20.11.41 NMAC "AUTHORITY-TO-CONSTRUCT" AIR QUALITY PERMIT #1791-M2 REVISION APPLICATION

Albuquerque, New Mexico

PREPARED FOR
SALLS BROTHERS CONSTRUCTION, INC.

NOVEMBER 2020

Prepared by

Montrose Air Quality Services, LLC

MONTROSE ENVIRONMENTAL

Introduction

Salls Brothers Construction, Inc. (Salls Brothers) is applying for a revision to 20.11.41 NMAC "Authority to Construct" Permit #1791-M2. The existing permit authorizes operation of a 250 tons per hour portable aggregate plant and 250 tons per hour portable riprap screen plant within the county of Bernalillo, state of New Mexico. The facility will consist of a raw material storage pile (Unit 16), feeder/primary jaw crusher (Unit 1), grizzly screen (Unit 2), portable riprap screen plant (Unit 3), a TBD vibrating screen (Unit 4), a VSI crusher (Unit 12), thirteen (13) conveyor and stacker belts (Units 5 and 13), plant stacker material storage piles (Unit 10), finish material storage piles (Unit 14), and haul truck loading (Unit 15). The portable aggregate plant is powered by one (1) diesel-fired generator (Unit 6), and one (1) diesel-fired engine (Unit 7) which powers to portable riprap screen plant (Unit 3).

With this permit revision, Salls Brothers will be replacing the portable riprap screen plant (Unit 3), portable aggregate plant diesel-fired generator (Unit 6), and portable riprap screen plant engine (Unit 7). Additionally, in this permit revision application, material processing equipment emission calculation will be prepared with the most recent applicable emission factors from EPA's AP-42, Sections 11.19.2 and 13.2.4. There will be no change in the hourly throughput to the main plant and riprap plant at 250 tons per hour (TPH) each and the annual throughput limit will be 650,000 tons per year of raw materials. The plant will be located south of Paseo Del Norte Blvd NW in New Mexico Meridian, Section 17, Township 11N, and Range 2E. The UTM coordinates is approximately 339,600E, 3,894,950N, Zone 13, NAD 83.

The facility requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Facility boundaries, process equipment, and storage pile locations at the facility can be seen in Figure A-2. Emission points can be seen in Figure A-1. Facility aerial map can be seen in Figure D-1.

No startup/shutdown emission rates are expected to be greater than what is proposed for normal operations of the plant. All controls will be operating and functioning correctly prior to the start of production.

If you have any questions regarding this relocation application please call Paul Wade of Montrose at (505) 830-9680 x6 or Arthur Young of Salls Brothers at (505) 873-8780.

The contents of this application packet include:

20.11.41 NMAC Permit Fee Review
20.11.41 NMAC Permit Application Checklist
20.11.41 NMAC Permit Modification Application Forms
Attachment A: Figure A-1: Aggregate Plants Process Flow
Figure A-2: Facility Site Plot Plan
Attachment B: Emission Calculations
Attachment C: Emission Calculations Support Documents
Attachment D: Figure D-1: Aerial Map
Attachment E: Facility Description
Attachment F: Regulatory Applicability Determinations
Attachment G: Dispersion Modeling Report
Attachment H: Public Notice Documents

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Review Fee Instructions

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

1. be delivered in person to the Albuquerque Environmental Health Department, 3rd floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,

2. mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Review Fee Checklist

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

I. COMPANY INFORMATION:

Company Name	Salls Brothers Construction		
Company Address	7301 Reading SE, Albuquerque, NM 87105		
Facility Name	Portable 250 ton/hr Aggregate Crushing Plant		
Facility Address	south of Paseo del Norte and west of Universe		
Contact Person	Arthur Young		
Contact Person Phone Number	505-873-8781		
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?		**Yes**	**No**
If yes, what is the permit number associated with this modification?		**Permit #1791-M2**	
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)		**Yes**	**No**

II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
Air Quality Notifications			
	AQN New Application	$573.00	2801
	AQN Technical Amendment	$313.00	2802
	AQN Transfer of a Prior Authorization	$313.00	2803
X	*Not Applicable*	*See Sections Below*	
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	$ 584.00	2401
	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,168.00	2301
X	*Not Applicable*	*See Sections Below*	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$876	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$1,752	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$3,503	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$5,255	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$7,006	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$8,758	2307
X	*Not Applicable*	*See Section Above*	

Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	$1,168	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$1,168	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	$1,168	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$11,677	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$5,838	2312
	20.11.60 NMAC, Non-Attainment Area Permit	$5,838	2313
X	*Not Applicable*	*Not Applicable*	

III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the permit application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,168.00	2321
X	*Not Applicable*	*See Sections Below*	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$876	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$1,752	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$3,503	2324
X	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$5,255	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$7,006	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$8,758	2327
	Not Applicable	*See Section Above*	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	$5,838	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	$5,838	2334
X	*Not Applicable*	*Not Applicable*	
Federal Program Review Fees (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	$1,168	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$1,168	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	$1,168	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$11,677	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$5,838	2332
	20.11.60 NMAC, Non-Attainment Area Permit	$5,838	2333
X	*Not Applicable*	*Not Applicable*	

IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:

If the permit application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
	Administrative Revisions	$ 250.00	2340
	Technical Revisions	$ 500.00	2341
X	*Not Applicable*	*See Sections II, III or V*	

V. PORTABLE STATIONARY SOURCE RELOCATION FEES:

If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
	No New Air Dispersion Modeling Required	$ 500.00	2501
	New Air Dispersion Modeling Required	$ 750.00	2502
X	*Not Applicable*	*See Sections II, III or V*	

VI. Please submit a check or money order in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	$0
Section III Total	$5255.00
Section IV Total	$0
Section V Total	$0
Total Application Review Fee	**$5255.0**

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this 30th **day of** SEPTEMBER **20** 20

ARTHUR Young — **Print Name**

SAFETY MANAGER — **Print Title**

Signature

Definition of Qualified Small Business as defined in 20.11.2 NMAC:
"Qualified small business" means a business that meets all of the following requirements:

(1) a business that has 100 or fewer employees;
(2) a small business concern as defined by the federal Small Business Act;
(3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
(4) a source that is not a major source or major stationary source.

Note: Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents ($0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents ($0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to ruling a submitted application complete each application submitted shall contain the required items listed below. **This checklist must be returned with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

All applicants shall:

1. **X** Fill out and submit the *Pre-permit Application Meeting Request* form
   a. ☐ Attach a copy to this application

2. **X** Attend the pre-permit application meeting
   a. ☐ Attach a copy of the completed *Pre-permit Application Meeting Checklist* to this application

3. **X** Provide public notice to the appropriate parties
   a. **X** Attach a copy of the completed *Notice of Intent to Construct* form to this form
      i. Neighborhood Association(s):_____
      _____
      ii. Coalition(s): _____

   b. ☐ Attach a copy of the completed *Public Sign Notice Guideline* form

4. Fill out and submit the *Permit Application*. All applications shall:

   A. **X** be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.

   B. **X** at the time of application, include documentary proof that all applicable permit application review fees have been paid as required by 20 NMAC 11.02. Please refer to the attached permit application worksheet.

   C. **X** contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.

   D. **X** contain the name, address, and phone number of a person to contact regarding questions about the facility.

E. **X** indicate the date the application was completed and submitted

F. **X** contain the company name, which identifies this particular site.

G. **X** contain a written description of the facility and/or modification including all operations affecting air emissions.

H. **X** contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.

I. **X** provide sufficient information to describe the quantities and nature of any regulated air contaminant (including any amount of a hazardous air pollutant) that the source will emit during:

- Normal operation
- Maximum operation
- Abnormal emissions from malfunction, start-up and shutdown

J. ☐ include anticipated operational needs to allow for reasonable operational scenarios to avoid delays from needing additional permitting in the future.

K. ☐ contain a map, such as a 7.5-minute USGS topographic quadrangle, showing the exact location of the source; and include physical address of the proposed source.

L. **X** contain an aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation, or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the department in writing.

M. **X** contain the UTM zone and UTM coordinates.

N. **X** include the four digit Standard Industrialized Code (SIC) and the North American Industrial Classification System (NAICS).

O. **X** contain the types and **potential emission rate** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

P. **X** contain the types and **controlled** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

Q. **X** contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).

R. **X** contain all calculations used to estimate **potential emission rate** and **controlled** emissions.

S. **X** contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).

T. **X** contain fuel data for each existing and/or proposed piece of fuel burning equipment.

U. **X** contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.

V. **X** contain the stack and exhaust gas parameters for all existing and proposed emission stacks.

W. **X** provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.

X. **X** contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.

Y. **X** contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points.

Z. **X** contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations.

AA. **X** contain description of the equipment or methods proposed by the applicant to be used for emission measurement.

BB. **X** be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.

