	632,472 gal	0.0015%	0.01%
Diesel-Fired Genset 2	Ultra Low Sulfur Diesel	Purchased Commercial	129,306 Btu/gal	72.2 gal	632,472 gal	0.0015%	0.01%
Diesel-Fired Genset 3	Ultra Low Sulfur Diesel	Purchased Commercial	129,306 Btu/gal	72.2 gal	632,472 gal	0.0015%	0.01%

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
Diesel Storage Tank (Loaders)	40400150	Ultra Low Sulfur Diesel	Ultra Low Sulfur Diesel	7.1	130	Amibent	0.008 @ ave temp	Ambient	0.087 @ ave temp
Diesel Storage Tank (Generators)	40400150	Ultra Low Sulfur Diesel	Ultra Low Sulfur Diesel	7.1	130	Amibent	0.008 @ ave temp	Ambient	0.087 @ ave temp

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			
Diesel Storage Tank (Loaders)	2014	Ultra Low Sulfur Diesel - Fuel tank	Small metal tank	Fixed	12		1.2	N/A	WH	WH	Good	26,000	52.00
Diesel Storage Tank (Generators)	7/22/2025	Ultra Low Sulfur Diesel - Fuel tank	Medium metal tank	Fixed	238		8	N/A	WH	WH	Good	1,897,416	189.74

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

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

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

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

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

Table 2-N: CEM Equipment

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

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
Not applicable - no CEMS units									

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
Not applicable - no parametric emission measurement equipment								

Table 2-P: Greenhouse Gas Emissions - Not Applicable

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										
CAT Diesel-Fired Genset 1	**mass GHG**	80.83	6.56E-04	0.0033	0										80.83	
	CO_2e	80.83	0.20	0.082	0											81.10
CAT Diesel-Fired Genset 2	**mass GHG**	80.83	6.56E-04	0.0033	0										80.83	
	CO_2e	80.83	0.20	0.082	0											81.10
CAT Diesel-Fired Genset 3	**mass GHG**	80.83	6.56E-04	0.0033	0										80.83	
	CO_2e	80.83	0.20	0.082	0											81.10
	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**														242.49	
	CO_2e															243.31342

[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.

Table 1 - Uncontrolled Emissions
Titan Lansing Transloading, LLC
Carlsbad Facility

Emission Unit	Annual Emissions (TPY)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	23.92	6.10	0.61	-	-
Material Storage Piles	-	-	-	-	3.30	1.56	0.24	-	-
Petcoke Handling Emissions	-	-	-	-	57.96	26.25	4.34	-	-
Petcoke Loadout Emissions	-	-	-	-	4.18	1.98	0.30	-	-
Manifest Handling & Loadout En	-	-	-	-	0.87	0.44	0.07	-	-
CAT Diesel-Fired Genset 1	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 2	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 3	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
Diesel Storage Tank (Loaders)	-	-	3.21E-04	-	-	-	-	1.32E-06	-
Diesel Storage Tank (Generator	-	-	8.68E-03	-	-	-	-	3.58E-05	-
Total (PTE)	**107.06**	**9.02**	**0.42**	**0.23**	**90.64**	**36.74**	**5.97**	**0.19**	**243.30**
(Two Genset Synthetic Limit)[1]	**71.37**	**6.02**	**0.28**	**0.15**	**90.50**	**36.60**	**5.83**	**0.13**	**162.20**

Emission Unit	Hourly Emissions (lb/hr)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	5.46	1.39	0.14	-	-
Material Storage Piles	-	-	-	-	0.75	0.36	0.05	-	-
Petcoke Handling Emissions	-	-	-	-	13.23	5.99	0.99	-	-
Petcoke Loadout Emissions	-	-	-	-	0.95	0.45	0.07	-	-
Manifest Handling & Loadout En	-	-	-	-	0.20	0.10	0.02	-	-
CAT Diesel-Fired Genset 1	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 2	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 3	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
Diesel Storage Tank (Loaders)	-	-	7.3E-05	-	-	-	-	3.0E-07	-
Diesel Storage Tank (Generator	-	-	2.0E-03	-	-	-	-	8.2E-06	-
Total (PTE)	**24.44**	**2.06**	**0.10**	**0.05**	**20.69**	**8.39**	**1.36**	**0.13**	**55.55**
(Two Genset Synthetic Limit)[1]	**16.30**	**1.37**	**0.06**	**0.03**	**20.66**	**8.36**	**1.33**	**0.09**	**37.03**

1. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

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.

Titan Lansing Transloading – Carlsbad Facility
Frac Sand and Non-Metallic Mineral and
Aggregate Screening Plant

Overview

Titan Lansing LLC (Titan) built a transloading facility in Carlsbad, Eddy County, New Mexico. The site is currently operating under New Mexico Environment Department NOI #5226R2, dated March 19, 2025. The company is submitting a Minor Source construction permit application for construction of a non-metallic mineral and aggregate screening plant pursuant. The non-metallic mineral aggregate is petroleum coke (petcoke).

The current NOI covers the Manifest fractionation sand system (Manifest system) and aggregate warehouse activities. The minor source construction application is being submitted to add additional screening and crushing equipment to the existing aggregate activities, as well as three diesel-fired gensets and a 10,000-gallon diesel storage tank. The additional screening and crushing equipment will be controlled by dust control systems. The previously existing material handling equipment will be retrofitted to be controlled by the new dust control systems.

The facility's criteria pollutant emission rates have been recalculated and the overall potential to emit rate (with emissions control) is greater than 25 TPY but less than 100 TPY for carbon monoxide (CO) and particulate matter with a diameter of 10 microns or less (PM_{10}). Thus, the facility is applying for an NSR permit (construction air permit) pursuant to 20.2.72 NMAC. No special startup, shutdown, or maintenance emissions are anticipated.

Due to the increase in power demands associated with the additional equipment, Titan plans to install three 1-MW (approx.) diesel-fired gensets to supply power to the facility. Diesel fuel for the gensets will be stored in a 10,000 tank. Fuel for the onsite loaders or small moving equipment is provided by a small 500-gallon diesel tank. The annual usage for these vehicles will total a maximum of 26,000 gallons per year. No maintenance or fueling of trucks or other on road equipment or railcars will be performed by this facility.

Current Operations

The facility services the oil and gas industry by transloading fractionation sand and petroleum coke from railcars into trucks. The facility no longer performs transloading of diesel or crude. Current transloading activities include two dump pits, conveyor belts, bucket elevators, silos, a screener, a hopper, and loading spouts.

Aggregate is unloaded to a dump pit via rail before being transferred via a series of transport equipment (conveyors, bucket elevators, silos, and hoppers) to a screener, which separates the aggregate into "in-spec" aggregate and "fines". Fines are transported via a load spout to rail offloading. The tripper conveyor system moves the in-spec aggregate inside the storage warehouse, which measures 500 feet by 115 feet. The in-spec aggregate is dumped into enclosed warehouse with eight (8) bins.

Loaders transfer the screened and treated product out of the eight (8) load out bins and into the four (4) loadout hoppers. From the loadout hoppers, the product is placed onto one of four (4) load conveyors then transferred to the attached telescopic spouts. Trucks are loaded from the spouts under a semi-covered loading bay. Under the planned expansion, the warehouse operations will handle the aggregate using the existing equipment.

A second material handling system (Manifest system) includes a rail unloading system from which frac sand is transported to four (4) silos via inclined conveyors and a bucket elevator. The truck loadouts are equipped with telescoping shrouds with powered dust collection systems. Trucks are loaded beneath each silo.

Planned Expansion

The screening plant (covered by the recently issued NOI) will integrate additional screening and transfer equipment into the existing handling system, including the following equipment:

- Belt and screw conveyors
- Bucket elevators
- Hoppers
- Screening units
- Raw material storage silos
- A crusher for over-spec aggregate material

The capacity of the screening plant will be physically limited or bottlenecked by the rail unloading system at 85 tons/hour. Various dust control systems (i.e. dust collectors and bin vent filters) will be installed to control emissions of particulate matter from all material transfer equipment, including the previously existing equipment.

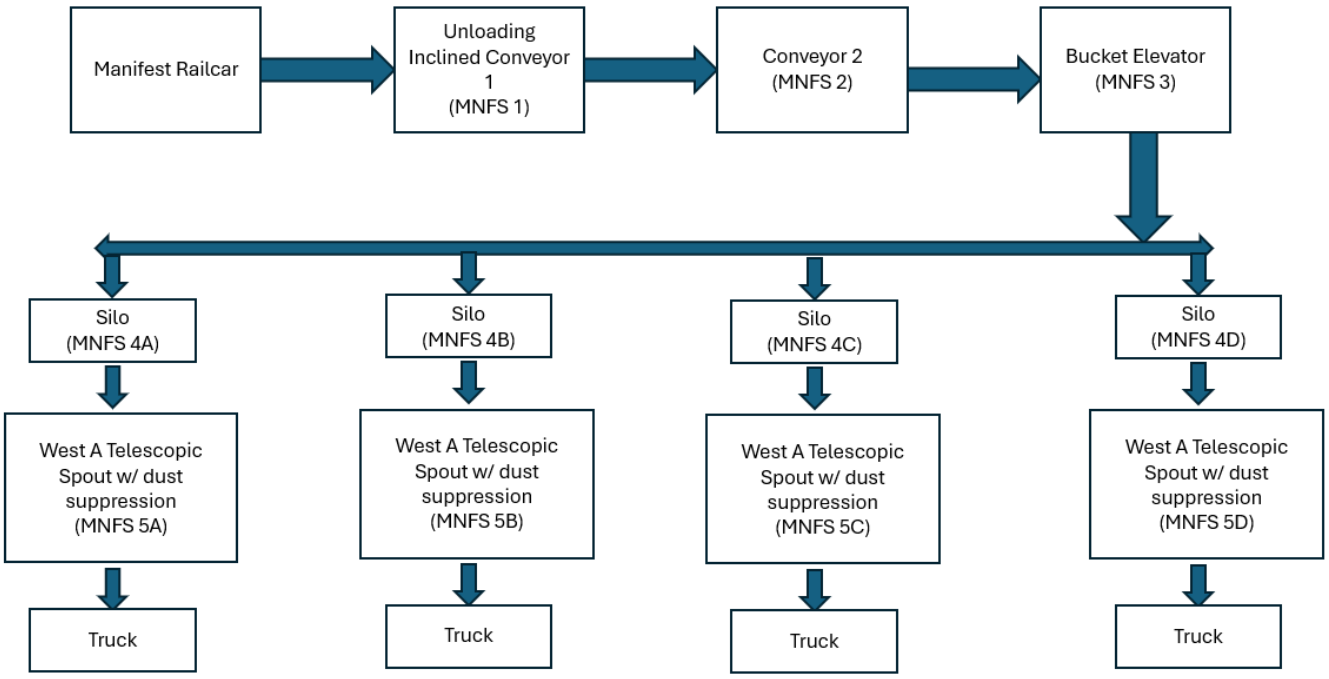
The expansion will also include three 1-MW diesel-fired gensets. Titan is electing to accept a federally enforceable limit, restricting genset usage to two gensets concurrently. Additionally, the facility will include a 10,000-gallon diesel storage tank to store fuel for the gensets.

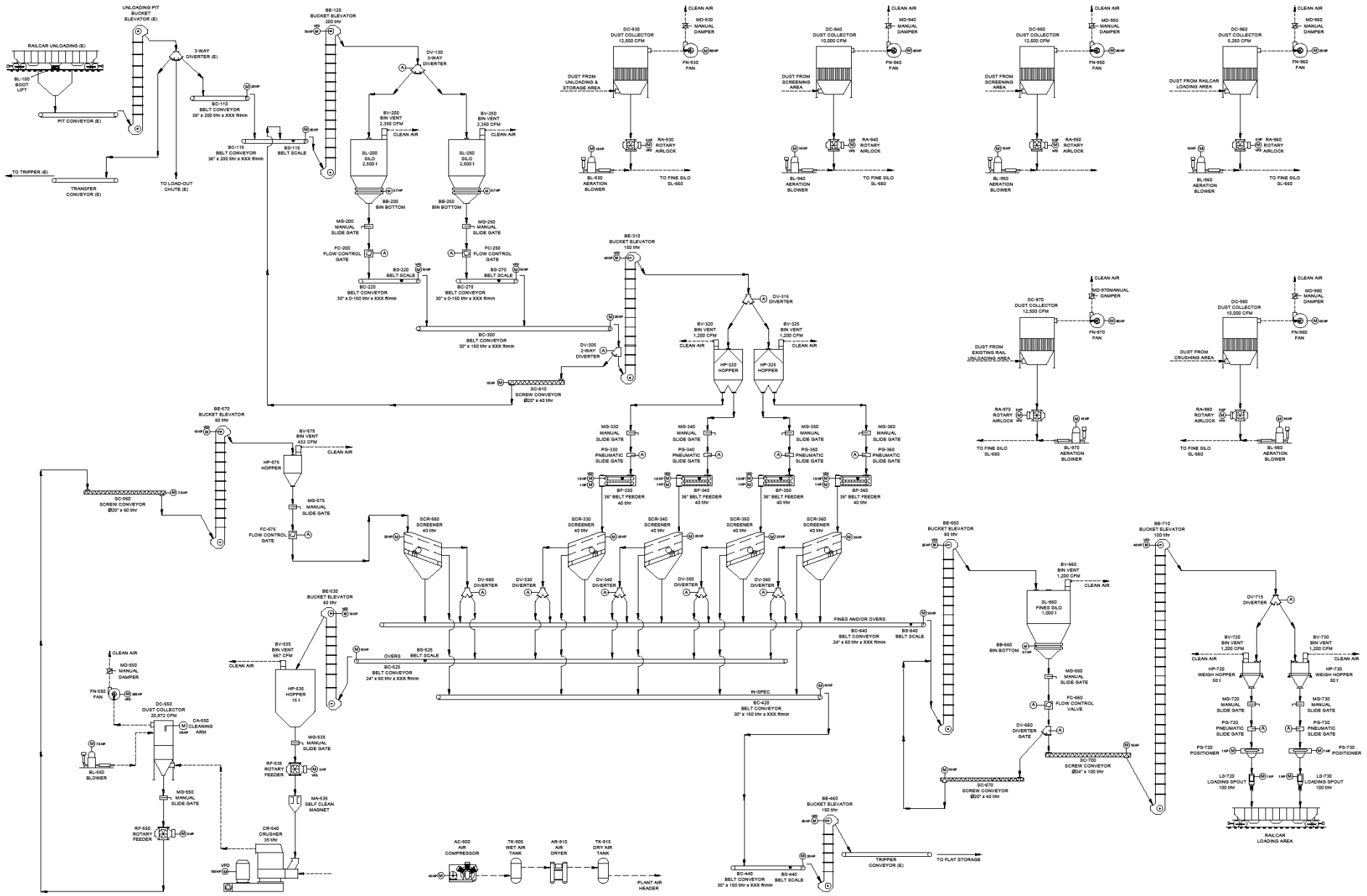
Section 4

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.

NOTE: PROCESS FLOW DIAGRAMS FOR THIS FACILITY ARE TO REMAIN CONFIDENTIAL





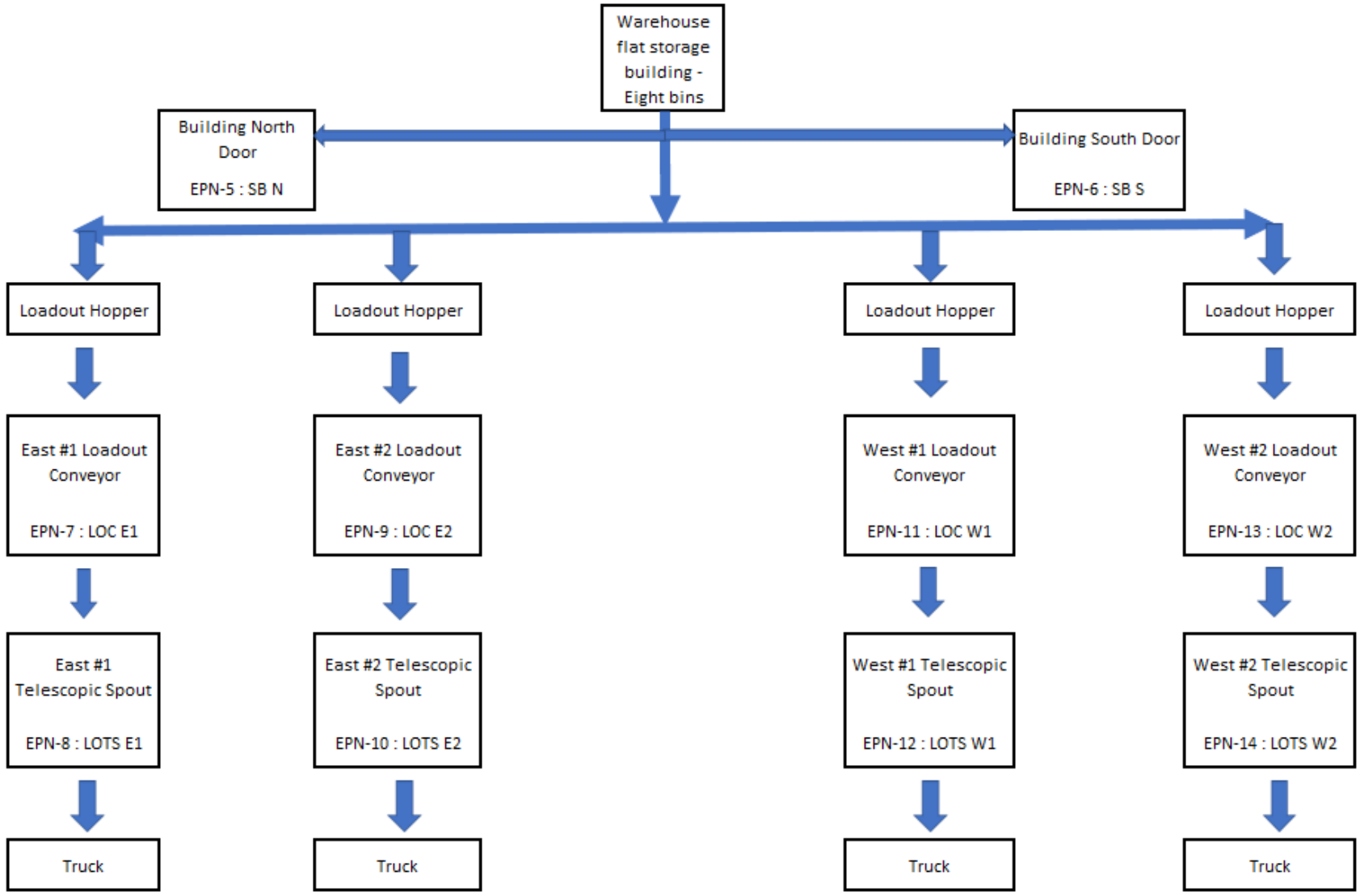
NOTE: PROCESS FLOW DIAGRAMS FOR THIS FACILITY ARE TO REMAIN CONFIDENTIAL

LEGEND:

- (E) = EXISTING EQUIPMENT
- (M) = ELECTRIC MOTOR
- (A) = AIR ACTUATED
- VFD = VARIABLE FREQUENCY DRIVE
- GREY = FUTURE

NOTE: PROCESS FLOW DIAGRAMS FOR THIS FACILITY ARE TO REMAIN CONFIDENTIAL

IN-SPEC AGGREGATE TO WAREHOUSE



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.

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.

Calculations, equations, assumptions, and control devices are shown for controlled and non-controlled sources within the excel spreadsheet entitled, **A-5226R2-Titan-Calculations** as instructed.

Table 1 - Uncontrolled Emissions
Titan Lansing Transloading, LLC
Carlsbad Facility

Emission Unit	Annual Emissions (TPY)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	23.92	6.10	0.61	-	-
Material Storage Piles	-	-	-	-	3.30	1.56	0.24	-	-
Petcoke Handling Emissions	-	-	-	-	57.96	26.25	4.34	-	-
Petcoke Loadout Emissions	-	-	-	-	4.18	1.98	0.30	-	-
Manifest Handling & Loadout Emissions	-	-	-	-	0.87	0.44	0.07	-	-
CAT Diesel-Fired Genset 1	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 2	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 3	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
Diesel Storage Tank (Loaders)	-	-	3.21E-04	-	-	-	-	1.32E-06	-
Diesel Storage Tank (Generators)	-	-	8.68E-03	-	-	-	-	3.58E-05	-
Total (PTE)	**107.06**	**9.02**	**0.42**	**0.23**	**90.64**	**36.74**	**5.97**	**0.19**	**243.30**
Total (Two Genset Synthetic Limit)[(1)]	**71.37**	**6.02**	**0.28**	**0.15**	**90.50**	**36.60**	**5.83**	**0.13**	**162.20**

Emission Unit	Hourly Emissions (lb/hr)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	5.46	1.39	0.14	-	-
Material Storage Piles	-	-	-	-	0.75	0.36	0.05	-	-
Petcoke Handling Emissions	-	-	-	-	13.23	5.99	0.99	-	-
Petcoke Loadout Emissions	-	-	-	-	0.95	0.45	0.07	-	-
Manifest Handling & Loadout Emissions	-	-	-	-	0.20	0.10	0.02	-	-
CAT Diesel-Fired Genset 1	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 2	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 3	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
Diesel Storage Tank (Loaders)	-	-	7.3E-05	-	-	-	-	3.0E-07	-
Diesel Storage Tank (Generators)	-	-	2.0E-03	-	-	-	-	8.2E-06	-
Total (PTE)	**24.44**	**2.06**	**0.10**	**0.05**	**20.69**	**8.39**	**1.36**	**0.13**	**55.55**
Total (Two Genset Synthetic Limit)[(1)]	**16.30**	**1.37**	**0.06**	**0.03**	**20.66**	**8.36**	**1.33**	**0.09**	**37.03**

1. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

Table 2 - Controlled Emissions
Titan Lansing Transloading, LLC
Carlsbad Facility

Emission Unit	Annual Emissions (TPY)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	1.20	0.30	0.03	-	-
Material Storage Piles	-	-	-	-	0.33	0.16	0.02	-	-
Petcoke Handling Emissions	-	-	-	-	5.94	5.94	1.19	-	-
Petcoke Loadout Emissions	-	-	-	-	0.25	0.12	0.02	-	-
Manifest Handling & Loadout Emissions	-	-	-	-	0.12	0.06	0.01	-	-
CAT Diesel-Fired Genset 1	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 2	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
CAT Diesel-Fired Genset 3	35.69	3.01	0.14	0.08	0.14	0.14	0.14	6.48E-02	81.10
Diesel Storage Tank (Loaders)	-	-	3.21E-04	-	-	-	-	1.32E-06	-
Diesel Storage Tank (Generators)	-	-	8.68E-03	-	-	-	-	3.58E-05	-
Total (Controlled)	**107.06**	**9.02**	**0.42**	**0.23**	**8.24**	**6.98**	**1.68**	**0.19**	**243.30**
Total (Two Genset Synthetic Minor Limit)	**71.37**	**6.02**	**0.28**	**0.15**	**8.11**	**6.85**	**1.54**	**0.13**	**162.20**

Emission Unit	Hourly Emissions (lb/hr)								
	CO	NOx	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	Total HAP	CO_2eq
Truck Road Emissions	-	-	-	-	0.27	0.07	0.01	-	-
Material Storage Piles	-	-	-	-	0.08	0.04	0.01	-	-
Petcoke Handling Emissions	-	-	-	-	1.36	1.36	0.27	-	-
Petcoke Loadout Emissions	-	-	-	-	0.06	0.03	0.00	-	-
Manifest Handling & Loadout Emissions	-	-	-	-	0.03	0.01	0.00	-	-
CAT Diesel-Fired Genset 1	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 2	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
CAT Diesel-Fired Genset 3	8.15	0.69	0.03	0.02	0.03	0.03	0.03	4.44E-02	18.52
Diesel Storage Tank (Loaders)	-	-	7.3E-05	-	-	-	-	3.0E-07	-
Diesel Storage Tank (Generators)	-	-	2.0E-03	-	-	-	-	8.2E-06	-
Total (Controlled)	**24.44**	**2.06**	**0.10**	**0.05**	**1.88**	**1.59**	**0.38**	**0.13**	**55.55**
Total (Two Genset Synthetic Minor Limit)	**16.30**	**1.37**	**0.06**	**0.03**	**1.85**	**1.56**	**0.35**	**0.09**	**37.03**

1. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic minor limit which restricts concurrent genset usage to two gensets.

TABLE 3
FACILITY-WIDE SPECIATED HAPs SUMMARY
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Pollutant	HAP (TPY)										
	Truck Road	Material Storage Piles	Petcoke Handling	Manifest Handling	CAT Diesel-Fired Genset 1	CAT Diesel-Fired Genset 2	CAT Diesel-Fired Genset 3	Diesel Storage Tank (Loaders)	Diesel Storage Tank (Generators)	TOTAL (PTE)	TOTAL (Two Genset Synthetic Limit)
Benzene	-	-	-	-	3.37E-02	3.37E-02	3.37E-02	2.57E-09	6.95E-08	**1.01E-01**	**6.74E-02**
Ethylbenzene	-	-	-	-	-	-	-	4.18E-08	1.13E-06	**1.17E-06**	**1.17E-06**
n-Hexane	-	-	-	-	-	-	-	3.21E-10	8.68E-09	**9.01E-09**	**9.01E-09**
Naphthalene	-	-	-	-	5.64E-03	5.64E-03	5.64E-03	2.44E-07	6.60E-06	**1.69E-02**	**1.13E-02**
Toluene	-	-	-	-	1.22E-02	1.22E-02	1.22E-02	1.03E-07	2.78E-06	**3.66E-02**	**2.44E-02**
Xylene	-	-	-	-	8.38E-03	8.38E-03	8.38E-03	9.32E-07	2.52E-05	**2.52E-02**	**1.68E-02**
Acetaldehyde	-	-	-	-	1.09E-03	1.09E-03	1.09E-03	-	-	**3.28E-03**	**2.19E-03**
Acrolein	-	-	-	-	3.42E-04	3.42E-04	3.42E-04	-	-	**1.03E-03**	**6.84E-04**
Formaldehyde	-	-	-	-	3.43E-03	3.43E-03	3.43E-03	-	-	**1.03E-02**	**6.85E-03**
Total	-	-	-	-	6.48E-02	6.48E-02	6.48E-02	1.32E-06	3.58E-05	**0.19**	**0.13**

Pollutant	HAP (lb/hr)										
	Truck Road	Material Storage Piles	Petcoke Handling	Manifest Handling	CAT Diesel-Fired Genset 1	CAT Diesel-Fired Genset 2	CAT Diesel-Fired Genset 3	Diesel Storage Tank (Loaders)	Diesel Storage Tank (Generators)	TOTAL (PTE)	TOTAL (Two Genset Synthetic Limit)
Benzene	-	-	-	-	7.69E-03	7.69E-03	7.69E-03	5.87E-10	1.59E-08	**0.02**	**1.54E-02**
Ethylbenzene	-	-	-	-	-	-	-	9.54E-09	2.58E-07	**2.67E-07**	**2.67E-07**
n-Hexane	-	-	-	-	-	-	-	7.34E-11	1.98E-09	**2.06E-09**	**2.06E-09**
Naphthalene	-	-	-	-	1.29E-03	1.29E-03	1.29E-03	5.58E-08	1.51E-06	**3.87E-03**	**2.58E-03**
Toluene	-	-	-	-	2.79E-03	2.79E-03	2.79E-03	2.35E-08	6.34E-07	**8.36E-03**	**5.57E-03**
Xylene	-	-	-	-	1.91E-03	1.91E-03	1.91E-03	2.13E-07	5.75E-06	**5.75E-03**	**3.83E-03**
Acetaldehyde	-	-	-	-	2.50E-04	2.50E-04	2.50E-04	-	-	**7.49E-04**	**5.00E-04**
Acrolein	-	-	-	-	7.81E-05	7.81E-05	7.81E-05	-	-	**2.34E-04**	**1.56E-04**
Formaldehyde	-	-	-	-	7.82E-04	7.82E-04	7.82E-04	-	-	**2.35E-03**	**1.56E-03**
Total	-	-	-	-	1.48E-02	1.48E-02	1.48E-02	3.02E-07	8.17E-06	**0.04**	**0.03**

1. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

TABLE 4
PTE ESTIMATES OF GREENHOUSE GASES FROM COMBUSTION SOURCES
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Emission unit	Heat Input (mmBtu/hr)	Fuel	Maximum Fuel Usage	Consumption Units	High Heating Value (HHV)	HHV Units	CO_2 Emission Factor (kg/mmBtu)[1]	CO_2 Emissions (metric tons/yr)	CH_4 Emission Factor (kg/mmBtu)[1]	CH_4 Emissions (metric tons/yr)	N_2O Emission Factor (kg/mmBtu)[1]	N_2O Emissions (metric tons/yr)	GHG Mass Emissions (tons/yr)	CO_2 Equivalent (tons/yr)
CAT Diesel-Fired Genset 1	9.91	Diesel	7,235	gal/yr	0.137	mmBtu/gal	73.96	73.3	0.003	0.003	0.0006	5.95E-04	80.83	81.10
CAT Diesel-Fired Genset 2	9.91	Diesel	7,235	gal/yr	0.137	mmBtu/gal	73.96	73.3	0.003	0.003	0.0006	5.95E-04	80.83	81.10
CAT Diesel-Fired Genset 3	9.91	Diesel	7,235	gal/yr	0	mmBtu/gal	73.96	73.3	0.003	0.003	0.0006	5.95E-04	80.83	81.10
												Total:	**242**	**243**
												Total (Two Genset Synthetic Limit)[2]:	**162**	**162**

1. Based on Table 1 of EPA Emission Factor For Greenhouse Gas Inventories (12 September 2024).

2. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

TABLE 5
TRUCK AND EQUIPMENT HAUL ROAD EMISSIONS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Explanation **Road emissions come from empty/loaded truck traffic on the haul road. Exiting trucks are loaded with sand and/or aggregate**

Inputs are highlighted in Green
Calculations are highlighted in Dark Green
Comments are highlighted in Blue
TSP are highlighted in Lt Yellow
PM-10 are highlighted in Lt Orange
PM-2.5 are highlighted in Burnt Orange

Equation references

AP 42 13.2.2 Unpaved roads
13.2.2-4 Eqn 1a
Table 13.2.2-2
AP 42 13.2.4-4
Accepted values for aggregate handling, storage pile and haul road emissions from the New Mexico Environmental Department.

Required Inputs

Sand/Aggregate Loading from Main Warehouse and Manifest System			
Maximum amount of sand and in-spec aggregate handled	500,000	Tons per year	Sand from Manifest System transloading/ In-Spec Aggregate from new Screening and Crushing Plant
Average Haul Road Truck Loaded Weight	40	tons	Truck Data from Site
Average Haul Road Truck Empty Weight	15	tons	Truck Data from Site
Load per Truck	25	tons	Loaded Weight (tons) - Empty Weight (tons)
Number of trucks per year	20,000	Trucks/Year	Annual Material Handled (ton/yr) / Load per Truck (ton/truck)
Length of Haul Road (Thru facility)	2235	feet	Distance from product stockpile area to nearest public access. Est from Google Maps
Length of Haul Road (Thru facility)	0.423	miles	Length of Haul Road (ft) / 5280 (mi/ft)
Number miles per year for sand trucks	8,466	Miles/Year	Truck Throughput (truck/yr) x Haul Road Length (mi/truck)
Mean Vehicle Weight (W)	27.5	tons	0.5 x [empty weight + loaded weight]
Dry Day Haul Road Surface Moisture	2	%	NMED Accepted values for aggregate handling, storage pile and haul road emissions
Haul Road Surface Silt Content	4.8	%	Default is 4.8%.

Emission factor calculation **E (lb/VMT) = k x (s/12)^a x (W/3)^b**

Table 13.2.2-2 Industrial Roads

k = particle size multiplier	4.9	AP-42, TSP
k = particle size multiplier	1.5	AP-42, PM-10
k = particle size multiplier	0.15	AP-42, PM-2.5
a = empirical constant	0.7	AP-42, TSP
a = empirical constant	0.9	AP-42, PM-10
a = empirical constant	0.9	AP-42, PM-2.5
b = empirical constant	0.45	AP-42, TSP
b = empirical constant	0.45	AP-42, PM-10
b = empirical constant	0.45	AP-42, PM-2.5
s = surface silt content (%)	4.8	NMED Default

Emission factors for sand/aggregate trucks

E (lb TSP/ VMT)	6.99	TSP
E (lb PM-10/ VMT)	1.78	PM-10
E (lb PM-2.5/ VMT)	0.18	PM-2.5

TABLE 5
TRUCK AND EQUIPMENT HAUL ROAD EMISSIONS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Natural mitigation due to measurable days of precipitati

E (ext) = E * [(365-P)/365]
E(ext) = annual size specific emission factor (lb/VMT)
E = emission factor from Eqn 1 a
P = number of days in a year with at least 0.01 in of precipitation from Figure 13.2.2-1

P	70	Days from New Mexico Env Dept - Accepted values for aggregate handling, storage
Control factor [(365-P)/365]	0.81	

Emission factors for sand trucks with natural mitigation			
	E(ext) (lb TSP/ VMT)	5.65	AP-42, TSP
	E(ext) (lb PM-10/ VMT)	1.44	AP-42, PM-10
	E(ext) (lb PM-2.5/ VMT)	0.14	AP-42, PM-2.5
Annual - emissions for trucks with precipitation factor			
	Annual (ton)	23.9	AP-42, TSP
	Annual (ton)	6.10	AP-42, PM-10
	Annual (ton)	0.610	AP-42, PM-2.5
Emissions reduction due t	%	95%	Value assigned by NMED
Annual - Controlled emissions for sand trucks including basecourse			
	Annual controlled (ton)	1.2	AP-42, TSP
	Annual controlled (ton)	0.3	AP-42, PM-10
	Annual controlled (ton)	0.03	AP-42, PM-2.5

EPN Number	EPN Name / Description	Raw Material	**Controlled Total PM Emissions**	**Controlled Total PM10 Emissions**	**Controlled Total PM 2.5 Emissions**	**Controlled Total PM Emissions**	**Controlled Total PM10 Emissions**	**Controlled Total PM 2.5 Emissions**
			Total PM lb/Yr	Total PM 10 lb/Yr	Total PM 2.5 lb/Yr	Total PM lb/Hr	Total PM 10 lb/Hr	Total PM2.5 lb/Hr
15	Haul Road	Road	2392.25	609.70	60.97	0.27	0.07	0.007

EPN Number	EPN Name / Description	Raw Material	**Uncontrolled Total PM Emissions**	**Uncontrolled Total PM10 Emissions**	**Uncontrolled Total PM 2.5 Emissions**	**Uncontrolled Total PM Emissions**	**Uncontrolled Total PM10 Emissions**	**Uncontrolled Total PM 2.5 Emissions**
			Total PM lb/Yr	Total PM 10 lb/Yr	Total PM 2.5 lb/Yr	Total PM lb/Hr	Total PM 10 lb/Hr	Total PM2.5 lb/Hr
15	Haul Road	Road	47844.94	12193.91	1219.39	5.46	1.39	0.14

TABLE 6
WAREHOUSE MATERIAL PILE STORAGE AND HANDLING EMISSIONS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Explanation Covered tripper conveyor transports the aggregate into the warehouse and dumps materials into eight piles

Inputs are highlighted in Green
Calculations are highlighted in Dark Green
Comments are highlighted in Blue
TSP are highlighted in Lt Yellow
PM-10 are highlighted in Lt Orange
PM-2.5 are highlighted in Burnt Orange

Equation references

AP-42 13.2.4 - Aggregate Handling and Storage Piles
13.2.4-4 Eqn (1) and K table

Equation - Emissions

Emissions (lb of emissions/ Ton of material handled) * (Tons of material handled)
E = k*(0.0032) (U/5)^1.3/((M/2)^1.4) [=] pounds / ton

Required Inputs

Annual amount of material handled
Percentage of total annual material handled from main rail
U = mean wind speed
M = material moisture content
Number of hours of operation in a year
Emission Control Factor - Building
Number of times the material pile is handed

Assumptions

Material Stored in Pile	500,000	TPY	In-Spec Aggregate from new Screening and Crushing Plant
Reference AP-42 13.2.4			

AGGREGATE STORAGE
E = k x (0.0032) x (U/5)^1.3 / (M/2)^1.4 lb per ton per handling
Calculation of emission rate created when storing material

k = particle size multiplier	0.74	AP-42, TSP	13.2.4-4
k = particle size multiplier	0.35	AP-42, PM-10	13.2.4-4
k = particle size multiplier	0.053	AP-42, PM-2.5	13.2.4-4
U = mean wind speed	11	mph (NMED default)	13.2.4-4
M = material moisture content	2	% (NMED default)	13.2.4-4

TABLE 6
WAREHOUSE MATERIAL PILE STORAGE AND HANDLING EMISSIONS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

E (TSP)=	6.60E-03	TSP	lb/ton
E (PM-10)=	3.12E-03	PM-10	lb/ton
E (PM-2.5)=	4.73E-04	PM-2.5	lb/ton

Number of times the pile of sand/aggregate is handed inside of the warehouse	2
Assumption - Eight piles are created via conveyor RU4	1
Assumption - Sand/aggregate taken out of the eight piles	1

Emission factors accounted for all handling
Eqn = E * (#pile is handed)

E (TSP)=	1.32E-02	TSP	lb/ton
E (PM-10)=	6.24E-03	PM-10	lb/ton
E (PM-2.5)=	9.45E-04	PM-2.5	lb/ton

Annual Emissions from each particle size from the storage piles - Uncontrolled
Eqn = E [lb/ton] * ton/yr

TSP	6,600	TSP	lb/yr - Uncontrolled
PM-10	3,122	PM-10	lb/yr - Uncontrolled
PM-2.5	473	PM-2.5	lb/yr - Uncontrolled

Annual Emissions from each particle size from the storage piles - Uncontrolled	3.30	TSP	Yon/Yr - Uncontrolled
	1.56	PM-10	Yon/Yr - Uncontrolled
	0.24	PM-2.5	Yon/Yr - Uncontrolled

TABLE 6
WAREHOUSE MATERIAL PILE STORAGE AND HANDLING EMISSIONS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Annual Emissions from each particle size from the storage piles - Controlled
Apply control factor of sand/aggregate storage located inside building