Albuquerque Environmental Health Department - Air Quality Program
Please mail this application to **P.O. Box 1293, Albuquerque, NM 87103**
or hand deliver between 8:00am - 5:00pm Monday - Friday to:
3rd Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103
(505) 768 – 1972 aqd@cabq.gov (505) 768 - 1977 (Fax)

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

Clearly handwrite or type

Corporate Information
Submittal Date: 11/23/2020

1. Company Name Salls Brothers Construction, Inc.
2. Street Address 7301 Reading Dr. SE Zip 87105
3. Company City Albuquerque 4. Company State NM 5. Company Phone (505) 873-8780 6. Company Fax (505) 873-8781
7. Company Mailing Address: P.O. Box 66239 Albuquerque, NM Zip 87193-6239
8. Company Contact and Title Arthur Young, Safety Manager 9. Phone (505) 873-8780
10. E-mail ayoung@sallsbrothers.com

Stationary Source (Facility) Information: [Provide a plot plan (legal description/drawing of facility property) with overlay sketch of facility processes; Location of emission points; Pollutant type and distances to property boundaries]

1. Facility Name Albuquerque Rock 2. Street Address approximately 1.45 miles west-southwest of the intersection of Paseo Del Norte Blvd NE and Rainbow Blvd NW

3. City Albuquerque 4. State New Mexico 5. Facility Phone (505) 306-4042 6. Facility Fax (505) 873-8781

7. Facility Mailing Address (Local): P.O. Box 66239 Albuquerque, NM Zip 87193-6239

8. Latitude - Longitude or UTM Coordinates of Facility 339,600E 3,894,925N Zone 13 NAD83

9. Facility Contact and Title Arthur Young, Safety Manager 10. Phone (505) 873-8780 11.E-mail ayoung@sallsbrothers.com

General Operation Information (if any further information request does not pertain to your facility, write N/A on the line or in the box)

1. Facility Type (description of your facility operations) Aggregate/RAP Crushing Plant
2. Standard Industrial Classification (SIC 4 digit #) 1442
3. North American Industry Classification System (NAICS Code #) 212321
4. Is facility currently operating in Bernalillo County. Yes If yes, date of original construction 04 / 03 / 2006
   If no, planned startup is___/___/_____
5. Is facility permanent No If no, give dates for requested temporary operation - from 02 / 28 / 2021 through 02 / 28 / 2023
6. Is facility process equipment new Yes If no, give actual or estimated manufacture or installation dates in the Process Equipment Table.
7. Is application for a modification, expansion, or reconstruction (altering process, or adding, or replacing process equipment, etc.) to an existing facility which will result in a change in emissions Yes. If yes, give the manufacture date of modified, added, or replacement equipment in the Process Equipment Table modification date column , or the operation changes to existing process/equipment which cause an emission increase.

8. Is facility operation (circle one) [**Continuous** Intermittent Batch]

9. Estimated % of production Jan-Mar 22% Apr-Jun 28% Jul-Sep 28% Oct-Dec 22%

10. Current or requested operating times of facility see Note 1 hrs/day 7 days/wk 4 wks/mo 12 mos/yr 4081 hours/yr

11. Business hrs 6 AM to 7 PM

12. Will there be special or seasonal operating times other than shown above No If yes, explain _____

13. Raw materials processed Quarry Aggregate or Recycled Materials

14. Saleable item(s) produced Product Aggregate or Recycled Materials

15. Permitting Action Being Requested

☐ New Permit **X** Permit Modification ☐ Technical Permit Revision ☐ Administrative Permit Revision

Current Permit #: 1791-M2 Current Permit #: _____ Current Permit #: _____

Note 1:
November through February – 8 AM to 5 PM – 9 hr/day
March, September, October – 7 AM to 6 PM – 11 hr/day
April through August – 6 AM to 7 PM – 13 hr/day

PROCESS EQUIPMENT TABLE

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
1. Feeder/Primary Jaw Crusher	Terex/Cedarapids	Cobra 1100	52979	06/05	4/2006	NA	250 Tons/HR. 650,000 Ton/YR.	NA
2. Vibrating Screen 1	Terex/Cedarapids	TSH6203-32	054397	02/07	2/2007	NA	Est 400 Tons/HR. 650,000 Ton/YR.	NA
3. Rip Rap Plant	R.D. Olson	RDO 5220	15381	01/2018	TBD	11/2020	250 Tons/HR. 650,000 Ton/YR.	NA
4. Vibrating Screen 2	TBD	TBD	TBD	TBD	TBD	NA	250 Tons/HR. 650,000 Ton/YR.	NA
5. Conveyors (10 existing)	Various	Various	N/A	N/A	4/2006	NA	250 Tons/HR. 650,000 Ton/YR.	NA
6. Plant Generator	Detroit	16VF-10734	8163-7416	09/26/1992	TBD	11/2020	1190 hp	No 2 Diesel
7. Rip Rap Plant (Unit 3) Engine	CAT	C4.4	44619797	11/03/2014	TBD	11/2020	91.2 hp	No 2 Diesel
10. Raw Material Storage Piles (At two locations, main plant operations and at RipRap Plant (Unit 3). Combined throughput is 500 tph, 250 tph at each location.)	NA	NA	NA	NA	4/2006	NA	500 Tons/HR. 650,000 Ton/YR.	NA
11. Haul Roads	NA	NA	NA	NA	4/2006	NA	43.4 Trucks/HR. 28,261 Trucks/YR.	NA
12. Secondary Crusher	Terex/Cedarapids	RC-45-II	054334	01/07	4/2007	NA	Est. 150 Tons/HR. 390,000 Ton/YR.	NA
13. Conveyors (3 existing)	Various	Various	N/A	N/A	4/2007	NA	250 Tons/HR. 650,000 Ton/YR.	NA
14. Finish Material Storage Piles (At two locations, main plant operations and at RipRap Plant (Unit 3). Combined throughput is 500 tph, 250 tph at each location.)	NA	NA	NA	NA	4/2006	11/2020	500 Tons/HR. 650,000 Ton/YR.	NA
15. Finish Material Truck Loading	NA	NA	NA	NA	4/2006	11/2020	500 Tons/HR. 650,000 Ton/YR.	NA
16. Raw Material Pile Truck Unloading	NA	NA	NA	NA	4/2006	11/2020	500 Tons/HR. 650,000 Ton/YR.	NA

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.) Engines – Manufacturer Data; Plant Material Processing Equipment – Site Capacity,

Submit information for each unit as an attachment

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

TABLE EXEMPTED SOURCES AND EXEMPTED ACTIVITIES

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
1. NA							HR. YR.	
2.							HR. YR.	
3.							HR. YR.	
4.							HR. YR.	
5.							HR. YR.	
6.							HR. YR.	
7.							HR. YR.	
8.							HR. YR.	
9.							HR. YR.	
10.							HR. YR.	
11.							HR. YR.	
12.							HR. YR.	
13.							HR. YR.	
14.							HR. YR.	
15.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.)_____
Submit information for each unit as an attachment

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8,760 hrs)

Process Equipment Unit*		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determination of Emissions (AP-42, Material balance, field tests, manufacturers data, etc.)
1. Feeder/Primary Jaw Crusher (Combined Feeder Loading and Jaw Crusher)	1.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.53 lbs/hr	EPA AP-42 Emission Factors: Feeder Loading – Section 13.4 Crusher – Section 11.19.2, Table 11.19.2-2 "Tertiary Crushing Uncontrolled"
	1a.	tons/yr	tons/yr	tons/yr	tons/yr	11.08 tons/yr	
2. Vibrating Screen 1	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	10.00 lbs/hr	EPA AP-42 Emission Factors: Screen – Section 11.19.2, Table 11.19.2-2 "Screening Uncontrolled"
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	43.80 tons/yr	
3. RipRap Plant	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	6.25 lbs/hr	EPA AP-42 Emission Factors: Screen – Section 11.19.2, Table 11.19.2-2 "Screening Uncontrolled"
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	27.38 tons/yr	
4. Vibrating Screen 2	4.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	6.25 lbs/hr	EPA AP-42 Emission Factors: Screen – Section 11.19.2, Table 11.19.2-2 "Screening Uncontrolled"
	4a.	tons/yr	tons/yr	tons/yr	tons/yr	27.38 tons/yr	
5. Conveyors (10 existing)	5.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	7.50 lbs/hr	EPA AP-42 Emission Factors: Conveyor – Section 11.19.2, Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
	5a.	tons/yr	tons/yr	tons/yr	tons/yr	32.90 tons/yr	
6. Plant Generator	6.	8.00 lbs/hr	28.53 lbs/hr	0.64 lbs/hr	0.43 lbs/hr	0.83 lbs/hr	NOx, CO, VOC, PM – AP-42 3.3 (10/96) SO_2 – Mass Balance
	6a.	35.05 tons/yr	124.95 tons/yr	2.80 tons/yr	1.88 tons/yr	3.65 tons/yr	
7. RipRap Plant (Unit 3) Engine	7.	0.75 lbs/hr	0.70 lbs/hr	0.070 lbs/hr	0.035 lbs/hr	0.060 lbs/hr	NOx, CO, VOC, PM – AP-42 3.3 (10/96) SO_2 – Mass Balance
	7a.	3.28 tons/yr	3.09 tons/yr	0.31 tons/yr	0.15 tons/yr	0.26 tons/yr	
10. Material Stacker Piles	10.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	EPA AP-42 Emission Factors: Stacker to Pile – Section 13.2.4 "Aggregate Handling" w=8.5 MPH M=2.88%
	10a.	tons/yr	tons/yr	tons/yr	tons/yr	10.34 tons/yr	
Totals of Uncontrolled Emissions (1 - 10)		8.75 lbs/hr	29.23 lbs/hr	0.71 lbs/hr	0.47 lbs/hr	35.78 lbs/hr	
		38.33 tons/yr	128.04 tons/yr	3.11 tons/yr	2.03 tons/yr	156.79 tons/yr	

*** If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet. Copy this Table if additional space is needed (begin numbering with 11., 12., etc.)**

*** If all of these process units, individually and in combination, have an uncontrolled emission less than or equal to (≤) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.**

If your facility does not require a registration or permit, based on above emissions, complete the remainder of this application to determine if a registration or permit would be required for Toxic or Hazardous air pollutants used at your facility.