Eqn of Enclosed by building	90%	**Source: USEPA Guidance Document for Control of Industrial Particulate Emissions.**	
Eqn = E [lb/ton] * ton/yr*(1- Control%)	660	TSP	lb/yr - Controlled
	312	PM-10	lb/yr - Controlled
	47	PM-2.5	lb/yr - Controlled
Annual Emissions from each particle size f	0.33	TSP	ton/yr - Controlled
	0.16	PM-10	ton/yr - Controlled
	0.02	PM-2.5	ton/yr - Controlled

EPN Number	EPN Name / Description	Raw Material	**Controlled Total PM Annual Emissions**	**Controlled Total PM10 Annual Emissions**	**Controlled Total PM 2.5 Annual Emissions**	**Controlled Total PM Hourly Emissions**	**Controlled Total PM10 Hourly Emissions**	**Controlled Total PM 2.5 Hourly Emissions**
			Total PM lb/Yr	Total PM 10 lb/Yr	Total PM 2.5 lb/Yr	Total PM lb/Hr	Total PM 10 lb/Hr	Total PM2.5 lb/Hr
5	SB N Storage Building North Door	Aggregate	329.99	156.08	23.63	0.04	0.018	0.0027
6	SB S Storage Building South Door	Aggregate	329.99	156.08	23.63	0.04	0.018	0.0027

EPN Number	EPN Name / Description	Raw Material	**Uncontrolled Total PM Annual Emissions**	**Uncontrolled Total PM10 Annual Emissions**	**Uncontrolled Total PM 2.5 Annual Emissions**	**Uncontrolled Total PM Hourly Emissions**	**Uncontrolled Total PM10 Hourly Emissions**	**Uncontrolled Total PM 2.5 Hourly Emissions**
			Total PM lb/Yr	Total PM 10 lb/Yr	Total PM 2.5 lb/Yr	Total PM lb/Hr	Total PM 10 lb/Hr	Total PM2.5 lb/Hr
5	SB N Storage Building North Door	Sand/aggregate	3299.90	1560.76	236.34	0.38	0.18	0.03
6	SB S Storage Building South Door	Sand/aggregate	3299.90	1560.76	236.34	0.38	0.18	0.03

TABLE 7A
MANIFEST SYSTEM - SAND HANDLING EQUIPMENT EMISSIONS (UCONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Inputs are highlighted in Green
Input Calculations are highlighted in Dark Green
Comments are highlighted in Blue
TSP/PM are highlighted in Yellow
PM-10 are highlighted in Lt Orange
PM-2.5 are highlighted in Burnt Orange

Required Inputs

	Max Capacity of Sand Handling	
Capacity of Manifest Rail Unloading	15	tons/ hour
Max. annual amount of sand handled	131,400	tons/ year

Assumptions

PM 2.5 estimates were based on AP 42 guidelines using the ratio of PM 2.5/PM 10 on page AP 42.13.2.4-4, Aerodynamic particle size multiplier (K) for Equation 1 = 0.151

PM2.5 /10 Ratio	0.151

MANIFEST SAND

EPN Number	EPN Name / Description	Raw Material	Column A Annual Throughput	Reference	**Column B Uncontrolled Emission Factor**	**Column C Uncontrolled Emission Factor**	**Column D Uncontrolled Emission Factor**	**Total PM Emissions**	**Total PM10 Emissions**	**Total PM 2.5 Emissions**	**Total PM Emissions**	**Total PM10 Emissions**	**Total PM2.5 Emissions**
			Tons	AP 42.11.12 Concrete Batching	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton	Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
18	MNFS 1 Railcar Unloading to Inclined Conveyor #1	Sand	131,400	Table 11.12-6[a] Sand Delivery to Grd Str	0.0021	0.00098	0.00015	276.05	128.82	19.45	0.032	0.015	0.002
19	MNFS 2 Transfer to Inclined Conveyor #2	Sand	131,400	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	275.94	130.09	19.64	0.032	0.015	0.002
20	MNFS 3 Transfer to Bucket Elevator	Sand	131,400	Table 11.12-2 Sand Transfer	0.0021	0.00099	0.00015	275.94	130.09	19.64	0.032	0.015	0.002
21	MNFS 4A Bucket Elevator to Silo	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	68.99	32.52	4.91	0.008	0.004	0.001
71	MNFS 4B Bucket Elevator to Silo	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	68.99	32.52	4.91	0.008	0.004	0.001
72	MNFS 4C Bucket Elevator to Silo	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	68.99	32.52	4.91	0.008	0.004	0.001
73	MNFS 4D Bucket Elevator to Silo	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	68.99	32.52	4.91	0.008	0.004	0.001
22	MNFS 5A Silo Transfer to Truck Trailer West A	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	157.68	91.98	13.89	0.018	0.011	0.002
23	MNFS 5B Silo Transfer to Truck Trailer West B	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	157.68	91.98	13.89	0.018	0.011	0.002
24	MNFS 5C Silo Transfer to Truck Trailer East A	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	157.68	91.98	13.89	0.018	0.011	0.002
25	MNFS 5D Silo Transfer to Truck Trailer East B	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	157.68	91.98	13.89	0.018	0.011	0.002
TOTAL								1734.59	887.00	133.937	0.20	0.10	0.015

Ton/Yr	Ton/Yr	Ton/Yr
0.87	0.44	0.067

[a] emission unit in lb/yd3 converted to lb/ton based on the following concrete composition stated in the footnotes to Table 11.12-6. Sand, i.e., 1,428 lbs = 1.0 yd3

TABLE 7B
MANIFEST SYSTEM - SAND HANDLING EQUIPMENT EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Inputs are highlighted in Green
Calculations are highlighted in Dark
Comments are highlighted in Blue
TSP/PM are highlighted in Yellow
PM-10 are highlighted in Lt Orange
M-2.5 are highlighted in Burnt Orang

Required Inputs	**Max Capacity of Sand Handling**	
Capacity of Rail Unloading	15	tons/ hour
Max. annual amount of sand handled	131,400	tons/ year

Assumptions
PM 2.5 estimates were based on AP 42 guidelines using the ratio of PM 2.5/PM 10 on page AP 42.13.2.4-4, Aerodynamic particle size multiplier (K) for Equation 1 = 0.151

PM2.5 /10 Ratio 0.151

MANIFEST SAND

EPN Number	EPN Name / Description	Raw Material	Column A Annual Throughput	Reference	Column B Uncontrolled Emission Factor	Column C Uncontrolled Emission Factor	Column D Uncontrolled Emission Factor	Column E Control Factor & Equipment[1]	Total PM Emissions	Total PM10 Emissions	Total PM 2.5 Emissions	Total PM Emissions	Total PM10 Emissions	Total PM2.5 Emissions
			Tons	AP 42.11.12 Concrete Batching	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton		Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
18	MNFS 1 Railcar Unloading to Inclined Conveyor #1	Sand	131,400	Table 11.12-6[a] Sand Delivery to Grd Str	0.0021	0.00098	0.00015	50% sided warehouse encloure	138.03	64.41	9.73	0.016	0.007	0.001
19	MNFS 2 Transfer to Inclined Conveyor #2	Sand	131,400	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	70% Enclosed Transfer Point/ 2-sided warehouse	82.78	39.03	5.89	0.009	0.004	0.001
20	MNFS 3 Transfer to Bucket Elevator	Sand	131,400	Table 11.12-2 Sand Transfer	0.0021	0.00099	0.00015	100% Completely Enclosed Transfer Point	0.00	0.00	0.00	0.000	0.00	0.00
21	MNFS 4A Bucket Elevator to Silos	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	98% Two Bin Vent Filters	1.38	0.65	0.10	0.0002	0.0001	0.00001
71	MNFS 4B Bucket Elevator to Silos	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	98% Two Bin Vent Filters	1.38	0.65	0.10	0.0002	0.0001	0.00001
72	MNFS 4C Bucket Elevator to Silos	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	98% Two Bin Vent Filters	1.38	0.65	0.10	0.0002	0.0001	0.00001
73	MNFS 4D Bucket Elevator to Silos	Sand	32,850	Table 11-12.2 Sand Transfer	0.0021	0.00099	0.00015	98% Two Bin Vent Filters	1.38	0.65	0.10	0.0002	0.0001	0.00001
22	MNFS 5A Silo Transfer to Truck Trailer West A	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	98% Dust Suppression Hopper	3.15	1.84	0.28	0.00036	0.00021	0.00003
23	MNFS 5B Silo Transfer to Truck Trailer West B	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	98% Dust Suppression Hopper	3.15	1.84	0.28	0.00036	0.00021	0.00003
24	MNFS 5C Silo Transfer to Truck Trailer East A	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	98% Dust Suppression Hopper	3.15	1.84	0.28	0.00036	0.00021	0.00003
25	MNFS 5D Silo Transfer to Truck Trailer East B	Sand	32,850	Table 11-12.2 Weigh Hopper Loading	0.0048	0.0028	0.00042	98% Dust Suppression Hopper	3.15	1.84	0.28	0.00036	0.00021	0.00003
TOTAL									238.94	113.40	17.123	0.03	0.01	0.002
									Ton/Yr	Ton/Yr	Ton/Yr			
									0.12	0.06	0.009			

TABLE 7B
MANIFEST SYSTEM - SAND HANDLING EQUIPMENT EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Notes

[a] emission unit in lb/yd3 converted to lb/ton based on the following concrete composition stated in the footnotes to Table 11.12-6. Sand, i.e., 1,428 lbs = 1.0 yd3

Control Type[1]	Control Eff	Comment
Choke Feeding	90%	Conservatively based on TCEQ sample calculations which allow for a max. 90% control efficiency for choke feeding for dry bulk fertilizer operations
2-Sided Enclosure	50%	Prorated based on 75% control efficiency for a 3-sided enclosure in Table 4-2 WRAP Fugitive Dust Handbook
Completely Enclosed Transfer Point	100%	Transfer Point is completely enclosed or shrouded
Bin Vent Filter	98%	Conservatively based on manufacturer's data specifying up to 99.9% controls

TABLE 8A
PETCOKE AGGREGATE HANDLING EQUIPMENT EMISSIONS (UNCONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Inputs are highlighted in Green
Input Calculations are highlighted in Dark Green
Comments are highlighted in Blue
TSP/PM are highlighted in Yellow
PM-10 are highlighted in Lt Orange
PM-2.5 are highlighted in Burnt Orange

Required Inputs

Phase 1 Construction Capacity	**85**	tons/hr	*Rail Unloading Bottleneck*
Max. annual amount of petcoke handled	**744,600**	tons/yr	
Max. petcoke unloaded	**1,489,200,000**	lbs/yr	

EPN Number	EPN Name / Description	Raw Material	Annual Throughput	Column A Annual Throughput	Reference	Column B Uncontrolled Emission Factor	Column C Uncontrolled Emission Factor	Column D Uncontrolled Emission Factor	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions	Total PM Hourly Emissions	Total PM10 Hourly Emissions	Total PM2.5 Hourly Emissions
			lbs	Tons	AP 42.13.2.4 Aggregate Handling & Storage Piles	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton	Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
1	RU 1 Railcar Unloading	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
2	RU 2 Subgrade Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
3	RU 3 Bucket Elevator	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
26	BC-110 Belt Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
27	BC-115 Belt Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
28	BE-120 Bucket Elevator	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
29	SL-200 Silo	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
30	SL-250 Silo	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
31	BC-220 Belt Conveyor	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
32	BC-270 Belt Conveyor	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
33	BC-300 Belt Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Handling	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
47	SC-810 Screw Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Handling	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
48	SC-820 Screw Conveyor	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Handling	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
34	BE-310 Bucket Elevator	Petcoke	1,489,200,000	744,600	Equation 13.2.4 .3 [1] Aggregate Handling	0.00660	0.00312	0.00047	4,914.22	2,324.29	351.96	0.56	0.27	0.04
35	HP-320 Hopper	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
67	HP-325 Hopper	Petcoke	744,600,000	372,300	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	2,457.11	1,162.15	175.98	0.28	0.13	0.02
49	BF-330 Belt Feeder	Petcoke	372,300,000	186,150	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	1,228.55	581.07	87.99	0.14	0.07	0.01
50	BF-340 Belt Feeder	Petcoke	372,300,000	186,150	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	1,228.55	581.07	87.99	0.14	0.07	0.01
36	BF-350 Belt Feeder	Petcoke	372,300,000	186,150	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	1,228.55	581.07	87.99	0.14	0.07	0.01

TABLE 8A
PETCOKE AGGREGATE HANDLING EQUIPMENT EMISSIONS (UNCONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

EPN Number	EPN Name / Description	Raw Material	Annual Throughput	Column A Annual Throughput	Reference	Column B Uncontrolled Emission Factor	Column C Uncontrolled Emission Factor	Column D Uncontrolled Emission Factor	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions
			lbs	Tons	AP 42.13.2.4 Aggregate Handling & Storage Piles	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton	Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
51	BF-360 Belt Feeder	Petcoke	372,300,000	186,150	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	1,228.55	581.07	87.99	0.14	0.07	0.01
52	SC-330 Screener	Petcoke	372,300,000	186,150	Table 11.19.2-2 Screening	0.02500	0.00870	0.00231	4,653.75	1,619.51	429.17	0.53	0.18	0.05
53	SC-340 Screener	Petcoke	372,300,000	186,150	Table 11.19.2-2 Screening	0.02500	0.00870	0.00231	4,653.75	1,619.51	429.17	0.53	0.18	0.05
37	SC-350 Screener	Petcoke	372,300,000	186,150	Table 11.19.2-2 Screening	0.02500	0.00870	0.00231	4,653.75	1,619.51	429.17	0.53	0.18	0.05
54	SC-360 Screener	Petcoke	372,300,000	186,150	Table 11.19.2-2 Screening	0.02500	0.00870	0.00231	4,653.75	1,619.51	429.17	0.53	0.18	0.05
55	BC-525 Belt Conveyor (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
56	BE-530 Bucket Elevator (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
57	HP-535 Hopper (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
58	CR-540 Crusher (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
59	SC-560 Screw Conveyor (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
60	BE-570 Bucket Elevator (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
61	HP-575 Hopper (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
62	SC-580 Screener (Overs)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
41	BC-640 Belt Conveyor (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
42	BE-650 Bucket Elevator (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
43	SL-660 Silo (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
44	SC-700 Screw Conveyor (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
63	SC-670 Screw Conveyor (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
64	BE-710 Bucket Elevator (Fines)	Petcoke	223,380,000	111,690	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	737.13	348.64	52.79	0.08	0.04	0.01
45	HP-720 Hopper (Fines)	Petcoke	111,690,000	55,845	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	368.57	174.32	26.40	0.04	0.02	0.00
65	HP-730 Hopper (Fines)	Petcoke	111,690,000	55,845	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	368.57	174.32	26.40	0.04	0.02	0.00
46	LS-720 Rail Loading Spout (Fines)	Petcoke	111,690,000	55,845	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	368.57	174.32	26.40	0.04	0.02	0.00
66	LS-730 Rail Loading Spout (Fines)	Petcoke	111,690,000	55,845	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	368.57	174.32	26.40	0.04	0.02	0.00
38	BC-420 Belt Conveyor (in-spec)	Petcoke	1,265,820,000	632,910	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,177.08	1,975.65	299.17	0.48	0.23	0.03
39	BC-440 Belt Conveyor (in-spec)	Petcoke	1,265,820,000	632,910	Equation 13.2.4 .3 [1] Aggregate Transfer	0.00660	0.00312	0.00047	4,177.08	1,975.65	299.17	0.48	0.23	0.03

TABLE 8A
PETCOKE AGGREGATE HANDLING EQUIPMENT EMISSIONS (UNCONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

EPN Number	EPN Name / Description	Raw Material	Annual Throughput	Column A Annual Throughput	Reference	Column B Uncontrolled Emission Factor	Column C Uncontrolled Emission Factor	Column D Uncontrolled Emission Factor	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions
			lbs	Tons	AP 42.13.2.4 Aggregate Handling & Storage Piles	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton	Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
40	BE-460 Bucket Elevator (in-spec)	Petcoke	1,265,820,000	632,910	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	4,177.08	1,975.65	299.17	0.48	0.23	0.03
4	RU 4 Tripper-Conveyor (In-spec)	Petcoke	1,265,820,000	632,910	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	4,177.08	1,975.65	299.17	0.48	0.23	0.03
7	LOC E1 Load-Out Conveyor East 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
8	LOTS E1 Load-Out Transfer Spout East 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
9	LOC E2 Load-Out Conveyor East 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
10	LOTS E2 Load-Out Transfer Spout East 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
11	LOC W1 Load-Out Conveyor West 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
12	LOTS W1 Load-Out Transfer Spout West 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
13	LOC W2 Load-Out Conveyor West 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
14	LOTS W2 Load-Out Transfer Spout West 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	1,044.27	493.91	74.79	0.12	0.06	0.01
TOTAL									**124,270.64**	**56,450.28**	**9,283.90**	**14.19**	**6.44**	**1.06**

Ton/Yr	Ton/Yr	Ton/Yr
62.14	28.23	4.642

Notes

(1) Emission factor is based on the Drop equation provided in Sec. 13.2.4 - Agg. Hand. & Storage Piles, USEPA AP-42, 5th Ed., 11/06 (Rating A).

E = K (0.0032) [(U/5)^1.3/(M/2)^1.4]

K (PM) =	0.74
K (PM10) =	0.35
K (PM2.5) =	0.053

Notes (cont'd)

U (Average wind	11	miles per hour for New Mexico. Default from NMED.
M (material moisture c	2	%

(2) PM 2.5 estimates were based on AP 42 guidelines using the ratio of PM 2.5/PM 10 in AP 42.13.2.4-3, Aerodynamic particle size multiplier (K) for Equation 1

0.053/0.35= **0.151**

TABLE 8B
PETCOKE AGGREGATE RECEIVING AND HANDLING EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

EPN Number	EPN Name / Description	**Control Equipment**	**Exhaust Grain Loading [1] (gr/scf)**	**Flow Rate (acfm)**	PM/PM10 Hourly Emissions (lb/hr)	PM/PM10 Annual Emissions (TPY)	PM2.5 Hourly Emissions [2] (lb/hr)	PM2.5 Annual Emissions [2] (TPY)
28	BE-120 Bucket Elevator	Dust Collector (DC-930)	0.002	12,500	0.21	0.94	0.04	0.19
31	BC-220 Belt Conveyor							
32	BC-270 Belt Conveyor							
33	BC-300 Belt Conveyor							
34	BE-310 Bucket Elevator							
47	SC-810 Screw Conveyor							
48	SC-820 Screw Conveyor							
49	BF-330 Belt Feeder	Dust Collector (DC-940)	0.002	10,000	0.17	0.75	0.03	0.15
50	BF-340 Belt Feeder							
52	SC-330 Screener							
53	SC-340 Screener							
41	BC-640 Belt Conveyor (Fines)							
38	BC-420 Belt Conveyor (in-spec)							
36	BF-350 Belt Feeder	Dust Collector (DC-950)	0.002	12,500	0.21	0.94	0.04	0.19
51	BF-360 Belt Feeder							
37	SC-350 Screener							
54	SC-360 Screener							
42	BE-650 Bucket Elevator (Fines)							
63	SC-670 Screw Conveyor (Fines)							

TABLE 8B
PETCOKE AGGREGATE RECEIVING AND HANDLING EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

EPN Number	EPN Name / Description	**Control Equipment**	**Exhaust Grain Loading [1] (gr/scf)**	**Flow Rate (acfm)**	PM/PM10 Hourly Emissions (lb/hr)	PM/PM10 Annual Emissions (TPY)	PM2.5 Hourly Emissions [2] (lb/hr)	PM2.5 Annual Emissions [2] (TPY)
44	SC-700 Screw Conveyor (Fines)	Dust Collector (DC-960)	0.002	5,250	0.09	0.39	0.02	0.08
64	BE-710 Bucket Elevator (Fines)							
46	LS-720 Rail Loading Spout (Fines)							
66	LS-730 Rail Loading Spout (Fines)							
1	RU 1 Railcar Unloading	Dust Collector (DC-970)	0.002	12,500	0.21	0.94	0.04	0.19
2	RU 2 Subgrade Conveyor							
3	RU 3 Bucket Elevator							
26	BC-110 Belt Conveyor							
27	BC-115 Belt Conveyor							
39	BC-440 Belt Conveyor (in-spec)							
40	BE-460 Bucket Elevator (in-spec)							
4	RU 4 Tripper-Conveyor (In-spec)							
55	BC-525 Belt Conveyor (Overs)	Dust Collector (DC-980)	0.002	10,000	0.17	0.75	0.03	0.15
56	BE-530 Bucket Elevator (Overs)							
59	SC-560 Screw Conveyor (Overs)							
60	BE-570 Bucket Elevator (Overs)							
62	SC-580 Screener (Overs)							

TABLE 8B
PETCOKE AGGREGATE RECEIVING AND HANDLING EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

EPN Number	EPN Name / Description	**Control Equipment**	**Exhaust Grain Loading [(1)] (gr/scf)**	**Flow Rate (acfm)**	PM/PM10 Hourly Emissions (lb/hr)	PM/PM10 Annual Emissions (TPY)	PM2.5 Hourly Emissions [(2)] (lb/hr)	PM2.5 Annual Emissions [(2)] (TPY)
29	SL-200 Silo	Bin Vent Filter (BV-200)	0.001	2,350	0.02	0.09	0.004	0.02
30	SL-250 Silo	Bin Vent Filter (BV-250)	0.001	2,350	0.02	0.09	0.004	0.02
35	HP-320 Hopper	Bin Vent Filter (BV-320)	0.001	1,200	0.01	0.05	0.002	0.01
67	HP-325 Hopper	Bin Vent Filter (BV-325)	0.001	1,200	0.01	0.05	0.002	0.01
57	HP-535 Hopper (Overs)	Bin Vent Filter (BV-535)	0.001	667	0.006	0.03	0.0011	0.01
58	CR-540 Crusher (Overs)	Dust Collector (DC-550)	0.001	20,872	0.18	0.78	0.036	0.16
61	HP-575 Hopper (Overs)	Bin Vent Filter (BV-575)	0.001	440	0.004	0.02	0.001	0.00
43	SL-660 Silo (Fines)	Bin Vent Filter (BV-660)	0.001	1,200	0.01	0.05	0.002	0.01
45	HP-720 Hopper (Fines)	Bin Vent Filter (BV-720)	0.001	1,200	0.01	0.05	0.002	0.01
65	HP-730 Hopper (Fines)	Bin Vent Filter (BV-730)	0.001	1,200	0.01	0.05	0.002	0.01
TOTAL					**1.36**	**5.94**	**0.27**	**1.19**

Notes

(1) Based on performance guarantee provided by manufacturer of air pollution control equipment. Manufacturer guarantees up to to 99.9% emissions reduction, which will convert to lower grain loadings than shown in the table based on AP-42 factors.

(2) PM 2.5 estimates were based on AP 42 guidelines using the ratio of PM 2.5/PM 10 in AP 42.13.2.4-3, Aerodynamic particle size multiplier (K) for Equation 1

0.053/0.35= **20%**

TABLE 8C
PETCOKE AGGREGATE LOADOUT EMISSIONS (CONTROLLED)
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Inputs are highlighted in Green
Input Calculations are highlighted in Dark Green
Comments are highlighted in Blue
TSP/PM are highlighted in Yellow
PM-10 are highlighted in Lt Orange
PM-2.5 are highlighted in Burnt Orange

Required Inputs

Construction Capacity	**85**	tons/hr	*Rail Unloading Bottleneck*
Max. annual amount of petcoke handled	**744,600**	tons/yr	
Max. petcoke unloaded	**1,489,200,000**	lbs/yr	

EPN Number	EPN Name / Description	Raw Material	Annual Throughput	Column A Annual Throughput	Reference	Column B Uncontrolled Emission Factor	Column C Uncontrolled Emission Factor	Column D Uncontrolled Emission Factor	Column E Control Factor & Equipment	Total PM Annual Emissions	Total PM10 Annual Emissions	Total PM2.5 Annual Emissions	Total PM Hourly Emissions	Total PM10 Hourly Emissions	Total PM2.5 Hourly Emissions
			lbs	Tons	AP 42.13.2.4 Aggregate Handling & Storage Piles	Total PM lb/ton	Total PM 10 lb/ton	Total PM 2.5 lb/ton		Total PM lb/yr	Total PM 10 lb/yr	Total PM2.5 lb/yr	Total PM lb/hr	Total PM 10 lb/hr	Total PM2.5 lb/hr
7	LOC E1 Load-Out Conveyor East 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	90% Storage Bldg. w/ North and South Doors	104.43	49.39	7.48	0.01	0.006	0.001
8	LOTS E1 Load-Out Transfer Spout East 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	98% Dust Suppression Hopper	20.89	9.88	1.50	0.00	0.0011	0.0002
9	LOC E2 Load-Out Conveyor East 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	90% Storage Bldg. w/ North and South Doors	104.43	49.39	7.48	0.01	0.006	0.001
10	LOTS E2 Load-Out Transfer Spout East 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	98% Dust Suppression Hopper	20.89	9.88	1.50	0.002	0.0011	0.0002
11	LOC W1 Load-Out Conveyor West 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	90% Enclosure w/ North and South Doors	104.43	49.39	7.48	0.01	0.006	0.001
12	LOTS W1 Load-Out Transfer Spout West 1	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	98% Dust Suppression Hopper	20.89	9.88	1.50	0.0024	0.0011	0.0002
13	LOC W2 Load-Out Conveyor West 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	90% Enclosure w/ North and South Doors	104.43	49.39	7.48	0.01	0.006	0.001
14	LOTS W2 Load-Out Transfer Spout West 2	Petcoke	316,455,000	158,228	Equation 13.2.4 .3 (1) Aggregate Transfer	0.00660	0.00312	0.00047	98% Dust Suppression Hopper	20.89	9.88	1.50	0.002	0.0011	0.0002
TOTAL										**501.25**	**237.08**	**35.90**	**0.06**	**0.03**	**0.00**

Ton/Yr	Ton/Yr	Ton/Yr
0.25	0.12	0.018

Notes

(1) Emission factor is based on the Drop equation provided in Sec. 13.2.4 - Agg. Hand. & Storage Piles, USEPA AP-42, 5th Ed., 11/06 (Rating A).

E = K (0.0032) [(U/5)^1.3/(M/2)^1.4]

K (PM) =	0.74	
K (PM10) =	0.35	
K (PM2.5) =	0.053	
U (Average wind speed) =	11	miles per hour for New Mexico. Default from NMED.
M (material moisture content	2	%

(2) PM 2.5 estimates were based on AP 42 guidelines using the ratio of PM 2.5/PM 10 in AP 42.13.2.4-3, Aerodynamic particle size multiplier (K) for Equation 1

0.053/0.35= **0.151**

TABLE 9A
EMISSIONS - STORAGE TANKS
TITAN TRANSLOADING, LLC - CARLSBAD FACILITY

Tank ID	Tank Type	Shape	Height (ft)	Length (ft)	Diameter (ft)	Maximum Liquid Volume (gal)	Annual Throughput (gal/yr)	Fuel Stored:	Shell Color	Shell Condition
Diesel Storage Tank (Loaders)	VFRT	Cylinder	5.4		4	507.62	18,000	No. 2 Fuel Oil	Black	Average
Diesel Storage Tank (Generators)	HFRT	Cylinder		26.67	8	10,028.24	1,897,416	No. 2 Fuel Oil	Black	Average

Pollutant	Benzene	Ethylbenzene	n-Hexane	Naphthalene	Toluene	Xylenes	Total HAPs
Fuel Oil 2[1]	0.001%	0.013%	0.0001%	0.076%	0.0320%	0.290%	0.41%

Fuel	Annual Emissions (tpy)							
	VOC[2]	Benzene	Ethylbenzene	n-Hexane	Naphthalene	Toluene	Xylene	Total HAPs
Diesel Storage Tank (Loaders)	3.21E-04	2.57E-09	4.18E-08	3.21E-10	2.44E-07	1.03E-07	9.32E-07	1.32E-06
Diesel Storage Tank (Generators)	8.68E-03	6.95E-08	1.13E-06	8.68E-09	6.60E-06	2.78E-06	2.52E-05	3.58E-05

Fuel	Hourly Emissions (lb/hr)							
	VOC[2]	Benzene	Ethylbenzene	n-Hexane	Naphthalene	Toluene	Xylene	Total HAPs
Diesel Storage Tank (Loaders)	7.34E-05	5.87E-10	9.54E-09	7.34E-11	5.58E-08	2.35E-08	2.13E-07	3.02E-07
Diesel Storage Tank (Generators)	1.98E-03	1.59E-08	2.58E-07	1.98E-09	1.51E-06	6.34E-07	5.75E-06	8.17E-06

Notes:

1. HAP weight fraction in VOC calculated from diesel fuel liquid composition listed in Tank ESP Version 5.3.1.
2. VOC Emissions are calculated according to Chapter 7.1 of AP-42 (06/2020) using commercial VOC estimation software -Tank ESP Version 5.3.1

Sample Calculations:

HAP Emissions (tpy) = VOC Emissions (tpy) x HAP Speciation (Wt. %)

Total HAP Emissions (tpy) = VOC Emissions (tpy) x Sum of all HAP Speciation (Wt. %)

Table 9B - TankESP Summary

Site: Titan Lansing Carlsbad, Petcoke Transloading
Equations for this site: After 2019 AP-42 revisions
H/D ratio: Default 0.5

Tank ID+A4:R6	Diesel Storage Tank (Generators)	Diesel Storage Tank (Loaders)
Tank Diameter (ft)	16.478972	5.8632301
Tank Type	Horizontal Tank	Horizontal Tank
Product	Diesel	Diesel
RVP	0	0
Throughput in gal.	1897416	18000
Bulk Liquid Temperature (degF)	65.302893	65.302893
Avg. Liquid Surface Temp. (degF)	66.930806	66.930806
Avg. TVP (psia)	0.008122312	0.008122312
Includes a landing loss?	N	N
Initial fill?	N	N
Includes a tank cleaning?	N	N
Number of Days	365	365
Estimated standing losses (lbs)	2.3338098	0.19445366
Estimated working losses (lbs)	15.033806	0.44843866
Routine Emissions (lbs)	17.367616	0.64289232
Non Routine Emissions (lbs)	0	0
Total estimated emissions (lbs)	17.367616	0.64289232

TABLE 10A
CRITERIA POLLUTANT EMISSIONS - DIESEL GENERATORS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Fuel	Engine Capacity		Hourly Emissions (lb/hr)					
	hp	kW (Mechanical)	CO	NO_x	OC	VOC	PM-10,-2.5	SO_2
Diesel	1,416	1,056	8.15	0.69	0.03	0.03	0.03	0.02
Diesel	1,416	1,056	8.15	0.69	0.03	0.03	0.03	0.02
Diesel	1,416	1,056	8.15	0.69	0.03	0.03	0.03	0.02

Fuel	Max Annual Usage		Annual Emissions (tpy)					
	hrs/yr	gal/yr[1]	CO	NO_x	OC	VOC	PM-10,-2.5	SO_2
Diesel	8,760.00	6.32E+05	35.69	3.01	0.14	0.14	0.14	0.08
Diesel	8,760.00	6.32E+05	35.69	3.01	0.14	0.14	0.14	0.08
Diesel	8,760.00	6.32E+05	35.69	3.01	0.14	0.14	0.14	0.08
		Total (PTE):	107.06	9.02	0.41	0.41	0.41	0.23
		Total (Two Genset Synthetic Limit)[4]:	71.37	6.02	0.27	0.27	0.27	0.15

Engine Type	Emission Factors from Diesel Fuel Combustion					
	CO (g/kW-hr)[2]	NOx (g/HP-hr)[3]	OC (g/HP-hr)[3]	VOC (g/HP-hr)[3]	PM-10,-2.5 (g/HP-hr)[3]	SO_2 (lb/HP-hr)[5][6]
Diesel	3.50	0.22	0.01	0.01	0.01	1.214E-05

Notes:

1. The conversions are based on an average max-capacity fuel consumption of 72.2 gal/hr diesel fuel.

2. Based on Table 1 of 40 CFR §1039.101 for generator sets with power ratings 130<kW<560. Note that each genset consists of two 500kW generators.

3. Based on manufacturer general performance data for 500kW CAT C18 generator operating at maximum capacity.

4. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

5. Diesel emission factors based on uncontrolled diesel industrial engines (greater than 600 hp) present in USEPA AP-42 Section 3.4 "Large Stationary Diesel and all Stationary Dual Fuel Engines" Table 3.4-1 "Gaseous Emission Factors for Large Stationary Diesel and All Stationary Dual-Fuel Engines". (4/25).

6. For diesel, based on an emission factor of 8.09E-03 S1 lb/MMBtu, where S1 = % sulfur in fuel (15 ppm sulfur in ultra low sulfur diesel or 0.0015% = 0.0015 in the formula)

Sample Calculations:

NOx emissions (lb/hr) = 1416 hp/engine x 0.22 g/hp-hr ÷ 453.59 g/lb = 0.69 lb/engine-hr

NOx emissions (ton/yr) = 0.69 lb/hr x 8760 hr/yr x 1/2,000 ton/lb = 3.01 ton/yr

TABLE 10B
POTENTIAL HAP EMISSIONS - DIESEL GENERATORS
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

HAPs	Emission Factor	Emissions		Basis of Emission Estimate
	Diesel	Max Hourly	PTE[2]	
	(lb/mmBtu)[1]	(lb/hr)	(tpy)	
Acetaldehyde	2.52E-05	7.49E-04	3.28E-03	AP 42 Table 3.4-3
Acrolein	7.88E-06	2.34E-04	1.03E-03	AP 42 Table 3.4-3
Benzene	7.76E-04	2.31E-02	1.01E-01	AP 42 Table 3.4-3
Formaldehyde	7.89E-05	2.35E-03	1.03E-02	AP 42 Table 3.4-3
Naphthalene	1.30E-04	3.87E-03	1.69E-02	AP 42 Table 3.4-4
Toluene	2.81E-04	8.36E-03	3.66E-02	AP 42 Table 3.4-3
Xylene	1.93E-04	5.74E-03	2.51E-02	AP 42 Table 3.4-3
HAP Total (PTE):		**4.44E-02**	**1.94E-01**	**Sum of Speciated HAPs**
HAP Total (Two Genset Synthetic Limit)[5]:		**2.96E-02**	**1.30E-01**	

1 MW Genset	
Power Output (Kw) =	1056
Max Power Output (hp) =	1416
Max. Heat Input (Three Gensets) (mmbtu/hr)[3][4] =	29.74
Max. Heat Input (Two Gensets) (mmbtu/hr)[5] =	19.82
Horsepower Hours/year	12,404,160
Heat Input (mmbtu/yr)[3][4]=	260,487

Notes:

1. Diesel emission factors based onlarge uncontrolled diesel industrial engines (greater than 600 hp) present in USEPA AP-42 Section 3.4 "Large Stationary Diesel and all Stationary Dual Fuel Engines" Table 3.4-3 "Speciated Organic Compound Emission Factors For Large Uncontrolled Stationary Diesel Engines" and Table 3.4-4 "PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines". (4/25).

2. Annual emissions are based on heat input of 260487 MMBtu per year.

3. Assumes an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr.

4. Assumes all 3 gensets operating simultaneously.

5. In order to avoid Title V major source status, Titan Lansing has elected to accept a synthetic limit which restricts concurrent genset usage to two gensets.

TABLE 11
EPN SUMMARY
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Railcar Unloading:

EPN Number	EPN Name	EPN Description
1	RU 1	Covered, Subgrade Railcar Unloading Pit
2	RU 2	Covered, Subgrade Conveyor (372.3 TPY, 36 ft. wide belt)
3	RU 3	Covered, Above Grade Bucket Elevator (372.3 TPY, 70 ft. Discharge Height)
4	RU 4	Covered Tripper Conveyor into enclosed building (372.3 TPY, 36 in. belt, dust suppression from building)

Flat Storage Building With Partitioned Sand Bins (Enclosed):

EPN Number	EPN Name	EPN Description
5	SB N (Formerly SB E)	Roll Up Doors - North End (16 ft. H x 12 ft. W)
6	SB S (Formerly SB W)	Roll Up Doors - South End (16 ft. H x 12 ft. W)

Truck Load-Out Equipment:

EPN Number	EPN Name	EPN Description
7	LOC E1	East #1 Truck Load-Out Conveyor (93 TPY)
8	LOTS E1	East #1 Truck Load-Out Telescopic Spout
9	LOC E2	East #2 Truck Load-Out Conveyor (93 TPY)
10	LOTS E2	East #2 Truck Load-Out Telescopic Spout
11	LOC W1	West #1 Truck Load-Out Conveyor (93 TPY)
12	LOTS W1	West #1 Truck Load-Out Telescopic Spout
13	LOC W2	West #2 Truck Load-Out Conveyor (93 TPY)
14	LOTS W2	West #2 Truck Load-Out Telescopic Spout

Haul Road Emissions:

EPN Number	EPN Name	EPN Description
15	HR	Haul Road - 2500 LF (gravel basecourse)

Emission Point Summary - Emissions Sources

Sand Truck Manifest Loading Operation

EPN Number	EPN Name	EPN Description
18	MNFS 1	Railcar Unloading
19	MNFS 2	Rail Car Transfer to Conveyor (Belt width, 36 inches)
20	MNFS 3	Conveyor Transfer to Bucket Elevator (Belt width 36 inches, Discharge height 100 ft)
21	MNFS 4A	Bucket Elevator to Storage Silos (discharge height 100 ft)
71	MNFS 4B	Bucket Elevator to Storage Silos (discharge height 100 ft)
72	MNFS 4C	Bucket Elevator to Storage Silos (discharge height 100 ft)
73	MNFS 4D	Bucket Elevator to Storage Silos (discharge height 100 ft)
22	MNFS 5A	Storage Silo Transfer to Truck Trailer Spouts - West A (Dust Suppression Equipment)
23	MNFS 5B	Storage Silo Transfer to Truck Trailer Spouts - West B (Dust Suppression Equipment)
24	MNFS 5C	Storage Silo Transfer to Truck Trailer Spouts - East A (Dust Suppression Equipment)
25	MNFS 5D	Storage Silo Transfer to Truck Trailer Spouts - East B (Dust Suppression Equipment)

TABLE 11
EPN SUMMARY
TITAN LANSING TRANSLOADING, LLC - CARLSBAD FACILITY

Aggregate Screening Operation

EPN Number	EPN Name	EPN Description
26	BC-110	Belt Conveyor
27	BC-115	Belt Conveyor
28	BE-120	Bucket Elevator
29	SL-200	Silo
30	SL-250	Silo
31	BC-220	Belt Conveyor
32	BC-270	Belt Conveyor
33	BC-300	Belt Conveyor
34	BE-310	Bucket Elevator
35	HP-320	Hopper
36	BF-350	Belt Feeder
37	SC-350	Screener
38	BC-420	Belt Conveyor (in-spec)
39	BC-440	Belt Conveyor (in-spec)
40	BE-460	Bucket Elevator (in-spec)
41	BC-640	Belt Conveyor (Fines)
42	BE-650	Bucket Elevator (Fines)
43	SL-660	Silo (Fines)
44	SC-700	Screw Conveyor (Fines)
45	HP-720	Hopper (Fines)
46	LS-720	Rail Loading Spout (Fines)
47	SC-810	Screw Conveyor
48	SC-820	Screw Conveyor
49	BF-330	Belt Feeder
50	BF-340	Belt Feeder
51	BF-360	Belt Feeder
52	SC-330	Screener
53	SC-340	Screener
54	SC-360	Screener
55	BC-525	Belt Conveyor (Overs)
56	BE-530	Bucket Elevator (Overs)
57	HP-535	Hopper (Overs)
58	CR-540	Crusher (Overs)
59	SC-560	Screw Conveyor (Overs)
60	BE-570	Bucket Elevator (Overs)
61	HP-575	Hopper (Overs)
62	SC-580	Screener (Overs)
63	SC-670	Screw Conveyor (Fines)
64	BE-710	Bucket Elevator (Fines)
65	HP-730	Hopper (Fines)
66	LS-730	Rail Loading Spout (Fines)
67	HP-325	Hopper

Generators

EPN Number	EPN Name	EPN Description
68	CAT Diesel-Fired Genset 1	Diesel-Fired Genset
69	CAT Diesel-Fired Genset 2	Diesel-Fired Genset
70	CAT Diesel-Fired Genset3	Diesel-Fired Genset

Assumptions:

All emission points for frac sand are evaluated for Total Suspended Particulates (TSP) and Particulate Matter with an aerodynamic diameter of 10 microns (PM 10)

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

Greenhouse gas emissions are included with the calculations presented in Section 6.

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.

AP-42 SECTIONS USED IN THIS APPLICATION

- 3.4 (Large Stationary Diesel and All Stationary Dual Fuel Engines)
- 7.1 (Organic Liquid Storage Tanks, October 2024)
- 11.12 (Concrete Batching, June 2006)
- 11.19.2 (Crushed Stone Processing and Pulverized Mineral Processing, August 2004)
- 13.2.2 (Unpaved Roads, November 2006)
- 13.2.4 (Aggregate Handling and Storage Piles, November 2006)

OTHER RESOURCES

- NMED: Department Accepted Values For: Aggregate Handling, Storage Pile, and Haul Road Emissions
- BREEZE TankESP Emissions Estimation Software, Version 5.0
  - See attached calculations spreadsheet (*A-5226R2-Titan-Calculations*) for inputs.
- Table 1 of 40 CFR 1039.101 (Tier 4 Exhaust Emission Standards)
- Manufacturer Performance Standards for CAT C18 Diesel-Fired Genset
- Manufacturer Performance Standards for Dust Collectors
- TCEQ Choke Feeding Sample Calculation
- WRAP Fugitive Dust Handbook (Chapter 4)

EMISSION CALCULATION METHODOLOGY

TRUCK ROAD

The emissions calculations for the haul road fugitive emissions used EPA AP-42 Section 13: Unpaved Roads with a natural precipitation mitigation factor and NMED's paved road emission reduction factor of 95%.

MATERIAL STORAGE PILES

Emission factors for stockpiled material within a building were derived from AP-42 Chapters 11 and 13 and a 90% control factor to represent the building enclosure with two (2) fugitive emission points (roll-up doors). Emissions from the sand/aggregate loading and unloading operations were evaluated using EPA AP-42 Section 13: Aggregate Handling Operations. In addition, a 90% control factor is used to reflect the emission controls from the spout dust collection.

MATERIAL HANDLING/LOADING

Particulate emissions from material handling and loading were calculated using emission equations and factors from Chapter 11.12 and Chapter 13.2.4 from EPA AP-42. The maximum throughput of each product was considered. Additionally, the Particulate matter emissions were calculated for PM-10 and PM-2.5 as directed by New Mexico Environment Department Memorandum, dated May 6, 2019, regarding the TSP Repeal External Guidance. Controlled emissions were calculated using manufacturer supplied grain loading factors for the dust collectors and bin vents, as well as NMED-accepted emission mitigation factors for partial and full enclosure.

TANKS

BREEZE TankESP 5.0 software was used to estimate the emissions from the 500-gallon and 10,000-gallon diesel tanks. The inputs for the tank models can be found in Section 6.

GENERATORS

CO emissions were calculated using Tier IV emission factors from Table 1 of 40 CFR §1093.101. NO_X, VOC, and PM emissions were calculated using manufacturer emissions data. SO_2 emissions were calculated using factors from AP-42 Section 3.4. The diesel-fired gensets were assumed to be in operation for 8,760 hours per year. However, Titan Lansing is requesting a federally enforceable limit on the number of concurrently operating gensets. Under this limit, the facility would be permitted to operate only two of the three gensets simultaneously, which reduces the potential CO emissions for the facility below Title V permitting thresholds.

3.4 Large Stationary Diesel And All Stationary Dual-fuel Engines

Disclaimer: Emission factors in AP-42 are neither EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards (e.g., National Emission Standard for Hazardous Air Pollutants or NESHAP, or New Source Performance Standards or NSPS). Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is **NOT** recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources are expected to have emission rates greater than the emission factor, and the other half are expected to have emission rates less than the emission factor. As such, EPA does not recommend using emission factors as limits or standards. This could cause, for example, a permit limit using an AP-42 emission factor resulting in approximately half of the sources being in noncompliance. We recommend source testing be done for the best possible emission values. For more information on the use of emission factors, please refer to the AP-42 Introduction.

3.4.1 General

The primary domestic use of large stationary diesel engines (greater than 600 horsepower [hp]) is in oil and gas exploration and production. These engines, in groups of 3 to 5, supply mechanical power to operate drilling (rotary table), mud pumping, and hoisting equipment, and may also operate pumps or auxiliary power generators. Another frequent application of large stationary diesels is electricity generation for both base and standby service. Smaller uses include irrigation, hoisting, and nuclear power plant emergency cooling water pump operation.

Dual-fuel engines were developed to obtain compression ignition performance and the economy of natural gas, using a minimum of 5 to 6 percent diesel fuel to ignite the natural gas. Large dual-fuel engines have been used almost exclusively for prime electric power generation. This section includes all dual-fuel engines.

3.4.2 Process Description

All reciprocating internal combustion (IC) engines operate by the same basic process. A combustible mixture is first compressed in a small volume between the head of a piston and its surrounding cylinder. The mixture is then ignited, and the resulting high-pressure products of combustion push the piston through the cylinder. This movement is converted from linear to rotary motion by a crankshaft. The piston returns, pushing out exhaust gases, and the cycle is repeated.

There are 2 ignition methods used in stationary reciprocating IC engines, compression ignition (CI) and spark ignition (SI). In CI engines, combustion air is first compression heated in the cylinder, and diesel fuel oil is then injected into the hot air. Ignition is spontaneous because the air temperature is above the autoignition temperature of the fuel. SI engines initiate combustion by the spark of an electrical discharge. Usually the fuel is mixed with the air in a carburetor (for gasoline) or at the intake valve (for natural gas), but occasionally the fuel is injected into the compressed air in the cylinder. Although all diesel- fueled engines are compression ignited and all gasoline- and gas-fueled engines are spark ignited, gas can be used in a CI engine if a small amount of diesel fuel is injected into the compressed gas/air mixture to burn any mixture ratio of gas and diesel oil (hence the name dual fuel),

from 6 to 100 percent diesel oil.

CI engines usually operate at a higher compression ratio (ratio of cylinder volume when the piston is at the bottom of its stroke to the volume when it is at the top) than SI engines because fuel is not present during compression; hence there is no danger of premature autoignition. Since engine thermal efficiency rises with increasing pressure ratio (and pressure ratio varies directly with compression ratio), CI engines are more efficient than SI engines. This increased efficiency is gained at the expense of poorer response to load changes and a heavier structure to withstand the higher pressures.[1]

3.4.3 Emissions And Controls

Most of the pollutants from IC engines are emitted through the exhaust. However, some total organic compounds (TOC) escape from the crankcase as a result of blowby (gases that are vented from the oil pan after they have escaped from the cylinder past the piston rings) and from the fuel tank and carburetor because of evaporation. Nearly all of the TOCs from diesel CI engines enter the atmosphere from the exhaust. Crankcase blowby is minor because TOCs are not present during compression of the charge. Evaporative losses are insignificant in diesel engines due to the low volatility of diesel fuels. In general, evaporative losses are also negligible in engines using gaseous fuels because these engines receive their fuel continuously from a pipe rather than via a fuel storage tank and fuel pump.

The primary pollutants from internal combustion engines are oxides of nitrogen (NO_x), hydrocarbons and other organic compounds, carbon monoxide (CO), and particulates, which include both visible (smoke) and nonvisible emissions. Nitrogen oxide formation is directly related to high pressures and temperatures during the combustion process and to the nitrogen content, if any, of the fuel. The other pollutants, HC, CO, and smoke, are primarily the result of incomplete combustion. Ash and metallic additives in the fuel also contribute to the particulate content of the exhaust. Sulfur oxides also appear in the exhaust from IC engines. The sulfur compounds, mainly sulfur dioxide (SO_2), are directly related to the sulfur content of the fuel.[2]

3.4.3.1 Nitrogen Oxides –

Nitrogen oxide formation occurs by two fundamentally different mechanisms. The predominant mechanism with internal combustion engines is thermal NO_x which arises from the thermal dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2) molecules in the combustion air. Most thermal NO_x is formed in the high-temperature region of the flame from dissociated molecular nitrogen in the combustion air. Some NO_x, called prompt NO_x, is formed in the early part of the flame from reaction of nitrogen intermediary species, and HC radicals in the flame. The second mechanism, fuel NO_x, stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Gasoline, and most distillate oils, have no chemically-bound fuel N_2 and essentially all NO_x formed is thermal NO_x.

3.4.3.2 Total Organic Compounds –

The pollutants commonly classified as hydrocarbons are composed of a wide variety of organic compounds and are discharged into the atmosphere when some of the fuel remains unburned or is only partially burned during the combustion process. Most unburned hydrocarbon emissions result from fuel

droplets that were transported or injected into the quench layer during combustion. This is the region immediately adjacent to the combustion chamber surfaces, where heat transfer outward through the cylinder walls causes the mixture temperatures to be too low to support combustion.

Partially burned hydrocarbons can occur because of poor air and fuel homogeneity due to incomplete mixing, before or during combustion; incorrect air/fuel ratios in the cylinder during combustion due to maladjustment of the engine fuel system; excessively large fuel droplets (diesel engines); and low cylinder temperature due to excessive cooling (quenching) through the walls or early cooling of the gases by expansion of the combustion volume caused by piston motion before combustion is completed.[2]

3.4.3.3 Carbon Monoxide –

Carbon monoxide is a colorless, odorless, relatively inert gas formed as an intermediate combustion product that appears in the exhaust when the reaction of CO to CO_2 cannot proceed to completion. This situation occurs if there is a lack of available oxygen near the hydrocarbon (fuel) molecule during combustion, if the gas temperature is too low, or if the residence time in the cylinder is too short. The oxidation rate of CO is limited by reaction kinetics and, as a consequence, can be accelerated only to a certain extent by improvements in air and fuel mixing during the combustion process.[2-3]

3.4.3.4 Smoke, Particulate Matter, and PM-10 –

White, blue, and black smoke may be emitted from IC engines. Liquid particulates appear as white smoke in the exhaust during an engine cold start, idling, or low load operation. These are formed in the quench layer adjacent to the cylinder walls, where the temperature is not high enough to ignite the fuel. Blue smoke is emitted when lubricating oil leaks, often past worn piston rings, into the combustion chamber and is partially burned. Proper maintenance is the most effective method of preventing blue smoke emissions from all types of IC engines. The primary constituent of black smoke is agglomerated carbon particles (soot).[2]

3.4.3.5 Sulfur Oxides –

Sulfur oxide emissions are a function of only the sulfur content in the fuel rather than any combustion variables. In fact, during the combustion process, essentially all the sulfur in the fuel is oxidized to SO_2. The oxidation of SO_2 gives sulfur trioxide (SO_3), which reacts with water to give sulfuric acid (H_2SO_4), a contributor to acid precipitation. Sulfuric acid reacts with basic substances to give sulfates, which are fine particulates that contribute to PM-10 and visibility reduction. Sulfur oxide emissions also contribute to corrosion of the engine parts.[2,3]

Table 3.4-1 contains gaseous emission factors for the pollutants discussed above, expressed in units of pounds per horsepower-hour (lb/hp-hr), and pounds per million British thermal unit (lb/MMBtu). Table 3.4-2 shows the particulate and particle-sizing emission factors. Table 3.4-3 shows the speciated organic compound emission factors and Table 3.4-4 shows the emission factors for polycyclic aromatic hydrocarbons (PAH). These tables do not provide a complete speciated organic compound and PAH listing because they are based only on a single engine test; they are to be used only for rough order of magnitude comparisons.

Table 3.4-5 shows the NO_x reduction and fuel consumption penalties for diesel and dual-fueled

engines based on some of the available control techniques. The emission reductions shown are those that have been demonstrated. The effectiveness of controls on a particular engine will depend on the specific design of each engine, and the effectiveness of each technique could vary considerably. Other NO_x control techniques exist but are not included in Table 3.4-5. These techniques include internal/external exhaust gas recirculation, combustion chamber modification, manifold air cooling, and turbocharging.

3.4.4 Control Technologies

Control measures to date are primarily directed at limiting NO_x and CO emissions since they are the primary pollutants from these engines. From a NO_x control viewpoint, the most important distinction between different engine models and types of reciprocating engines is whether they are rich-burn or lean-burn. Rich-burn engines have an air-to-fuel ratio operating range that is near stoichiometric or fuel-rich of stoichiometric and as a result the exhaust gas has little or no excess oxygen. A lean-burn engine has an air-to-fuel operating range that is fuel-lean of stoichiometric; therefore, the exhaust from these engines is characterized by medium to high levels of O_2. The most common NO_x control technique for diesel and dual fuel engines focuses on modifying the combustion process. However, selective catalytic reduction (SCR) and nonselective catalytic reduction (NSCR) which are post-combustion techniques are becoming available. Control for CO have been partly adapted from mobile sources.[5]

Combustion modifications include injection timing retard (ITR), preignition chamber combustion (PCC), air-to-fuel ratio, and derating. Injection of fuel into the cylinder of a CI engine initiates the combustion process. Retarding the timing of the diesel fuel injection causes the combustion process to occur later in the power stroke when the piston is in the downward motion and combustion chamber volume is increasing. By increasing the volume, the combustion temperature and pressure are lowered, thereby lowering NO_x formation. ITR reduces NO_x from all diesel engines; however, the effectiveness is specific to each engine model. The amount of NO_x reduction with ITR diminishes with increasing levels of retard.[5]

Improved swirl patterns promote thorough air and fuel mixing and may include a precombustion chamber (PCC). A PCC is an antechamber that ignites a fuel-rich mixture that propagates to the main combustion chamber. The high exit velocity from the PCC results in improved mixing and complete combustion of the lean air/fuel mixture which lowers combustion temperature, thereby reducing NO_x emissions.[5]

The air-to-fuel ratio for each cylinder can be adjusted by controlling the amount of fuel that enters each cylinder. At air-to-fuel ratios less than stoichiometric (fuel-rich), combustion occurs under conditions of insufficient oxygen which causes NO_x to decrease because of lower oxygen and lower temperatures. Derating involves restricting engine operation to lower than normal levels of power production for the given application. Derating reduces cylinder pressures and temperatures thereby lowering NO_x formation rates.[5]

SCR is an add-on NO_x control placed in the exhaust stream following the engine and involves injecting ammonia (NH_3) into the flue gas. The NH_3 reacts with the NO_x in the presence of a catalyst to form water and nitrogen. The effectiveness of SCR depends on fuel quality and engine duty cycle (load fluctuations). Contaminants in the fuel may poison or mask the catalyst surface causing a reduction or termination in catalyst activity. Load fluctuations can cause variations in exhaust temperature and NO_x concentration which can create problems with the effectiveness of the SCR system.[5]

NSCR is often referred to as a three-way conversion catalyst system because the catalyst reactor simultaneously reduces NO_x, CO, and HC and involves placing a catalyst in the exhaust stream of the engine. The reaction requires that the O_2 levels be kept low and that the engine be operated at fuel-rich air-to-fuel ratios.[5]

3.4.5 Source Classification Codes

- 2310022051 - Industrial Processes; Oil and Gas Exploration and Production; Off-Shore Gas Production; Turbines: Natural Gas
- 20200401 - Internal Combustion Engines; Industrial; Other Fuels; Diesel: Large Bore Engine
- 20200402 - Internal Combustion Engines; Industrial; Other Fuels; Dual Fuel (Oil/Gas): Large Bore Engine
- 20200403 - Internal Combustion Engines; Industrial; Other Fuels; Dual Fuel: Large Bore Engine: Cogeneration
- 20200405 - Internal Combustion Engines; Industrial; Other Fuels; Large Bore Engine: Crankcase Blowby
- 20200406 - Internal Combustion Engines; Industrial; Other Fuels; Large Bore Engine: Evaporative Losses (Fuel Storage and Delivery System)
- 20200407 - Internal Combustion Engines; Industrial; Other Fuels; Large Bore Engine: Exhaust
- 20300401 - Internal Combustion Engines; Commercial/Institutional; Diesel; Large Bore Engine

3.4.6 Updates Since the Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below.

February 1996 (Supplement A)

- No changes

October 1996 (Supplement B)

- The general text was updated.
- Controlled NO_x factors and PM factors were added for diesel units.
- Math errors were corrected in factors for CO from diesel units and for uncontrolled NO_x from dual fueled units.

April 2025

- Standard AP-42 disclaimer was added on the use of AP-42 emission factors.
- Source Classification Codes were added
- Benzo(g,h,l)perylene corrected to Benzo(g,h,i)perylene in Table 3.3-4.

Table 3.4-1. GASEOUS EMISSION FACTORS FOR LARGE STATIONARY DIESEL AND ALL STATIONARY DUAL-FUEL ENGINES[a]

Pollutant	Diesel Fuel (SCC 20200401) Emission Factor (lb/hp-hr) (power output)	Diesel Fuel (SCC 20200401) Emission Factor (lb/MMBtu) (fuel input)	Diesel Fuel (SCC 20200401) Emission Factor Rating	Dual Fuel[b] (SCC 20200402) Emission Factor (lb/hp-hr) (power output)	Dual Fuel[b] (SCC 20200402) Emission Factor (lb/MMBtu) (fuel input)	Dual Fuel[b] (SCC 20200402) Emission Factor Rating
NO_x - Uncontrolled	0.024	3.2	B	0.018	2.7	D
NO_x - Controlled	0.013[c]	1.9[c]	B	ND	ND	NA
CO	5.5 E-03	0.85	C	7.5 E-03	1.16	D
SO_x	8.09 E-03S_1	1.01S_1	B	4.06 E-04S_1 + 9.57E-03S_2	0.05S_1 + 0.895S_2	B
CO_2	1.16	165	B	0.772	110	B
PM	0.0007[c]	0.1[c]	B	ND	ND	NA
TOC (as CH_4)	7.05 E-04	0.09	C	5.29 E-03	0.8	D
Methane	f	f	E	3.97 E-03	0.6	E
Nonmethane	f	f	E	1.32 E-03	0.2[g]	E

[a]Based on uncontrolled levels for each fuel, from References 2,6-7. When necessary, the average heating value of diesel was assumed to be 19,300 Btu/lb with a density of 7.1 lb/gallon. The power output and fuel input values were averaged independently from each other, because of the use of actual brake-specific fuel consumption (BSFC) values for each data point and of the use of data possibly sufficient to calculate only 1 of the 2 emission factors (e. g., enough information to calculate lb/MMBtu, but not lb/hp-hr). Factors are based on averages across all manufacturers and duty cycles. The actual emissions from a particular engine or manufacturer could vary considerably from these levels. 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.

[b]Dual fuel assumes 95% natural gas and 5% diesel fuel.

[c]References 8-26. Controlled NO_x is by ignition timing retard.

[d]Assumes that all sulfur in the fuel is converted to SO_2. S_1 = % sulfur in fuel oil; S_2 = % sulfur in natural gas. For example, if sulfur content is 1.5%, then S = 1.5.

[e]Assumes 100% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 70 weight % carbon in natural gas, dual-fuel mixture of 5% diesel with 95% natural gas, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and natural gas heating value of 1050 Btu/scf.

[f]Based on data from 1 engine, TOC is by weight 9% methane and 91% nonmethane.

[g]Assumes that nonmethane organic compounds are 25% of TOC emissions from dual-fuel engines. Molecular weight of nonmethane gas stream is assumed to be that of methane.

Table 3.4-2. PARTICULATE AND PARTICLE-SIZING
EMISSION FACTORS FOR LARGE UNCONTROLLED STATIONARY DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (lb/MMBtu) (fuel input)
Filterable particulate[b] (< 1 µm)	0.0478
Filterable particulate[b] (< 3 µm)	0.0479
Filterable particulate[b] (< 10 µm)	0.0496
Total filterable particulate	0.0620
Condensable particulate	0.0077
Total PM-10[c]	0.0573
Total particulate[d]	0.0697

[a] Based on 1 uncontrolled diesel engine from Reference 6. Source Classification Code 20200401. The data for the particulate emissions were collected using Method 5, and the particle size distributions were collected using a Source Assessment Sampling System. To convert from lb/MMBtu to ng/J, multiply by 430. PM-10 = particulate matter # 10 micrometers (µm) aerometric diameter.
[b] Particle size is expressed as aerodynamic diameter.
[c] Total PM-10 is the sum of filterable particulate less than 10 µm aerodynamic diameter and condensable particulate.
[d] Total particulate is the sum of the total filterable particulate and condensable particulate.

Table 3.4-3. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR LARGE UNCONTROLLED STATIONARY DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (lb/MMBtu) (fuel input)
Benzene[b]	7.76 E-04
Toluene[b]	2.81 E-04
Xylenes[b]	1.93 E-04
Propylene	2.79 E-03
Formaldehyde[b]	7.89 E-05
Acetaldehyde[b]	2.52 E-05
Acrolein[b]	7.88 E-06

[a]Based on 1 uncontrolled diesel engine from Reference 7. Source Classification Code 20200401. Not enough information to calculate the output-specific emission factors of lb/hp-hr. To convert from lb/MMBtu to ng/J, multiply by 430.
[b]Hazardous air pollutant listed in the *Clean Air Act*.

Table 3.4-4. PAH EMISSION FACTORS FOR LARGE UNCONTROLLED STATIONARY DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

PAH	Emission Factor (lb/MMBtu) (fuel input)
Naphthalene[b]	1.30 E-04
Acenaphthylene	9.23 E-06
Acenaphthene	4.68 E-06
Fluorene	1.28 E-05
Phenanthrene	4.08 E-05
Anthracene	1.23 E-06
Fluoranthene	4.03 E-06
Pyrene	3.71 E-06
Benz(a)anthracene	6.22 E-07
Chrysene	1.53 E-06
Benzo(b)fluoranthene	1.11 E-06
Benzo(k)fluoranthene	<2.18 E-07
Benzo(a)pyrene	<2.57 E-07
Indeno(1,2,3-cd)pyrene	<4.14 E-07
Dibenz(a,h)anthracene	<3.46 E-07
Benzo(g,h,i)perylene	<5.56 E-07
TOTAL PAH	<2.12 E-04

[a] Based on 1 uncontrolled diesel engine from Reference 7. Source Classification Code 20200401. Not enough information to calculate the output-specific emission factors of lb/hp-hr. To convert from lb/MMBtu to ng/J, multiply by 430.

[b] Hazardous air pollutant listed in the *Clean Air Act*.

Table 3.4-5. NO_x REDUCTION AND FUEL CONSUMPTION PENALTIES FOR LARGE STATIONARY DIESEL AND DUAL-FUEL ENGINES[a]

Control Approach	Diesel (SCC 20200401) NOx Reduction (%)	Diesel (SCC 20200401) ΔBSFC (%)	Dual Fuel (SCC 20200402) NOx Reduction (%)	Dual Fuel (SCC 20200402) ΔBSFC (%)
Derate – 10%	ND	ND	<20	4
Derate – 20%	<20	4	ND	ND
Derate – 25%	5 - 23	1 - 5	1 - 33	1 - 7
Retard - 2°	<20	4	<20	3
Retard - 4°	<40	4	<40	1
Retard - 8°	28 - 45	2 - 8	50 - 73	3 - 5
Air-to-fuel – 3%	ND	ND	<20	0
Air-to-fuel - ±10%	7 - 8	3	25 - 40	1 - 3
Water injection (H_2O/fuel ratio) – 50%	25 - 35	2 - 4	ND	ND
SCR	80 - 95	0	80 - 95	0

[a] References 1,27-28. The reductions shown are typical and will vary depending on the engine and duty cycle. SCC = Source Classification Code. ΔBSFC = change in brake-specific fuel consumption. ND = no data.

References For Section 3.4

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Insurance Company, Bloomfield, CT, TRC Environmental Consultants, 1988.

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7.1 Organic Liquid Storage Tanks

Disclaimer: Emission factors in AP-42 are neither EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards (e.g., National Emission Standard for Hazardous Air Pollutants or NESHAP, or New Source Performance Standards or NSPS). Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is NOT recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources are expected to have emission rates greater than the emission factor, and the other half are expected to have emission rates less than the emission factor. As such, EPA does not recommend using emission factors as limits or standards. This could cause, for example, a permit limit using an AP-42 emission factor resulting in approximately half of the sources being in noncompliance. We recommend source testing be done for the best possible emission values. For more information on the use of emission factors, please refer to the AP-42 Introduction.

7.1.1 General

7.1.1.1 Scope

Section 7.1 presents emissions estimating methodologies for storage tanks of various types and operating conditions. The methodologies are intended for storage tanks that are properly maintained and in normal working condition. The methodologies do not address conditions of deteriorated or otherwise damaged materials of construction, nor do they address operating conditions that differ significantly from the scenarios described herein. To estimate losses that occur from underground gasoline storage tanks at service stations, please see AP-42 Section 5.2, “Transportation and Marketing of Petroleum Liquids.”

Sections 7.1.3.1 and 7.1.3.2 present emissions estimating methodologies for routine emissions from fixed roof tanks and floating roof tanks. Use of the terminology “routine emissions” to refer to standing and working losses applies only for the purposes of this document, and not for any other air quality purposes such as New Source Review (NSR) permitting. The equations for routine emissions were developed to estimate average annual losses for storage tanks, but provisions for applying the equations to shorter periods of time are addressed in Section 7.1.3.8.1. The equations for routine emissions are a function of temperatures that are derived from a theoretical energy transfer model. In order to simplify the calculations, default values were assigned to certain parameters in the energy transfer equations. The accuracy of the resultant equations for an individual tank depends upon how closely that tank fits the assumptions inherent to these default values. The associated uncertainty may be mitigated by using measured values for the liquid bulk temperature. The equations for routine emissions are not intended to include emissions from the following events (these are addressed separately):

a) To estimate losses that result from the landing of a floating roof. A separate methodology is presented for floating roof landing losses in Section 7.1.3.3.

b) To estimate losses that result from cleaning a tank. A separate methodology is presented for tank cleaning losses in Section 7.1.3.4.

Table 7.1-2. Properties (M_V, M_L, P_{VA}, W_L) Of Selected Petroleum Liquids[a, e, h]

Petroleum Liquid Mixture	Vapor Molecular Weight[a] (M_V) lb/lb-mole	Liquid Molecular Weight[b] (M_L) lb/lb-mole	Liquid Density[a] (W_L) lb/gal	ASTM D86 Distillation Slope[c] (S) ºF/vol %	Vapor Pressure Equation Constant[d] (A) dimensionless	Vapor Pressure Equation Constant[d] (B) ºR	True Vapor Pressure (at 60 °F) (P_{VA}) psia
Midcontinent Crude Oil	50	207	7.1	–	Figure 7.1-16	Figure 7.1-16	–
Refined Petroleum Stocks	–	–	–	–	Figure 7.1-15	Figure 7.1-15	–
Motor Gasoline RVP 13	62	92	5.6	3.0	11.644	5043.6	7.0
Motor Gasoline RVP 10	66 [e]	92	5.6	3.0	11.724	5237.3	5.2
Motor Gasoline RVP 7	68	92	5.6	3.0	11.833	5500.6	3.5
Light Naphtha RVP 9-14	–	–	–	3.5	–	–	–
Naphtha RVP 2-8	–	–	–	2.5	–	–	–
Aviation Gasoline	–	–	–	2.0	–	–	–
Jet Kerosene (Jet A)	130	162	7.0	–	12.390	8933.0	0.008
No. 2 Fuel Oil (Diesel)	130	188	7.1	–	12.101	8907.0	0.006
No. 6 Fuel Oil [f]	130	387	7.9	–	10.781	8933.0	0.002
Vacuum Residual Oil[g]	190	387	7.9	–	10.104	10,475.5	0.00004

[a] References 10 and 11

[b] Liquid molecular weights from "Memorandum from Patrick B. Murphy, Radian/RTP to James F. Durham, EPA/CPB Concerning Petroleum Refinery Liquid HAP and Properties Data, August 10, 1993," as adopted in versions 3.1 and 4.0 of EPA's TANKS software.

[c] Reference 4.

[d] For motor gasolines, see Figure 7.1-15;

for crude oil, see Figure 7.1-16;

for Jet Naphtha, Jet Kerosene, and No. 2 Fuel Oil, see Barnett and Hibbard[10];

for No. 6 Fuel Oil.[22]

[e] Alternatively, in the absence of measured data, a value of 66 lb/lb-mole may be assumed for all gasolines, in that the variability shown as a function of RVP is speculative.

[f] This is for a blend of Vacuum Residual Oil with a light distillate cutter stock, or similar mixture. Vapor pressure constants given will result in higher vapor pressure values than shown previously in AP-42 for Residual Oil No. 6.

[g] This is the straight residue from the bottom of the vacuum distillation column, prior to any further processing or blending. Properties given for Vacuum Residual Oil are those given for Residual Oil No. 6 previously in AP-42.

[h] Jet Naptha (JP-4) was removed from this table because it is no longer produced or procured. "Coordinating Research Council, Aviation Fuel Properties Handbook, CRC Report No. 663"

11.12 Concrete Batching

11.12.1 Process Description [1-5]

Concrete is composed essentially of water, cement, sand (fine aggregate) and coarse aggregate. Coarse aggregate may consist of gravel, crushed stone or iron blast furnace slag. Some specialty aggregate products could be either heavyweight aggregate (of barite, magnetite, limonite, ilmenite, iron or steel) or lightweight aggregate (with sintered clay, shale, slate, diatomaceous shale, perlite, vermiculite, slag pumice, cinders, or sintered fly ash). Supplementary cementitious materials, also called mineral admixtures or pozzolan minerals may be added to make the concrete mixtures more economical, reduce permeability, increase strength, or influence other concrete properties. Typical examples are natural pozzolans, fly ash, ground granulated blast-furnace slag, and silica fume, which can be used individually with portland or blended cement or in different combinations. Chemical admixtures are usually liquid ingredients that are added to concrete to entrain air, reduce the water required to reach a required slump, retard or accelerate the setting rate, to make the concrete more flowable or other more specialized functions.

Approximately 75 percent of the U.S. concrete manufactured is produced at plants that store, convey, measure and discharge these constituents into trucks for transport to a job site. At most of these plants, sand, aggregate, cement and water are all gravity fed from the weight hopper into the mixer trucks. The concrete is mixed on the way to the site where the concrete is to be poured. At some of these plants, the concrete may also be manufactured in a central mix drum and transferred to a transport truck. Most of the remaining concrete manufactured are products cast in a factory setting. Precast products range from concrete bricks and paving stones to bridge girders, structural components, and panels for cladding. Concrete masonry, another type of manufactured concrete, may be best known for its conventional 8 x 8 x 16-inch block. In a few cases concrete is dry batched or prepared at a building construction site. Figure 11.12-1 is a generalized process diagram for concrete batching.

The raw materials can be delivered to a plant by rail, truck or barge. The cement is transferred to elevated storage silos pneumatically or by bucket elevator. The sand and coarse aggregate are transferred to elevated bins by front end loader, clam shell crane, belt conveyor, or bucket elevator. From these elevated bins, the constituents are fed by gravity or screw conveyor to weigh hoppers, which combine the proper amounts of each material.

11.12.2 Emissions and Controls [6-8]

Particulate matter, consisting primarily of cement and pozzolan dust but including some aggregate and sand dust emissions, is the primary pollutant of concern. In addition, there are emissions of metals that are associated with this particulate matter. All but one of the emission points are fugitive in nature. The only point sources are the transfer of cement and pozzolan material to silos, and these are usually vented to a fabric filter or “sock”. Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer of sand and aggregate depends primarily on the surface moisture content of these materials. The extent of fugitive emission control varies widely from plant to plant. Particulate emission factors for concrete batching are give in Tables 11.12-1 and 11.12-2.

Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central duct collection systems, and the like. A major source of potential emissions, the movement of heavy trucks over unpaved or dusty surfaces in and around the plant, can be controlled by good maintenance and wetting of the road surface.

Predictive equations that allow for emission factor adjustment based on plant specific conditions are given in the Background Document for Chapter 11.12 and Chapter 13. Whenever plant specific data are available, they should be used with these predictive equations (e.g. Equations 11.12-1 through 11.12-3) in lieu of the general fugitive emission factors presented in Table 11.12-1, 11.12-2, and 11.12-5 through11.12-8 in order to adjust to site specific conditions, such as moisture levels and localized wind speeds.

11.12.3 Updates since the 5th Edition.

October 2001

– This major revision of the section replaced emissions factors based upon engineering judgment and poorly documented and performed source test reports with emissions tests conducted at modern operating truck mix and central mix facilities. Emissions factors for both total PM and total PM_{10} were developed from this test data.

June 2006

– This revision of the section supplemented the two source tests with several additional source tests of central mix and truck mix facilities. The measurement of the capture efficiency, local wind speed and fines material moisture level was improved over the previous two source tests. In addition to quantifying total PM and PM_{10}, $PM_{2.5}$ emissions were quantified at all of the facilities. Single value emissions factors for truck mix and central mix operations were revised using all of the data. Additionally, parameterized emissions factor equations using local wind speed and fines material moisture content were developed from the newer data.

February 2011

– This is an editorial revision of the section. Emissions factors in Tables 11.12-1, 11.12-2, 11.12-7 and 11.12-8 were corrected to agree with the emissions factors presented in the background report.

August 2011

- Equation 11.12-2 was corrected. An explanation was added under the equation.

January 2012

- This is an editorial revision of the section. Emissions factors for Uncontrolled factors in Table 11.12-3 for Total PM, PM_{10} and $PM_{10\text{-}2.5}$ were corrected to agree with the emissions factors presented in Table 11.12-2 and the emissions factors presented in the background report.

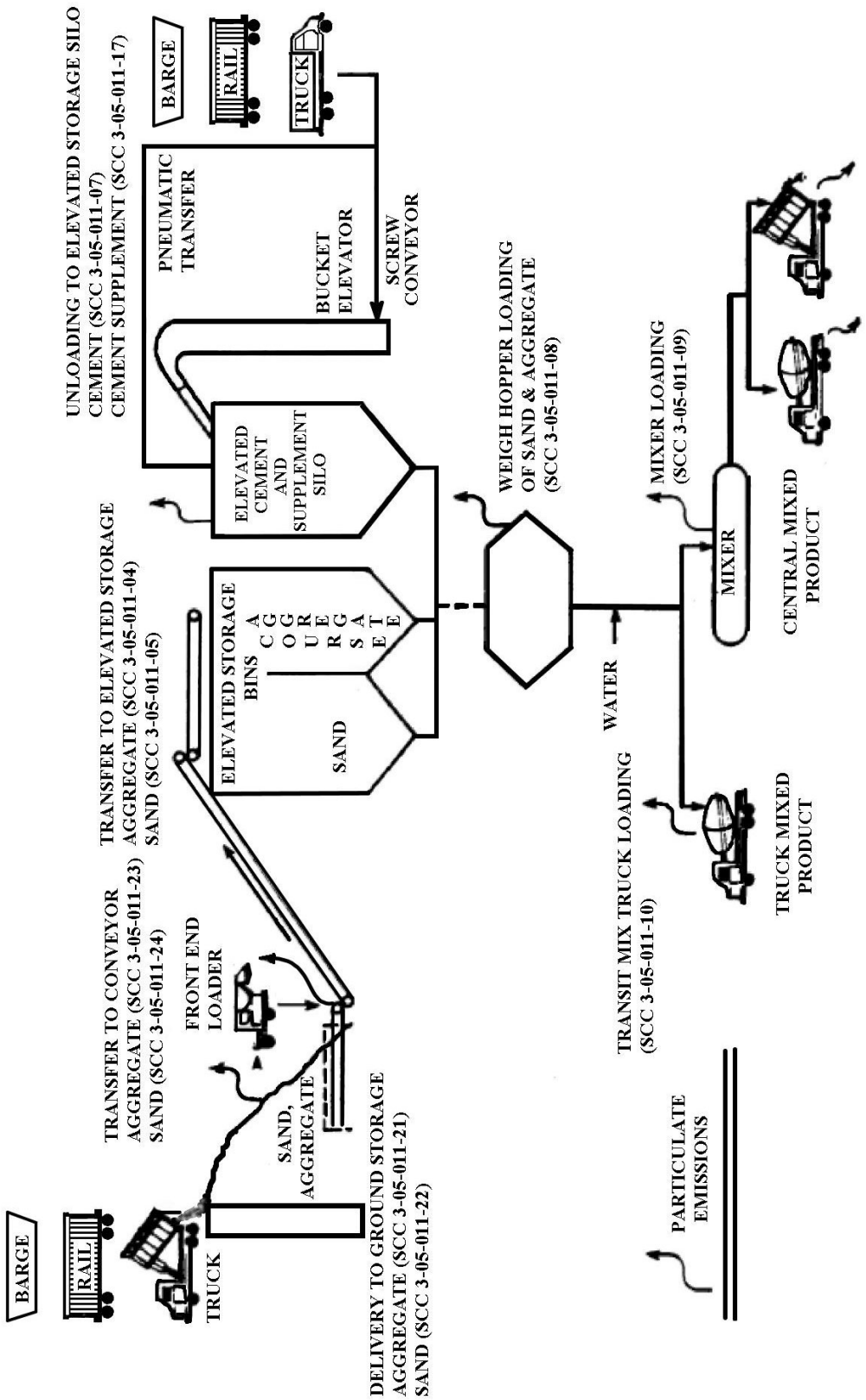

Figure 11.12-1. Typical Concrete Batching Process.