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8,760 hrs)

Process Equipment Unit*		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determination of Emissions (AP-42, Material balance, field tests, manufacturers data, etc.)
11. Haul Roads	11.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	134.2 lbs/hr	EPA AP-42 Emission Factors: Section 13.2.2, "Unpaved Roads
	11a.	tons/yr	tons/yr	tons/yr	tons/yr	491.0 tons/yr	
12. Secondary Crusher	12.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.81 lbs/hr	EPA AP-42 Emission Factors: Crusher – Section 11.19.2, Table 11.19.2-2 "Tertiary Crushing Uncontrolled"
	12a.	tons/yr	tons/yr	tons/yr	tons/yr	3.55 tons/yr	
13. Conveyors (3 existing)	13.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.25 lbs/hr	EPA AP-42 Emission Factors: Conveyor – Section 11.19.2, Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
	13a.	tons/yr	tons/yr	tons/yr	tons/yr	9.87 tons/yr	
14. Finish Material Storage Piles	14.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	EPA AP-42 Emission Factors: Material Handling – Section 13.2.4 "Aggregate Handling" w=8.5 MPH M=2.0%
	14a.	tons/yr	tons/yr	tons/yr	tons/yr	10.34 tons/yr	
15. Finish Material Truck Loading	15.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	EPA AP-42 Emission Factors: Truck Loading – Section 13.2.4 "Aggregate Handling" w=8.5 MPH M=2.0%
	15a.	tons/yr	tons/yr	tons/yr	tons/yr	10.34 tons/yr	
16. Raw Material Pile Truck Unloading	16.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	EPA AP-42 Emission Factors: Truck Loading – Section 13.2.4 "Aggregate Handling" w=8.5 MPH M=2.0%
	16a.	tons/yr	tons/yr	tons/yr	tons/yr	10.34 tons/yr	
Totals of Uncontrolled Emissions (11 - 16)		lbs/hr	lbs/hr	lbs/hr	lbs/hr	144.30 lbs/hr	
		tons/yr	tons/yr	tons/yr	tons/yr	535.48 tons/yr	
Totals of Uncontrolled Emissions (1 - 16)		8.8 lbs/hr	29.2 lbs/hr	0.71 lbs/hr	0.47 lbs/hr	180.1 lbs/hr	
		38.3 tons/yr	128.0 tons/yr	3.11 tons/yr	2.03 tons/yr	692.3 tons/yr	

*** If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet. Copy this Table if additional space is needed (begin numbering with 11., 12., etc.)**

*** If all of these process units, individually and in combination, have an uncontrolled emission less than or equal to (≤) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.**

If your facility does not require a registration or permit, based on above emissions, complete the remainder of this application to determine if a registration or permit would be required for Toxic or Hazardous air pollutants used at your facility.

CONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Based on current operations with emission controls OR requested operations with emission controls)

Process Equipment Units listed on this Table should match up to the same numbered line and Unit as listed on Uncontrolled Table (pg. 3)

Process Equipment Unit		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Method	% Efficiency
1. Feeder/Primary Jaw Crusher (Combined Feeder Loading and Jaw Crusher)	1.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	1.48 lbs/hr	Feeder - None Crusher - Water Spray System	0.0% 77.7%
	1a.	tons/yr	tons/yr	tons/yr	tons/yr	1.92 tons/yr		
2. Vibrating Screen 1	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.88 lbs/hr	Screen - Water Spray System	91.6%
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	1.14 tons/yr		
3. RipRap Plant	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.55 lbs/hr	Screen - Water Spray System	91.6%
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	0.72 tons/yr		
4. Vibrating Screen 2	4.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.55 lbs/hr	Screen - Water Spray System	91.6%
	4a.	tons/yr	tons/yr	tons/yr	tons/yr	0.72 tons/yr		
5. Conveyors (10 existing)	5.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.35 lbs/hr	Conveyor Transfer Point - Water Spray System	95.9%
	5a.	tons/yr	tons/yr	tons/yr	tons/yr	0.46 tons/yr		
6. Plant Generator	6.	8.00 lbs/hr	28.53 lbs/hr	0.64 lbs/hr	0.43 lbs/hr	0.83 lbs/hr	None	0.0%
	6a.	16.33 tons/yr	58.21 tons/yr	1.30 tons/yr	0.87 tons/yr	1.70 tons/yr		
7. RipRap Plant (Unit 3) Engine	7.	0.75 lbs/hr	0.70 lbs/hr	0.070 lbs/hr	0.035 lbs/hr	0.060 lbs/hr	None	0.0%
	7a.	1.53 tons/yr	1.44 tons/yr	0.14 tons/yr	0.071 tons/yr	0.12 tons/yr		
10. Material Stacker Piles	10.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	1.42 lbs/hr	Stacker to Pile - Water Spray System	40.0%
	10a.	tons/yr	tons/yr	tons/yr	tons/yr	1.84 tons/yr		
Totals of Controlled Emissions (1 - 10)		8.75 lbs/hr	29.23 lbs/hr	0.71 lbs/hr	0.47 lbs/hr	6.12 lbs/hr		
		17.86 tons/yr	59.65 tons/yr	1.44 tons/yr	0.94 tons/yr	8.62 tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) EPA AP-42 emission factors – Equipment; Stacker to Pile – Moisture Content increased by Water Sprays
Submit information for each unit as an attachment

2. Explain and give estimated amounts of any Fugitive Emission associated with facility processes

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

CONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Based on current operations with emission controls OR requested operations with emission controls)

Process Equipment Units listed on this Table should match up to the same numbered line and Unit as listed on Uncontrolled Table (pg. 3)

Process Equipment Unit		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Method	% Efficiency
11. Haul Roads	11.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	13.42 lbs/hr	Water and Surfactants/Millings – NMED Default	90.0%
	11a.	tons/yr	tons/yr	tons/yr	tons/yr	7.29 tons/yr		
12. Secondary Crusher	12.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.18 lbs/hr	Crusher - Water Spray System	77.7%
	12a.	tons/yr	tons/yr	tons/yr	tons/yr	0.23 tons/yr		
13. Conveyors (3 existing)	13.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.11 lbs/hr	Conveyor Transfer Point - Water Spray System	95.9%
	13a.	tons/yr	tons/yr	tons/yr	tons/yr	0.14 tons/yr		
14. Finish Material Storage Piles	14.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	None	0.0%
	14a.	tons/yr	tons/yr	tons/yr	tons/yr	3.07 tons/yr		
15. Finish Material Truck Loading	15.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	None	0.0%
	15a.	tons/yr	tons/yr	tons/yr	tons/yr	3.07 tons/yr		
16. Raw Material Pile Truck Unloading	16.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.36 lbs/hr	None	0.0%
	16a.	tons/yr	tons/yr	tons/yr	tons/yr	3.07 tons/yr		
Totals of Controlled Emissions (11 - 15)		lbs/hr	lbs/hr	lbs/hr	lbs/hr	20.78 lbs/hr		
		tons/yr	tons/yr	tons/yr	tons/yr	16.86 tons/yr		
Totals of Controlled Emissions (1 - 15)		8.75 lbs/hr	29.2 lbs/hr	0.71 lbs/hr	0.46 lbs/hr	26.9 lbs/hr		
		17.9 tons/yr	59.7 tons/yr	1.44 tons/yr	0.95 tons/yr	25.5 tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) EPA AP-42 emission factors – Equipment; Haul Road – NMED Control Factors
Submit information for each unit as an attachment

2. Explain and give estimated amounts of any Fugitive Emission associated with facility processes
_____

_____

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

**TOXIC EMISSIONS

VOLATILE, HAZARDOUS, & VOLATILE HAZARDOUS AIR POLLUTANT EMISSION TABLE

Product Categories (Coatings, Solvents, Thinners, etc.)	Volatile Organic Compound (VOC), Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service Number (CAS) Of VOC, HAP, Or VHAP From Representative As Purchased Product	VOC, HAP, Or VHAP Concentration Of Representative As Purchased Product (pounds/gallon, or %)	1. How were Concentrations Determined (CPDS, MSDS, etc.)	Total Product Purchases For Category	(-)	Quantity Of Product Recovered & Disposed For Category	(=)	Total Product Usage For Category
I. NA					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
II.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
III.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
IV.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
V.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
VI.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
VII.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
VIII.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
IX.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
X.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
TOTAL >>>>>>>					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr

1. Basis for percent (%) determinations (Certified Product Data Sheets, Material Safety Data Sheets, etc.). Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category. Copy this Table if additional space is needed (begin numbering with XI., XII., etc.)

****NOTE: A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, DETERMINED ON A CASE-BY-CASE EVALUATION.**

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

MATERIAL AND FUEL STORAGE TABLE

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 6., 7., etc.)

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres,etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff.
1. Tank	diesel	10,000 gal.	Above	Welded/White	4/2006	5000gal HR.	66 gal. - HR.	> 15 kPa	N/A	N/A	N/A
2.Plant Storage Piles	Aggregate	0.5 acre	Above		4/2006	500 tons/HR. 650,000 tons/YR.	500 tons/HR. 650,000 tons/YR.	Psia			
3.Plant Finish Storage Piles	Aggregate	2 acres	Above		4/2006	500 tons/HR. 650,000 tons/YR.	500 tons/HR. 650,000 tons/YR.	Psia			
4.Plant Raw Material Storage Piles	Aggregate	2 acres	Above		4/2006	500 tons/HR. 650,000 tons/YR.	500 tons/HR. 650,000 tons/YR.	Psia			

1. Basis for Loading/Offloading Rate (Manufacturers data, Field Observation/Test, etc.) Submit information for each unit as an attachment
Field Observation – Plant Capacity

2. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment
_____

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

STACK AND EMISSION MEASUREMENT TABLE

If any equipment from the Process Equipment Table (Page 2) is also listed in this Stack Table, use the same numbered line for the Process Equipment unit on both Tables to show the association between the Process Equipment and its Stack. Copy this table if additional space is needed (begin numbering with 6., 7., etc.).

Process Equipment	Pollutant (CO,NOx,TSP, Toluene,etc)	Control Equipment	Control Efficiency	Stack Height & Diameter in feet	Stack Temp.	Stack Velocity & Exit Direction	Emission Measurement Equipment Type	Range-Sensitivity-Accuracy-
6. Plant Generator	CO, NOx, PM, SO_2, NMHC	N/A	N/A	13.5 ft. - H Twin Stacks 0.667 ft. – D each	780 ^{0}F	8260.7 ft^3/min Exit - Horizontal	N/A	N/A
7. Vibrating Screen (Unit 3) Engine	CO, NOx, PM, SO_2, NMHC	N/A	N/A	6.0 ft. - H 0.25 ft. - D	750 ^{0}F	439.5 ft^3/min Exit - Horizontal	N/A	N/A

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test,AP-42, etc.) Submit information for each unit as an attachment

I, the undersigned, a responsible officer of the applicant company, certify that to the best of my knowledge, the information stated on this application, together with associated drawings, specifications, and other data, give a true and complete representation of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I also understand that any significant omissions, errors, or misrepresentations in these data will be cause for revocation of part or all of the resulting registration or permit.