TABLE 11.12-2 (ENGLISH UNITS)
EMISSION FACTORS FOR CONCRETE BATCHING [a]

Source (SCC)	Uncontrolled				Controlled			
	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating	Total PM	Emission Factor Rating	Total PM_{10}	Emission Factor Rating
Aggregate transfer [b] (3-05-011-04,-21,23)	0.0069	D	0.0033	D	ND		ND	
Sand transfer [b] (3-05-011-05,22,24)	0.0021	D	0.00099	D	ND		ND	
Cement unloading to elevated storage silo (pneumatic)[c] (3-05-011-07)	0.73	E	0.47	E	0.00099	D	0.00034	D
Cement supplement unloading to elevated storage silo (pneumatic)[d] (3-05-011-17)	3.14	E	1.10	E	0.0089	D	0.0049	E
Weigh hopper loading [e] (3-05-011-08)	0.0048	D	0.0028	D	ND		ND	
Mixer loading (central mix)[f] (3-05-011-09)	0.572 or Eqn. 11.12-1	B	0.156 or Eqn. 11.12-1	B	0.0184 or Eqn. 11.12-1	B	0.0055 or Eqn. 11.12-1	B
Truck loading (truck mix)[g] (3-05-011-10)	1.118	B	0.310	B	0.098 or Eqn. 11.12-1	B	0.0263 or Eqn. 11.12-1	B
Vehicle traffic (paved roads)	See AP-42 Section 13.2.1, Paved Roads							
Vehicle traffic (unpaved roads)	See AP-42 Section 13.2.2, Unpaved Roads							
Wind erosion from aggregate and sand storage piles	See AP-42 Section 13.2.5, Industrial Wind Erosion							

ND = No data

[a] All emission factors are in lb of pollutant per ton of material loaded unless noted otherwise. Loaded material includes course aggregate, sand, cement, cement supplement and the surface moisture associated with these materials. The average material composition of concrete batches presented in references 9 and 10 was 1865 lbs course aggregate, 1428 lbs sand, 491 lbs cement and 73 lbs cement supplement. Approximately 20 gallons of water was added to this solid material to produce 4024 lbs (one cubic yard) of concrete.

[b] Reference 9 and 10. Emission factors are based upon an equation from AP-42, section 13.2.4 Aggregate Handling And Storage Piles, equation 1 with k_{PM-10} =.35, k_{PM} = .74, U = 10mph, $M_{aggregate}$ =1.77%, and M_{sand} = 4.17%. These moisture contents of the materials ($M_{aggregate}$ and M_{sand}) are the averages of the values obtained from Reference 9 and Reference 10.

[c] The uncontrolled PM & PM-10 emission factors were developed from Reference 9. The controlled emission factor for PM was developed from References 9, 10, 11, and 12. The controlled emission factor for PM-10 was developed from References 9 and 10.

[d] The controlled PM emission factor was developed from Reference 10 and Reference 12, whereas the controlled PM-10 emission factor was developed from only Reference 10.

[e] Emission factors were developed by using the Aggregate and Sand Transfer Emission Factors in conjunction with the ratio of aggregate and sand used in an average $yard^3$ of concrete. The unit for these emission factors is lb of pollutant per ton of aggregate and sand.

[f] References 9, 10, and 14. The emission factor units are lb of pollutant per ton of cement and cement supplement. The general factor is the arithmetic mean of all test data.

[g] Reference 9, 10, and 14. The emission factor units are lb of pollutant per ton of cement and cement supplement. The general factor is the arithmetic mean of all test data.

TABLE 11.12-5 (ENGLISH UNITS)
PLANT WIDE EMISSION FACTORS PER YARD OF TRUCK MIX CONCRETE [a]

	Uncontrolled		Controlled	
	PM (lb/yd^3)	PM-10 (lb/yd^3)	PM (lb/yd^3)	PM-10 (lb/yd^3)
Aggregate delivery to ground storage (3-05-011-21)	0.0064	0.0031	0.0064	0.0031
Sand delivery to ground storage (3-05-011-22)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to conveyor (3-05-011-23)	0.0064	0.0031	0.0064	0.0031
Sand transfer to conveyor (3-05-011-24)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to elevated storage (3-05-011-04)	0.0064	0.0031	0.0064	0.0031
Sand transfer to elevated storage (3-05-011-05)	0.0015	0.0007	0.0015	0.0007
Cement delivery to Silo (3-05-011-07 controlled)	0.0002	0.0001	0.0002	0.0001
Cement supplement delivery to Silo (3-05-011-17 controlled)	0.0003	0.0002	0.0003	0.0002
Weigh hopper loading (3-05-011-08)	0.0079	0.0038	0.0079	0.0038
Truck mix loading (3-05-011-10)	See Equation 11.12-2			

TABLE 11.12-6 (ENGLISH UNITS)
PLANT WIDE EMISSION FACTORS PER YARD OF CENTRAL MIX CONCRETE [a]

	Uncontrolled		Controlled	
	PM (lb/yd^3)	PM-10 (lb/yd^3)	PM (lb/yd^3)	PM-10 (lb/yd^3)
Aggregate delivery to ground storage (3-05-011-21)	0.0064	0.0031	0.0064	0.0031
Sand delivery to ground storage (3-05-011-22)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to conveyor (3-05-011-23)	0.0064	0.0031	0.0064	0.0031
Sand transfer to conveyor (3-05-011-24)	0.0015	0.0007	0.0015	0.0007
Aggregate transfer to elevated storage (3-05-011-04)	0.0064	0.0031	0.0064	0.0031
Sand transfer to elevated storage (3-05-011-05)	0.0015	0.0007	0.0015	0.0007
Cement delivery to Silo (3-05-011-07 controlled)	0.0002	0.0001	0.0002	0.0001
Cement supplement delivery to Silo (3-05-011-17 controlled)	0.0003	0.0002	0.0003	0.0002
Weigh hopper loading (3-05-011-08)	0.0079	0.0038	0.0079	0.0038
Central mix loading (3-05-011-09)	See Equation 11.12-2			

[a] Total facility emissions are the sum of the emissions calculated in Tables 11.12-4 or 11.12-5. Total facility emissions do not include road dust and wind blown dust. The emission factors in Tables 11.12-5 and 11.12-6 are based upon the following composition of one yard of concrete.

Coarse Aggregate	1865. pounds
Sand	1428. pounds
Cement	491. pounds
Cement Supplement	73. pounds
Water	20. gallons (167 pounds)

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.

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

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.

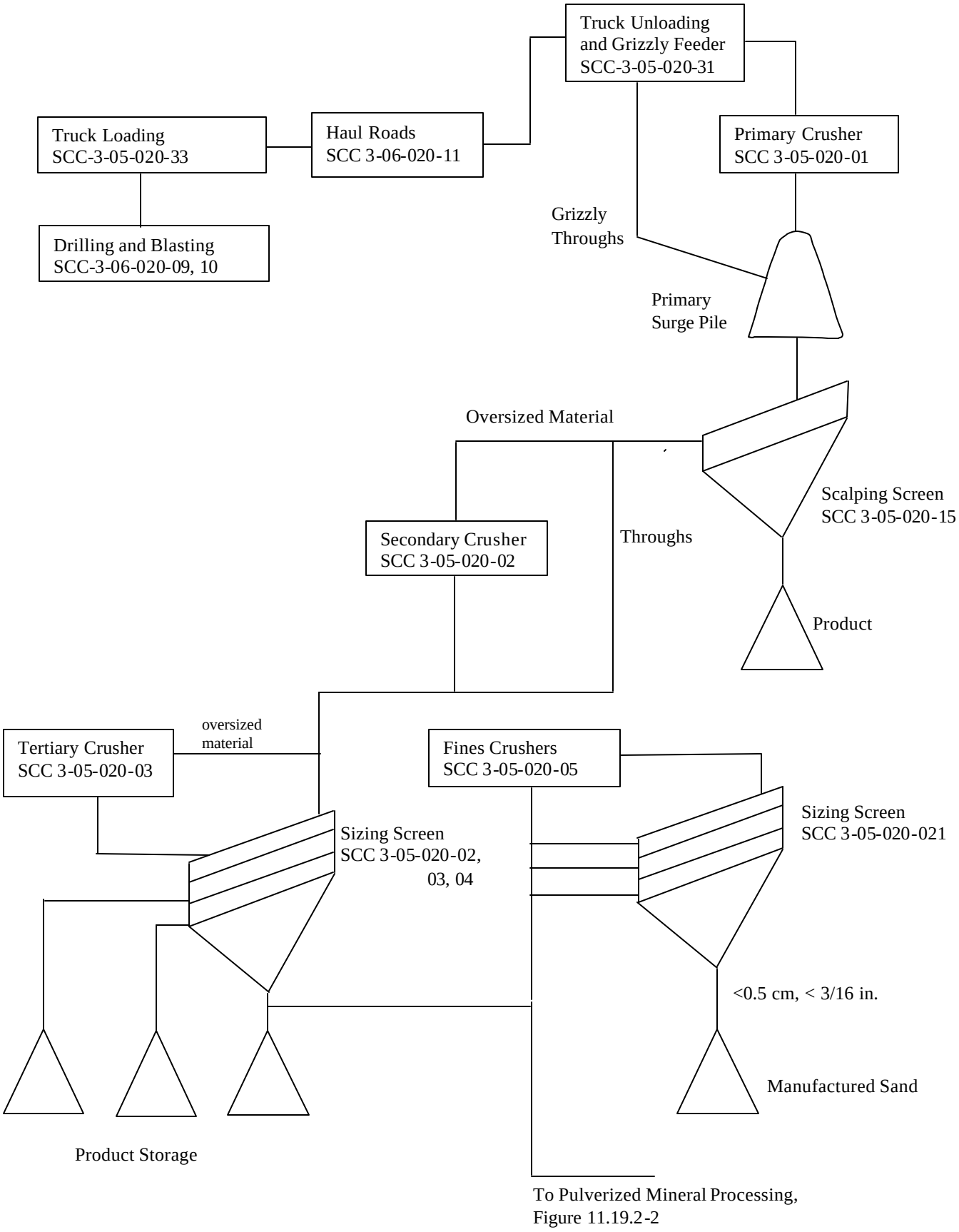

Figure 11.19.2-1. Typical stone processing plant

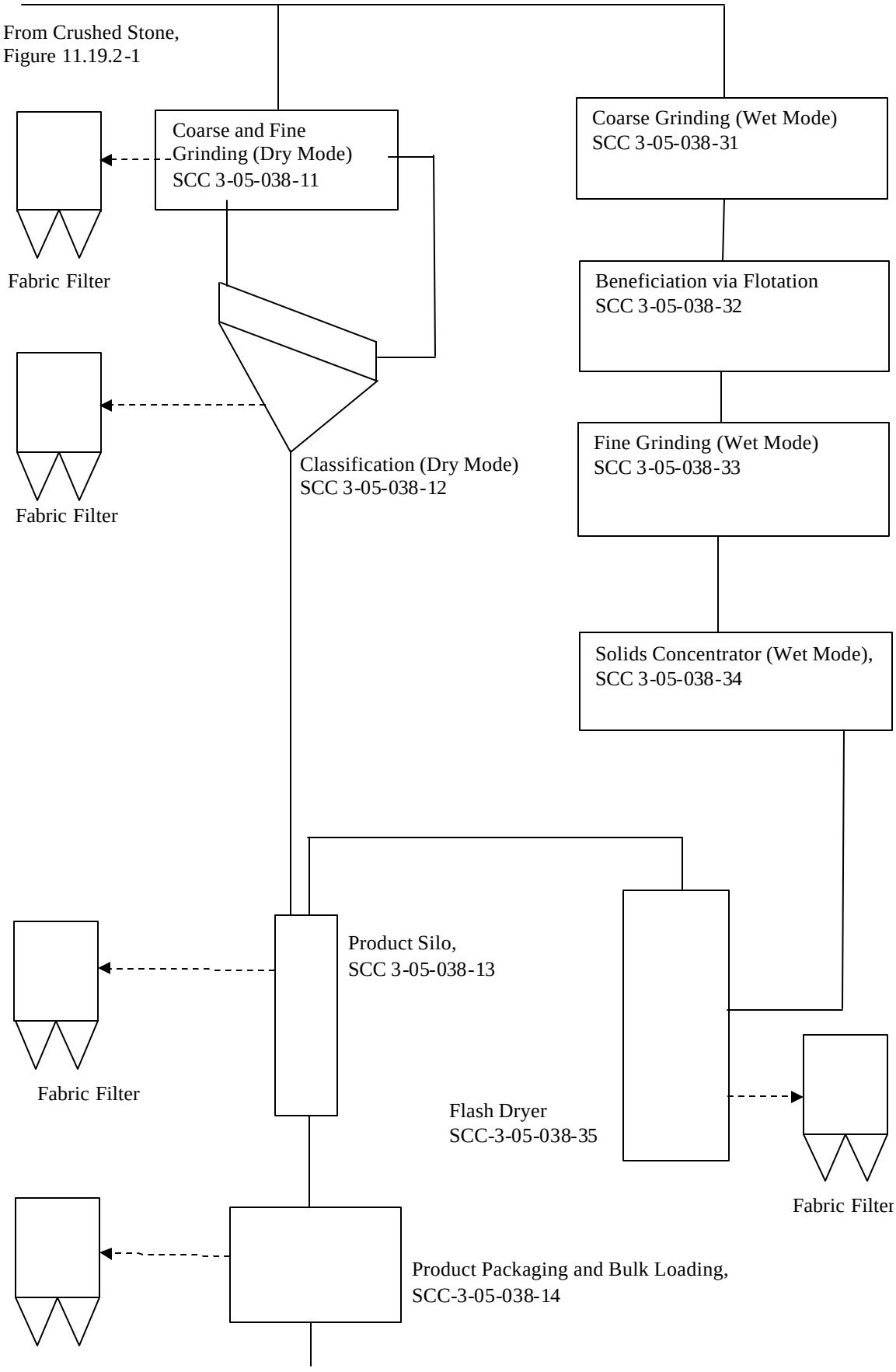

Figure 11.19.2-2 Flowchart for Pulverized Mineral Processing

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 Loading - 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.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

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[i]	E	4.6×10^{-5}[i]	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 Loading - 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.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

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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.

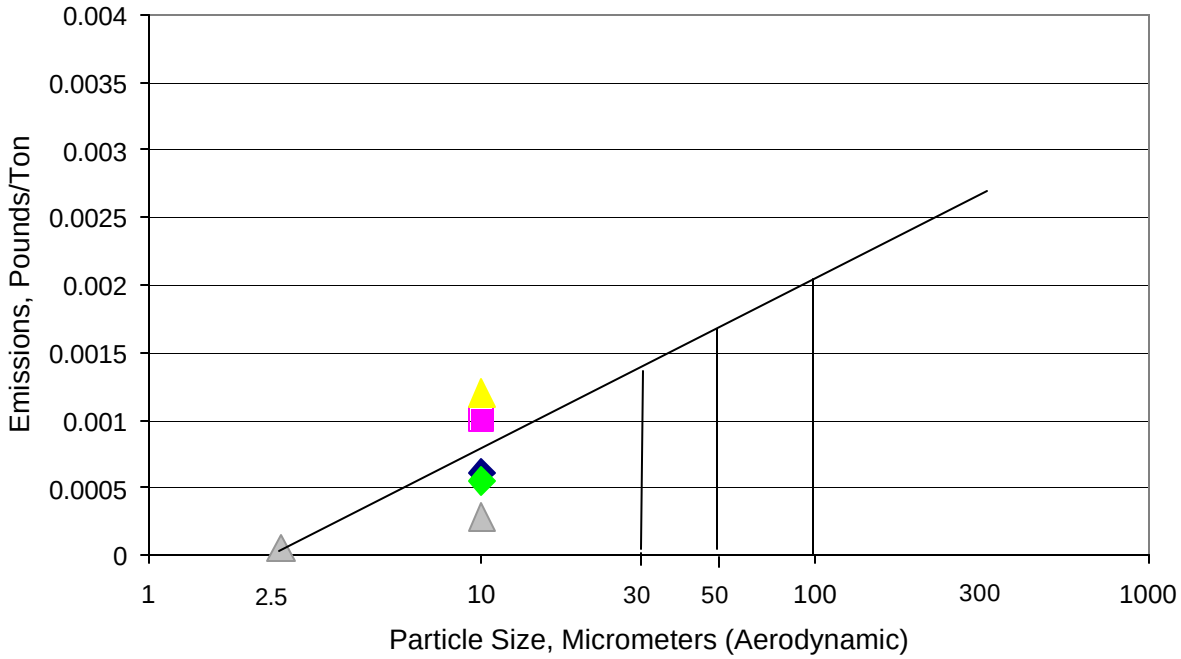

Figure 11-19-3. PM Emission Factor Calculation, Screening (Controlled)

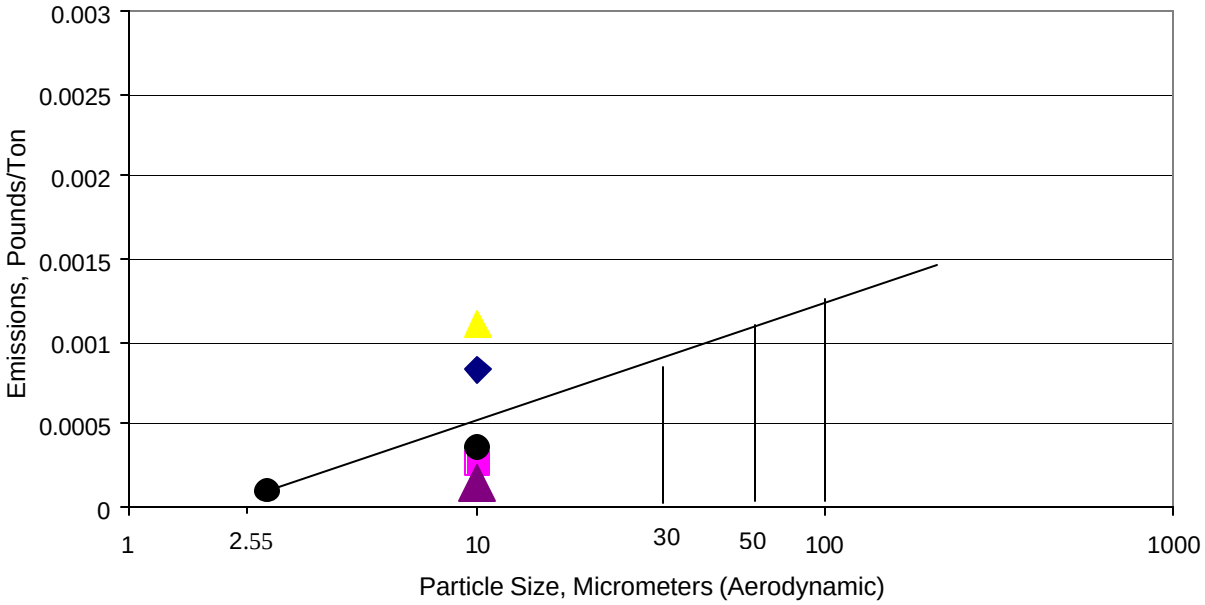

Figure 11.19-4. PM Emission Factor Calculation, Tertiary Crushing (Controlled)

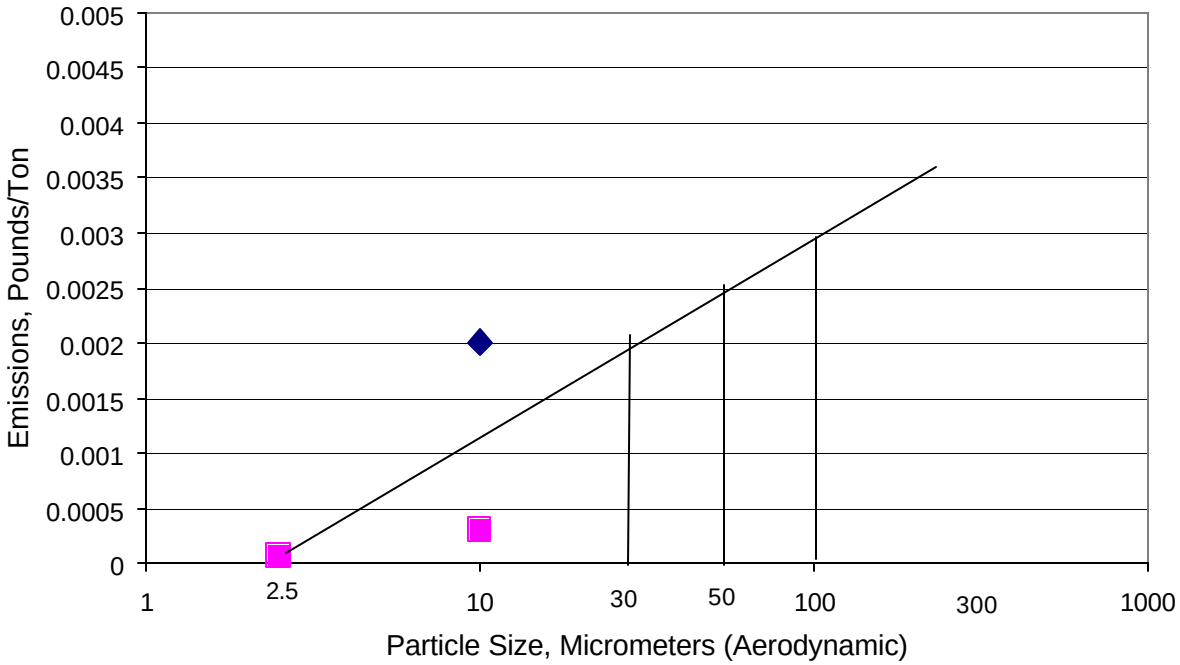

Figure 11-19.5. PM Emission Factor Calculation, Fines Crushing (Controlled)

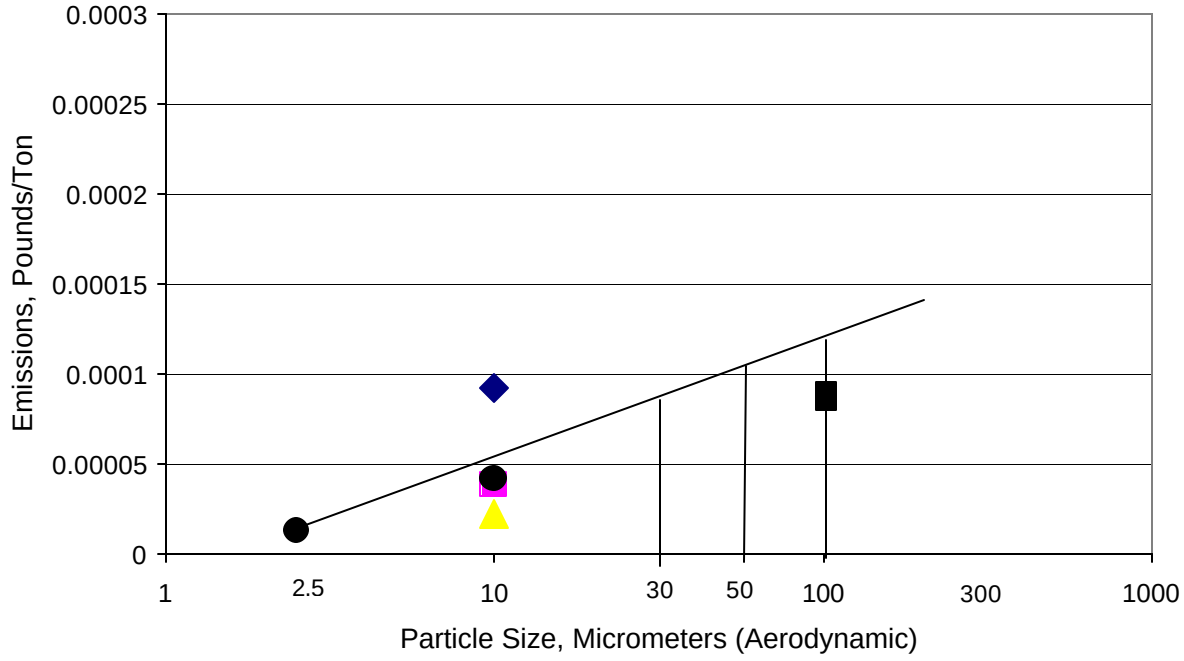

Figure 11.19-6. PM Emission Factor Calculation, Conveyor Transfer Points (Controlled)

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

References for Section 11.19.2[1]

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

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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.

6. T. Brozell, *PM-10 Emission Factors for a Stone Crushing Plant Transfer Point*, EPA Contract No. 68-DO-0122, U. S. Environmental Protection Agency, Research Triangle Park, NC, February 1993.

7. T. Brozell and J. Richards, *PM-10 Emission Factors for a Limestone Crushing Plant Vibrating Screen and Crusher for Bristol, Tennessee*, EPA Contract No. 68-D2-0163, U. S. Environmental Protection Agency, Research Triangle Park, NC, July 1993.

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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.

12. T. R. Blackwood *et al., Source Assessment: Crushed Stone*, EPA-600/2-78-004L, U. S. Environmental Protection Agency, Washington, DC, May 1978.

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.

16. T. Brozell, and J. Richards, *$PM_{10}/PM_{2.5}$ Emission Factor Testing for the Pulverized Mineral Division of the National Stone, Sand and Gravel Association.* Report to the National Stone, Sand and Gravel Association; October 2001.

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.

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20. Air Quality Technical Services, *Performance Testing for Flash Dryer #1, Omya, Inc. Plant in Florence, Vermont.* June 1997.

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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:

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

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

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

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

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

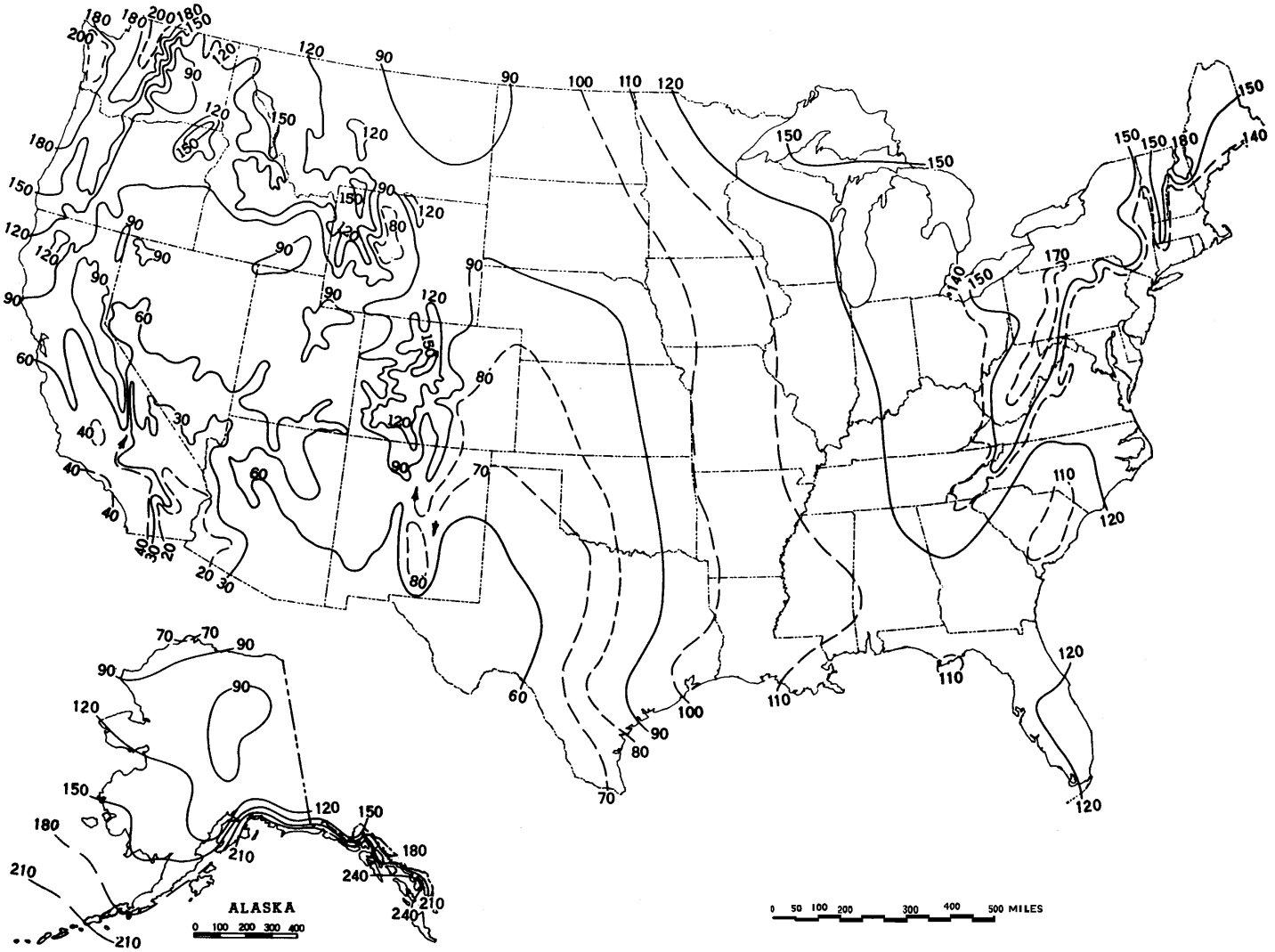

Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

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.

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.

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.

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

New Mexico
ENVIRONMENT DEPARTMENT

505 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov

SUSANA MARTINEZ
GOVERNOR

JOHN A. SANCHEZ
LIEUTENANT GOVERNOR

BUTCH TONGATE
CABINET SECRETARY-
DESIGATE

JC BORREGO
DEPUTY SECRETARY

DEPARTMENT ACCEPTED VALUES FOR: AGGREGATE HANDLING, STORAGE PILE, and HAUL ROAD EMISSIONS

TO: Applicants and Air Quality Bureau Permitting Staff

SUBJECT: Department accepted default values for percent silt, wind speed, moisture content, and control efficiencies for haul road control measures

This guidance document provides the Department accepted default values for correction parameters in the emission calculation equations for aggregate handling and storage piles emissions in construction permit applications and notices of intent submitted under 20.2.72 and 20.2.73 NMAC; and the Department accepted control efficiencies for haul road control measures for applications submitted under 20.2.72 NMAC.

Aggregate Handling and Storage Pile Emission Calculations

Applicants should calculate the particulate matter emissions from aggregate handling and storage piles using the EPA's AP-42 Chapter 13.2.4.
http://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0204.pdf

Equation 1 from Chapter 13.2.4 requires users to input values for two correction parameters, U and M, where U = mean wind speed and M = material moisture content. Below are the accepted values for U and M:

Default Values for Chapter 13.2.4, Equation 1:

Parameter	Default Value
U = Mean wind speed (miles per hour)	11 mph
M = Material moisture content (% water)	2%

Applicants must receive preapproval from the Department if they wish to assume a higher moisture content and/or a lower wind speed in these calculations. Higher moisture contents may require site specific testing either as a permit condition or submitted with the application. Applicants may assume higher wind speeds and lower percent moisture content in their calculations without prior approval from the Department.

Haul Road Emissions and Control Measure Efficiencies

Applicants should calculate the particulate matter emissions from unpaved haul roads using the EPA's AP-42 Chapter 13.2.2. http://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf

Equation 1(a) from Chapter 13.2.2 requires users to input values for two correction parameters, s and W, where s = surface material silt content (%) and W = mean vehicle weight (tons). The applicant should calculate the mean vehicle weight in accordance with the chapter's instructions. Below is the accepted value for the parameter s:

Default Values for Chapter 13.2.2, Equation 1(a):

Parameter	Default Value
s = surface material silt content (%)	4.8%

Applicants may use a higher silt content without prior approval from the Department. Use of a lower silt content requires prior approval from the Department and may require site specific testing in support of the request.

Equation 2 from Chapter 13.2.2 allows users to take credit for the number of days that receive precipitation in excess of 0.01 inches, in the annual emissions calculation, where P = number of days in a year with at least 0.01 inches of precipitation.

Default Values for Chapter 13.2.2, Equation 2:

Parameter	Default Value
P = number of days in a year with at least 0.01 inches of precipitation	70 days

Applications submitted under Part 72 may request to apply control measures to reduce the particulate matter emissions from facility haul roads. Applications submitted under Part 73 may not consider any emission reduction from control measures in the potential emission rate calculation, as registrations issued under Part 73 are not federally enforceable under the Clean Air Act or the New Mexico Air Quality Control Act. In order for those control measures to be federally enforceable, the controls must be a requirement in an air quality permit.

Below are the Department accepted control efficiencies for various haul road control measures:

Haul Road Control Measures and Control Efficiency:

Control Measure	Control Efficiency
None	0%
Base course **or** watering	60%
Base course **and** watering	80%
Base course **and** surfactant	90%
Paved **and** Swept	95%

Document Title:	Emissions Worksheet		
Customer:	Trident Structures		
Project Title:	Titan Lansing Pet Coke Crusher System		
Project Location:	Carlsbad, NM		
Project No:	2400108		
Revision:	0		
Revision Date:	3/13/2025		
Item Tag	**105 (BV-535)**	**125 (DC-550)**	
Item Description	Bin Vent	Dust Collector	
Vendor	Donaldson	Donaldson	
Vendor Model	9FS8	376 RFW 10 AW	
Filter Media	Dura-Life Polyester	Dura-Life Oleophobic Anti-Static	
Media Weight (oz/yd)	10.5	10.0	
Media Operating Temp Limit (°F)	275	275	
Media Efficiency (gr/dscf)	0.004	0.004	
Filter Media Area (ft2)	120	4,891	
Design Airflow (CFM)	667	20,872	
Air to Cloth Ratio @ Design Flow	5.56:1	4.27:1	
Recommended Dp Range (in wc)	2-6	2-8	
Estimated Vent Stack Discharge Height from Grade (ft)	35.18	*11	* Stack discharge height and area provided for fan discharge.
Vent Stack Discharge Area (ft2)	0.35	*6.62	

800.880.DUST (3878)
cwdusttech.com
6933 Shelmor Rd. Alvarado, TX

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CLEAN AIR TECHNOLOGIES

Pleated Cartridge Emissions Warranty

Customer: Trident Structures
Equipment: C&W Cartridge Dust Collector
Application: Fine Dust from Petcoke Processing
Filter Media: 100% 8-ounce spun bond polyester.

Date: March 12, 2025

C&W DustTech warrants its filters to be free of mechanical defects for a period of one year from the date of shipment in accordance with the "Warranty and Limitation" statement included with the original proposal.

C&W DustTech also expects the emissions of its cartridge filter, when properly installed, applied, and maintained, and when operated per the design parameters referenced in accordance with the manufacturers operations manuals, to emit no more than approximately 0.005 gr/dscf of air based on dry dust particle sizes of 0.5 microns and larger with an industry average inlet grain loading of 5 grains/dscf for these processes.

The buyer will be responsible for any emissions testing expense and C&W DustTech reserves the right to be present during any emission tests and shall be notified at least 2 weeks prior to the testing. Emissions testing must be conducted within 30 days of startup, or 60 days from equipment shipment.

Misuse, abuse, operating outside the stated parameters, and/or water, oil, or hydrocarbons will void the emissions expectation. C&W DustTech shall not be held responsible for any failures or excess emissions due to upset operating conditions.

This emissions expectation is contingent upon C&W DustTech receiving a process dust sample for testing, analysis, and approval. Such testing could indicate another filter media as a more suitable choice. The expected emissions are also contingent upon an inlet grain loading acceptable to C&W DustTech. Under no circumstances will C&W DustTech be liable or responsible for incidental or consequential damages.