Signed this 23 day of NOVEMBER, 20 20

Print Name Arthur Young Print Title Safety Manager

Signature

Attachment A
Facility Process Flow Diagram and Site Plot Plan

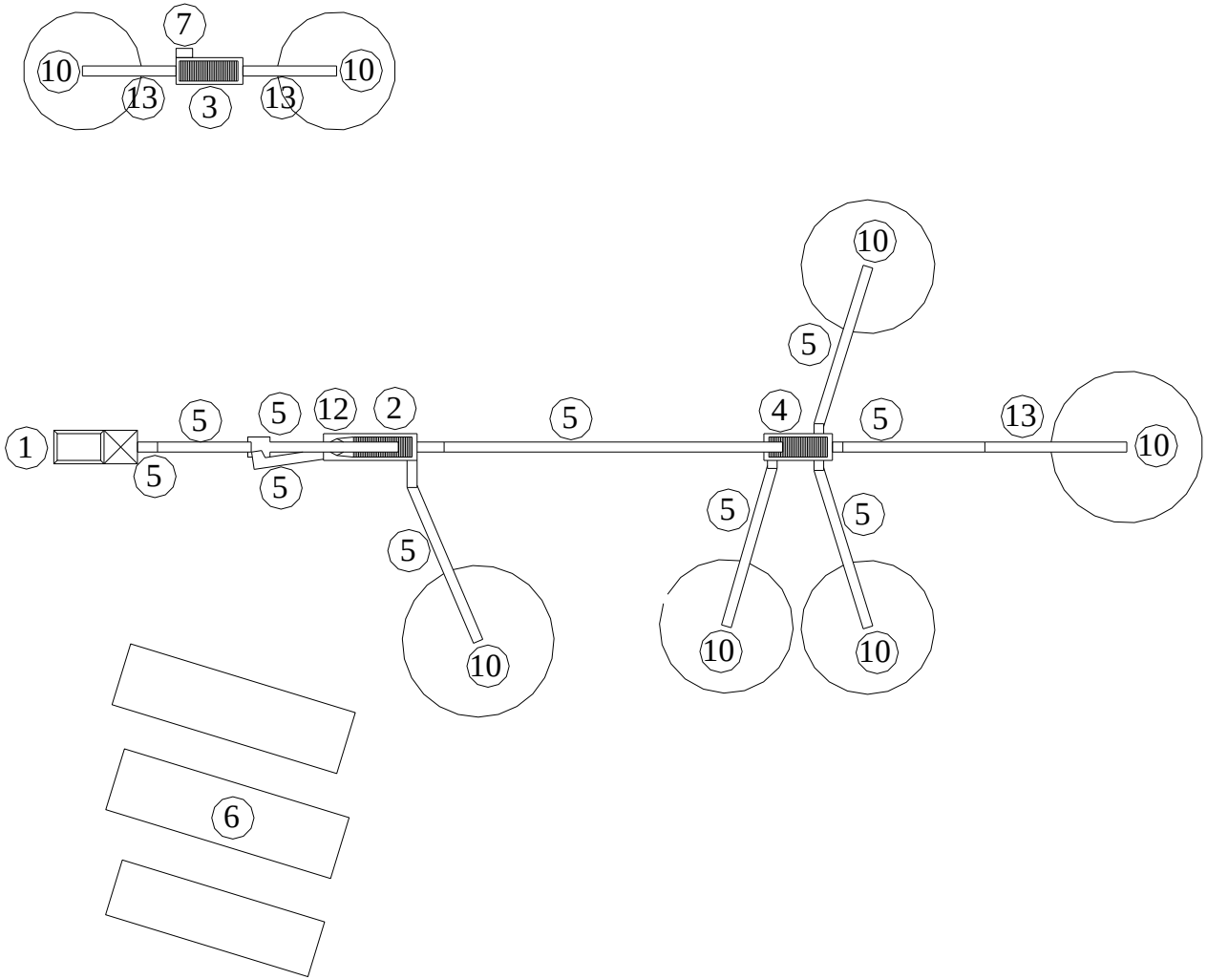

Figure A-1: Salls Brothers Aggregate Plants Process Flow

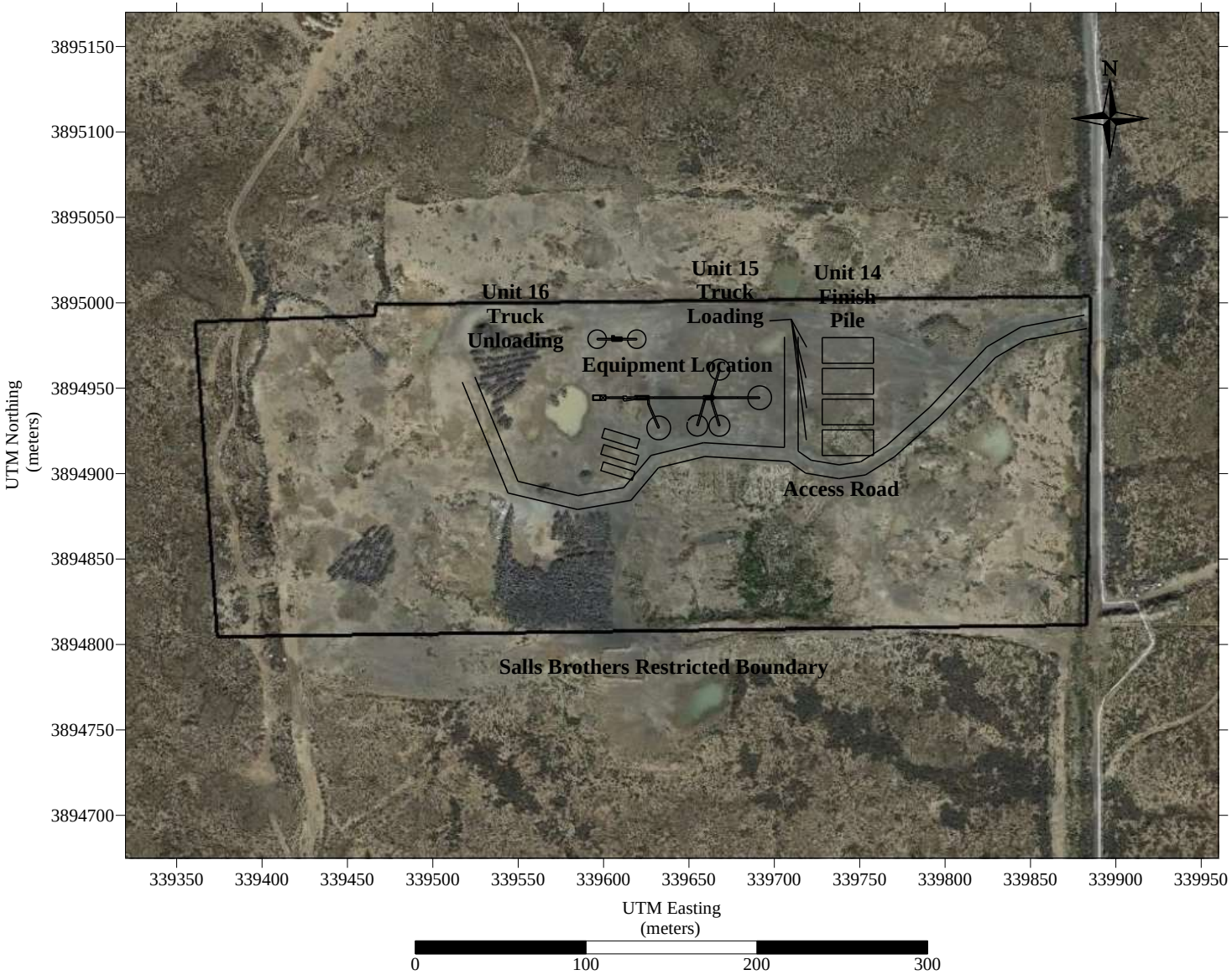

Figure A-2: Salls Brothers Site Plot Plan

Attachment B
Emissions Calculations

Portable Aggregate Crushing Plant and Portable RipRap Screen Plant

Pre-Control Particulate Emission Rates

MATERIAL HANDLING ($PM_{2.5}$, PM_{10}, AND PM)

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

To estimate material handling pre-control particulate emission rates for aggregate handling operations, Units 1 (Feeder), 10 (stacker drop to pile), 14 (finish pile), 15 (truck loading), 16 (truck unloading) an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (PM = 0.74, PM_{10} = 0.35, $PM_{2.5}$ = 0.053), average wind speed for Albuquerque for the years of 1996 through 2006 of 8.5 mph, and the NMED default moisture content of 2 percent.

Maximum hourly production for the plant is as follows:

Plant	Tons Per Hour
Aggregate Crusher/Screen Plant	250
RipRap Screen Plant	250

Uncontrolled annual emissions for tons per year (tpy) were calculated assuming maximum annual operation for 8760 hours per year.

Aggregate Material Handling – Storage Piles, Feed Bin Loading, and Truck Loading Emission Equation:

Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00472 lbs/ton;

E_{PM10} (lbs/ton) = 0.00223 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00034 lbs/ton

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

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

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)
Uncontrolled Crushing	0.00540	0.00240	0.00036
Uncontrolled Screening	0.02500	0.00870	0.00132
Feed Bin Unloading, and Conveyor Transfers	0.00300	0.00110	0.00017
Uncontrolled Aggregate Feeder Loading, Aggregate Storage Piles, Truck Loading, and Truck Unloading	0.00472	0.00223	0.00034

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

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

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

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

Table B-1 Pre-Controlled Material Processing Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
1	Feeder	250	1.18	5.17	0.56	2.44	0.08	0.37
1	Primary Crusher	250	1.35	5.91	0.60	2.63	0.09	0.40
2	Vibrating Screen 1	400	10.00	43.80	3.48	15.24	0.53	2.31
3	Rip Rap Plant	250	6.25	27.38	2.18	9.53	0.33	1.44
4	Vibrating Screen 2	250	6.25	27.38	2.18	9.53	0.33	1.44
12	Cone Crusher	150	0.81	3.55	0.36	1.58	0.055	0.24
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
5	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
13	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
13	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
13	Conveyor Transfer Point	250	0.75	3.29	0.28	1.20	0.042	0.18
10	Stacker to Pile	500	2.36	10.34	1.12	4.89	0.17	0.74
14	Material Storage Pile	500	2.36	10.34	1.12	4.89	0.17	0.74
15	Pile to Truck Loading	500	2.36	10.34	1.12	4.89	0.17	0.74
16	Raw Material Truck Unloading	500	2.36	10.34	1.12	4.89	0.17	0.74
		TOTALS	**45.03**	**197.3**	**17.48**	**76.11**	**2.64**	**11.50**

Plant Haul Truck Travel (Unit 11)

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission. The main haul road in and out of the site will be unpaved. Table B-2 summarizes the emission rate for haul truck travel.

Unpaved Roads
AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads"

$$E = k * (s/12)^a * (W/3)^b * [(365 - p)/365] * VMT$$

Where k = constant PM2.5 = 0.15
PM10 = 1.5
PM = 4.9
s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (26.5 tons – 15 tons truck, 23 tons load)
p = number of days with at least 0.01 in of precip. (60 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
PM = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
PM = 0.45
Vehicle Dust Control 0%

Trucks per Hour
Incoming Aggregate Trucks = 21.7 trucks per hour; 190,435 trucks per year
Outgoing Aggregate Trucks = 21.7 trucks per hour; 190,435 trucks per year
VMT = Vehicle Miles Traveled
Incoming Aggregate Trucks – 0.55654 miles RT per vehicle
Outgoing Aggregate Trucks – 0.34088 miles RT per vehicle

Miles Traveled
Incoming Aggregate Trucks – 12.0987 miles per hour; 105,985 miles/yr
Outgoing Aggregate Trucks – 7.4104 miles per hour; 64,915 miles/yr

Reduction in emissions due to precipitation was only accounted for in the annual emission rate. Particulate emission rate per vehicle mile traveled for each particle size category is:

Hourly Emission Rate Factor – 0% Control
PM = 6.8769 lbs/VMT
PM10 = 1.7527 lbs/VMT
PM2.5 = 0.17527 lbs/VMT

Annual Emission Rate Factor – 0% Control
PM = 5.7465 lbs/VMT
PM10 = 1.4646 lbs/VMT
PM2.5 = 0.14646 lbs/VMT

Table B-2: Pre-Controlled Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
Aggregate Plant Incoming Haul Truck Unpaved	12.0987 miles/hr; 105,985 miles/yr	83.20	304.5	21.21	77.6	2.12	7.8
Aggregate Plant Outgoing Haul Truck Unpaved	7.4104 miles/hr; 64,915 miles/yr	50.96	186.5	12.99	47.5	1.30	4.8
	TOTALS	**134.16**	**491.0**	**34.19**	**125.1**	**3.42**	**12.6**

Controlled Particulate Emission Rates

No controls or emission reductions for combustion emissions (NO_X, CO, SO_2, VOC, or PM) are proposed for the portable aggregate plant engine (Unit 6) or portable riprap screen plant engine (Unit 7) with the exception of limiting annual hours of operation.

CONTROLLED MATERIAL HANDLING ($PM_{2.5}$, PM_{10}, AND PM)

No fugitive dust controls or emission reductions are proposed for the for Units 1 (Feeder), 14 (finish pile), 15 (truck loading), 16 (raw material truck unloading) with the exception of limiting the annual production rate to 650,000 tons per year.

Fugitive dust control for unloading the aggregate feed bin onto conveyors will be controlled, as needed, with enclosures and/or water sprays at the exit of the feed bin. Fugitive dust control for the transfer conveyors will be controlled with material moisture content and/or enclosure. It is estimated that these methods will control to an efficiency of 95.9 percent per AP-42 Section 11.19.2, Table 11.19.2-2. Additional emission reductions include limiting annual production rates.

Fugitive dust control from the crushers will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 77.7 percent for crushing operations per AP42 Section 11.19.2, Table 11.19.2-2. Additional emission reductions include limiting annual production rates.

Fugitive dust control from screens will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 91.6 percent for screening operations per AP42 Section 11.19.2, Table 11.19.2-2. Additional emission reductions include limiting annual production rates.

Fugitive dust control for the stacker conveyor transfer to storage piles will be controlled with material moisture content and/or enclosure. It is estimated that the additional moisture during processing will increase the moisture content from the default of 2% to the high moisture content value found in footnote b of AP-42 Table 11.19.2-2 of 2.88%. This will control fugitive emissions to an efficiency of 40 percent. Additional emission reductions include limiting annual production rates.

To estimate material handling control particulate emissions rates for crushing, screening, and conveyor transfer operations, emission factors were obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Aug. 2004, Section 11.19.2, Table 11.19.2-2.

To estimate material handling particulate emission rates for aggregate handling operations (raw material/aggregate storage piles/ loading feed bins, haul truck loading, haul truck unloading), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary

Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (TSP = 0.74, PM_{10} = 0.35, $PM_{2.5}$ = 0.053), wind speed for determining the maximum hourly emission rate is based on the average wind speed for Albuquerque for the years of 1996 through 2006 of 8.5 mph, and the NMED default moisture content of 2 percent.

Maximum production for the plant is as follows:

Plant	Tons Per Hour	Tons Per Year
Aggregate Crusher/Screen Plant	250	650,000
RipRap Screen Plant	250	

Aggregate Storage Piles, Feed Bin Loading, and Truck Loading Emission Equation:

Annual Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00472 lbs/ton;

E_{PM10} (lbs/ton) = 0.00223 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00034 lbs/ton

Aggregate Storage Pile Loading from Stacker Conveyor Emission Equation:

Annual Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00283 lbs/ton;

E_{PM10} (lbs/ton) = 0.00134 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00020 lbs/ton

AP-42 Emission Factors:

Feed Bin Unloading = Controlled Conveyor Transfer Point Emission Factor

Crusher = Controlled Tertiary Crusher Emission Factor

Screen = Controlled Screening Emission Factor

Transfer Conveyor = Controlled Conveyor Transfer Point Emission Factor

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)
Controlled Crushing	0.00120	0.00054	0.00010
Controlled Screening	0.00220	0.00074	0.00005
Controlled Feeder Unloading and Conveyor Transfers	0.00014	0.00005	0.000013
Aggregate Storage Piles, Feeder Loading	0.00472	0.00223	0.00034
Haul Truck Loading and Unloading	0.00472	0.00223	0.00034
Stacker Conveyor to Pile	0.00283	0.00134	0.00020

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

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

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

$$\text{Emission Rate (tons/year)} = \frac{\text{Emission Factor (lbs/ton)} * \text{Annual Production (tons/year)}}{\text{2000 lbs/ton}}$$

Table B-3 Allowable Regulated Process Equipment Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
1	Feeder	250	1.18	1.53	0.56	0.73	0.085	0.11
1	Primary Crusher	250	0.30	0.39	0.14	0.18	0.025	0.033
2	Vibrating Screen 1	400	0.88	1.14	0.30	0.38	0.020	0.026
3	Rip Rap Plant	250	0.55	0.72	0.19	0.24	0.013	0.016
4	Vibrating Screen 2	250	0.55	0.72	0.19	0.24	0.013	0.016
12	Cone Crusher	150	0.18	0.23	0.081	0.11	0.015	0.020
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
13	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
13	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
13	Conveyor Transfer Point	250	0.035	0.046	0.012	0.015	0.0033	0.0042
10	Stacker to Pile	500	1.42	1.84	0.67	0.87	0.10	0.13
14	Material Storage Pile	500	2.36	3.07	1.12	1.45	0.17	0.22
15	Pile to Truck Loading	500	2.36	3.07	1.12	1.45	0.17	0.22
16	Raw Material Truck Unloading	500	2.36	3.07	1.12	1.45	0.17	0.22
		TOTALS	**12.60**	**16.38**	**5.65**	**7.30**	**0.82**	**1.07**

Plant Haul Truck Travel (Unit 11)

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission. The main haul road in and out of the site will be unpaved. Fugitive dust will be controlled with water and surfactants or millings. NMED default control efficiency value for surface stabilizers and watering is 90 percent. Table B-4 summarizes the emission rate for haul truck travel.