Equipment Details on Sheet 2

Bin-Vent Filters:

Model: CP70S
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 5:1
- Differential Pressure Range: 1 to 6 inwc
- Design CFM / Exhaust Flow Rate: 440 CFM
- Discharge Elevation: 27” above Silo
- Discharge Area: 0.83 sqft

Model: CP-LPR-4-S
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 5.7:1
- Differential Pressure Range: 1 to 6 inwc
- Design CFM / Exhaust Flow Rate: 1200 CFM
- Discharge Elevation: 48” above Silo
- Discharge Area: 1.0 sqft

Model: CP-LPR-8-S
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 5.6:1
- Differential Pressure Range: 1 to 6 inwc
- Design CFM / Exhaust Flow Rate: 2350 CFM
- Discharge Elevation: 48” above Silo
- Discharge Area: 1.0 sqft

Dust Collectors:

Model: CP12500C-480-R-SP
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 4.7:1
- Differential Pressure Range: 1 to 8 inwc
- Design CFM / Exhaust Flow Rate: 12,500 CFM
- Discharge Elevation: 176” above grade
- Discharge Area: 3.52 sqft

Model: CP10000C-480-R-SP
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 4.7:1
- Differential Pressure Range: 1 to 8 inwc
- Design CFM / Exhaust Flow Rate: 10,000 CFM
- Discharge Elevation: 171” above grade
- Discharge Area: 2.91 sqft

Model: CP5250C-480-R-SP
- Efficiency: 99.9% at 0.5 Micron
- AC Ratio: 6.6:1
- Differential Pressure Range: 1 to 8 inwc
- Design CFM / Exhaust Flow Rate: 5,250 CFM
- Discharge Elevation: 122” above Grade
- Discharge Area: 1.40 sqft

PERFORMANCE DATA []

JANUARY 06, 2025

For Help Desk Phone Numbers Click here

Perf No: EM1112 **Change Level:** 06

General | Heat Rejection | Emissions | Regulatory | Altitude Derate | Cross Reference | Perf Param Ref

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SALES MODEL:	C18	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	708	**FAN POWER (HP):**	24.1
GEN POWER WITH FAN (EKW):	455.0	**ADDITIONAL PARASITICS (HP):**	2.7
COMPRESSION RATIO:	16	**ASPIRATION:**	TA
RATING LEVEL:	PRIME	**AFTERCOOLER TYPE:**	ATAAC
PUMP QUANTITY:	1	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
FUEL TYPE:	DIESEL	**INLET MANIFOLD AIR TEMP (F):**	127
MANIFOLD TYPE:	DRY	**JACKET WATER TEMP (F):**	192.2
GOVERNOR TYPE:	ELEC	**TURBO CONFIGURATION:**	SINGLE
ELECTRONICS TYPE:	ADEM4	**TURBO QUANTITY:**	1
CAMSHAFT TYPE:	STANDARD	**TURBOCHARGER MODEL:**	S430S 0.88 A/R VOF
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2015
INJECTOR TYPE:	EUI	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,161.4
REF EXH STACK DIAMETER (IN):	6		
MAX OPERATING ALTITUDE (FT):	2,999		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
ELECTRIC POWER	RENTAL	PACKAGED GENSET

General Performance Data Top

Note(s)

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
500.5	110	736	293	0.348	0.345	36.1	35.8	0.512	0.507
455.0	100	672	267	0.349	0.345	33.0	32.7	0.515	0.510
409.5	90	607	241	0.348	0.345	29.8	29.5	0.516	0.511
364.0	80	542	216	0.349	0.346	26.7	26.5	0.521	0.516
341.2	75	510	203	0.351	0.347	25.2	25.0	0.524	0.519
318.5	70	478	190	0.352	0.349	23.7	23.5	0.529	0.524
273.0	60	414	165	0.357	0.354	20.9	20.7	0.542	0.537
227.5	50	351	140	0.365	0.361	18.1	17.9	0.563	0.558
182.0	40	289	115	0.376	0.373	15.3	15.2	0.597	0.591
136.5	30	226	90	0.396	0.392	12.6	12.5	0.656	0.649
113.8	25	194	77	0.412	0.408	11.3	11.2	0.703	0.696
91.0	20	162	64	0.436	0.431	9.9	9.8	0.775	0.767
45.5	10	95.6	38	0.539	0.534	7.3	7.2	1.132	1.121

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
500.5	110	736	68.8	122.2	1,255.8	85.9	832.7	75	399.6
455.0	100	672	63.7	122.1	1,208.0	79.6	799.3	70	381.8
409.5	90	607	58.3	122.1	1,156.9	72.6	764.9	64	362.1
364.0	80	542	52.6	122.1	1,108.7	65.7	733.1	58	341.9
341.2	75	510	49.7	122.1	1,085.5	62.2	718.1	55	331.6
318.5	70	478	46.8	122.0	1,062.0	58.7	703.1	52	321.1
273.0	60	414	40.9	122.0	1,013.0	51.7	672.3	46	299.4
227.5	50	351	34.7	121.8	958.5	44.9	638.3	39	274.4
182.0	40	289	28.4	121.4	896.5	38.1	600.2	32	247.8
136.5	30	226	22.5	121.0	825.7	31.4	557.4	26	222.0
113.8	25	194	19.8	120.6	786.4	28.0	533.8	23	209.9
91.0	20	162	17.4	118.8	738.8	26.0	505.9	21	199.2
45.5	10	95.6	13.2	113.7	629.0	23.1	442.3	17	179.4

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
500.5	110	736	1,334.9	2,454.1	5,794.4	6,050.6	933.6	842.4
455.0	100	672	1,281.3	2,349.7	5,551.9	5,785.6	917.6	831.4
409.5	90	607	1,217.2	2,232.4	5,263.5	5,474.6	896.4	815.4
364.0	80	542	1,148.5	2,111.7	4,956.5	5,145.9	870.5	794.6
341.2	75	510	1,113.1	2,049.8	4,799.0	4,977.8	855.7	782.4
318.5	70	478	1,076.9	1,986.3	4,638.7	4,807.0	839.9	769.2
273.0	60	414	1,002.5	1,854.8	4,309.5	4,457.5	805.6	740.4
227.5	50	351	914.9	1,700.0	3,924.5	4,052.5	761.3	702.3
182.0	40	289	826.3	1,534.4	3,536.9	3,645.4	711.8	659.7
136.5	30	226	750.9	1,373.9	3,207.6	3,297.0	664.2	619.0
113.8	25	194	721.5	1,298.8	3,079.2	3,159.1	642.7	600.9
91.0	20	162	703.5	1,232.8	3,000.2	3,070.6	627.7	589.6
45.5	10	95.6	687.0	1,112.1	2,927.6	2,979.2	606.2	575.8

Heat Rejection Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
500.5	110	736	15,857	5,698	24,504	12,423	4,186	6,438	31,225	78,594	83,722
455.0	100	672	14,546	5,351	22,306	11,007	3,823	5,773	28,490	71,782	76,466
409.5	90	607	13,309	4,887	20,032	9,575	3,451	5,058	25,740	64,798	69,026
364.0	80	542	12,157	4,467	17,896	8,278	3,094	4,363	22,996	58,088	61,878
341.2	75	510	11,607	4,276	16,880	7,678	2,921	4,027	21,630	54,842	58,421
318.5	70	478	11,069	4,092	15,886	7,098	2,751	3,697	20,271	51,645	55,015
273.0	60	414	10,021	3,757	13,946	5,983	2,418	3,062	17,571	45,396	48,358
227.5	50	351	8,981	3,621	11,931	4,845	2,091	2,398	14,886	39,257	41,818
182.0	40	289	7,961	3,500	9,985	3,764	1,774	1,789	12,241	33,303	35,476
136.5	30	226	6,949	3,162	8,235	2,805	1,461	1,298	9,578	27,432	29,222
113.8	25	194	6,444	2,882	7,451	2,375	1,305	1,101	8,231	24,509	26,108
91.0	20	162	5,853	2,617	6,720	1,948	1,151	965	6,862	21,608	23,018
45.5	10	95.6	4,550	2,073	5,368	1,107	841	771	4,052	15,784	16,814

Emissions Data Top

Units Filter All Units

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER PERCENT LOAD		EKW BHP %	500.5 736 110	455.0 672 100	341.2 510 75	227.5 351 50	113.8 194 25	45.5 95.6 10
NON-ETHANE HC	(CORR 15% O2)	PPM	2.3620987	1.9313166	0.83507067	0.0	0.0	0.0
TOTAL NOX (AS NO2)		G/HR	164	177	125	34	16	42
TOTAL CO		G/HR	0	0	0	0	0	0
TOTAL HC		G/HR	9	7	2	0	0	0
TOTAL CO2		KG/HR	371	338	258	185	115	74
PART MATTER		G/HR	4.0	2.8	1.7	1.2	0.8	0.5
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	103.5	122.8	109.0	44.1	34.4	153.4
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 5% O2)	MG/NM3	4.8	3.9	1.6	0.0	0.0	0.0
PART MATTER	(CORR 5% O2)	MG/NM3	2.0	1.6	1.3	1.3	1.4	1.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	38.4	45.6	40.5	16.4	12.8	56.9
TOTAL CO	(CORR 15% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 15% O2)	MG/NM3	1.8	1.4	0.6	0.0	0.0	0.0
PART MATTER	(CORR 15% O2)	MG/NM3	0.8	0.6	0.5	0.5	0.5	0.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	50	60	53	21	17	75
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 5% O2)	PPM	9	7	3	0	0	0
FORMALDEHYDE	(CORR 5% O2)	PPM	0.00	0.00	0.00	0.02	0.08	0.02
ACROLEIN	(CORR 5% O2)	PPM	0.24	0.14	0.78	1.38	0.97	1.86
ACETALDEHYDE	(CORR 5% O2)	PPM	0.37	0.30	1.01	0.81	0.41	2.27
METHANOL	(CORR 5% O2)	PPM	0.00	0.06	0.16	0.07	0.00	0.00
NON-METHANE HC	(CORR 5% O2)	PPM	6.37	5.20	2.25	0.00	0.00	0.00
NON-ETHANE HC	(CORR 5% O2)	PPM	6.37	5.20	2.25	0.00	0.00	0.00
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	19	22	20	8	6	28
TOTAL CO	(CORR 15% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 15% O2)	PPM	3	3	1	0	0	0
TOTAL NOX (AS NO2)		G/HP-HR	0.22	0.26	0.25	0.10	0.08	0.45
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/HP-HR	0.01	0.01	0.00	0.00	0.00	0.00
PART MATTER		G/HP-HR	0.01	0.00	0.00	0.00	0.00	0.01
TOTAL NOX (AS NO2)		G/KW-HR	0.31	0.36	0.34	0.13	0.12	0.61
TOTAL CO		G/KW-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/KW-HR	0.02	0.01	0.01	0.00	0.00	0.00
PART MATTER		G/KW-HR	0.01	0.01	0.00	0.00	0.01	0.01
TOTAL NOX (AS NO2)		LB/HR	0.36	0.39	0.28	0.08	0.04	0.09
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.02	0.01	0.00	0.00	0.00	0.00
TOTAL CO2		LB/HR	817	745	569	407	253	163
PART MATTER		LB/HR	0.01	0.01	0.00	0.00	0.00	0.00
OXYGEN IN EXH		%	7.7	8.4	10.0	11.5	13.6	16.1

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER PERCENT LOAD		EKW BHP %	500.5 736 110	455.0 672 100	341.2 510 75	227.5 351 50	113.8 194 25	45.5 95.6 10
TOTAL NOX (AS NO2)		G/HR	237	254	181	50	24	61
TOTAL CO		G/HR	0	0	0	0	0	0
TOTAL HC		G/HR	19	14	5	0	0	0
PART MATTER		G/HR	15.5	10.9	6.7	4.6	3.0	2.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	149.1	176.9	157.0	63.5	49.5	220.9
TOTAL CO	(CORR 5% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.1
TOTAL HC	(CORR 5% O2)	MG/NM3	10.3	8.3	3.5	0.0	0.0	0.0
PART MATTER	(CORR 5% O2)	MG/NM3	7.9	6.3	5.1	4.9	5.4	5.9
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	55.3	65.6	58.3	23.6	18.4	82.0
TOTAL CO	(CORR 15% O2)	MG/NM3	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL HC	(CORR 15% O2)	MG/NM3	3.8	3.1	1.3	0.0	0.0	0.0
PART MATTER	(CORR 15% O2)	MG/NM3	2.9	2.3	1.9	1.8	2.0	2.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	73	86	76	31	24	108
TOTAL CO	(CORR 5% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 5% O2)	PPM	19	16	6	0	0	0
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	27	32	28	11	9	40
TOTAL CO	(CORR 15% O2)	PPM	0	0	0	0	0	0
TOTAL HC	(CORR 15% O2)	PPM	7	6	2	0	0	0
TOTAL NOX (AS NO2)		G/HP-HR	0.32	0.38	0.36	0.14	0.12	0.64
TOTAL CO		G/HP-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/HP-HR	0.03	0.02	0.01	0.00	0.00	0.00
PART MATTER		G/HP-HR	0.02	0.02	0.01	0.01	0.02	0.02
TOTAL NOX (AS NO2)		G/KW-HR	0.44	0.52	0.48	0.19	0.17	0.87
TOTAL CO		G/KW-HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		G/KW-HR	0.04	0.03	0.01	0.00	0.00	0.00
PART MATTER		G/KW-HR	0.03	0.02	0.02	0.02	0.02	0.03

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	500.5 736	455.0 672	341.2 510	227.5 351	113.8 194	45.5 95.6
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		LB/HR	0.52	0.56	0.40	0.11	0.05	0.13
TOTAL CO		LB/HR	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL HC		LB/HR	0.04	0.03	0.01	0.00	0.00	0.00
PART MATTER		LB/HR	0.03	0.02	0.01	0.01	0.01	0.00

Regulatory Information Top

EPA TIER 4 FINAL	2015 - ----	

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD GENSET	TIER 4 FINAL	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.03

EU STAGE V	2019 - ----	

GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2016/1628, ECE REGULATION NO. 96 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	GENSET	STAGE V	CO: 3.5 NOx: 0.67 HC: 0.19 PM: 0.035

Altitude Derate Data Top

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	708	708	708	708	708	708	708	708	576	516	708
1,000	708	708	708	708	708	708	708	699	557	511	708
2,000	708	708	708	708	708	708	708	593	529	501	708
3,000	708	708	708	708	708	651	571	543	516	489	708
4,000	708	708	708	708	674	582	552	526	501	476	708
5,000	708	708	708	669	602	557	533	509	485	462	708
6,000	708	679	653	604	560	536	514	492	470	449	704
7,000	648	592	577	560	537	515	495	474	454	435	648
8,000	585	567	553	538	516	495	475	456	437	418	595
9,000	557	544	531	516	496	476	456	436	418	400	573
10,000	533	522	508	494	474	454	431	404	380	362	555
11,000	514	503	495	487	462	431	398	373	358	357	534
12,000	495	485	483	471	445	417	384	372	371	369	514
13,000	473	463	461	444	412	381	379	378	376	374	495
14,000	449	434	420	392	381	379	378	376	374	372	470
15,000	397	379	367	381	379	377	376	374	372	370	442

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number

4150866	PP7130	4190902	PS072	LS	CM800001
4150866	PP7130	4190904	GS759	LS	CM800001
4150866	PP7130	5194410	PS072	LS	CM800001
5526360	PP7991	5424853	EE545	-	TC400001

Performance Parameter Reference Top

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.
Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 03/12/24

Table 1 of §1039.101—Tier 4 Exhaust Emission Standards After the 2014 Model Year, g/kW-hr[a]

Maximum Engine Power	Application	PM	NOx	NMHC	NOx+NMHC	CO
kW < 19	All	0.40[b]	-	-	7.5	6.6[c]
19 ≤ kW < 56	All	0.03	-	-	4.7	5.0[d]
56 ≤ kW < 130	All	0.02	0.40	0.19	-	5.0
130 ≤ kW ≤560	All	0.02	0.40	0.19	-	3.5
kW > 560	Generator sets	0.03	0.67	0.19	-	3.5
kW > 560	All except generator sets	0.04	3.5	0.19	-	3.5

[a]Note that some of these standards also apply for 2014 and earlier model years. This table presents the full set of emission standards that apply after all the transition and phase-in provisions of §1039.102 expire.
[b]See paragraph (c) of this section for provisions related to an optional PM standard for certain engines below 8 kW.
[c]The CO standard is 8.0 g/kW-hr for engines below 8 kW.
[d]The CO standard is 5.5 g/kW-hr for engines below 37 kW.

WRAP Fugitive Dust Handbook

Prepared for:

Western Governors' Association
1515 Cleveland Place, Suite 200
Denver, Colorado 80202

Prepared by:

Countess Environmental
4001 Whitesail Circle
Westlake Village, CA 91361
(WGA Contract No. 30204-111)

September 7, 2006

Chapter 4. Materials Handling

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4.1 Characterization of Source Emissions

Inherent in operations that use minerals in aggregate form is the handling and transfer of materials from one process to another (e.g., to and from storage). Outdoor 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. Dust emissions also occur at transfer points between conveyors or in association with vehicles used to haul aggregate materials

4.2 Emissions Estimation: Primary Methodology[1-14]

This section was adapted from Section 13.2.4 of EPA's *Compilation of Air Pollutant Emission Factors (AP-42)*. Section 13.2.4 was last updated in January 1995.

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on the 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. However, as the aggregate pile weathers the 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.

Table 4-1 summarizes measured moisture and silt content values for industrial aggregate materials. 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]

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 storage piles (see Chapter 9).
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.

Table 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	Crusted limestone	2	1.3-1.9	1.6	2	0.3-1.1	0.7
		Various limestone products	8	0.8-14	3.9	8	0.46-5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2-5.4	3.4	7	0.05-2.0	0.9
		Tailings	2	ND	11	1	–	0.4
Western surface coal mining	4	Coal	15	3.4-16	6.2	7	2.8-20	6.9
		Overburden	15	3.8-15	7.5	0	–	–
		Exposed ground	3	5.1-21	15	3	0.8-6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6-4.8	2.2	59	2.7-7.4	4.5
Municipal solid waste landfills	4	Sand	1	–	2.6	1	–	7.4
		Slag	2	3.0-4.7	3.8	2	2.3-4.9	3.6
		Cover	5	5.0-16	9.0	5	8.9-16	12
		Clay/dirt mix	1	–	9.2	1	–	14
		Clay	2	4.5-7.4	6.0	2	8.9-11	10
		Fly ash	4	78-81	80	4	26-29	27
		Misc. fill materials	1	–	12	1	–	11

[a] References 1-10. ND = no data.

The quantity of particulate emissions generated by either type of drop operation, expressed as a function of the amount of material transferred, may be estimated using the following empirical expression:[11]

Metric Units

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

English Units

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

where:

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

The particle size multiplier in the equation, k, varies with aerodynamic particle size range. For PM10, k is 0.35.[11] There are two sources of fugitive dust associated with materials handling activities, namely particulate emissions from aggregate handling and storage piles, which typically consists of loader and truck traffic around the storage piles, and fugitive dust associated with the transfer of aggregate by buckets or conveyors. The PM2.5/PM10 ratios for these two sources of fugitive dust are 0.1 and 0.15, respectively.[12] In general, particulate emissions from loader and truck traffic around the storage piles predominates over particulate emissions from transfer of aggregate by buckets or conveyors. Equation 1 retains the assigned quality rating of A if applied within the ranges of source conditions that were tested in developing the equation; see table below. 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 two 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 Equation 1 be reduced one quality rating level if the silt content used in a particular application falls outside the following range:

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

For Equation 1 to retain the quality rating of A when applied to a specific facility, reliable correction parameters must be determined for the 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 values from Table 4-1 may be used, but the quality rating of the equation is reduced by one letter.

For emissions from trucks, front-end loaders, dozers, and other vehicles traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Chapter 6). 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. 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.

4.3 Demonstrated Control Techniques

Watering and the use of chemical wetting agents are the principal means for control of emissions from materials handling operations involving transfer of bulk minerals in aggregate form. The handling operations associated with the transfer of materials to and from open storage piles (including the traffic around piles) represent a particular challenge for emission control. Dust control can be achieved by: (a) source extent reduction (e.g., mass transfer reduction), (b) source improvement related to work practices and transfer equipment such as load-in and load-out operations (e.g., drop height reduction, wind sheltering, moisture retention)), and (c) surface treatment (e.g., wet suppression).

In most cases, good work practices that confine freshly exposed material provide substantial opportunities for emission reduction without the need for investment in a control application program. For example, loading and unloading can be confined to leeward (downwind) side of the pile. This statement also applies to areas around the pile as well as the pile itself. In particular, spillage of material caused by pile load-out and maintenance equipment can add a large source component associated with traffic-entrained dust. Emission inventory calculations show, in fact, that the traffic dust component may easily dominate over emissions from transfer of material and wind erosion. The prevention of spillage and subsequent spreading of material by vehicles traversing the area is essential to cost-effective emission control. If spillage cannot be prevented because of the need for intense use of mobile equipment in the storage pile area, then regular cleanup should be employed as a necessary mitigative measure.

Fugitive emissions from aggregate materials handling systems are frequently controlled by wet suppression systems. These systems use liquid sprays or foam to suppress the formation of airborne dust. The primary control mechanisms are those that prevent emissions through agglomerate formation by combining small dust particles with larger aggregate or with liquid droplets. The key factors that affect the degree of agglomeration and, hence, the performance of the system are the coverage of the material

by the liquid and the ability of the liquid to "wet" small particles. There are two types of wet suppression systems—liquid sprays which use water or water/surfactant mixtures as the wetting agent and systems that supply foams as the wetting agent.

Liquid spray wet suppression systems can be used to control dust emissions from materials handling at conveyor transfer points. The wetting agent can be water or a combination of water and a chemical surfactant. This surfactant, or surface-active agent, reduces the surface tension of the water. As a result, the quantity of liquid needed to achieve good control is reduced.

Watering is also useful to reduce emissions from vehicle traffic in the storage pile area. 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%.[13, 14]

Table 4-2 presents a summary of control measures and reported control efficiencies for materials handling that includes the application of a continuous water spray at a conveyor transfer point and two control measures for storage piles.

Table 4-2. Control Efficiencies for Control Measures for Materials Handling

Control measure	PM10 control efficiency	References/comments
Continuous water spray at conveyor transfer point	62%	The control efficiency achieved by increasing the moisture content of the material from 1% to 2% is calculated utilizing the AP-42 emission factor equation for materials handling which contains a correction term for moisture content.
Require construction of 3-sided enclosures with 50% porosity for storage pile	75%	Sierra Research, 2003.[15] Determined through modeling of open area windblown emissions with 50% reduction in wind speed and assuming no emission reduction when winds approach open side.
Water the storage pile by hand or apply cover when wind events are declared	90%	Fitz et al., April 2000.[16]

4.4 Regulatory Formats

Fugitive dust control options have been embedded in many regulations for state and local agencies in the WRAP region. Regulatory formats specify the threshold source size that triggers the need for control application. Example regulatory formats for several local air quality agencies in the WRAP region are presented in Table 4-3. The website addresses for obtaining information on fugitive dust regulations for local air quality districts within California, for Clark County, NV, and for Maricopa County, AZ, are as follows:

- Districts within California: www.arb.ca.gov/drdb/drdb.htm
- Clark County, NV: www.co.clark.nv.us/air_quality/regs.htm
- Maricopa County, AZ: http://www.maricopa.gov/envsvc/air/ruledesc.asp

Table 4-3. Example Regulatory Formats for Materials Handling

Control Measure	Goal	Threshold	Agency
Establishes wind barrier and watering or stabilization requirements and bulk materials must be stored according to stabilization definition and outdoor materials covered	Limit visible dust emissions to 20% opacity		SJVAPCD Rule 8031 11/15/2001
Best available control measures: wind sheltering, watering, chemical stabilizers, altering load-in/load-out procedures, or coverings	Prohibits visible dust emissions beyond property line and limits upwind/downwind PM10 differential to 50 µg/m3		SCAQMD Rule 403 12/11/1998
Watering, dust suppressant (when loading, stacking, etc.); cover with tarp, watering (when not loading, etc.); wind barriers, silos, enclosures, etc.	Limit VDE to 20% opacity; stabilize soil	For storage piles with >5% silt content, 3ft high, >/=150 sq ft; work practices for stacking, loading, unloading, and when inactive; soil moisture content min 12%; or at least 70% min for optimum soil moisture content; 3 sided enclosures, at least equal to pile in length, same for ht, porosity </=50%	Maricopa County Rule 310 04/07/2004
Watering, clean debris from paved roads and other surface after demolition	Stabilize demolition debris and surrounding area; establish crust and prevent wind erosion	Immediately water and clean-up after demolition	Maricopa County Rule 310 04/07/2004
Utilization of dust suppressants other than water when necessary; prewater; empty loader bucket slowly	Prevent wind erosion from piles; stabilize condition where equip and vehicles op	Bulk material handling for stacking, loading, and unloading; for haul trucks and areas where equipment op	Maricopa County Rule 310 04/07/2004

4.5 Compliance Tools

Compliance tools assure that the regulatory requirements, including application of dust controls, are being followed. Three major categories of compliance tools are discussed below.

Record keeping: A compliance plan is typically specified in local air quality rules and mandates record keeping of source operation and compliance activities by the source owner/operator. The plan includes a description of how a source proposes to comply with all applicable requirements, log sheets for daily dust control, and schedules for compliance activities and submittal of progress reports to the air quality agency. The purpose of a compliance plan is to provide a consistent reasonable process for documenting air quality violations, notifying alleged violators, and initiating enforcement action to ensure that violations are addressed in a timely and appropriate manner.

Site inspection: This activity includes (1) review of compliance records, (2) proximate inspections (sampling and analysis of source material), and (3) general observations. An inspector can use photography to document compliance with an air quality regulation.

On-site monitoring: EPA has stated that "An enforceable regulation must also contain test procedures in order to determine whether sources are in compliance." Monitoring can include observation of visible plume opacity, surface testing for crust strength and moisture content, and other means for assuring that specified controls are in place.

Table 4-4 summarizes the compliance tools that are applicable to materials handling.

Table 4-4. Compliance Tools for Materials Handling

Record keeping	Site inspection/monitoring
Site map; work practices and locations; material throughputs; type of material and size characterization; typical moisture content when fresh; vehicle/equipment disturbance areas; material transfer points and drop heights; spillage and cleanup occurrences; wind fence/enclosure installation and maintenance; dust suppression equipment and maintenance records; frequencies, amounts, times, and rates for watering and dust suppressants; meteorological log.	Observation of material transfer operations and storage areas (including spills), operation of wet suppression systems, vehicle/ equipment operation and disturbance areas; surface material sampling and analysis for silt and moisture contents; inspection of wind sheltering including enclosures; real-time portable monitoring of PM; observation of dust plume opacities exceeding a standard.

4.6 Sample Cost-Effectiveness Calculation

This section is intended to demonstrate how to select a cost-effective control measure for materials handling. A sample cost-effectiveness calculation is presented

below for a specific control measure (continuous water spray at conveyor transfer point) to illustrate the procedure. The sample calculation includes the entire series of steps for estimating uncontrolled emissions (with correction parameters and source extent), controlled emissions, emission reductions, control costs, and control cost-effectiveness values for PM10 and PM2.5. In selecting the most advantageous control measure for materials handling, the same procedure is used to evaluate each candidate control measure (utilizing the control measure specific control efficiency and cost data), and the control measure with the most favorable cost-effectiveness and feasibility characteristics is identified.

Sample Calculation for Materials Handling (Conveyor Transfer Point)

Step 1. Determine source activity and control application parameters.

Material throughput (tons/hr)	25
Operating cycle (hours/day)	12
Number of workdays/year	312
Number of transfer points	1
Moisture content of material, M (%)	1
Mean wind speed, U (mph)	6
Control Measure	Water spray located at conveyor transfer point
Control application/frequency	Continuous
Economic Life of Control System (yr)	10

The material throughput, operating cycle, number of workdays per year, number of transfer points, material moisture content, wind speed, and economic life of the control system are assumed values for illustrative purposes. A continuous water spray located at a conveyor transfer point has been chosen as the applied control measure to increase the moisture content of the material from 1% to 2%.

Step 2. Calculate Uncontrolled PM10 Emission Factor. The PM10 emission factor, EF, is calculated from the AP-42 equation utilizing the appropriate correction parameters (mean wind speed U = 6 mph and moisture content M = 1%), as follows:

$$EF=(0.35) \times (0.0032) \times (6/5)^{1.3} / (1/2)^{1.4} = 0.00377 \text{ lb/ton}$$

Step 3. Calculate Uncontrolled PM Emissions. The PM10 emission factor (calculated in Step 2) is multiplied by the material throughput, operating cycle, and workdays per year (all under activity data) and then divided by 2,000 lbs to compute the annual PM10 emissions in tons per year, as follows:

Annual PM10 emissions = (EF x Material Throughput x Operating Cycle x Workdays/yr) / 2,000
Annual PM10 emissions = (0.00377 x 25 x 12 x 312) / 2000 = 0.175 tons

Annual PM2.5 emissions = 0.15 x PM10 emissions[12]
Annual PM2.5 emissions = (0.15 x 0.175 tons) = 0.0263 tons

Step 4. Calculate Controlled PM Emission Factor. The PM emission factor for controlled emissions, EF, is calculated from the AP-42 equation utilizing the appropriate correction parameters (mean wind speed U = 6 mph and moisture content M = 2%), as follows:

$$EF=(0.35) \times (0.0032) \times (6/5)^{1.3} / (2/2)^{1.4} = 0.00142 \text{ lb/ton}$$

Step 5. Calculate Controlled PM Emissions. The controlled PM emissions (i.e., the PM emissions remaining after control) is calculated by multiplying the PM10 emission factor (calculated in Step 4) by the material throughput, operating cycle, and workdays per year (all under activity data) and then divided by 2,000 lbs to compute the annual emissions in tons per year, as follows:

Annual emissions = (EF x Material Throughput x Operating Cycle x Workdays/yr) / 2,000
Annual PM10 Emissions = (0.00142 x 25 x 12 x 312) / 2000 = 0.0664 tons

Annual PM2.5 emissions for material transfer = 0.15 x PM10 emissions[12]
Annual PM2.5 Emissions = (0.15 x 0.0665 tons) = 0.00100 tons

Note: The control efficiency of using a water spray to increase the material moisture content from 1% to 2% is 62% (100 x (0.175 – 0.0664) / 0.175)

Step 6. Determine Annual Cost to Control PM Emissions.

Capital costs ($)	16,000
Annual Operating/Maintenance costs ($)	12,200
Annual Interest Rate	3%
Capital Recovery Factor	0.1172
Annualized Cost ($/yr)	14,076

The capital costs, annual operating and maintenance costs, and annual interest rate (AIR) are assumed values for illustrative purposes. The Capital Recovery Factor (CRF) is calculated from the Annual Interest Rate (AIR) and the Economic Life of the control system, as follows:

$$\text{Capital Recovery Factor} = AIR \times (1+AIR)^{\text{Economic life}} / (1+AIR)^{\text{Economic life}} - 1$$

$$\text{Capital Recovery Factory} = 3\% \times (1+3\%)^{10} / (1+3\%)^{10} - 1 = 0.1172$$

The Annualized Cost is calculated by adding the product of the Capital Recovery Factor by the Capital costs with the annual Operating/Maintenance costs as follows:

Annualized Cost = (CRF x Capital costs) + Operating/Maintenance costs
Annualized Cost = (0.1172 x 16,000) + 12,200 = $14,076

Step 7. Calculate Cost-effectiveness. Cost-effectiveness is calculated by dividing the annualized cost by the emissions reduction. The emissions reduction is determined by subtracting the controlled emissions from the uncontrolled emissions:

Cost-effectiveness = Annualized Cost/ (Uncontrolled emissions – Controlled emissions)

Cost-effectiveness for PM10 emissions = $14,076/ (0.175– 0.0664) = $129,267/ton
Cost-effectiveness for PM2.5 emissions = $14,076/ (0.0263– 0.0100) = $861,779/ton

4.7 References

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

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

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

4. MRI, 1979. *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.

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

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

7. PEDCO, 1981. *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, July.

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

9. MRI, 1987. *PM10 Emission Inventory of Landfills in the Lake Calumet Area*, EPA Contract No. 68-02-3891, Midwest Research Institute, Kansas City, MO, September.

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

11. MRI, 1987. *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.

12. MRI, 2006. Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Emission Factors, prepared for the WRAP by Midwest Research Institute, Project No. 110397, February 1.

13. Jutze, G.A. *et al.* 1974. *Investigation of Fugitive Dust Sources Emissions and Control*, EPA-450/3-74-036a, U. S. EPA, Research Triangle Park, NC, June.

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

15. Sierra Research, 2003. *Final BACM Technological and Economic Feasibility Analysis,* report prepared for the San Joaquin Valley Unified Air Pollution Control District. March 21.

16. Fitz, D., K. Bumiller, 2000. *Evaluation of Watering to Control Dust in High Winds,* J.AWMA, April.

SAMPLE EMISSION CALCULATIONS

FOR

DRY BULK FERTILIZER HANDLING OPERATIONS

The following emission calculations are provided only as an example. These calculations are based on typical equipment and bulk materials utilized at dry bulk fertilizer handling operations. Any emission calculations that are submitted to the TCEQ should include any assumptions and references for all emission factors used and samples of all emission calculations performed. The following steps should be taken when calculating emissions from a dry bulk fertilizer handling facility.

Step 1: The applicant should identify all emission points located at the bulk fertilizer handling facility. Normally, these emission points are limited to receiving areas, mixing and handling areas, and loadout areas.

Step 2: Once the emission points have been identified, the applicant should list all fertilizer material types received at the facility. In addition, all hourly and annual receiving throughput rates for these material types should be provided. Hourly receiving throughput rates for each receiving pit/area can be determined by the maximum number of truck and/or railcar loads that can be unloaded in one hour. Annual receiving throughput rates can be estimated on the annual usage of each material type. This estimation of receiving throughput rates should be conducted for all material types.

Step 3: The applicant should determine the maximum amount of dry fertilizer mixes that could be completed in a one hour period. The amount of each fertilizer material type should be identified as well as the maximum capacity of the mixer/blender. Any movement of fertilizer materials by front-end loaders and any drop points (i.e. drop of fertilizer materials into open storage bins, etc.) should also be quantified. The maximum amount of material that can be transferred in one hour from various points at the facility by front-end loader or by conveyor and drop spout (excluding the final loadout areas) should be determined.

Step 4: All hourly and annual loadout throughput rates for the fertilizer material types/blends should also be provided. Hourly loadout throughput rates for each loadout area can be determined by the maximum number of truck and/or railcar loads that can be loaded out in a one hour period. Annual loadout throughput rates are estimated on the annual usage of each material type.

Step 5: A fan chart should be created for all proposed abatement devices. The fan chart should include the emission point number, it's purpose (i.e. pneumatic receiving, truck loadout, etc.), type of control device (i.e. bagfilter, cyclone, etc.), and average and maximum air flow rates (dscfm).

Step 6: Estimate the hourly and annual emission rates for each emission point. All emission rates should be based on the maximum hourly and annual throughput capacity for that particular emission point. In addition, any control efficiencies used to reduce the emissions from an emission point should be justified and provided in the emission calculations.

EXAMPLE CALCULATIONS

Emission Points

Emission Point No. 1: Railcar Receiving Operations

Emission Point Nos. 2 & 3: Mixing/Handling Operations

Emission Point No. 4: Truck Loadout Operations

Fertilizer Materials Received at Railcar Receiving Area

Fertilizer Materials	Tons/ RRcar	RRcars/ Hr	Max. Hrly Rail Rec. (TPH)	Max. Ann. Rail Rec. (TPY)
Urea	200	1	75	4,000
Zinc Oxide	200	1	75	4,000
Ammonium Sulphate	200	1	75	4,000
Totals:				12,000

Fertilizer Materials Mixed and Handled in Storage/Handling Building

Emission Point No.	Purpose	Max. Hrly Handling (TPH)	Max. Ann. Handling (TPY)
2	Drop from overhead conveyor to open storage bins	25	6,000
3	Transfer of materials by front-end loader	25	6,000
Totals:		50	12,000

Fan Chart

Emission Point No.	Purpose	Control Device	Max. Flowrate	Avg. Flowrate
4	Loadout Area	Baghouse	2,500 (dscfm)	2,000 (dscfm)

EMISSION CALCULATIONS FOR RAILCAR RECEIVING

1. RAILCAR RECEIVING OPERATIONS:

- Assume that only one type of fertilizer material is received at a time.
- Assume that the auger which transfers material from the receiving pad has a maximum hourly capacity of 75 tons.
- Assume choke feeding will reduce emissions by 90%.
- Assume emissions from the receiving of fertilizer materials will be PM_{10} or smaller.

Hourly:

PM_{10} = 75 $\frac{\text{tons}}{\text{hr}}$ x 0.02 $\frac{\text{lb}}{\text{ton}}$ [(a)] x (1-.90) [(b)] = **0.15 lbs/hr**

Annual:

Total all fertilizer materials that will be received through the railcar receiving area per year.

Total Material Received = 4,000 tons/yr + 4,000 tons/yr + 4,000 tons/yr

= 12,000 tons/yr

PM_{10} = 12,000 $\frac{\text{tons}}{\text{yr}}$ x 0.02 $\frac{\text{lb}}{\text{ton}}$ [(a)] x (1-.90) [(b)] x $\frac{1 \text{ ton}}{2000 \text{ lbs}}$ = **0.01 lbs/yr**

2 & 3 MIXING/HANDLING OPERATIONS

- Assume the conveyor that transfers received materials into individual open storage bins can transfer a maximum of 25 tons in a one hour period.
- Assume front-end loaders can transfer a maximum of 25 tons in a one hour period from the storage bins to the mixer/blender.
- Assume materials can be dropped into the open storage bins and be transferred by front-end loader simultaneously; therefore, the maximum hourly throughputs from each of these operations should be combined when calculating emissions.
- Assume that since the storage/handling building is not totally enclosed, no control efficiency will be applied for the transfer operations conducted by conveyor or front-end loader.
- Assume that since the mixer/blender room is totally enclosed and the mixer is not open to the atmosphere during the blending process, there will be no emissions from the mixing process.

Hourly:

25 tons/hr + 25 tons/hr = 50 tons/hr

PM_{10} = 50 $\frac{\text{tons}}{\text{hr}}$ x 0.02 $\frac{\text{lbs}}{\text{ton}}$[(a)] = **1.00 $\frac{\textbf{lb}}{\textbf{hr}}$**

Annual:

Total all fertilizer materials that will be handled by conveyor or front-end loader in the storage/handling building.

Total Materials Handled = 6,000 tons/yr + 6,000 tons/yr

= 12,000 tons/yr

PM_{10} = 12,000 $\frac{\text{tons}}{\text{yr}}$ x 0.02 $\frac{\text{lbs}}{\text{ton}}$[(a)] x $\frac{1 \text{ ton}}{2000 \text{ lbs}}$ = **0.12 $\frac{\textbf{tons}}{\textbf{yr}}$**

4. TRUCK LOADOUT:

- Assume that no more than one truck will loadout at a time.
- Assume that the maximum hourly capacity of the loadout spout is 50 tons.
- Assume that since the truck loadout area is enclosed, with suction being pulled, and the doors are closed while receiving fertilizer materials that this emission point will not have any fugitive emissions. The only emissions from this point will be point source emissions from the truck loadout bagfilter system.
- Assume emissions from the bagfilter will be PM_{10} or smaller.

Hourly:

PM_{10} = 0.01 $\frac{\text{gr}}{\text{dscf}}$[(c)] x 2,000 $\frac{\text{dscf}}{\text{min}}$ x $\frac{\text{lb}}{7000 \text{ grains}}$ x 60 $\frac{\text{min}}{\text{hr}}$ = **0.17 $\frac{\textbf{lbs}}{\textbf{hr}}$**

Annual:

Total all materials that will be loaded out. The assumption can be made that all materials received will be loaded out.

Total Materials Loaded Out =4,000 tons/yr + 4,000 tons/yr + 4,000 tons/yr

= 12,000 tons/yr

PM_{10} = 0.17 $\frac{\text{lbs}}{\text{hr}}$ x 12,000 $\frac{\text{tons}}{\text{yr}}$ ÷ 50 $\frac{\text{tons}}{\text{hr}}$ x $\frac{1 \text{ ton}}{2000 \text{ lbs}}$ = **0.02 $\frac{\textbf{tons}}{\textbf{yr}}$**

References: (all assumptions should be justified and references should be provided where applicable)

(a) EPA Criteria Pollutant Emission Factors for the 1985 NAPAP Emissions Inventory, Bulk Loading of Urea, May 1987, pg. 46.