Unpaved Roads
AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads"

$$E = k * (s/12)^a * (W/3)^b * [(365 - p)/365] * VMT$$

Where k = constant PM2.5 = 0.15
PM10 = 1.5
PM = 4.9
s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (26.5 tons – 15 tons truck, 23 tons load)
p = number of days with at least 0.01 in of precip. (60 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
PM = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
PM = 0.45
Vehicle Dust Control 90%

Trucks per Hour
Incoming Aggregate Trucks = 21.7 trucks per hour; 14,130 trucks per year
Outgoing Aggregate Trucks = 21.7 trucks per hour; 14,130 trucks per year
VMT = Vehicle Miles Traveled
Incoming Aggregate Trucks – 0.55654 miles per vehicle
Outgoing Aggregate Trucks – 0.34088 miles per vehicle
Miles Traveled
Incoming Aggregate Trucks – 12.099 miles per hour; 15,728 miles/yr
Outgoing Aggregate Trucks – 7.4104 miles per hour; 9,634 miles/yr

Reduction in emissions due to precipitation was only accounted for in the annual emission rate. Particulate emission rate per vehicle mile traveled for each particle size category is:

Hourly Emission Rate Factor – 90% Control
PM = 0.6877 lbs/VMT
PM10 = 0.1753 lbs/VMT
PM2.5 = 0.0175 lbs/VMT

Annual Emission Rate Factor – 90% Control
PM = 0.5746 lbs/VMT
PM10 = 0.1465 lbs/VMT
PM2.5 = 0.01465 lbs/VMT

Table B-4: Controlled Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
Aggregate Plant Incoming Haul Truck Unpaved	12.0987 miles/hr; 15,728 miles/yr	8.32	4.52	2.12	1.15	0.21	0.12
Aggregate Plant Outgoing Haul Truck Unpaved	7.4104 miles/hr; 9,634 miles/yr	5.10	2.77	1.30	0.71	0.13	0.071
	TOTALS	**13.42**	**7.29**	**3.42**	**1.86**	**0.34**	**0.19**

Estimates for 1190 hp Portable Aggregate Crusher Plant Diesel-Fired Engine (NO_X, CO, SO_2, VOC, PM, and GHG)

A 1190 horsepower (hp) (Unit 6) provides power to the portable aggregate crusher plant. Emission rates for NO_X, CO, and NMHC are based on manufacturer emission rate. Particulate emission rate is calculated from emission factors found in EPA's AP-42 Section 3.4. Sulfur dioxide (SO_2) emissions are estimated based on sulfur content of diesel fuel, not to exceed 0.05% fuel content and a fuel usage rate of 61.2 gal/hr. GHG emission rates are found in EPA Emission Factors. Uncontrolled annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year. Controlled annual emissions in tons per year (tpy) were calculated assuming operation of 4081 hours per year.

Manufacturer Data:

Pollutant	Emission Factor (grams/hr)
Nitrogen Oxide	12940
Carbon Monoxides	3630
Hydrocarbons	290

EPA AP-42 Section 3.4:

Pollutant	Emission Factor (lbs/hp-hr)
Particulate	0.0007

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 61.2 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 500 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO_2).

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

$$\text{Emission Rate (lbs/hr)} = \frac{61.2 \text{ gallons}}{\text{hr}} \left| \frac{7.0 \text{ lbs}}{\text{gallon}} \right| \frac{0.0005 \text{ lbs Sulfur}}{\text{lbs of fuel}} \left| \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}} \right.$$

Emission Rate (lbs/hr) = 0.43 lbs/hr

Carbon Dioxide emissions were estimated using March 9, 2018 EPA Emission Factors for Greenhouse Gas Inventories:

CO_2 Emission Factor	10.21 kg/gal
CH_4 Emission Factor	0.41 g/gal
N_20 Emission Factor	0.08 g/gal

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

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

Table B-5: Pre-Controlled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating hp (kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
6	NO_X	1190 (888)	28.53	124.95
	CO	1190 (888)	8.00	35.05
	SO_2	1190 (888)	0.43	1.88
	VOC	1190 (888)	0.64	2.80
	PM	1190 (888)	0.83	3.65
	CO_2	1190 (888)	1377.56	6033.7
	CH_4	1190 (888)	0.55	2.41
	N_2O	1190 (888)	0.11	0.48

Table B-6: Controlled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating hp (kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
6	NO_X	1190 (888)	28.53	58.21
	CO	1190 (888)	8.00	16.33
	SO_2	1190 (888)	0.43	0.87
	VOC	1190 (888)	0.64	1.30
	PM	1190 (888)	0.83	1.70
	CO_2	1190 (888)	1377.56	2810.9
	CH_4	1190 (888)	0.55	1.13
	N_2O	1190 (888)	0.11	0.22

Estimates for 91.2 hp Portable RipRap Screen Plant Diesel-Fired Engine (NO_X, CO, SO_2, VOC, PM, and GHG)

A 91.2 horsepower (hp) engine (Unit 7) provides power to the portable riprap screen plant. Emission rates for NO_X, CO, PM and NMHC (10% of NO_X + NMHC) are based on EPA Tier 3 emission factors. Sulfur dioxide (SO_2) emissions are estimated based on sulfur content of diesel fuel, not to exceed 0.05% fuel content and a fuel usage rate of 5.0 gal/hr. GHG emission rates are found in EPA Emission Factors. Uncontrolled annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year. Controlled annual emissions in tons per year (tpy) were calculated assuming operation of 4081 hours per year.

EPA Tier 3:

Pollutant	Emission Factor (g/kW-hr)
Nitrogen Oxide (NO_X+NMHC)	4.70
Carbon Monoxides	5.00
Particulate	0.40
Hydrocarbons (10% of NO_X+NMHC)	0.47

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 5.0 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 500 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO_2).

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

$$\text{Emission Rate (lbs/hr)} = \frac{5 \text{ gallons}}{\text{hr}} \left| \frac{7.0 \text{ lbs}}{\text{gallon}} \right| \frac{0.0005 \text{ lbs Sulfur}}{\text{lbs of fuel}} \left| \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}} \right.$$

Emission Rate (lbs/hr) = 0.035 lbs/hr

Carbon Dioxide emissions were estimated using March 9, 2018 EPA Emission Factors for Greenhouse Gas Inventories:

CO_2 Emission Factor	10.21 kg/gal
CH_4 Emission Factor	0.41 g/gal
N_20 Emission Factor	0.08 g/gal

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

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

Table B-7: Pre-Controlled Combustion Emission Rates

Process Unit Number	Pollutant	Generator Rating (kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
7	NO_X	91.2 (68)	0.70	3.09
	CO	91.2 (68)	0.75	3.28
	SO_2	91.2 (68)	0.035	0.15
	VOC	91.2 (68)	0.070	0.31
	PM	91.2 (68)	0.060	0.26
	CO_2	91.2 (68)	112.55	493.0
	CH_4	91.2 (68)	0.045	0.20
	N_2O	91.2 (68)	0.009	0.039

Table B-8: Controlled Combustion Emission Rates

Process Unit Number	Pollutant	Generator Rating (kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
7	NO_X	91.2 (68)	0.70	1.44
	CO	91.2 (68)	0.75	1.53
	SO_2	91.2 (68)	0.035	0.071
	VOC	91.2 (68)	0.070	0.14
	PM	91.2 (68)	0.060	0.12
	CO_2	91.2 (68)	112.55	229.7
	CH_4	91.2 (68)	0.045	0.092
	N_2O	91.2 (68)	0.009	0.018

Table B-9 Summary of Uncontrolled NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals																
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$		
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	
1	Feeder/Jaw Crusher	-	-	-	-	-	-	-	-	2.53	11.08	1.16	5.07	0.18	0.77	
2	Vibrating Screen 1	-	-	-	-	-	-	-	-	10.00	43.80	3.48	15.24	0.53	2.31	
3	Rip Rap Plant	-	-	-	-	-	-	-	-	6.25	27.38	2.18	9.53	0.33	1.44	
4	Vibrating Screen 2	-	-	-	-	-	-	-	-	6.25	27.38	2.18	9.53	0.33	1.44	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18	
6	Plant Generator	28.53	124.95	8.00	35.05	0.43	1.88	0.64	2.80	0.83	3.65	0.83	3.65	0.83	3.65	
7	RipRap Engine	0.70	3.09	0.75	3.28	0.035	0.15	0.070	0.31	0.060	0.26	0.060	0.26	0.060	0.26	
10	Stacker to Pile	-	-	-	-	-	-	-	-	2.36	10.34	1.12	4.89	0.17	0.74	
11	Haul Road	-	-	-	-	-	-	-	-	134.2	491.0	34.2	125.1	3.42	12.6	
12	Cone Crusher	-	-	-	-	-	-	-	-	0.81	3.55	0.36	1.58	0.05	0.24	

Table B-9 Summary of Uncontrolled NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.75	3.29	0.28	1.20	0.042	0.18
14	Finish Material Storage Pile	-	-	-	-	-	-	-	-	2.36	10.34	1.12	4.89	0.17	0.74
15	Finish Pile to Truck Loading	-	-	-	-	-	-	-	-	2.36	10.34	1.12	4.89	0.17	0.74
16	Raw Pile Truck Unloading	-	-	-	-	-	-	-	-	2.36	10.34	1.12	4.89	0.17	0.74
	Total	**29.2**	**128.0**	**8.75**	**38.3**	**0.47**	**2.03**	**0.71**	**3.11**	**180.1**	**692.3**	**52.6**	**205.1**	**6.96**	**28.0**

Table B-10 Summary of Controlled NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1	Feeder/Jaw Crusher	-	-	-	-	-	-	-	-	1.48	1.92	0.69	0.90	0.11	0.14
2	Vibrating Screen 1	-	-	-	-	-	-	-	-	0.88	1.14	0.30	0.38	0.020	0.026
3	Rip Rap Plant	-	-	-	-	-	-	-	-	0.55	0.72	0.19	0.24	0.013	0.016
4	Vibrating Screen 2	-	-	-	-	-	-	-	-	0.55	0.72	0.19	0.24	0.013	0.016
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
5	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
6	Plant Generator	28.53	58.21	8.00	16.33	0.43	0.87	0.64	1.30	0.83	1.70	0.83	1.70	0.83	1.70
7	RipRap Engine	0.70	1.44	0.75	1.53	0.035	0.071	0.070	0.14	0.060	0.12	0.060	0.12	0.060	0.12
10	Stacker to Pile	-	-	-	-	-	-	-	-	1.42	1.84	0.67	0.87	0.10	0.13
11	Haul Road	-	-	-	-	-	-	-	-	13.42	7.29	3.42	1.86	0.34	0.19
12	Cone Crusher	-	-	-	-	-	-	-	-	0.18	0.23	0.081	0.11	0.015	0.020

Table B-10 Summary of Controlled NOx, CO, SO2, VOC, and PM Emission Rates

Uncontrolled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
13	Conveyor Transfer Point	-	-	-	-	-	-	-	-	0.035	0.046	0.012	0.015	0.0033	0.0042
14	Finish Material Storage Pile	-	-	-	-	-	-	-	-	2.36	3.07	1.12	1.45	0.17	0.22
15	Finish Pile to Truck Loading	-	-	-	-	-	-	-	-	2.36	3.07	1.12	1.45	0.17	0.22
16	Raw Pile Truck Unloading	-	-	-	-	-	-	-	-	2.36	3.07	1.12	1.45	0.17	0.22
	Total	**29.2**	**59.7**	**8.75**	**17.9**	**0.47**	**0.94**	**0.71**	**1.44**	**26.9**	**25.5**	**9.95**	**10.97**	**2.05**	**3.07**

Estimates for Federal HAPs Air Pollutants

The portable aggregate crushing plant engine (Unit 6) and portable riprap screen plant engine (Unit 7) are sources of HAPs as it appears in Section 112 (b) of the 1990 CAAA. Emissions of HAPs were determined for Units 6 and 7 generator/engines using manufacturer's emission data for Unit 6 and EPA Tier 3 emission factors for Unit 7.