(b) Accepted efficiencies given for certain control devices/measures that minimize <u>fugitive emissions only</u> (Not to be utilized on point sources). Any other control efficiencies should be well justified and submitted with references if possible. These include:

Enclosed receiving or loadout area with doors and/or flexible strips (canvas or plastic) and suction being pulled = 100%.
Enclosed receiving or loadout area with no suction = 90%
Choke feeding on receiving operations = 90%
Mineral oil application = 90%

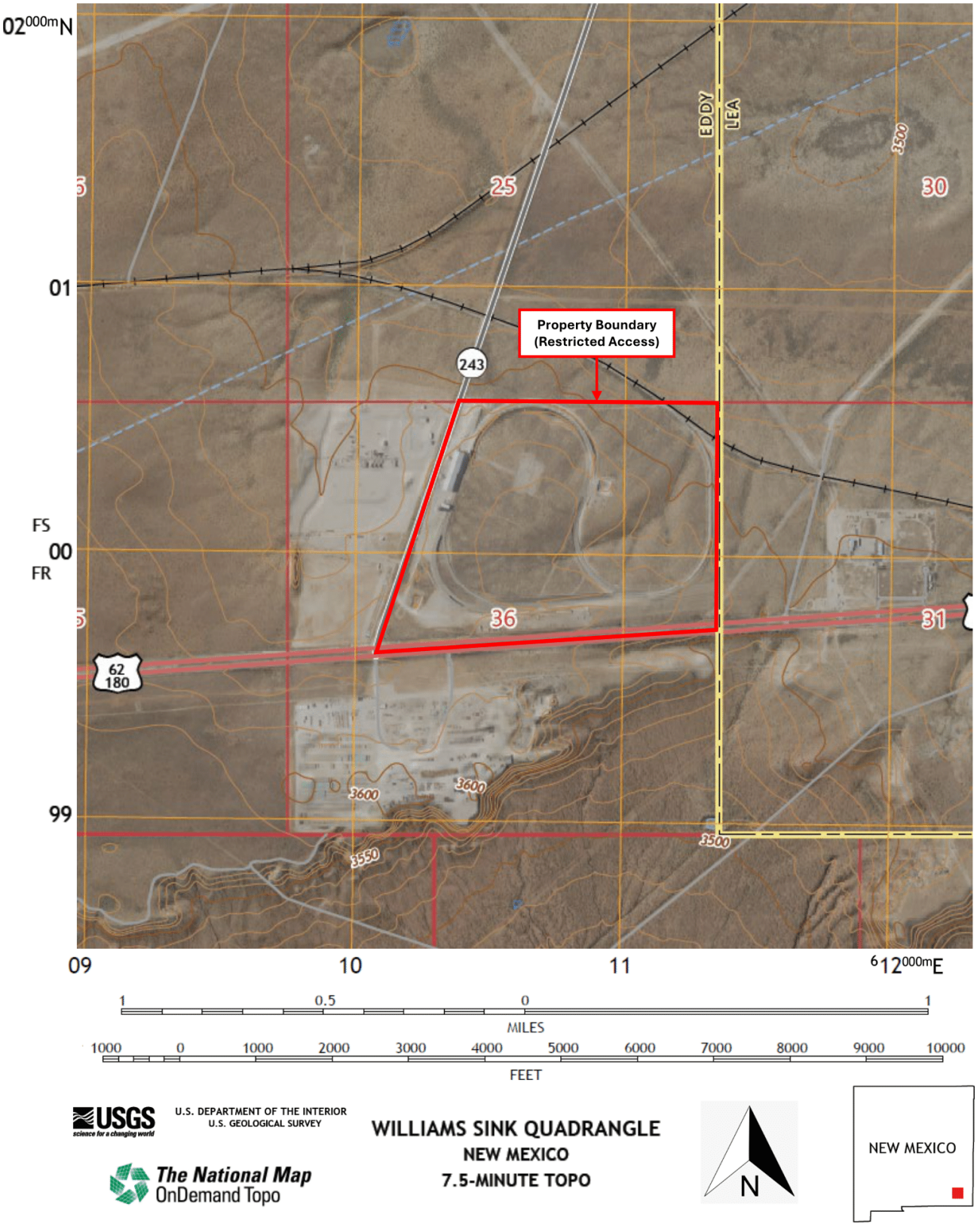
(c) AP-40, Air Pollution Engineering Manual, Air and Waste Management Association, 1991, pg 115. "Well designed and operated baghouses have been shown to be capable of reducing overall particulate emissions to less than 0.01 gr/dscf"...."in some cases as low as 0.01 - 0.005 gr/dscf".

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	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01
FS
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99
09
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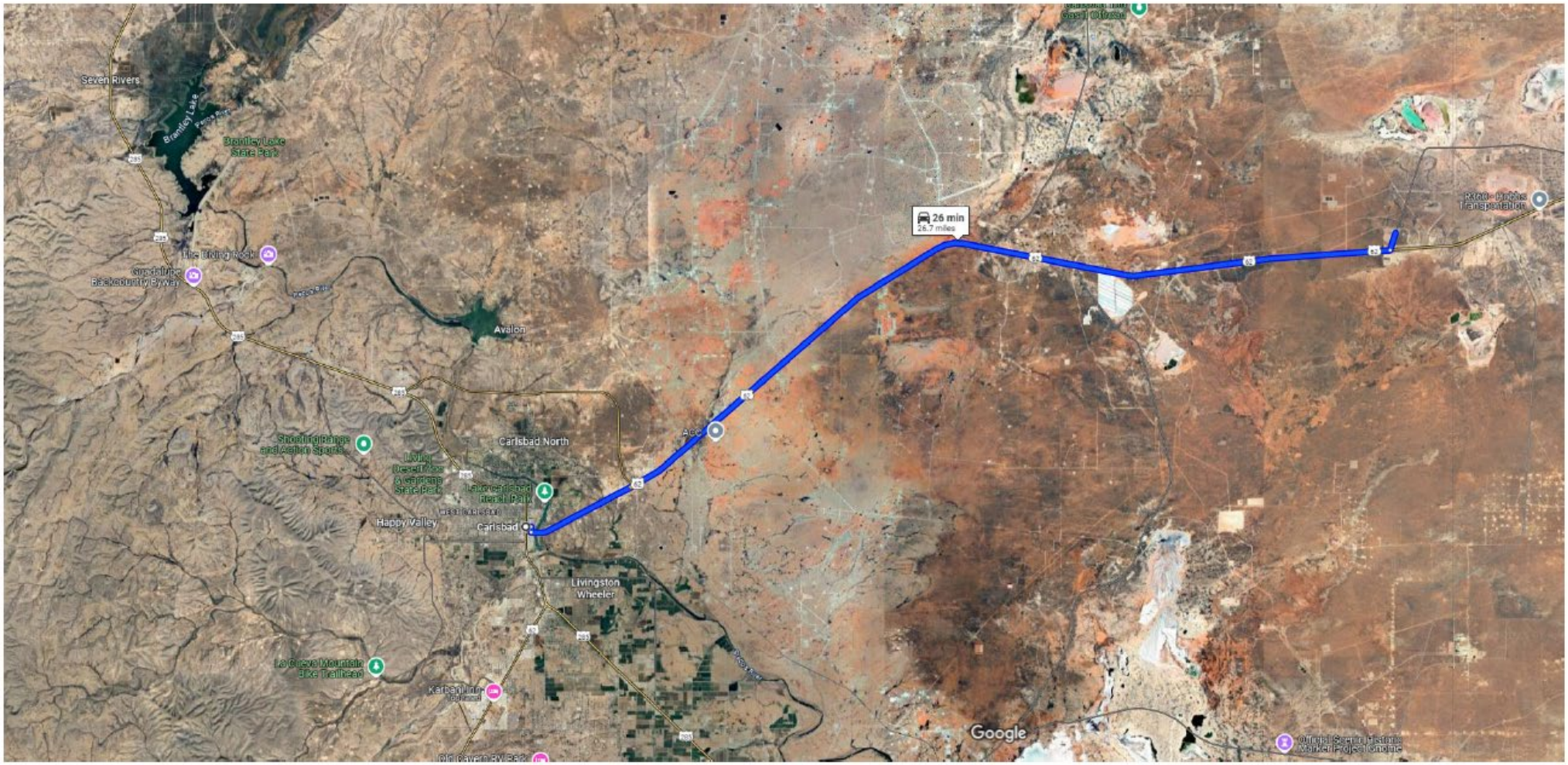
612000mE
EDDY
LEA
25
30
31
36
3500
3600
3550
Property Boundary
(Restricted Access)
243
62
180
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET
USGS
science for a changing world
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map
OnDemand Topo
WILLIAMS SINK QUADRANGLE
NEW MEXICO
7.5-MINUTE TOPO
N
NEW MEXICO



Carlsbad
New Mexico 88220

1. Head east on W Mermod St toward N Canal St — 0.2 mi
2. Turn right onto S Main St — 0.2 mi
3. Turn left onto US-180 E/US-62 E/E Greene St — 25.9 mi
   Continue to follow US-180 E/US-62 E
4. Turn left onto NM-243/State Hwy 176 — 0.5 mi
   Destination will be on the left

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

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

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

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

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

1. ☑ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☑ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. ☑ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☑ A sample of the letters sent to the owners of record.
5. ☑ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☑ A sample of the public notice posted and a verification of the local postings.
7. ☑ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☑ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☑ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☑ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☑ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

Section 9.1
Proof of Delivery to Neighbors

See the following pages for confirmation of delivery for the notices sent to all neighbors within ½ mile of the site property boundaries and all counties, municipalities, and tribes within 10 miles of the site property boundaries. Letters were sent to the recipients listed in Table 9.1.

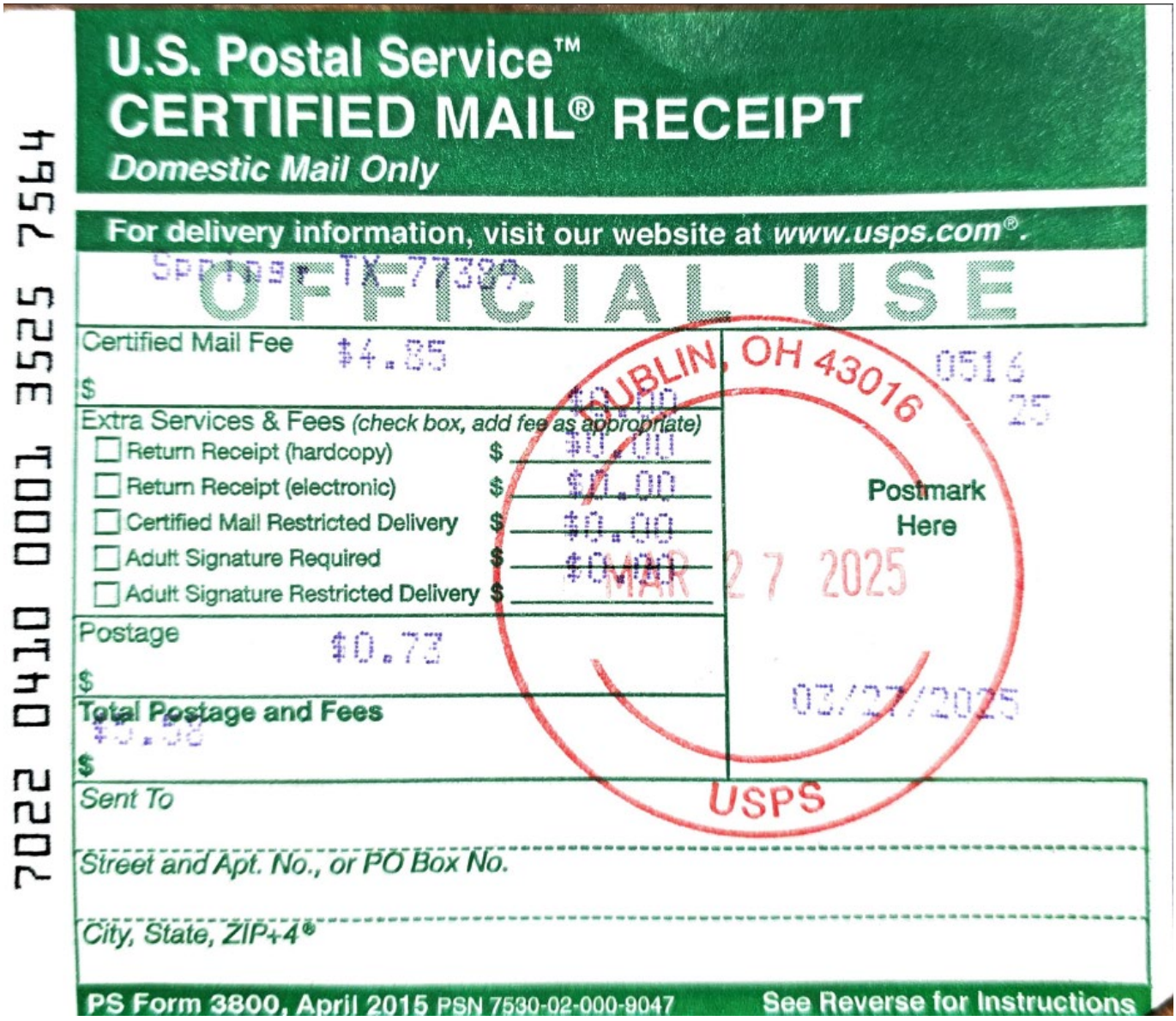
Table 9.1 – Public Notice Letter Recipients

Parcel #/County	Property Owners on Record	County	Address on Record	Certified Mail Tracking Number
4-186-120-363-141	Titan Transloading LLC	Eddy	11350 Switzer Rd, Suite 300 Overland Park, KS 66210	70220410000135257595
4-186-120-075-144	COUNTY OF EDDY	Eddy	101 W GREENE ST CARLSBAD, NM 88220	70220410000135257618
4-186-120-281-432	XTO HOLDINGS LLC	Eddy	22777 SPRINGWOODS VILLAGE PKWY SPRING, TX 77389	70220410000135257564
4-186-119-264-264	BUREAU OF LAND MANAGEMENT	Eddy	301 Dinosaur Trail Santa Fe, NM 87508	70220410000135257601
4-185-119-263-264				
4-185-120-264-264				
4-180-121-264-389				
4-181-121-261-400				
4-182-121-249-367				
4000901220001	TRANSWESTERN PIPELINE CO	Lea	2424 Ridge Road Rockwall, TX 75087	70220410000135257588
Eddy County	Eddy County Clerk's Office	Eddy	325 S Main St Carlsbad, NM 88220	70220410000135257571
Lea County	Lea County Clerk's Office	Lea	P.O. Box 1507 Lovington, NM 88260	70220410000135257625

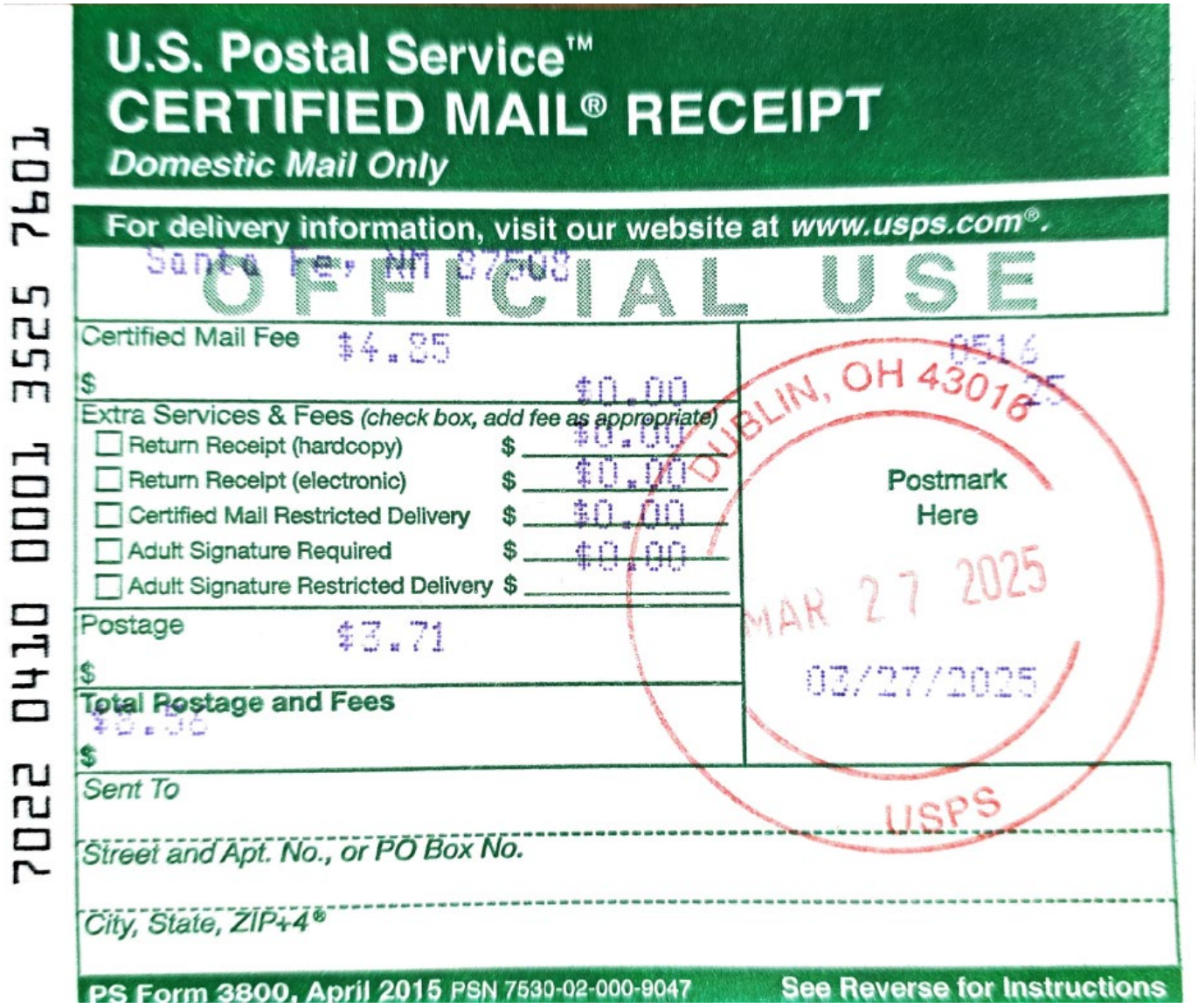
Recipient:
Titan Lansing LLC
11350 Switzer Rd, Suite 300
Overland Park, KS 66210

Recipient:
County of Eddy
101 W Greene Street
Carlsbad, NM 88220

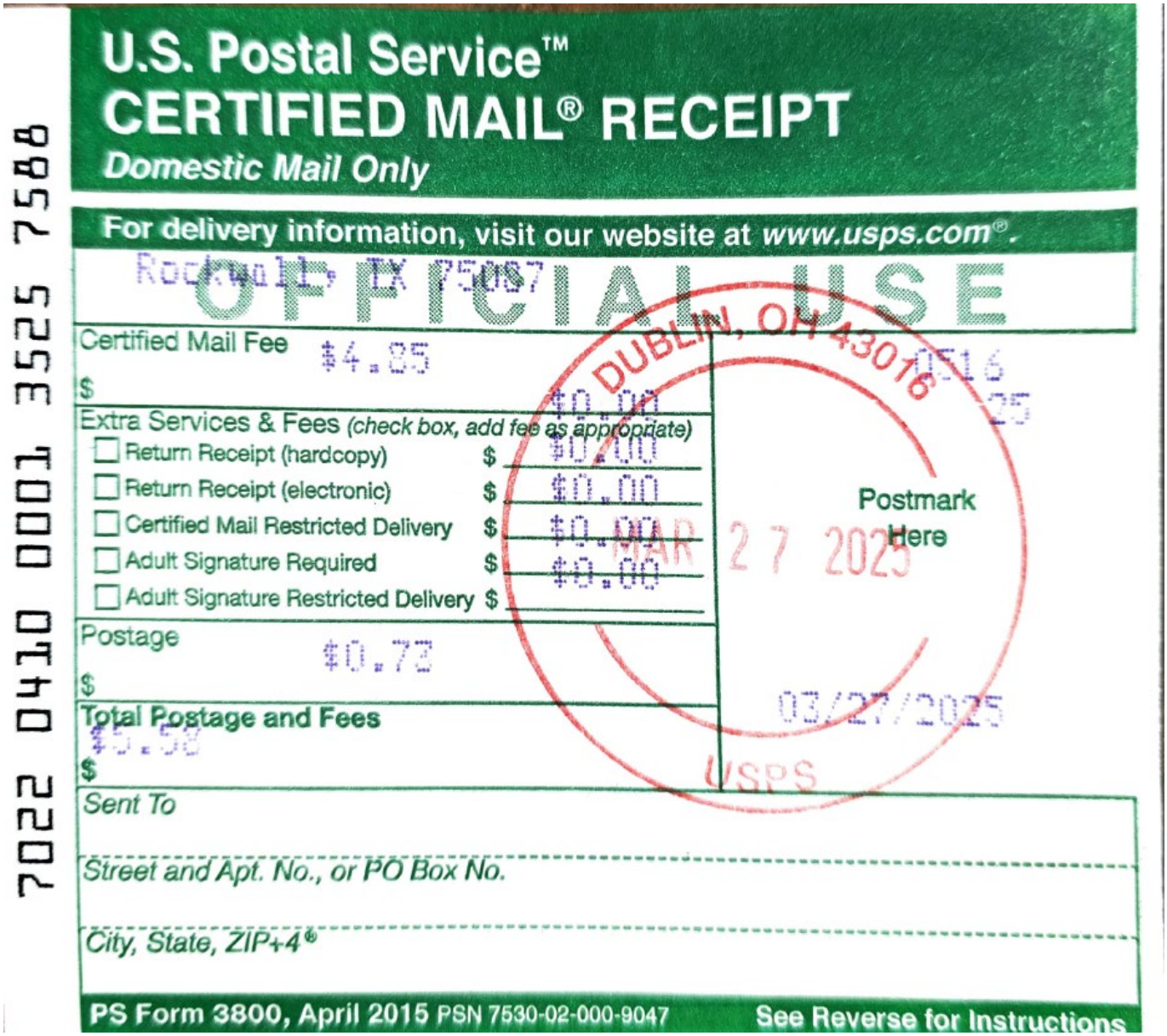
Recipient:
XTO Holdings LLC
22777 Springwoods Village Parkway
Spring, TX 77389



Recipient:
Bureau of Land Management
301 Dinosaur Trail
Santa Fe, NM 87508

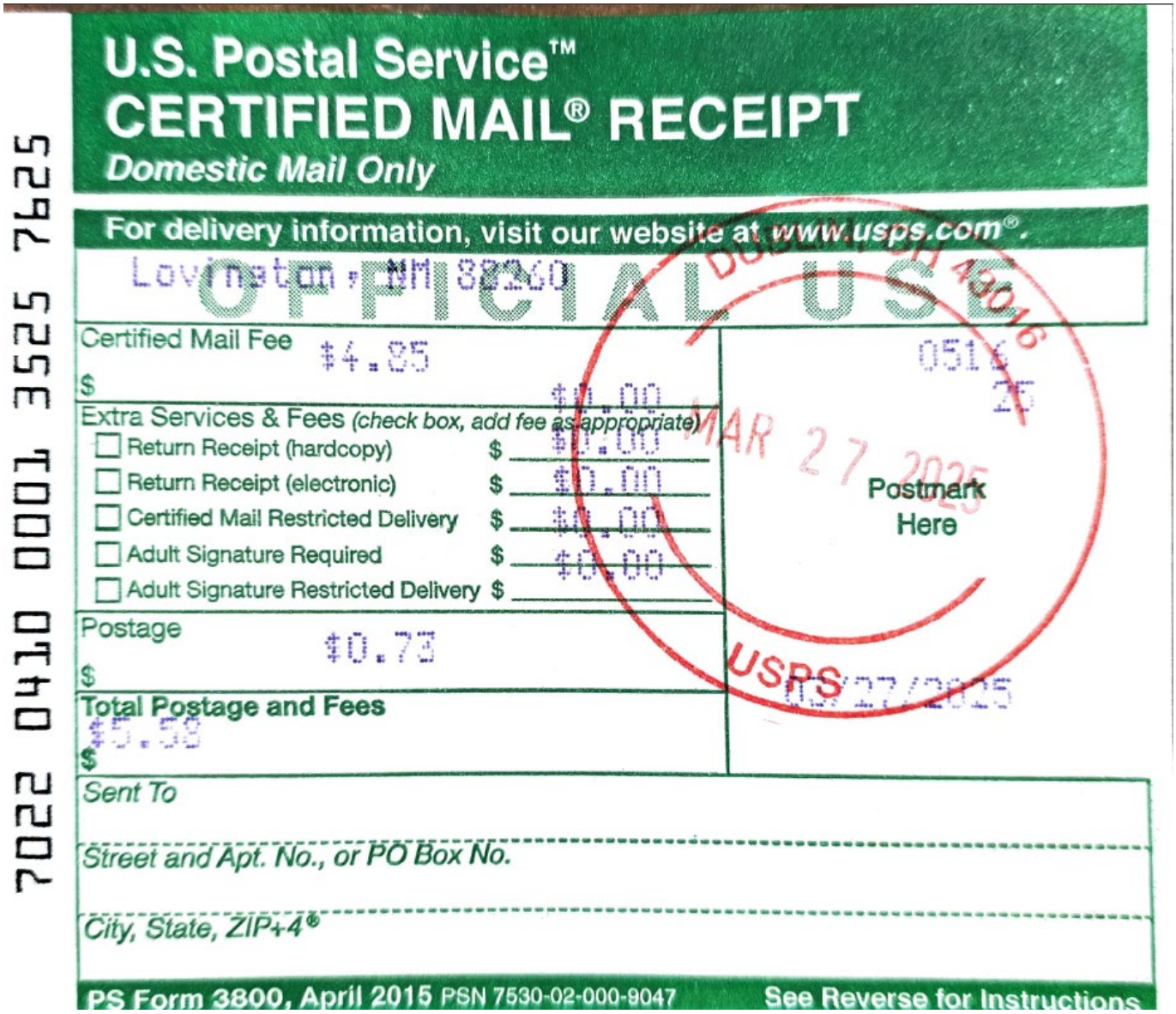


Recipient:
Transwestern Pipeline Co
2424 Ride Road
Rockwall, TX 75087



Recipient:
Eddy County Clerk
325 S Main Street
Carlsbad, NM 88220

Recipient:
Lea County Clerk
P.O. Box 1507
Lovington, NM 88260



Section 9.2
Public Notice Posting Locations

Notices were posted in the locations listed in Table 9.2.

Table 9.2 – Posted Public Notice Locations

Location	Address
Eddy County Clerk's Office	325 S Main St Carlsbad, NM 88220
Facility Gate	44 Buffalo Grass Rd Carlsbad, NM 88220
Facility Office	44 Buffalo Grass Rd Carlsbad, NM 88220
Carlsbad Library	101 S Halagueno St Carlsbad, NM 88220
Carlsbad Municipal Court	114 S Halagueno St Suite B Carlsbad, NM 88221
La Tienda Grocery	1301 S Canal St Carlsbad, NM 88220

General Posting of Notices – Certification

I, Craig Dabovich, the undersigned, certify that on **March 27, 2025,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **Carlsbad** of **Eddy** County, State of New Mexico on the following dates:

1. Facility Main Entrance: 3/27/2025
2. Eddy County Clerk's Office: 3/27/2025
3. Facility Office: 3/27/2025
4. Carlsbad Public Library: 3/27/2025
5. Carlsbad Municipal Court: 3/27/2025
6. La Tienda Grocery Store: 3/27/2025

Signed this 25th day of April, 2025.

Signature

4/25/2025
Date

Craig Dabovich
Printed Name

Project Manager
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Section 9.3
County Assessor Records for Surrounding Parcels

The table below presents the owners of record for the land parcels within a ½ mile radius of the site property boundary. The following pages present the property tax records for the properties listed in Table 9.3.

Table 9.3 – Neighbors Within ½ Mile of Site Property

Parcel No	Property Owner on Record	County
4-186-120-363-141	Titan Transloading LLC	Eddy
4-186-120-075-144	COUNTY OF EDDY	Eddy
4-186-120-281-432	XTO HOLDINGS LLC	Eddy
4-186-119-264-264	BUREAU OF LAND MANAGEMENT	Eddy
4-185-119-263-264		Eddy
4-185-120-264-264		Eddy
4-180-121-264-389		Eddy
4-181-121-261-400		Eddy
4-182-121-249-367		Eddy
4000901220001	TRANSWESTERN PIPELINE CO	Lea

Section 9.4
Sample of Letter Sent to Owners of Record

The following pages present a sample of the letters which were sent to the owners of records of the parcels located within ½ mile of the site boundary, as listed in Table 9.3.

April 25, 2025

[Property Owner]
[Address]
[City, State, Zip]

To whom it may concern,

Titan Lansing Transloading, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its transloading facility. The expected date of application submittal to the Air Quality Bureau is April 12, 2025.

The exact location for the modified facility, known as the Titan Lansing Carlsbad Facility, is 44 Buffalo Grass Road, Carlsbad, NM 88220. The approximate location of this facility is 24.9 miles Northwest of the intersection of N Canal St and E Greene St in Eddy county.

The proposed modification consists of additional equipment for the screening and crushing of mineral aggregate and three 1-MW capacity diesel generators with an accompanying 10,000-gallon diesel storage tank and a 500-gallon diesel exhaust fluid tank. The aggregate conveying and handling equipment will include a series of conveyors, bucket elevators and screeners, a crusher, material storage silos, and a new railcar loadout system for "out-of-spec" aggregate, controlled by dust collectors and bin vents. The facility will continue to use the existing rail load-in system, flat storage, and truck loadout system for the aggregate. The existing rail unloading and truck loadout system will be equipped with dust control systems.

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

Pollutant:	Pounds per hour	Tons per year
PM_{10}	3.61	15.81
$PM_{2.5}$	2.40	10.51
Sulfur Dioxide (SO_2)	1.15	5.02
Nitrogen Oxides (NO_x)	1.37	6.02
Carbon Monoxide (CO)	16.30	71.37
Volatile Organic Compounds (VOC)	0.06	0.28
Total sum of all Hazardous Air Pollutants (HAPs)	0.09	0.13
Green House Gas Emissions as Total CO_2e	N/A	<75,000

The standard operating schedule of the facility will be 12 hours per day, 7 days per week and a maximum of 52 weeks per year. The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year.

The owner and/or operator of the facility is:

Titan Lansing Transloading, LLC
11350 Switzer Road, Suite 300
Overland Park, KS 66210

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.

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

Attención
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Sincerely,

Craig Dabovich
Project Manager- Fuels/Transload
11350 Switzer Road, Suite 300
Overland Park, KS 66210

Notice of Non-Discrimination
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Section 9.5

Sample of Letter Sent to Counties, Municipalities, and Indian Tribes

The following pages present a sample of the letters which were sent to counties located within a 10-mile radius of the facility, including Eddy and Lea counties. No municipalities or tribes are located within a 10-mile radius of the facility.

April 25, 2025

[County] Clerk's Office
[Address]
[City, State, Zip]

To whom it may concern,

Titan Lansing Transloading, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its transloading facility. The expected date of application submittal to the Air Quality Bureau is April 12, 2025.

The exact location for the modified facility, known as the Titan Lansing Carlsbad Facility, is 44 Buffalo Grass Road, Carlsbad, NM 88220. The approximate location of this facility is 24.9 miles Northwest of the intersection of N Canal St and E Greene St in Eddy county.

The proposed modification consists of additional equipment for the screening and crushing of mineral aggregate and three 1-MW capacity diesel generators with an accompanying 10,000-gallon diesel storage tank and a 500-gallon diesel exhaust fluid tank. The aggregate conveying and handling equipment will include a series of conveyors, bucket elevators and screeners, a crusher, material storage silos, and a new railcar loadout system for "out-of-spec" aggregate, controlled by dust collectors and bin vents. The facility will continue to use the existing rail load-in system, flat storage, and truck loadout system for the aggregate. The existing rail unloading and truck loadout system will be equipped with dust control systems.

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

Pollutant:	Pounds per hour	Tons per year
PM_{10}	3.61	15.81
$PM_{2.5}$	2.40	10.51
Sulfur Dioxide (SO_2)	1.15	5.02
Nitrogen Oxides (NO_x)	1.37	6.02
Carbon Monoxide (CO)	16.30	71.37
Volatile Organic Compounds (VOC)	0.06	0.28
Total sum of all Hazardous Air Pollutants (HAPs)	0.09	0.13
Green House Gas Emissions as Total CO_2e	N/A	<75,000

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Section 9.6
Public Notice Posting Locations

See the following pages for a sample of the posted public notice posting and locations and images of posting.

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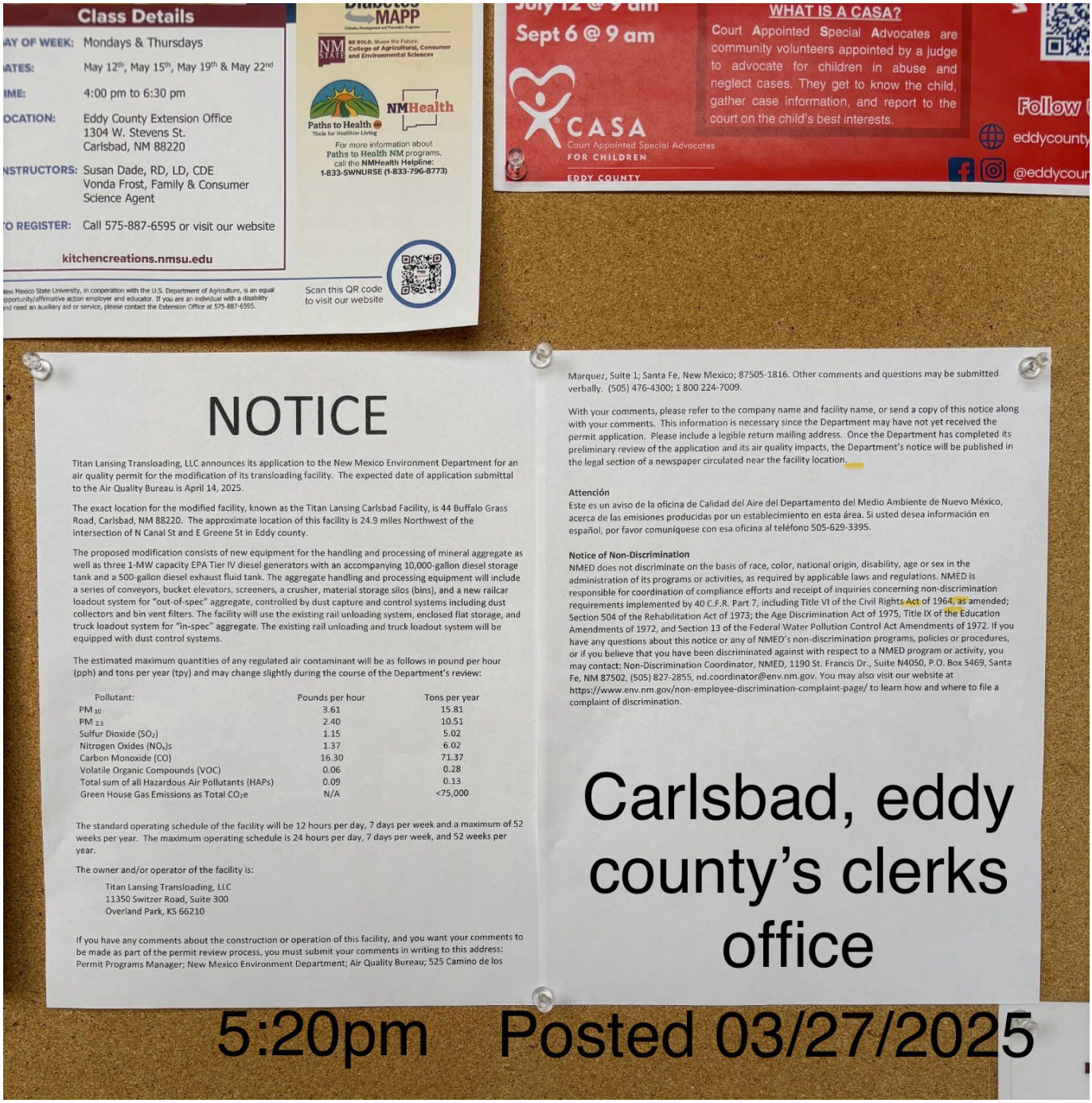
Class Details
AY OF WEEK: Mondays & Thursdays
ATES: May 12th, May 15th, May 19th & May 22nd
IME: 4:00 pm to 6:30 pm
OCATION: Eddy County Extension Office
1304 W. Stevens St.
Carlsbad, NM 88220
NSTRUCTORS: Susan Dade, RD, LD, CDE
Vonda Frost, Family & Consumer Science Agent
O REGISTER: Call 575-887-6595 or visit our website
kitchencreations.nmsu.edu
Scan this QR code to visit our website
MAPP
Paths to Health
NMHealth
For more information about Paths to Health NM programs, call the NMHealth Helpline: 1-833-SWNURSE (1-833-796-8773)
Sept 6 @ 9 am
WHAT IS A CASA?
Court Appointed Special Advocates are community volunteers appointed by a judge to advocate for children in abuse and neglect cases. They get to know the child, gather case information, and report to the court on the child's best interests.
CASA
Court Appointed Special Advocates
FOR CHILDREN
EDDY COUNTY
Follow
eddycounty
@eddycour
NOTICE
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PM 10 | 3.61 | 15.81
PM 2.5 | 2.40 | 10.51
Sulfur Dioxide (SO_2) | 1.15 | 5.02
Nitrogen Oxides (NO_x)s | 1.37 | 6.02
Carbon Monoxide (CO) | 16.30 | 71.37
Volatile Organic Compounds (VOC) | 0.06 | 0.28
Total sum of all Hazardous Air Pollutants (HAPs) | 0.09 | 0.13
Green House Gas Emissions as Total CO_2e | N/A | <75,000
The standard operating schedule of the facility will be 12 hours per day, 7 days per week and a maximum of 52 weeks per year. The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year.
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Carlsbad, eddy county's clerks office
5:20pm Posted 03/27/2025