The following tables summarize the HAPs emission rates from the portable aggregate crushing plant engine and portable riprap screen plant engine. Total combined HAPs emissions from Aggregate Plants is 0.055 pounds per hour and 0.0087 tons per year.

Table B-11: HAPs Emission Rates from the Portable Aggregate Crushing Plant Generator (6)

Horsepower Rating:	1190	horsepower	
Fuel Usage:	61.2	gallons/hr	
MMBtu/hr:	7.8336	Btu	(based on 128000 Btu/gallon)
Btu x 10^-12/hr:	7.8336E-06	Btu x10^-12	(based on 128000 Btu/gallon)
Yearly Operating Hours:	4081	hours per year	

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

Non-PAH HAPS	CAS#		Emission Factor (lbs/MMBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0		7.67E-04	0.006008	0.012260
Acrolein	107-02-8		9.25E-05	0.000725	0.001479
Benzene	71-43-2		9.33E-04	0.007309	0.014914
1,3-Butadiene	106-99-0		3.91E-05	0.000306	0.000625
Formaldehyde	50-00-0		1.18E-03	0.009244	0.018862
Propylene	115-07-1		2.58E-03	0.020211	0.041240
Toluene	108-88-3		4.09E-04	0.003204	0.006538
Xylene	1330-20-7		2.85E-04	0.002233	0.004556
		Total Non-PAH HAPS	6.29E-03	0.049239	0.100472

PAH HAPS	CAS#		Emission Factor (lbs/MMBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9		1.42E-06	0.000011	0.000023
Acenaphthylene	208-96-8		5.06E-06	0.000040	0.000081
Anthracene	120-12-7		1.87E-06	0.000015	0.000030
Benzo(a)anthracene	56-55-3		1.68E-06	0.000013	0.000027
Benzo(a)pyrene	50-32-8		1.88E-07	0.000001	0.000003
Benzo(b)fluoranthene	205-99-2		9.91E-08	0.000001	0.000002
Benzo(a)pyrene	192-97-2		1.55E-07	0.000001	0.000002
Benzo(g,h,I)perylene	191-24-2		4.89E-07	0.000004	0.000008
Benzo(k)fluoranthene	207-08-9		1.55E-07	0.000001	0.000002
Dibenz(a,h)anthracene			5.83E-07	0.000005	0.000009
Chrysene	218-01-9		3.53E-07	0.000003	0.000006
Fluoranthene	206-44-0		7.61E-06	0.000060	0.000122
Fluorene	86-73-7		2.92E-05	0.000229	0.000467
Indeno(1,2,3-cd)pyrene	193-39-5		3.75E-07	0.000003	0.000006
Naphthalene	91-20-3		8.48E-05	0.000664	0.001355
Phenanthrene	85-01-8		2.94E-05	0.000230	0.000470
Pyrene	129-00-0		4.78E-06	0.000037	0.000076
		Total PAH HAPS	1.68E-04	0.001318	0.002689

HAPS Metals		Emission Factor (lbs/Btu^12)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		4	0.000031	0.000064
Beryllium		3	0.000024	0.000048
Cadmium		3	0.000024	0.000048
Chromium		3	0.000024	0.000048
Lead		9	0.000071	0.000144
Manganese		6	0.000047	0.000096
Mercury		3	0.000024	0.000048
Nickel		3	0.000024	0.000048
Selenium		15	0.000118	0.000240
	Total Metals HAPS	49	0.000384	0.000783
	Total HAPS		**0.05094**	**0.00803**

Table B-12: HAPs Emission Rates from the Portable RipRap Plant Engine (7)

Horsepower Rating:	91.2	horsepower	
Fuel Usage:	5	gallons/hr	
MMBtu/hr:	0.64	Btu	(based on 128000 Btu/gallon)
Btu x 10^-12/hr:	0.00000064	Btu x10^-12	(based on 128000 Btu/gallon)
Yearly Operating Hours:	4081	hours per year	

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

Non-PAH HAPS	CAS#	Emission Factor (lbs/MMBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acetaldehyde	75-07-0	7.67E-04	0.000491	0.001002
Acrolein	107-02-8	9.25E-05	0.000059	0.000121
Benzene	71-43-2	9.33E-04	0.000597	0.001218
1,3-Butadiene	106-99-0	3.91E-05	0.000025	0.000051
Formaldehyde	50-00-0	1.18E-03	0.000755	0.001541
Propylene	115-07-1	2.58E-03	0.001651	0.003369
Toluene	108-88-3	4.09E-04	0.000262	0.000534
Xylene	1330-20-7	2.85E-04	0.000182	0.000372
	Total Non-PAH HAPS	6.29E-03	0.004023	0.008208

PAH HAPS	CAS#	Emission Factor (lbs/MMBtu)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Acenaphthene	83-32-9	1.42E-06	0.000001	0.000002
Acenaphthylene	208-96-8	5.06E-06	0.000003	0.000007
Anthracene	120-12-7	1.87E-06	0.000001	0.000002
Benzo(a)anthracene	56-55-3	1.68E-06	0.000001	0.000002
Benzo(a)pyrene	50-32-8	1.88E-07	0.000000	0.000000
Benzo(b)fluoranthene	205-99-2	9.91E-08	0.000000	0.000000
Benzo(a)pyrene	192-97-2	1.55E-07	0.000000	0.000000
Benzo(g,h,I)perylene	191-24-2	4.89E-07	0.000000	0.000001
Benzo(k)fluoranthene	207-08-9	1.55E-07	0.000000	0.000000
Dibenz(a,h)anthracene		5.83E-07	0.000000	0.000001
Chrysene	218-01-9	3.53E-07	0.000000	0.000000
Fluoranthene	206-44-0	7.61E-06	0.000005	0.000010
Fluorene	86-73-7	2.92E-05	0.000019	0.000038
Indeno(1,2,3-cd)pyrene	193-39-5	3.75E-07	0.000000	0.000000
Naphthalene	91-20-3	8.48E-05	0.000054	0.000111
Phenanthrene	85-01-8	2.94E-05	0.000019	0.000038
Pyrene	129-00-0	4.78E-06	0.000003	0.000006
	Total PAH HAPS	1.68E-04	0.000108	0.000220

HAPS Metals		Emission Factor (lbs/Btu^12)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		4	0.000003	0.000005
Beryllium		3	0.000002	0.000004
Cadmium		3	0.000002	0.000004
Chromium		3	0.000002	0.000004
Lead		9	0.000006	0.000012
Manganese		6	0.000004	0.000008
Mercury		3	0.000002	0.000004
Nickel		3	0.000002	0.000004
Selenium		15	0.000010	0.000020
	Total Metals HAPS	49	0.000031	0.000064
	Total HAPS		**0.00416**	**0.00066**

Attachment C
Emission Calculations Supporting Documents

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.

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 Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

m. References 1, 3, 7, 8, and 15

n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing

o. References 2, 3, 7, 8

p. References 2, 3, 7, 8, and 15

q. Reference 15

r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2

s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

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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.

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;

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

Caterpillar Engine Emissions Data

Serial Number (Engine)	**44619797**
Sales Model	C4.4
Build Date	November 3, 2014
Engine Arrangement Number	435-3721
Regulatory Status	EPA Flex
EPA Family Code	BPKXL04.4NL1
EPA Emissions Level	Tier 3
CORR FL Power at RPM	91.2 HP at 2200 RPM/T2979
Total Displacement	4.4L

	CO	HC	NOx + HC	PM
g/kW.h	1.213	0.183	3.313	0.248

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF TRANSPORTATION AND AIR QUALITY
WASHINGTON, DC 20460

CERTIFICATE OF CONFORMITY
2011 MODEL YEAR

Manufacturer:	**PERKINS ENGINES CO. LTD.**
Engine Family:	**BPKXL04.4NL1**
Certificate Number:	**PKX-NRCI-11-01**
Intended Service Class:	**NR 4 (37-75)**
Fuel Type:	**DIESEL**
FELs:	NMHC + NOx: **N/A** NOx: **N/A** PM: **N/A**
Effective Date:	**9/16/2010**
Date Issued:	**9/16/2010**

Karl J. Simon, Director
Compliance and Innovative

California Environmental Protection Agency AIR RESOURCES BOARD	PERKINS ENGINES COMPANY LTD.	EXECUTIVE ORDER U-R-022-0161 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2011	BPKXL04.4NL1	4.4	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Mechanical Direct Injection, Turbocharger, Smoke Puff Limiter	Crane, Loader, Tractor, Dozer, Pump, Compressor, Generator Set, Other Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
37 ≤ kW < 56	Tier 3	STD	N/A	N/A	4.7	5.0	0.40	20	15	50
56 ≤ kW < 75	Tier 3	STD	N/A	N/A	4.7	5.0	0.40	20	15	50
		CERT	--	--	4.6	1.0	0.34	18	2	25

BE IT FURTHER RESOLVED: That certification to the standards in 13 CCR 2423(b)(1)(B) -Table 1b listed above has been permitted pursuant to Endnote 3 of the same table.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations

Nonroad Compression-Ignition Engines: Exhaust Emission Standards

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

Continued

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

Notes on following page.