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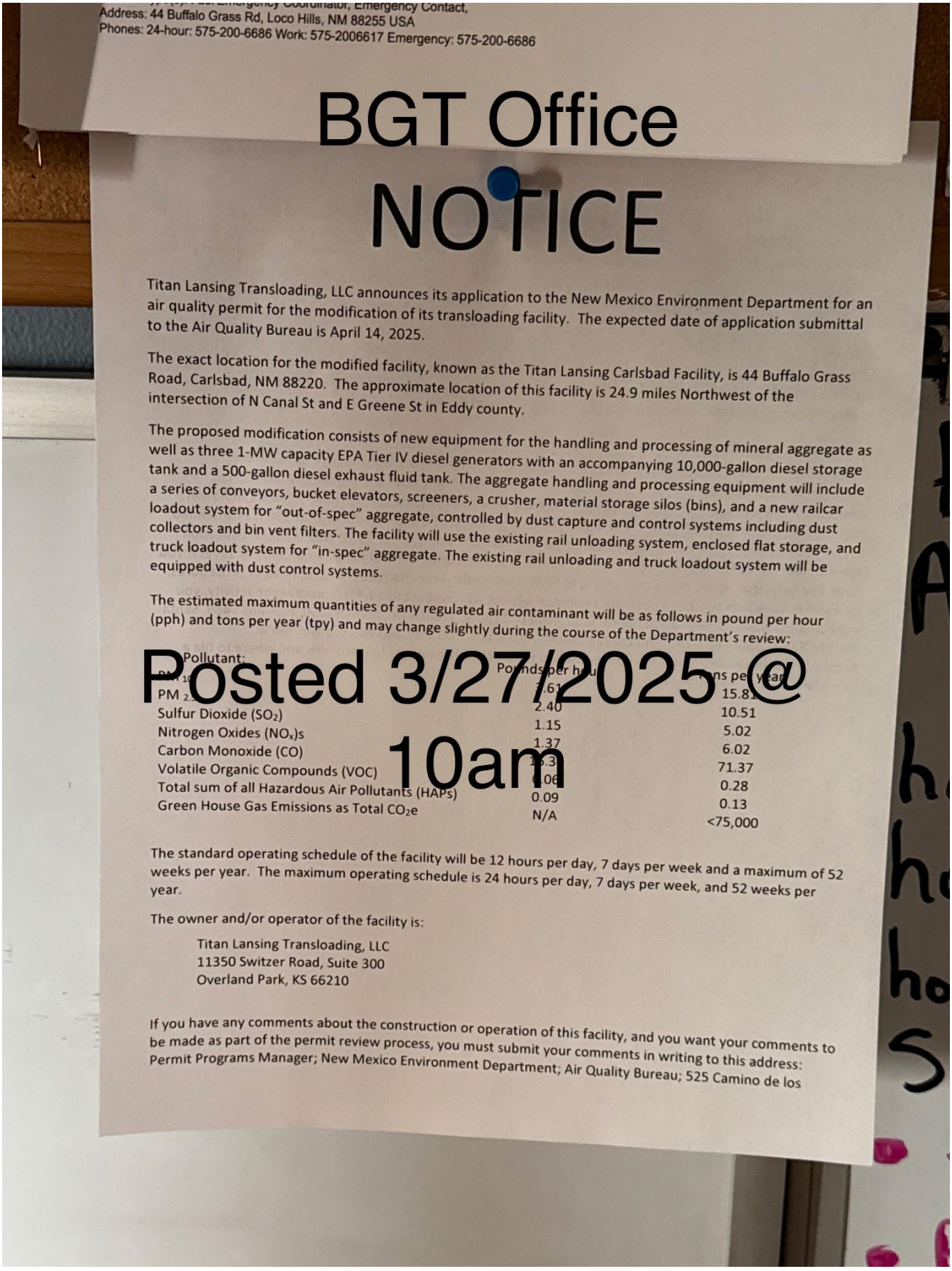
11350 Switzer Road, Suite
Overland Park, KS 66210
BGT
ENTRANCE


Address: 44 Buffalo Grass Rd, Loco Hills, NM 88255 USA
Phones: 24-hour: 575-200-6686 Work: 575-2006617 Emergency: 575-200-6686
BGT Office
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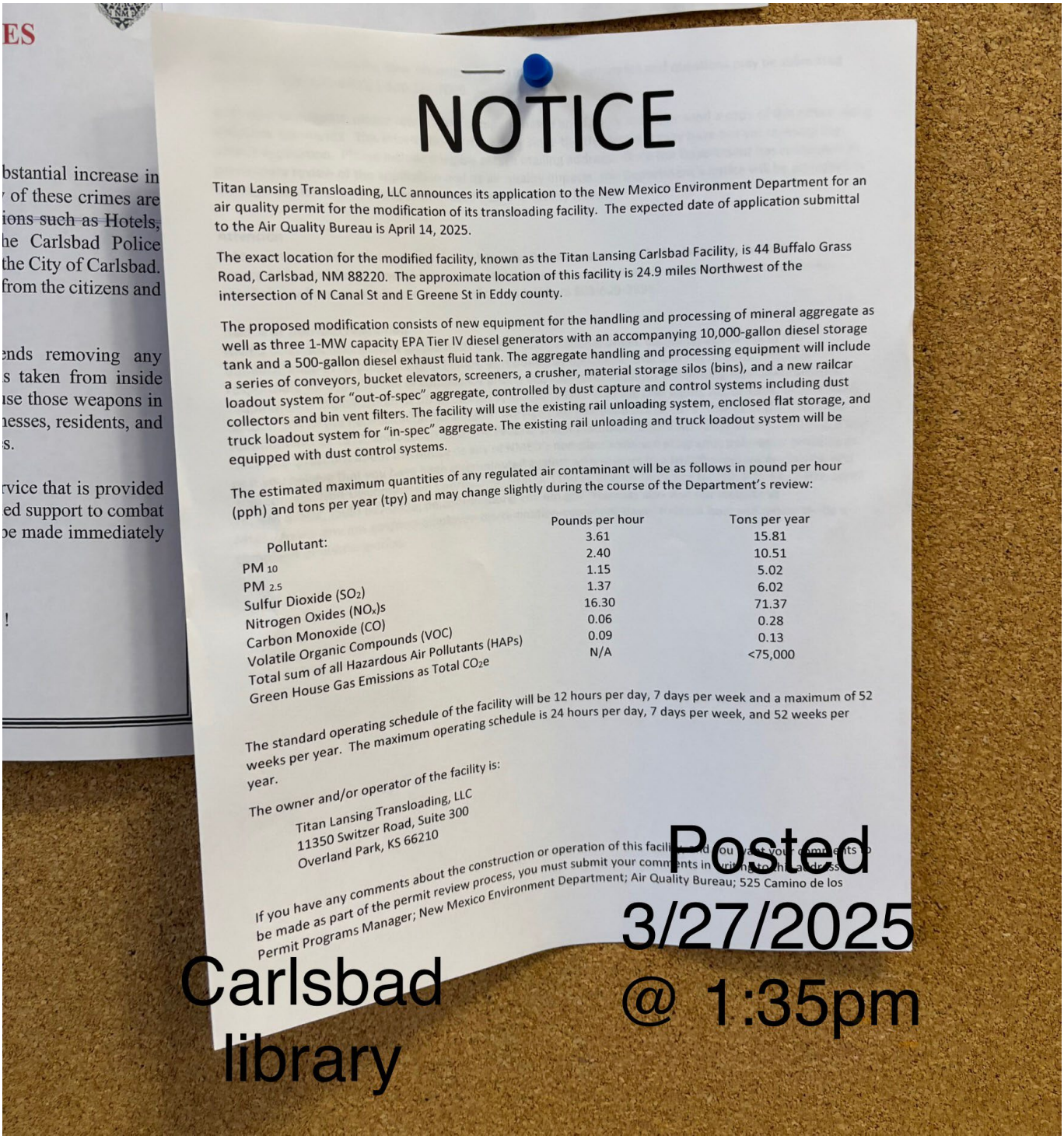
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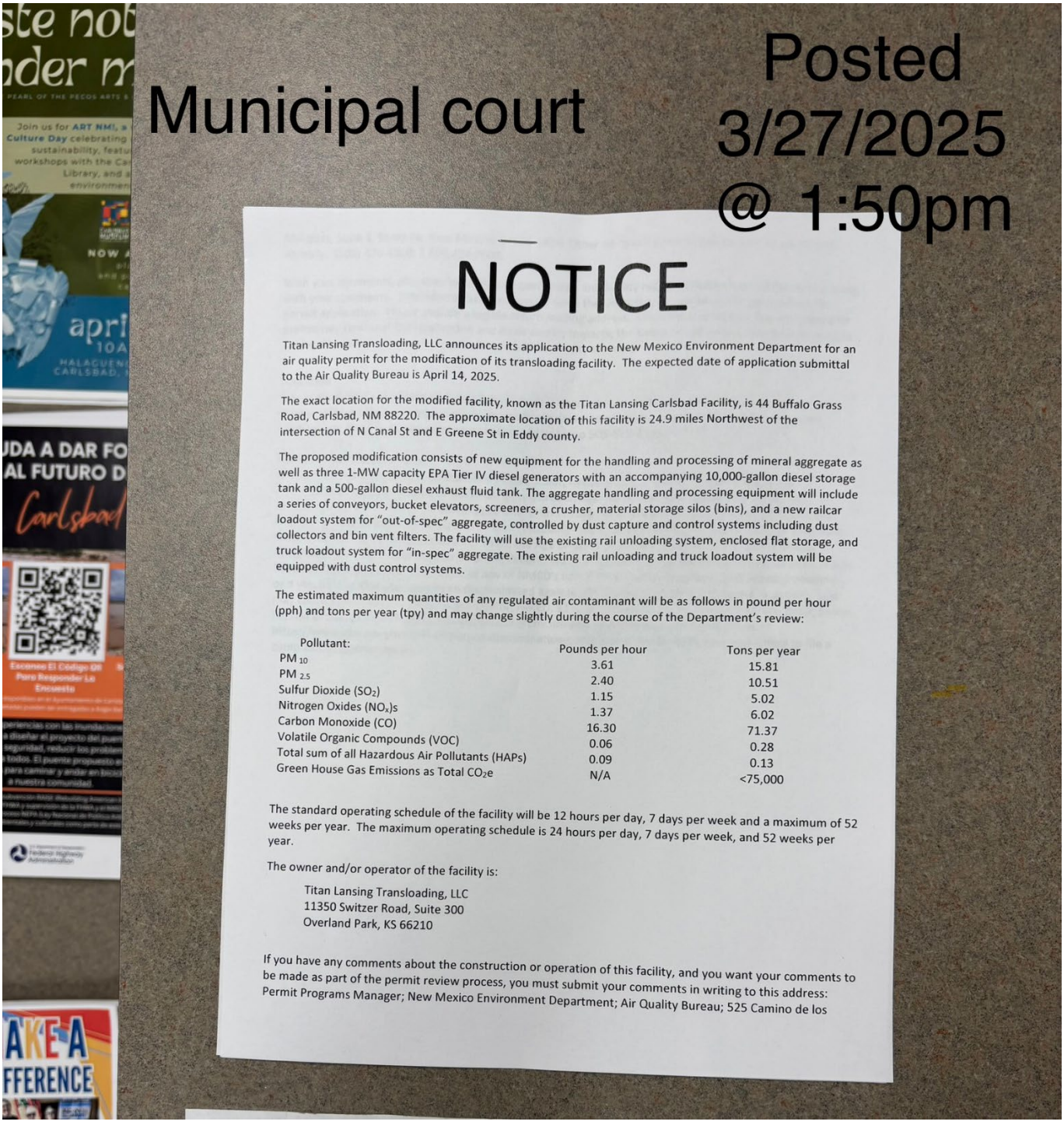
Posted
3/27/2025
@ 1:35pm
Carlsbad
library



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$PM_{2.5}$	2.40	10.51
Sulfur Dioxide (SO_2)	1.15	5.02
Nitrogen Oxides (NO_x)s	1.37	6.02
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Posted 3/27/2025 @ 4:40pm
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The exact location for the modified facility, known as the Titan Lansing Carlsbad Facility, is 44 Buffalo Grass Road, Carlsbad, NM 88220. The approximate location of this facility is 24.9 miles Northwest of the intersection of N Canal St and E Greene St in Eddy county.
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The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:
Pollutant: Pounds per hour Tons per year
PM 10 3.61 15.81
PM 2.5 2.40 10.51
Sulfur Dioxide (SO_2) 1.15 5.02
Nitrogen Oxides (NO_x)s 1.37 6.02
Carbon Monoxide (CO) 16.30 71.3
Volatile Organic Compounds (VOC) 0.06 0.28
Total sum of all Hazardous Air Pollutants (HAPs) 0.09 0.13
Green House Gas Emissions as Total CO_2e N/A <75,000
The standard operating schedule of the facility will be 12 hours per day, 7 days per week and a maximum of 52 weeks per year. The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year.
The owner and/or operator of the facility is:
Titan Lansing Transloading, LLC
11350 Switzer Road, Suite 300
Overland Park, KS 66210
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
La tienda Grocery store
EMILI'S
25 años de Rel

Section 9.7

Noticed Citizens, Counties, Municipalities

Parcel #/County	Property Owners on Record	County	Address on Record	Certified Mail Tracking Number
4-186-120-363-141	Titan Transloading LLC	Eddy	11350 Switzer Rd, Suite 300 Overland Park, KS 66210	70220410000135257595
4-186-120-075-144	COUNTY OF EDDY	Eddy	101 W GREENE ST CARLSBAD, NM 88220	70220410000135257618
4-186-120-281-432	XTO HOLDINGS LLC	Eddy	22777 SPRINGWOODS VILLAGE PKWY SPRING, TX 77389	70220410000135257564
4-186-119-264-264	BUREAU OF LAND MANAGEMENT	Eddy	301 Dinosaur Trail Santa Fe, NM 87508	70220410000135257601
4-185-119-263-264				
4-185-120-264-264				
4-180-121-264-389				
4-181-121-261-400				
4-182-121-249-367				
4000901220001	TRANSWESTERN PIPELINE CO	Lea	2424 Ridge Road Rockwall, TX 75087	70220410000135257588
Eddy County	Eddy County Clerk's Office	Eddy	325 S Main St Carlsbad, NM 88220	70220410000135257571
Lea County	Lea County Clerk's Office	Lea	P.O. Box 1507 Lovington, NM 88260	70220410000135257625

Section 9.8
Radio Public Service Announcement and Proof of Submittal

Enclosed is a copy of the invoice from Carlsbad Radio, Inc. as well as the signed PSA certification document.

The public service announcement included the following text:

Titan Lansing Transloading, LLC announces its intent to apply to the New Mexico Environment Department to obtain a New Source Review Permit for modifications to the Carlsbad Transloading Facility, currently operating under Notice of Intent 5226R2.

The proposed modification consists of additional equipment for the screening and crushing of mineral aggregate and three 1-MW capacity diesel generators with an accompanying 10,000-gallon diesel storage tank and a 500-gallon diesel exhaust fluid tank.

The new transloading equipment will be controlled by dust collectors and bin vents, while the previously existing rail load-in and storage equipment will be equipped with dust control systems.

The Carlsbad Transloading Facility is located at 44 Buffalo Grass Road, Carlsbad, NM 88220, approximately 25 miles Northeast of the intersection of N Canal St and E Greene St in Carlsbad.

If you have any comments about this proposed modification and you want your comments to be made as part of the permit review process, you must submit your comments in writing to:

New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505-1816

CARLSBAD RADIO, INC
PO Box 1538
CARLSBAD, NM 88221

Order #: **3885-00002**
Description: Air Quality Permit
Date Entered: 4/3/2025
P.O.#:
Salesperson: Hughes, Don
Invoice Frequency: Billed at end of Cal Month, Sorted by Date Notary Req'd

T and M Associates
4675 Lakehurst Ct
Suite 250
Dublin, OH 43016

Other (Non-Spot) Charges

	Start Date	End Date	Station	Description of Charge	Repeated	Qty	Rate	Total
1	4/3/2025	4/3/2025	KCDY-FM	Air Quality Permit	Monthly	1	500.00	500.00

On-Air Schedule

	Start Date	End Date	Station	Scheduled Time/Event	Repeated	Length	Qty	Rate	Total	M	Tu	W	Th	F	Sa	Su
1	4/7/2025	4/7/2025	KATK-FM	06:00:00a to 07:00:00p	Weekly	1:00	2	0.00	0.00	2	0	0	0	0	0	0

Order Start Date: 4/3/2025 **Order End Date: 4/7/2025** **Spots: 2**

Total Charges:	**$500.00**
Total Sales Tax	**$36.97**
Total Net:	**$536.97**

Projected Calendar Month Billing Totals for T and M Associates / 3885-00002 :

		Spot Count	*Net Billing*
April	2025	2	$500.00

Submittal of Public Service Announcement – Certification

I, Craig Dabovich, the undersigned, certify that on **April 3, 2025**, submitted a public service announcement to **Carlsbad Radio, Inc.** that serves the **City of Carlsbad**, **Eddy County**, New Mexico, in which the source is or is proposed to be located and that **Carlsbad Radio, Inc. RESPONDED THAT IT WOULD AIR THE ANNOUNCEMENT.**

Signed this 25th day of April, 2025.

Signature

4/25/2025
Date

Craig Dabovich
Printed Name

Project Manager
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Section 9.9
Classified Advertisement Proof of Publishing

Enclosed is a copy of the legal advertisement affidavit of publication and the advertisement as posted in the Carlsbad Current-Argus.

Affidavit of Publication

No. 42110

State of New Mexico Publisher

County of Eddy:

Dave Shabaz

being duly sworn, sayes that he is the **Publisher**

of the Carlsbad Current Argus, a weekly newspaper of general circulation, published in English at Carlsbad, said county and state, and that the hereto attached

Legal Ad

was published in a regular and entire issue of the said Carlsbad Current Argus, a weekly newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for

1 Consecutive weeks/day on the same day as follows:

First Publication	April 10, 2025
Second Publication	
Third Publication	
Fourth Publication	
Fifth Publication	
Sixth Publication	
Seventh Publication	
Eighth Publication	

Subscribed ans sworn before me this

14th day of April 2025

LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

NOTICE OF AIR QUALITY PERMIT APPLICATION

Titan Lansing Transloading, LLC announces its application to the New Mexico Environment Department for an air quality permit for the modification of its transloading facility. The expected date of application submittal to the Air Quality Bureau is **April 12, 2025.**

The exact location for the modified facility, known as the **Titan Lansing Carlsbad Facility**, is 44 Buffalo Grass Road, Carlsbad, NM 88220. The approximate location of this facility is **24.9 miles Northeast of the intersection of N Canal St and E Greene St in Eddy county.**

The proposed modification consists of additional equipment for the screening and crushing of mineral aggregate and three 1-MW capacity diesel generators with an accompanying 10,000-gallon diesel storage tank and a 500-gallon diesel exhaust fluid tank. The aggregate conveying and handling equipment will include a series of conveyors, bucket elevators and screeners, a crusher, material storage silos, and a new railcar loadout system for "out-of-spec" aggregate, all controlled by dust collectors and bin vents. The facility will continue to use the existing rail load-in system, flat storage, and truck loadout system for the aggregate. The existing rail unloading and truck loadout equipment will be equipped with dust control systems.

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

Pollutant:	**Pounds per hour**	**Tons per year**
PM 10	3.61	15.81
PM 2.5	2.40	10.51
Sulfur Dioxide (SO2)	1.15	5.02
Nitrogen Oxides (NOx)	1.37	6.02
Carbon Monoxide (CO)	16.30	71.37
Volatile Organic Compounds (VOC)	0.06	0.28
Total sum of all Hazardous Air Pollutants (HAPs)	0.09	0.13
Green House Gas Emissions as Total CO2e	N/A	<75,000

The standard operating schedule of the facility will be 12 hours per day, 7 days per week and a maximum of 52 weeks per year. The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year.

The owner and/or operator of the facility is:
Titan Lansing Transloading, LLC
11350 Switzer Road, Suite 300, Overland Park, KS 66210

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.

Published in the Carlsbad Current Argus on 4-4-25 ad#42110

Section 9.10
Display Advertisement Proof of Publishing

Enclosed is a copy of the display advertisement affidavit of publication and the advertisement as posted in the Carlsbad Current-Argus.

AFFIDAVIT OF PUBLICATION

CARLSBAD CURRENT-ARGUS
PO BOX 507
HUTCHINSON, KS 67504-0507

STATE OF NEW MEXICO } SS
COUNTY OF EDDY }

Account Number: 1575
Ad Number: 41770
Description: Air Quality Permit - Lansing
Ad Cost: $272.25

Sherry Groves, being first duly sworn, says:

That she is the Agent of the the Carlsbad Current-Argus, a Weekly newspaper of general circulation, printed and published in Carlsbad, Eddy County, New Mexico; that the publication, a copy of which is attached hereto, was published in said newspaper on the following dates:

April 8, 2025

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

Sherry Groves
Agent

Subscribed to and sworn to me this 8th day of April 2025.

Leanne Kaufenberg
Leanne Kaufenberg, Notary Public, Redwood County Minnesota

JERROD SHACKELFORD
T&M ASSOCIATES
4675 LAKEHURST CT SUITE 250
DUBLIN, OH 43016
JShackelford@tandmassociates.com

LEANNE JOY KAUFENBERG
Notary Public
State of Minnesota
My Commission Expires
January 31, 2030

NOTICE OF AIR QUALITY PERMIT APPLICATION

Titan Lansing Transloading, LLC announces its application to the New Mexico Environment Department for an air quality permit for the modification of its transloading facility. The expected date of application submittal to the Air Quality Bureau is April 12, 2025.

The exact location for the modified facility, known as the Titan Lansing Carlsbad Facility, is 44 Buffalo Grass Road, Carlsbad, NM 88220. The approximate location of this facility is 24.9 miles Northeast of the intersection of N Canal St and E Greene St in Eddy county.

The proposed modification consists of additional equipment for the screening and crushing of mineral aggregate and three 1-MW capacity diesel generators with an accompanying 10,000-gallon diesel storage tank and a 500-gallon diesel exhaust fluid tank. The aggregate conveying and handling equipment will include a series of conveyors, bucket elevators and screeners, a crusher, material storage silos, and a new railcar loadout system for "out-of-spec" aggregate, all controlled by dust collectors and bin vents. The facility will continue to use the existing rail load-in system, flat storage, and truck loadout system for the aggregate. The existing rail unloading and truck loadout system will be equipped with dust control systems.
The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM 10	3.61	15.81
PM 2.5	2.40	10.51
Sulfur Dioxide (SO2)	1.15	5.02
Nitrogen Oxides (NOx)	1.37	6.02
Carbon Monoxide (CO)	16.30	71.37
Volatile Organic Compounds (VOC)	0.06	0.28
Total sum of all Hazardous Air Pollutants (HAPs)	0.09	0.13
Green House Gas Emissions as Total CO2e	N/A	<75,000

The standard operating schedule of the facility will be 12 hours per day, 7 days per week and a maximum of 52 weeks per year. The maximum operating schedule is 24 hours per day, 7 days per week, and 52 weeks per year.

The owner and/or operator of the facility is:
Titan Lansing Transloading, LLC
11350 Switzer Road, Suite 300
Overland Park, KS 66210

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.

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

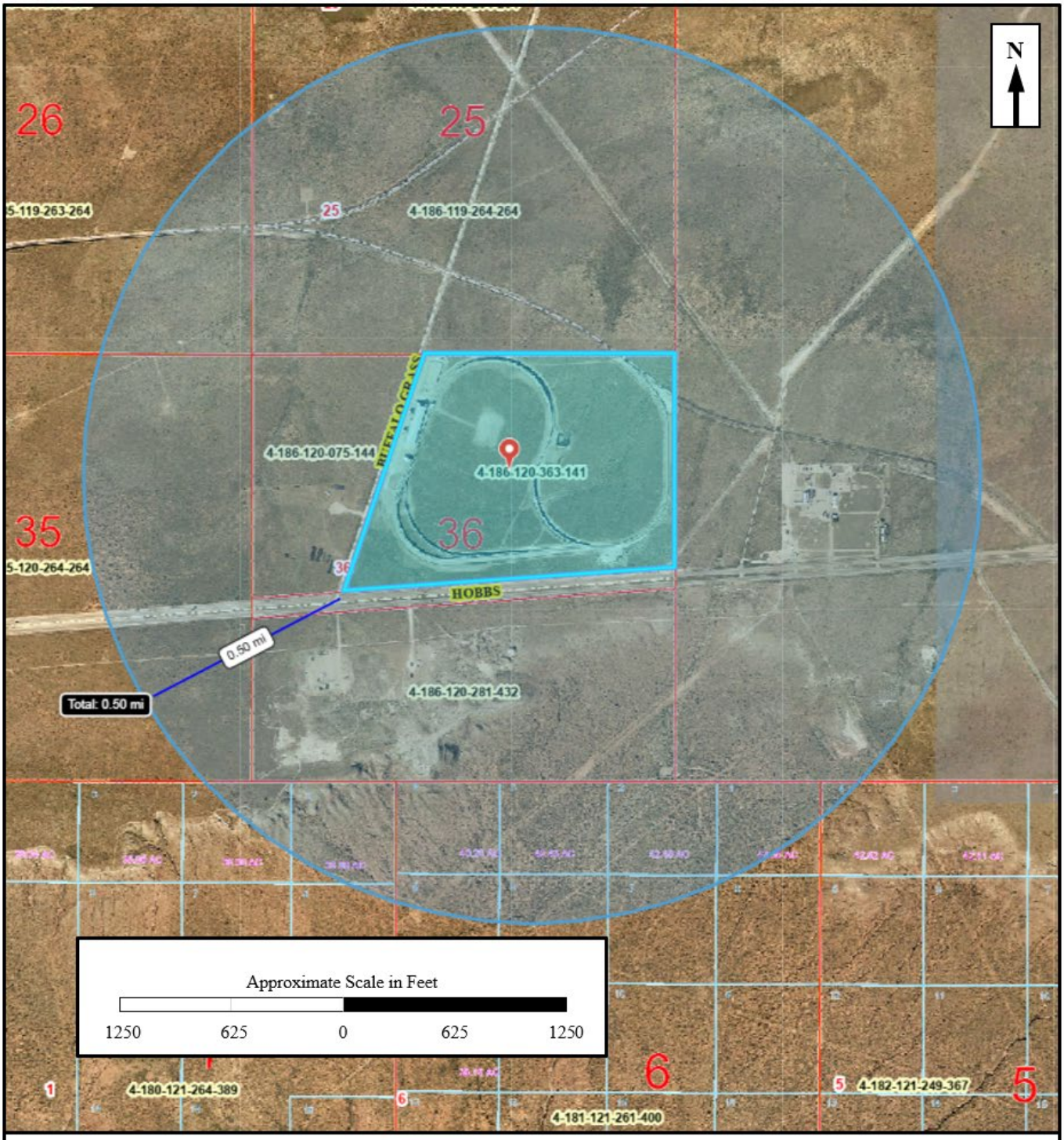
General information about air quality and the permitting process, and links to the regulations can be found at the Air Quality Bureau's website: www.env.nm.gov/air-quality/permitting-section-home-page/. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC.

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.

Published in the Carlsbad Current-Argus April 8. 2025.
#41770

Section 9.11
Land Owners of Record Map

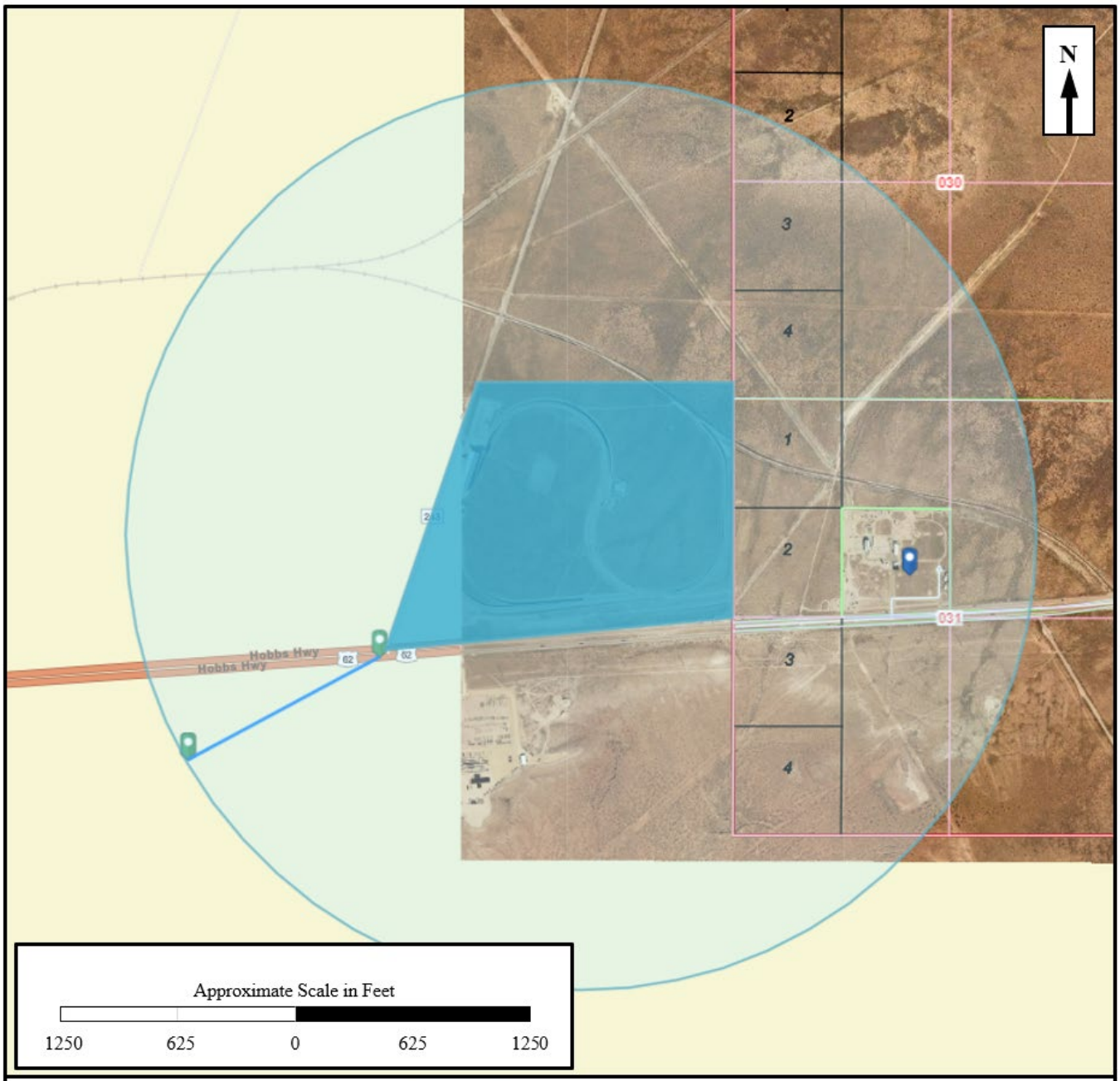


Parcel Boundary

½ Mile Boundary

Image Source: Eddy County GIS

YOUR GOALS. OUR MISSION.	**Property Boundary Map (Eddy County)** **Titan Lansing Carlsbad Facility** **44 Buffalo Grass Road** **Carlsbad, NM 88220**	**Figure 9.11A**



YOUR GOALS. OUR MISSION.	**Property Boundary Map (Lea County)** **Titan Lansing Carlsbad Facility** **44 Buffalo Grass Road** **Carlsbad, NM 88220**	**Figure 9.11B**

Section 10

Written Description of the Routine Operations of the Facility

---

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.

OVERALL FACILITY

The site has a combined manifest sand and aggregate throughput of 876,000 TPY. The throughput for the screening/crushing plant is bottlenecked by the shared railcar unloading, so the total material throughput of the facility will not be increased by the modification to the aggregate screening and crushing plant. The physical site size will not change.

MANIFEST SAND TRANSLOADING OPERATION

Manifest frac sand is delivered to a separate dump pit from the main rail aggregate, which has a throughput capacity of 15 tons/hour. The manifest sand is transported to one of four (4) silos by a subgrade conveyor and bucket elevator. Material is discharged into trucks through a telescoping loadout spout equipped with a dust suppression system. Similar to the initial warehouse sand loading system, the trucks are loaded within a covered loading bay. The trucks are then dispatched for customer delivery.

The facility no longer uses the warehouse handling system to transload frac sand.

NON-METALLIC MINERAL AND AGGREGATE SCREENING PLANT

Railcars of mineral aggregate are delivered to the current screening operation from the BNSF mainline. From the rail dump pit, the aggregate is transferred to storage silos via a series of conveyors and bucket elevators. Another conveyor transports the aggregate from the silos to an enclosed screener. The in-spec finished product is sent from the screener via conveyor to flat storage in the existing warehouse. The in-spec product is subsequently moved by front-end loaders to one (1) of eight (8) bins for commodity separation and loaded into trucks via a telescoping spout equipped with a dust collection system. The loading of in-spec product occurs entirely within a covered structure for all-weather operation. The fines are sent via conveyor to the fines storage silo, and subsequently for rail loadout. All equipment is enclosed – i.e., full enclosure on conveyors, silos, screws, hoppers, etc. The screener is in an enclosed building with dust collection, and rail loadout is under shed enclosure.

This application introduces additional screening equipment, as well as a crushing line for over-spec aggregate, as depicted in the process flow diagram in Section 4. Three additional screeners will be added to the initial screening step, as well as multiple material transfer lines consisting of conveyors, bucket elevators, and hoppers. The over-spec aggregate will be sent through a crushing line and circulated back into the system via a screener. Fine aggregate will be transported via bucket elevators and conveyors and loaded into railcars via a loading spout. The in-spec aggregate will be transported to warehouse storage via conveyors and a bucket elevator. All material transfer equipment will be controlled by a series of dust collectors and bin vent filters.

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)**:**

Source	Description
Frac Sand Transloading System	Transloading system for frac sand Manifest handling activities.
Non-Metallic and Aggregate Screening Plant	Material transfer and screening for petroleum coke

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

☑ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the

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

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

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

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

B. **This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **not significant, as the facility does not have the potential to emit 250 tons per year or more of any regulated new source review pollutant. The "project" emissions listed below do only result from changes described in this permit application, thus no emissions from other revisions or modifications, past or future to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project with the federally enforceable limit are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: 6.02 TPY**
b. **CO: 71.37 TPY**
c. **VOC: 0.28 TPY**
d. **SOx: 0.15 TPY**
e. **PM: 90.50 TPY**
f. **PM10: 36.60 TPY**
g. **PM2.5: 5.83 TPY**
h. **Fluorides: 0 TPY**
i. **Lead: 0 TPY**
j. **Sulfur compounds (listed in Table 2): 0.15 TPY**
k. **GHG: 147.14 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/

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

Example of a 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	No	Facility does not produce threshold quantities	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. The Facility will be permitted under a standard New Source Review permit, so this 20.2.3 NMAC will apply.
20.2.7 NMAC	Excess Emissions	No	Facility units are not subject to emission limits	If subject, this would normally apply to the entire facility. If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies. This would not apply to Notices of Intent since these are not permits.
20.2.23 NMAC	Fugitive Dust Control	No	Facility is located in Eddy county	This regulation may apply if, this is an application for a notice of intent (NOI) per 20.2.73 NMAC, if the activity or facility is a fugitive dust source listed at 20.2.23.108.A NMAC, **and** if the activity or facility is located in an area subject to a mitigation plan pursuant to 40 CFR 51.930. As of January 2019, the only areas of the State subject to a mitigation plan per 40 CFR 51.930 are in Doña Ana and Luna Counties. Sources exempt from 20.2.23 NMAC are activities and facilities subject to a permit issued pursuant to the NM Air Quality Control Act, the Mining Act, or the Surface Mining Act (20.2.23.108.B NMAC. **20.2.23.108 APPLICABILITY:** **A.** This part shall apply to persons owning or operating the following fugitive dust sources in areas requiring a mitigation plan in accordance with 40 CFR Part 51.930: **(1)** disturbed surface areas or inactive disturbed surface areas, or a combination thereof, encompassing an area equal to or greater than one acre; **(2)** any commercial or industrial bulk material processing, handling, transport or storage operations. **B.** The following fugitive dust sources are exempt from this part: **(1)** agricultural facilities, as defined in this part; **(2)** roadways, as defined in this part; **(3)** operations issued permits pursuant to the state of New Mexico Air Quality Control Act, Mining Act or Surface Mining Act; and **(4)** lands used for state or federal military activities. [20.2.23.108 NMAC - N, 01/01/2019]
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	No external combustion equipment	**This regulation does not apply to internal combustion equipment such as engines. It only applies to external combustion equipment such as heaters or boilers** This facility does not have external combustion equipment.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	No external combustion equipment	**This regulation does not apply to internal combustion equipment such as engines. It only applies to external combustion equipment such as heaters or boilers.** This facility does not have external combustion equipment.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	No sulfur plant onsite	This regulation could apply to existing (prior to July 1, 1974) or new (on or after July 1, 1974) natural gas processing plants that use a Sulfur Recovery Unit to reduce sulfur emissions.

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.)
				See 'Guidance and Clarification Regarding Applicability of 20.2.35 NMAC' located with the Air Quality Bureau's Permit Section website guidance documents.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	No	No hydrogen storage onsite	This regulation could apply to storage tanks at petroleum production facilities, processing facilities, tanks batteries, or hydrocarbon storage facilities. The Facility is not any of the above types of facilities.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	No sulfur recovery plant onsite	This regulation could apply to sulfur recovery plants that are not part of petroleum or natural gas processing facilities. The Facility is not a sulfur recovery plant.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	No	Facility does not process hydrocarbon liquids or produced water.	This regulation establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. 20.2.50 NMAC subparts below: Include the construction status of applicable units as "New", "Existing", "Relocation of Existing", or "Reconstructed" as defined by this Part in your justification: Check the box for the subparts that are applicable: ☐113 – Engines and Turbines ☐114 – Compressor Seals ☐115 – Control Devices and Closed Vent Systems ☐116 – Equipment Leaks and Fugitive Emissions ☐ 117 – Natural Gas Well Liquid Unloading ☐ 118 – Glycol Dehydrators ☐ 119 – Heaters ☐ 120 – Hydrocarbon Liquid Transfers ☐121 – Pig Launching and Receiving ☐122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels ☐124 – Well Workovers ☐ 125 – Small Business Facilities ☐126 – Produced Water Management Unit ☐127 – Flowback Vessels and Preproduction Operations
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Diesel-Fired Gensets 1-3	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, heaters, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC). **If equipment at your facility was subject to the repealed regulation 20.2.37 NMAC it is now subject to 20.2.61 NMAC.**
20.2.70 NMAC	Operating Permits	No	Facility does not have a PTE greater than 100 TPY	If subject, this would normally apply to the entire facility. Applies if your facility's potential to emit (PTE) is 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; is subject to a 20.2.79 NMAC nonattainment permit; or is a facility subject to a federal regulation that requires you to obtain a Title V permit such as landfills or air curtain incinerators. Include both stack and fugitive emissions to determine the HAP's PTE regardless of the facility type.

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.)
				If your facility is one of those listed at 20.2.70.7(2)(a) through (aa) state which source type your facility is and count both fugitive and stack emissions to determine your PTE. If your facility is not in this (a) through (aa) list, count only stack emissions to determine your PTE. Landfills and Air Curtain Incinerators are not Title V Major Sources, but it would apply pursuant to 20.2.70.200.B NMAC.
20.2.71 NMAC	Operating Permit Fees	No	Facility does not have emission limits	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's PER is greater than 25TPY for regulated pollutants	If subject, this would normally apply to the entire facility. Could apply if your facility's potential emission rate (PER) is greater than 10 pph or greater than 25 tpy for any pollutant subject to a state or federal ambient air quality standard (does not include VOCs or HAPs); if the PER of lead is 5 tpy or more; if your facility is subject to 20.2.72.400 NMAC; or if you have equipment subject to 40 CFR 60 Subparts I and OOO, 40 CFR 61 Subparts C and D. Include both stack and fugitive emissions to determine PER.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	No	Facility's PER is greater than 25TPY for regulated pollutants	If subject, this would normally apply to the entire facility. **A Notice of Intent application 20.2.73.200 NMAC** could apply if your facility's PER of <u>any</u> regulated air pollutant, including VOCs and HAPs, is 10 tpy or more or if you have lead emissions of 1 tpy or more. Include both fugitive and stack emissions to determine your PER. You could be required to submit **Emissions Inventory Reporting per** 20.2.73.300 NMAC if your facility is subject to 20.2.73.200, 20.2.72, or emits more than 1 ton of lead or 10 tons of PM10, PM2.5, SOx, NOx CO, or VOCs in any calendar year. All facilities that are a Title V Major Source as defined at 20.2.70.7.R NMAC, are subject to Emissions Inventory Reporting.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility does not meet threshold amounts	If subject, this would normally apply to the entire facility. **If you are an existing PSD major source you are subject to the applicability determination requirements at 20.2.74.200 NMAC to determine if you are subject to a PSD permit, <u>before</u> commencing actual construction of any modifications at your facility.** Complete the applicability determination in Section 12 of the application. If you are constructing a new PSD major source or are proposing a major modification to an existing PSD major source, you must obtain a PSD permit. Minor NSR Exemptions at 20.2.72.200 NMAC nor Title V Insignificant Activities do not apply to the PSD permit regulation. **Choose which applies and delete the rest.** See NMACS 20.2.74.7.AE and AG Major Modification and Major Stationary Source, 20.2.74.200 Applicability, and 20.2.74.201 Exemptions. **20.2.74.7.AG(1)** A stationary source listed in Table 1 of this Part (20.2.74.501 NMAC) which emits, or has the potential to emit, emissions equal to or greater than one hundred (100) tons per year of any stack and fugitive emissions (as defined) of any regulated air pollutant; or **20.2.74.7.AG(2)** A stationary source not listed in Table 1 of this Part (20.2.74.501 NMAC) and which emits or has the potential to emit stack emissions of two hundred fifty (250) tons per year or more of any regulated pollutant; or **20.2.74.7.AG(3)** A physical change that would occur at a stationary source not otherwise qualifying under paragraphs (1) or (2) of subsection if the change would constitute a major stationary source by itself (e.g. an increase of 250 tpy or more); or **20.2.74.300.D** a source or modification that becomes a major stationary source or major modification solely due to a relaxation in any enforceable limitation

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.)
				established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then this part shall apply to the source or modification as through construction had not yet commenced. **20.2.74.200.7.AG(5)** The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the stationary source categories found in Table 1 of this Part (20.2.74.501 NMAC) or any other stationary source category which, as of August 7, 1980, is being regulated under section 111 or 112 of the Act.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility is applying for NSR permit	If subject, this would apply to the entire facility. It is not necessary to include each low level regulatory citation for this regulation. This regulation applies if you are submitting an application pursuant to 20.2.72, 20.2.73, 20.2.74, and/or 20.2.79 NMAC. If this is a 20.2.73 NMAC application it is subject to the filing fee at 20.2.75.10 NMAC. If this is a 20.2.72, 20.2.74, and/or 20.2.79 NMAC application it is subject to 20.2.75.10, 11 permit fee, and 11.E annual fees. You are not subject to the 75.11.E annual fees if you are subject to 20.2.71 NMAC.
20.2.77 NMAC	New Source Performance	Yes	Diesel-Fired Gensets 1-3	This is a stationary source which is subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	No	No units Subject to 40 CFR 61	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility does not have major stationary units	If subject, this would normally apply to the entire facility. **If you are an existing nonattainment major source pursuant to 20.2.79.7.V NMAC you are subject to the applicability determination requirements at 20.2.79.109 NMAC to determine if you are subject to a nonattainment permit, before commencing actual construction of any modifications at your facility.** If you are constructing a new nonattainment major source or are proposing a major modification to an existing nonattainment major source, you must obtain a nonattainment permit. Minor NSR Exemptions at 20.2.72.200 NMAC nor Title V Insignificant Activities do not apply to the nonattainment permit regulation. **Choose which applies and delete the rest.** See NMACS 20.2.79.7.U Major Modification and 7.V Major Stationary Source. **20.2.79.109.A(1)** A major stationary source or major modification that will be located within a nonattainment area so designated pursuant to Section 107 of the Federal Act and will emit a pollutant subject to a National Ambient Air Quality Standard for which it is major and which the area is designated nonattainment; or **20.2.79.109.A(2)** A major stationary source or major modification that will be located within an area designated attainment or unclassifiable pursuant to Section 107 of the Federal Act and will emit a regulated pollutant subject to a National Ambient Air Quality Standard for which it is major and the ambient impact of such pollutant would exceed any of the significance levels in 20.2.79.119.A NMAC at any location that does not meet any national ambient air quality standard for the same pollutant.
20.2.80 NMAC	Stack Heights	Yes	Diesel-Fired Gensets 1-3	Usually not applicable for TV If applies: Cited as applicable in NSR Permit XXX.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Diesel-Fired Gensets 1-3	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

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

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility subject to 20.2.72	If subject, this would normally apply to the entire facility. This applies if you are subject to 20.2.70, 20.2.72, 20.2.74, and/or 20.2.79 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Diesel-Fired Gensets 1-3	Applies if any other Subpart in 40 CFR 60 applies.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No	No electric utility generating units	Establishes PM, SO_2 and NOx emission limits/standards of performance for Unit **XXX**. The duct burner (unit #XXX) has a **XXXX** MMBtu/hr heat input, which exceeds the 250 MMBtu/hr threshold. Construction commenced **XXXX**, after the 9/18/1978 applicability date.
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No	No electric utility generating units	(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour). Establishes NOx emission limit for Unit **XXX**. The boiler (unit **XXX**) has a **XXX** MMBtu/hr heat input, which exceeds the 100 MMBtu/hr threshold. Construction commenced 1980 and the boiler was modified in XXXX, after the 6/19/1984 applicability date.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No	No steam generating units	Applicability: facility has steam generating units for which construction, modification or reconstruction is commenced after June 9, 1989 and that have a maximum design heat input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). This regulation applies to units **XXX, X, XX, and XXX**.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	No large petroleum storage units	Tanks XXX have a storage capacity greater than 151,416 liters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978. Note: Exception below Each petroleum liquid storage vessel with a capacity of less than 1,589,873 liters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subpart
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for	No	No VOL storage units in date range	This facility has storage vessels, emission units XXX with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. **Note: This regulation has several exceptions.**

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984			
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	No turbines onsite	Units x,y,z have a heat input = x Btu/hour which is greater than the 10 MMBtu/hour threshold. These units were installed on x which is before/after the October 3, 1977 applicability date. (For information on equipment manufactured before but installed at facility after see EPA Guidance document # 0300006)
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No	No onshore gas plants onsite	Affected Facility with Leaks of VOC from Onshore Gas Plants. Any affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after January 20, 1984, is subject to the requirements of this subpart. The group of all equipment (each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by this subpart) except compressors (defined in § 60.631) within a process unit is an affected facility. A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subpart if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of this subpart.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No	No onshore gas plants onsite	The facility is a natural gas processing plant, including a sweetening unit followed by a sulfur recovery unit, constructed after January XX, XXXX, and meets the applicability criteria of 40 CFR 60.640
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	No affected facilities onsite	EPA Guidance Page: www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry The rule applies to "affected" facilities that are constructed, modified, or reconstructed after Aug 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically refractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375); centrifugal compressors (60.5380); reciprocating compressors (60.5385): controllers (60.5390); storage vessels (60.5395); equipment leaks (60.5400); sweetening units (60.5405). **If standards apply, list the unit number(s) and regulatory citation of the standard that applies to that unit (e.g. Centrifugal Compressors 1a-3a are subject to the standards at 60.5380(a)(1) and (2) since we use a control device to reduce emissions)**
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced **After**	No	No crude oil or natural gas facilities onsite	See 60.536 EPA Guidance Page: www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	September 18, 2015			
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	Diesel-Fired Gensets 1-3	See 60.4200 and EPA Region 1's Reciprocating Internal Combustion Guidance website.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	No spark ignition internal combustion engines onsite	See 40 CFR 60.4230 and EPA Region 1's Reciprocating Internal Combustion Guidance website.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	No stationary combustion turbines onsite	See 60.5508
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	No stationary combustion turbines onsite	See 60.5700
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No	No solid waste landfills onsite	See 60.30c, 60.30f, 60.750, and/or 60.760
NESHAP 40 CFR 61 Subpart A	General Provisions	No	No units/chemicals subject to 40 CFR 61 onsite	Applies if any other Subpart in 40 CFR 61 applies.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	No mercury activities onsite	The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	No specified sources onsite to threshold quantities	The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart. VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated. Benzene is a VHAP (See 40 CFR 61 Subpart J). Note: If 40 CFR 60 also applies source only needs to comply with this part.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Diesel-Fired Gensets 1-3	Applies if any other Subpart in 40 CFR 63 applies.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	No	No oil and natural gas production facilities onsite	**Choose all that apply:** This facility is Subject to the requirements of 40 CFR 63 Subpart HH Dehydrators X, X have no control requirements because { }.- however, they are subject to HH recordkeeping and reporting. Facility was major for HAPS in Permit PXXX issued June X, 200X. Once in always in.
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	No natural gas transportation on site	This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	No boilers onsite	See 63.7480
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	No coal-fired electric generating units onsite	See 63.9980 (known as the MATs rule)
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	Diesel-Fired Gensets 1-3	See 63.6580 and EPA Region 1's Reciprocating Internal Combustion Guidance website.
40 CFR 64	**Compliance Assurance Monitoring**	No	Not a Title V major source	**Applies only to Title V Major Sources** Emissions for Unit XX are major in and of itself (XXXX TPY SO2). OR SRU is actually exempt because of 40 CFR64.2 (b) (vI) (b) Exemptions—(1) Exempt emission limitations or standards. The requirements of this part shall not apply to any of the following emission limitations or standards: (vi) Emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in §64.1. The exemption provided in this paragraph (b)(1)(vi) shall not apply if the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (such as a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 68	**Chemical Accident Prevention**	No	Site does not storage threshold quantities	If subject, this would normally apply to the entire facility. An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115, See 40 CFR 68
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No	No electric generating units onsite	See 40 CFR 72.6. This may apply if your facility generates commercial electric power or electric power for sale.
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	No commercial electric generating units onsite	See 40 CFR 73.2. This may apply if your facility generates commercial electric power or electric power for sale.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	No commercial electric generating units onsite	See 40 CFR 75.2. This may apply if your facility generates commercial electric power or electric power for sale.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	No commercial electric generating units onsite	See 40 CFR 76.1. This may apply if your facility generates commercial electric power or electric power for sale.
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No	No specified activities onsite	EPA Guidance Page for 40 CFR 82: https://www.epa.gov/section608 40 CFR 82 may apply if you: **(40 CFR 82.1 and 82.100)** produce, transform, destroy, import or export a controlled substance or import or export a controlled product; **(40 CFR 82.30)** if you perform service on a motor vehicle for consideration when this service involves the refrigerant in the motor vehicle air conditioner; **(40 CFR 82.80)** if you are a department, agency, and instrumentality of the United States subject to Federal procurement requirements; **(82.150)** if you service, maintain, or repair appliances, dispose of appliances, refrigerant reclaimers, **if you are an owner or operator of an appliance**, if you are a manufacturer of appliances or of recycling and recovery equipment, if you are an approved recycling and recovery equipment testing organization, and/or if you sell or offer for sell or purchase class I or class I refrigerants. **Note:** Owners and operators of appliances subject to 40 CFR 82.150 Recycling and Emissions Reduction have recordkeeping and reporting requirements even if the owner/operator is not performing the actual work. **Note:** Disposal definition in 82.152: Disposal means the process leading to and including: (1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water; (2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or (3) The disassembly of any appliance for reuse of its component parts. "Major maintenance, service, or repair means" any maintenance, service, or repair that involves the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchange coil; or any maintenance, service, or repair that involves uncovering an opening of more than four (4) square inches of "flow area" for more than 15 minutes.

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.

Section 15 (Not Applicable)

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.

Alternative Operating Scenarios

The facility is currently operating under a Notice of Intent. Therefore, there are no permit conditions in need of modification and no applicable alternative operating scenarios.

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.

Section 17 (Not Applicable)

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.

To save paper and to standardize the application format, delete this sentence and the samples in the Compliance Test History Table, and begin your submittal for this attachment on this page.

Compliance Test History Table (Modify this sample table to suit your facility)

Unit No.	Test Description	Test Date

Compliance Test History

The facility is currently operating under a Notice of Intent. Therefore, there are no existing NSR permit conditions with which Titan must demonstrate compliance.

Section 18 (Not Applicable)

Addendum for Streamline Applications

Do not print this section unless this is a streamline application.

Streamline Applications do not require a complete application. Submit Sections 1-A, 1-B, 1-D, 1-F, 1-G, 2-A, 2-C thru L, Sections 3 thru 8, Section 13, Section 18, Section 22, and Section 23 (Certification). Other sections may be required at the discretion of the Department. 20.2.72.202 NMAC Exemptions do not apply to Streamline sources. 20.2.72.219 NMAC revisions and modifications do not apply to Streamline sources, thus 20.2.72.219 type actions require a complete new application submittal. Please do not print sections of a streamline application that are not required.

18-A: Streamline Category	
1	**Indicate under which part of 20.2.72.301.D this facility is applying. Refer to the forth column of Table 18-D below, to assist in this determination:** ☐ 20.2.72.301.D(1) NMAC ☐ 20.2.72.301.D(2) NMAC ☐ 20.2.72.301.D(3) NMAC

18-B: Streamline Applicability Criteria		Answer (yes/no)
1	Does the source category for this facility meet one of those listed in the following table? (20.2.72.301.A NMAC) **20.2.72.501 Table 2 – Permit Streamlining Source Class Categories** 1. Reciprocating internal combustion engines including portable or temporary engines 2. Turbines	☐ Yes ☐ No
2	If this facility is a compressor station, does it meet the definition of a "Compressor station" below? (20.2.72.301.D NMAC) **"Compressor station"** means a facility whose primary function is the extraction of crude oil, natural gas, or water from the earth with compressors, or movement of any fluid, including crude oil or natural gas, or products refined from these substances through pipelines or the injection of natural gas or CO2 back into the earth using compressors. A compressor station may include engines to generate power in conjunction with the other functions of extraction, injection or transmission and may contain emergency flares. A compressor station may have auxiliary equipment which emits small quantities of regulated air contaminants, including but not limited to, separators, de-hydration units, heaters, treaters and storage tanks, provided the equipment is located within the same property boundaries as the compressor engine (underline added). (20.2.72.301.A NMAC)	☐ Yes ☐ No
3	Will the source operate in compliance with all applicable state and federal regulations, including federal new source performance standards incorporated by 20.2.77 NMAC and permit conditions? (20.2.72.305.B NMAC)	☐Yes ☐No
4	Will the fuel combusted at this facility be produced natural gas, sweet natural gas, liquid petroleum gas, or fuel gas containing 0.1 grain of total sulfur or less per dry standard cubic foot; or refinery grade diesel or No. 2 fuel oil that is not a blend containing waste oils or solvents and contains less than 0.3% by weight sulfur? (20.2.72.306 NMAC)	☐Yes ☐No

5	Will all spark ignited gas-fired or any compression ignited dual fuel-fired engine which operates with a non-selective catalytic converter be equipped and operated with an automatic air-fuel ratio (AFR) controller which maintains AFR in the range required to minimize NOx emissions, as recommended by the manufacturer? (20.2.72.306 NMAC)	☐Yes ☐No
6	Has payment of all fees that are specified in 20.2.75 NMAC (Construction Permit Fees), as payable at the time the application is submitted, been included with the application package? (20.2.72.302.15 NMAC)	☐Yes ☐No
7	Is the answer to each of the above questions, #1 through #6, '**Yes**'? If the answer to **this** question is "**No**", this facility does **not** qualify for a streamline permit.	☐Yes ☐No
8	Will the facility, either before or after construction or modification, have a total potential to emit of any regulated air contaminant[2] greater than 200 tons per year (tpy) of any one regulated air pollutant (CO, NOx, SO2, or VOC)? (20.2.72.301.B.2 NMAC); **"Potential to emit"** or **"potential emissions"** means the maximum capacity of a stationary source to emit a regulated air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a regulated air contaminant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitations or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.	☐ Yes ☐ No
9	Is the facility a "major stationary source" as defined in 20 NMAC 2.74? (20.2.72.301.B.1 NMAC)	☐ Yes ☐ No
10	Is this source subject 20.2.78 NMAC, other than 40CFR61 Subpart M National Emission Standard for Asbestos? (20.2.72.301.B.3 NMAC)	☐ Yes ☐ No
11	Is this a source of potential air toxic emissions (20 NMAC 2.72. 400-499)? (20.2.72.301.B.3 NMAC)	☐ Yes ☐ No
12	Will the reciprocating internal combustion (IC) engines and/or turbines be located at a petroleum refinery, chemical manufacturing plant, bulk gasoline terminal, natural gas processing plant, or at any facility containing sources in addition to IC engines and/or turbines for which an air quality permit is required through state or federal air quality regulations in the absence of the (IC) engines and/or turbines? (20.2.72.301.B.4 NMAC)	☐ Yes ☐ No
13	Will the proposed facility be located within any of the 20.2.72.301.B.5 exclusion areas specified in the Air Dispersion Modeling Guidelines[1], Table: Areas Where Streamline Permits Are Prohibited? (20.2.72.301.B.5 NMAC)	☐ Yes ☐ No
14	Will the proposed facility's impact area intersect any of the areas specified in the Air Dispersion Modeling Guidelines[1], Table: Areas Where Streamline Permits Are Prohibited? (20.2.72.301.B.5 NMAC)	☐Yes ☐No ☐N/A
15	Is the answer to each of the above questions, #8 through #14, '**No**'? If the answer to **this** question is "**No**", this facility does **not** qualify for a streamline permit.	☐Yes ☐No

[1] The Air Dispersion Modeling Guidelines contain a section on streamline permitting. The table mentioned above can be found within those guidelines at www.env.nm.gov/air-quality/modeling-publications/

[2] The potential to emit for nitrogen dioxide shall be based on total oxides of nitrogen

18-C: Streamline Location Restrictions		Answer (yes/no)	Identify: Name and Distance (km)
1	Will the distance from the nearest property boundary to the nearest school, residence, office building or occupied structure, excluding the immediate facility complex be greater than one (1.0) km? (20.2.72.301.B.6.a NMAC)	☐Yes ☐No	
2	Will the distance from the nearest property boundary to the nearest state park, Class II wilderness or wildlife refuge, historic park, state recreation area be greater than three (3.0) km? (20.2.72.301.B.6.b NMAC) The Air Dispersion Modeling Guidelines[1], Table: List Of State Parks, Class II Wilderness Areas, Class II National Wildlife Refuge, National Historic Parks, State Recreation Areas, and Class I Areas contains a list of most of these areas in New Mexico, but may not include new areas designated since the modeling guidelines were published.	☐Yes ☐No	
3	Will the distance from the nearest property boundary to the nearest community with a population of more than 20,000 people be greater than three (3.0) km? (20.2.72.301.B.6 NMAC).b	☐Yes ☐No	
4	Will the distance from the nearest property boundary to the nearest community with a population of more than 40,000 people be greater than 10 km? (20.2.72.301.B.6.c NMAC)	☐Yes ☐No	
5	Will the distance from the nearest property boundary to the nearest Class I area be greater than 30 km? (20.2.72.301.B.6.d NMAC) The Air Dispersion Modeling Guidelines[1], Table: List Of State Parks, Class II Wilderness Areas, Class II National Wildlife Refuge, National Historic Parks, State Recreation Areas, and Class I Areas contains a list of most of these areas in New Mexico, but may not include new areas designated since the modeling guidelines were published.	☐Yes ☐No	
6	Will the distance from the nearest property boundary to Bernalillo County be greater than 15 km? (20.2.72.301.B.7 NMAC)	☐Yes ☐No	-NA-
7	Is the answer to all of the above question yes or N/A? If the answer to **this** question is "**No**", this facility does not qualify for a streamline permit.	☐Yes ☐No	-NA-

[1] The Air Dispersion Modeling Guidelines contain a section on streamline permitting. The table mentioned above can be found within those guidelines at www.env.nm.gov/air-quality/modeling-publications/.

18-D: Source Category Determination			
1	Is the total potential to emit of each regulated contaminant from all sources at the facility less than 40 tpy?	☐ Yes ☐ No	• If the answers to this question is "Yes", the facility qualifies for a 20.2.72.301.D.1 NMAC streamline permit. • Public notice is not required, 20.2.72.303.A NMAC. • Modeling is **not** required, 20.2.72.301.D NMAC. • If "Yes", leave the remainder of this table blank.
2	Is the total potential to emit of each regulated contaminant from all emission sources at the facility less than 100 tons per year (tpy) **AND** the impact on ambient air from all sources at the facility less than the ambient significance levels in 20.2.72.500 NMAC?	☐ Yes ☐ No	• If the answer to this question is "Yes", the facility qualifies for a 20.2.72.301.D.2 NMAC streamline permit. • Public notice is not required, 20.2.72.303.A NMAC. • **Modeling is required** in accordance with 20.2.72.301.D.2 NMAC • If "Yes", leave the remainder of this table blank.

3.a	Is the total potential to emit of each regulated contaminant from all emission sources at the facility less than 200 tons per year (tpy) **AND** the maximum modeled ambient impact from the total potential emissions at the facility less than 50 percent of each applicable PSD increment, state and federal ambient air quality standards?	☐ Yes ☐ No	• If the answers to these questions (3.a, 3.b, 3.c, and 3.d) are all "Yes", the facility qualifies for a 20.2.72.301.D.3 NMAC streamline permit. • Public notice is required in accordance with NMAC 20.2.72.303 NMAC. • **Modeling is required** in accordance with 20.2.72.301.D.3 NMAC • If the answers to questions 1, 2, and any of questions in question 3 (3.a, 3.b, 3.c, or 3.d) are "No", this facility does not qualify for a streamline permit.
3.b	Are there no adjacent sources emitting the same regulated air contaminant(s) as the source within 2.5 km of the modeled nitrogen dioxide (NO2) impact area?	☐ Yes ☐ No	
3.c	Is the "sum of the potential emissions for oxides of nitrogen from all adjacent sources" (SUM) within 15 km of the NO2 impact area (SUM15) less than 740 tpy?	☐ Yes ☐ No	
3.d	Is the "sum of the potential emissions for oxides of nitrogen from all adjacent sources" (SUM) within 25 km of the NO2 impact area (SUM25) less than 1540 tpy?	☐ Yes ☐ No	

Note: All modeling demonstrations have the option of demonstrating compliance with 20.2.72.301.D.3 NMAC. All public notices are required to comply with the public notice requirements of a NMAC20.2.72.301.D.3 facility.

18-E: Submittals

1	If a facility is required to submit a modeling analysis to demonstrate compliance with NMAC 20.2.72.300-399, use the Department's most current version of the Departments Air Dispersion Modeling Guidelines, and include a copy of the modeling in the application. A copy of the most current version of the guidelines can be obtained at the following web page www.env.nm.gov/air-quality/modeling-publications/.
2	**Public Notice:** Per 20.2.72.303.A NMAC, public notice is only required for sources subject to NMAC 20.2.72.301.D.3. Public notice submittals shall consist of the following: 1. Proof of Public Notice 2. Include a copy of the certified letter receipts (Field office & Federal Land Managers) (20.2.72.206.A.7, 302.A & 302.12) 3. A copy of the letters sent to the appropriate federal land manager if the source will locate within 50 km of a boundary of a Class I area (302.A.2) 4. A statement stating a complete copy of the application and public notice has been provided to the Departments field or district office nearest the source (302.A.1) 5. The location where the public notice has been posted on the site (303.B.2) 6. A copy of the classified or legal ad and its affidavit of publication (303.B.1)

Section 19 (Not Applicable)

Requirements for Title V Program

Do not print this section unless this is a Title V application.

Who Must Use this Attachment:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☐ **Yes** ☐ **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ **Yes** ☐ **No**

   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☐ **Yes** ☐ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)

A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this item here.

19.9 - Responsible Official

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

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.

Section 21 (Not Applicable)

Addendum for Landfill Applications

Do not print this section unless this is a landfill application.

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations: www.epa.gov/stationary-sources-air-pollution/clean-air-act-guidelines-and-standards-waste-management

NM Solid Waste Bureau Website: www.env.nm.gov/solid-waste/

21-A: Municipal Solid Waste Landfill Information

1	How long will the landfill be operated?			
2	Maximum operational hours per year:			
3	Landfill Operating hours (open to the public) M-F:		Sat.	Sun.
4	To determine to what NSPS and emissions guidelines the landfill is subject, what is the date that the landfill was constructed, modified, or reconstructed as defined at 40 CFR 60, Subparts A, WWW, XXX, Cc, and Cf.			
5	Landfill Design Capacity. Enter all 3	Tons:	Megagrams (Mg):	Cubic meters:
6	Landfill NMOC Emission Rate (NSPS XXX)	☐ Less than 34 Mg/year using Tiers 1 to 3	☐ Equal to or Greater than 34 Mg/year using Tiers 1 to 3	
	Landfill NMOC Emission Rate (NSPS XXX)	☐ Less than 500 ppm using Tier 4	☐ Equal to or Greater than 500 ppm using Tier 4	
	Landfill NMOC Emission Rate (NSPS WWW)	☐ Less than 50 Mg/yr	☐ Equal to or Greater than 50 Mg/yr	
7	Annual Waste Acceptance Rate:			
8	Is Petroleum Contaminated Soil Accepted?		If so, what is the annual acceptance rate?	
9	NM Solid Waste Bureau (SWB) Permit No.:		SWB Permit Date:	
10	Describe the NM Solid Waste Bureau Permit, Status, and Type of waste deposited at the landfill.			
11	Describe briefly any process(es) or any other operations conducted at the landfill.			

21-B: NMOC Emissions Determined Pursuant to 40 CFR 60, Subparts WWW or XXX	
	Enter the regulatory citation of all Tier 1, 2, 3, and/or 4 procedures used to determine NMOC emission rates and the date(s) that each Tier procedure was conducted. In Section 7 of the application, include the input data and results.
1	Tier 1 equations (e.g. LandGEM):
2	Tier 2 Sampling:
3	Tier 3 Rate Constant:
4	Tier 4 Surface Emissions Monitoring:
5	Attach all Tier Procedure calculations, procedures, and results used to determine the Gas Collection and Control System (GCCS) requirements.

Facilities that have a landfill GCCS must complete Section 21-C.

21-C: Landfill Gas Collection and Control System (GCCS) Design Plan	
1	Was the GCCS design certified by a Professional Engineer?
2	Attach a copy of the GCCS Design Plan and enter the submittal date of the Plan pursuant to the deadlines in either NSPS WWW or NSPS XXX. The NMOC applicability threshold requiring a GCCS plan is 50Mg/yr for NSPS WWW and 34 Mg/yr or 500 ppm for NSPS XXX.
3	Is/Was the GCCS planned to be operational within 30 months of reporting NMOC emission rates equal to or greater than 50 Mg/yr, 34 Mg/yr, or 500 ppm pursuant to the deadlines specified in NSPS WWW or NSPS XXX?
4	Does the GCCS comply with the design and operational requirements found at 60.752, 60.753, and 69.759 (NSPS WWW) or at 60.762, 60.763, and 60.769 (NSPS XXX)?
5	Enter the control device(s) to which the landfill gas will be/is routed such as an open flare, enclosed combustion device, boiler, process heater, or other.
6	Do the control device(s) meet the operational requirements at 60.752 and 60.756 (NSPS WWW) or 60.762, 60.763, 60.766 (NSPS XXX)?

Section 22: Certification

Company Name: Titan Lansing Transloading, LLC

I, Craig Dabovich, 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 25th day of April, 2025, upon my oath or affirmation, before a notary of the State of Kansas.

*Signature

4/25/2025
Date

Craig Dabovich
Printed Name

Project Manager
Title

Scribed and sworn before me on this 25 day of April, 2025.

My authorization as a notary of the State of Kansas expires on the 14th day of June, 2025.

Notary's Signature

04/25/2025
Date

Colleen Brooks Schiffer
Notary's Printed Name

NOTARY PUBLIC - State of Kansas
COLLEEN BROOKS SCHIFFER
My Appt. Expires 06/14/25

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

Change Log – Do **not** submit this page with your application.

If you are using a form older than the most current form posted on the website, you are required to incorporate the changes listed. Periodically, AQB will announce when older form versions will no longer be accepted.

Version Date	Changes Incorporated
Section 3 – 6/14/2019 Section 4 – 8/15/2011 Section 5 – 8/15/2011 Section 6 – 5/13/2016 Section 6a – 5/13/2016 Section 7 – 8/15/2011 Section 8 – 8/15/2011 Section 9 – 8/15/2011 Section 10 – 8/15/2011 Section 11 – 10/26/2011 Section 12 – 5/19/2019 Section 13 – 8/11/2022 Section 14 – 8/15/2011 Section 15 – 8/15/2011 Section 16 – 5/3/2016 Section 17 – 8/15/2011 Section 18 – 3/9/2012 Section 19 – 8/15/2011 Section 20 – 8/15/2011 Section 21 – 10/4/2016 Section 22 – 3/7/2016	8/11/2022: Section 13 updated to include 20.2.50 NMAC. This Change Log page was added. The dates for each section's last update are listed.
2024	

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:	Titan Lansing Transloading - Carlsbad Facility
2	Name of company:	Titan Lansing Transloading, LLC
3	Current Permit number:	N/A
4	Name of applicant's modeler:	Ebenezer Sada
5	Phone number of modeler:	614-579-0021
6	E-mail of modeler:	esada@tandmassociates.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.		
	N/A. The facility does not have a permit. Operations are currently covered by a NOI		
4	What geodetic datum was used in the modeling?	NAD83	
5	How long will the facility be at this location?	For the foreseeable future	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒

7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	3/16/1988	
	SO2	7/28/1978	
	PM10	2/20/1979	
	PM2.5	11/13/2013	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	No Class I areas are within 50 km of the facility		
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	N/A		The facility operates under an NOI
NO_2	N/A		
SO_2	N/A		
H_2S	N/A		
PM2.5	N/A		
PM10	N/A		
Lead	N/A		
Ozone (PSD only)	N/A		
NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A		

16-D: Modeling performed for this application

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

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

	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.
N/A

2 List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor

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	April 21, 2025

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?	15

2	How many above ground storage tanks are present at the facility?	1	
3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐
4	Building comments		

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.		
	The facility has a T-post and 4-strand wire fence around the facility's property with gates at entrance and exit		
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
Uniform Cartesian	Rectangular	100 m	0	1 km	3.4 km x 2.9 km grid size
Uniform Cartesian	Rectangular	250 m	0	2.5 km	6.25 km x 6.0 km grid size
Uniform Cartesian	Square	500 m	0	5 km	11.5 km x 11.5 km grid size
Uniform Cartesian	Square	1000 m	0	10 km	21 km x 21 km grid size

5	Describe receptor spacing along the fence line.
	A 50-meter grid spacing
6	Describe the PSD Class I area receptors.
	N/A

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).		
	The facility is proposing to install three identical 1,416-hp diesel fired generators. However, only two generators will run at any time while the third will serve as backup		
2	Which scenario produces the highest concentrations? Why?		
	Based on a contribution analysis in the model, the pair of generators, identified as Gen1 (CAT Diesel-Fired Genset 1) and Gen2 (CAT Diesel-Fired Genset 2) in the model, produced the highest concentration based on their relative distances to the fence line		
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:		

5	Hour of Day	Factor	Hour of Day	Factor								
	1		13									
	2		14									
	3		15									
	4		16									
	5		17									
	6		18									
	7		19									
	8		20									
	9		21									
	10		22									
	11		23									
	12		24									
	If hourly, variable emission rates were used that were not described above, describe them below.											

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.	
	ROI and Cumulative analyses were performed. Initial coarse grid modeling was conducted using 5 years of met data (2017 to 2021) to determine the concentration hot spots. The ambient concentration hot spots were located on the boundary receptors. Fine grid modeling using the 3.4 km x 2.9 km grid (@100 m spacing) and the 6 km x 6.25 km grid (@ 250 m spacing) was conducted to determine the ROI and SIA for each applicable averaging period. The significant receptors were all within 3.4 km x 2.9 km fine grid. Thereafter, refined modeling analysis was conducted for the NAAQS and Increment analysis by: • Using a single year of met data = 2020 (Per Table 29, NMED Guidance Doc) • Including nearby sources only within 10km of the source. The nearby sources and location information were downloaded from MergeMaster. • Including only the significant receptors obtained from the fine grid analysis (Per Chapter 7.2, NMED Guidance Doc).	
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: One Year Annual Average:	

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/m³, which is below the significance level of 1.96 µg/m³. 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.	

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		$[PM2.5]_{24\text{-hour}}$
$MERP_{annual}$				
$MERP_{24\text{-hour}}$				$[PM2.5]_{annual}$
Emission rate (ton/yr)				

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☐	No☒
	Unit Number in UA-2	Unit Number in Modeling Files	

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☒	No☐
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒
4	Which units consume increment for which pollutants?		

Unit ID	NO_2	SO_2	PM10	PM2.5

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	
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)

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.		
	Haul Road: Sigma-Y = 2W/2.15 (for alternative volumes, where w = adjusted width of road). Sigma Z = H/2.15 (where height = 1.7 x vehicle height) Other Fugitive Sources: Sigma-Y = L/4.3 (for alternative volumes, where L = Length of volume source). Sigma Z = H/2.15 (where height = 1.7 x vehicle height)		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	See cross-reference table		
4	Describe any open pits.		

5	Describe emission units included in each open pit.

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☐
	CO: Choose an item.		
	NO_2: Outside Carlsbad (350151005)		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: Choose an item.		
	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. Carlsbad	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☐
2	What was the source of the terrain data?		
	USGS National Geospatial Program		

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)
	AERMOD INPUT FILES/ Titan_SO2	Sulfur Dioxide	Significant Impact Modeling
	AERMOD INPUT FILES/ Titan_CO	Carbon Monoxide	Significant Impact Modeling

	AERMOD INPUT FILES/ Titan _NOx_SIL	Nitrogen Dioxide	ROI/SIA
	AERMOD INPUT FILES/ Titan_gen1_2 NOx cum 1-hr	Nitrogen Dioxide	Cumulative Impact Analysis (1 hr average)
	AERMOD INPUT FILES/ Titan_gen1_2 NOx cum Annual	Nitrogen Dioxide	Cumulative Impact Analysis (Annual average)
	AERMOD INPUT FILES/ Titan _PM10_SIL	PM10	ROI/SIA
	AERMOD INPUT FILES/ Titan_2020_PM10_cum_ 24-hr	PM10	Cumulative Impact Analysis (24 hr average)
	AERMOD INPUT FILES/ Titan_2020_PM10_cum_ Annual	PM10	Cumulative Impact Analysis (Annual average)
	AERMOD INPUT FILES/Titan _PM25_SIL	PM2.5	ROI/SIA
	AERMOD INPUT FILES/ Titan_2020_PM25_cum_ 24-hr	PM2.5	Cumulative Impact Analysis (24 hr average)
	AERMOD INPUT FILES/ Titan_2020_PM25_cum_ Annual	PM2.5	Cumulative Impact Analysis (Annual average)

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.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☐	No☐

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)
PM10, Annual/PSD Increment	2.99	5.66	n/a	n/a	5.60	17	33%			
PM10, 24-hr/NAAQS	14.80	29.25	n/a	37.3	66.55	150	44%			
PM10, 24-hr/PSD Increment	14.80	29.25	n/a	n/a	29.25	30	98%			
PM2.5, Annual/PSD Increment	0.59	1.25	n/a	n/a	1.25	4	32%			
PM2.5, Annual /NAAQS	0.59	1.25	n/a	7	8.25	9	91%			
PM2.5, 24-hr/NAAQS	3.27	3.5	n/a	16.5	20.0	35	57%			
PM2.5, 24-hr/PSD Increment	3.27	3.5	n/a	n/a	3.5	9	39%			
NOx, 1-hr /NAAQS	78.4	141.48	n/a	n/a	141.48	188.03	75%			

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)
NOx, 24-hr /NMAAQS	78.4	141.48	n/a	n/a	141.48	188.03	75%			
NOx, Annual/ NAAQS	2.49	5.34	n/a	9.3	14.64	99.66	15%			
NOx, Annual /NMAAQS	2.49	5.34	n/a	9.3	14.64	94.02	15.5%			
NOx, Annual /PSD Increment	2.49	5.34	n/a	n/a	5.34	25	21.4%			
CO, 1-hr/SIL	1029.2	n/a	n/a	n/a	n/a	2000	51%			
CO, 8-hr/SIL	460.61	n/a	n/a	n/a	n/a	500	92%			
SO2, 1-hr/SIL	2.15	n/a	n/a	n/a	n/a	7.8	28%			
SO2, 3hr /SIL	1.69	n/a	n/a	n/a	n/a	25	7%			
SO2, 24-hr/SIL	0.36	n/a	n/a	n/a	n/a	5	7%			
SO2, Annual/SIL	0.07	n/a	n/a	n/a	n/a	1	7%			

16-X: Summary/conclusions	
1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	Modeling requirements have been satisfied; therefore, the permit can be issued.