Notes:

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

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

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

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

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

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

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

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

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

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

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

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

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

Citations: Code of Federal Regulations (CFR) citations:

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

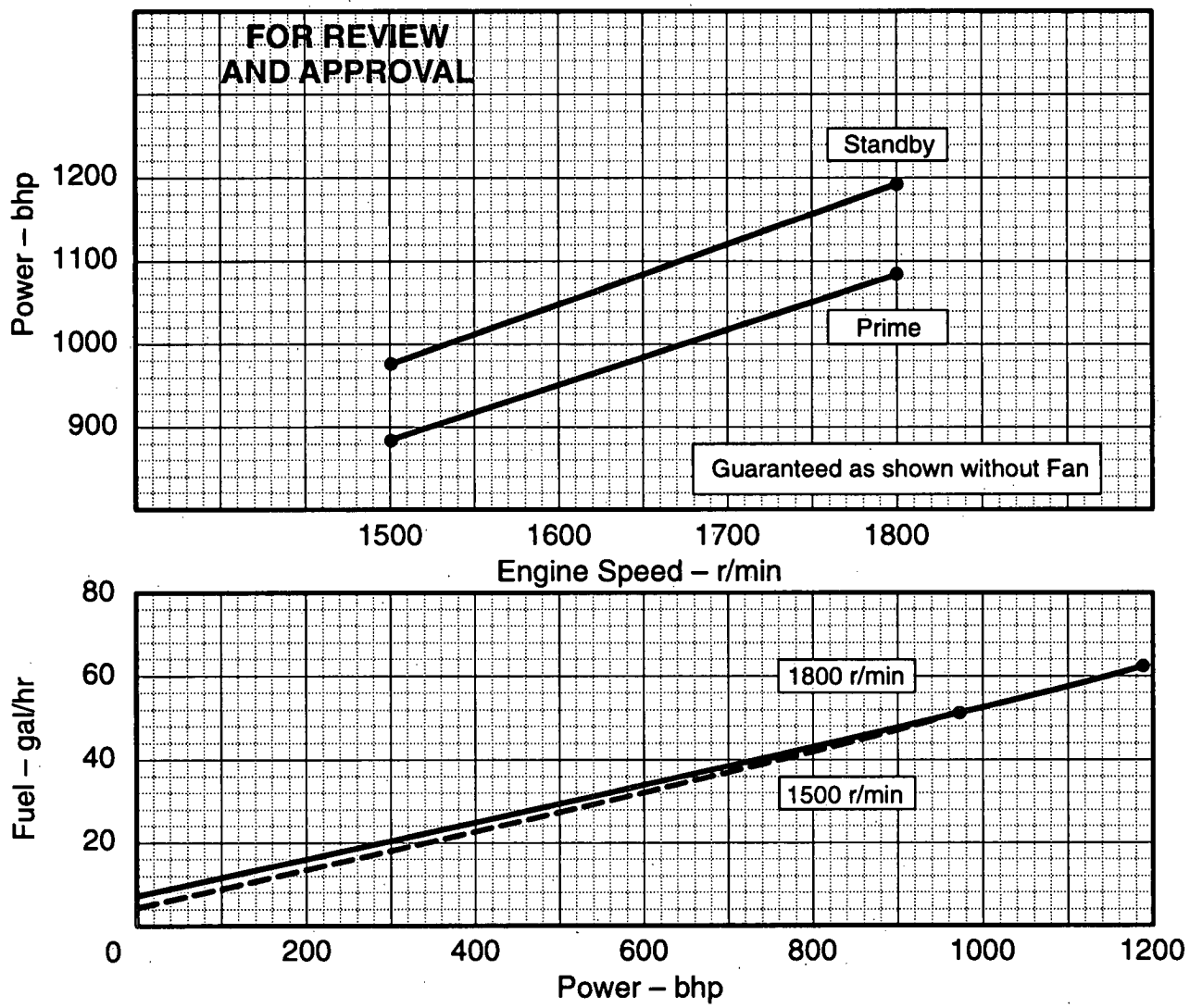
DETROIT DIESEL

Generator Set Power

Model: 16V–92TA

Standby Rating:
1190 bhp (888 kW) @ 1800 r/min
974 bhp (727 kW) @ 1500 r/min

Prime Rating:
1082 bhp (807 kW) @ 1800 r/min
885 bhp (660 kW) @ 1500 r/min



Rated power output shown represents engine performance capabilities at ambient conditions equivalent to ISO'3046, BS 5514: 100 kPa total barometric pressure, 25°C air inlet, 30% relative humidity.
Curves also represent capabilities at the following ambient conditions:
DIN 6270: 736 torr barometric pressure, 20°C air inlet, 60% relative humidity
JIS D1005–1976: 760 mm Hg barometric pressure, 20°C air inlet, 11.4 mm Hg vapor pressure.
Fuel consumption data is based on diesel fuel no. 2 with a fuel weight of 7.11 lb/US gal (.85 kg/L) . Fuel heating value is 18370 Btu/lb (1.02 kcal/g).
Performance is based on minimum intake and exhaust restrictions.

Conversion Factors:
Power: kW = bhp x 0.746
Fuel: L/hr = gal/hr x 3.785

Turbo: TV9406 (1.32 A/R)
Injector: 5905

Certified by: _____

Curve No. E4–8165–32–13
Rev./Date: 6 / 3–13–97
Sheet No. 1 of 5

Performance Curve

GENERATOR SPECIFICATION SHEET

STANDBY ISO POWER – 1800 r/min

General Data

Model	8163–7416
Number of Cylinders	16
Bore and Stroke – in. x in. (mm x mm)	4.84 x 5.00 (123 x 127)
Displacement – $in.^3$ (L)	1472 (24.14)
Compression Ratio	15.0:1
Piston Speed – ft/min (m/min)	1500 (457)
Exhaust Valves Per Cylinder	4
Combustion System	DIRECT INJECTION
Engine Type	63.5 Deg Vee 2 CYCLE
Aspiration	TURBOCHARGED

Configuration

Injection Device	MUI
Turbocharger	TV9406–1.32
Charge Air Cooling System	JWAC
Blower Type	BYPASS
Blower Drive Ratio	2.60:1
Engine Crankcase Vent System	OPEN

Physical Data

Size:	
Length – in. (mm)	79.6 (2022)
Width – in. (mm)	46.3 (1176)
Height – in. (mm)	59.0 (1499)
Weight, dry – lb (kg)	4840 (2195)
Weight, wet – lb (kg)	5093 (2310)
Center of Gravity Distance:	
From R. F. O. B. (x axis) – in. (mm)	28.0 (711.2)
Above Crankshaft (y axis) – in. (mm)	8.0 (203)
Right of Crankshaft (z axis) – in. (mm)	0.3 (7.6)
Installation Drawing	23505262

Mechanical Data

Thrust Bearing Load Limit, Continuous – lb (N)	600 (2669)
Thrust Bearing Load Limit, Intermittent – lb (N)	1800 (8007)
Maximum Static Bending Moment at Rear Face of Block – lb-ft (N-m)	0
Maximum Vertical Load at Rear Face of Flywheel – lb (N)	1180 (5249)
Additional Mechanical Data	E4–8000–00–2

Fuel System

Fuel Injector	5905
Injection Timing Height	1.508
Fuel Consumption – lb/hr (kg/hr)	440.3 (199.7)
Fuel Consumption – gal/hr (L/hr)	61.9 (234.3)
Fuel Spill – lb/hr (kg/hr)	791.5 (360.4)
Fuel Spill – gal/hr (L/hr)	111.3 (423.3)
Total Fuel Flow – lb/hr (kg/hr)	1231.8 (558.7)
Total Fuel Flow – gal/hr (L/hr)	173.2 (655.8)
Maximum Fuel Inlet Temperature – °F (°C)	140 (60)
Maximum Fuel Pump Suction:	
Clean System – in. Hg (kPa)	6 (20)
Dirty System – in. Hg (kPa)	12 (41)
Fuel Filter Size, Primary – microns	30
Fuel Filter Size, Secondary – microns	12

Lubrication System

Oil Pressure at Rated Speed – $lb/in.^2$ (kPa)	49–70 (338–483)
Oil Pressure at Low Idle Speed – $lb/in.^2$ (kPa)	5 (34)
Maximum In Pan Oil Temperature – °F (°C)	200–250 (93–121)
Oil Flow – gal/min (L/min)	75 (284)
Oil Pan:	
High Limit – qt (L)	65 (61.5)
Low Limit – qt (L)	55 (52.0)
Total Engine Oil Capacity With Filters – qt (L)	67 (63.4)
Bypass Oil Filter Orifice – in. (mm)	0.125 (3.18)
Engine Angularity Limits, Front Up – degrees	20
Engine Angularity Limits, Front Down – degrees	20
Engine Angularity Limits, Side Tilt – degrees	Not Available

Electrical System

Recommended Battery Capacity (CCA @ 0°F):	
12 Volt System, Above 32 deg F	Not Recommended
12 Volt System, Below 32 deg F	Not Recommended
24 Volt System Above 32 deg F	950 / Starter
24 Volt System Below 32 deg F	1250 / Starter
Maximum Resistance of Starting Circuit:	
12 Volt System – ohms	Not Recommended
24 Volt System – ohms	0.002 / Starter

Cooling System

Engine Heat Rejection to Coolant – Btu/min (kW)	36890 (648.5)
Engine Radiated Heat – Btu/min (kW)	4910 (86.3)
Generator Radiated Heat – Btu/min (kW)	2725 (49.9)
Coolant Flow – gal/min (L/min)	287 (1086)
Minimum Coolant Flow – gal/min (L/min)	258 (978)
Thermostat:	Full–Blocking
Start to Open – °F (°C)	177 (81)
Fully Open – °F (°C)	197 (92)
Maximum Water Pump Inlet Restriction:	
Conventional Radiator – in. Hg (kPa)	3.0 (10.1)
Engine Coolant Capacity – qt (L)	60 (56.8)
Minimum Pressure Cap – $lb/in.^2$ (kPa)	9 (62.1)
Maximum Coolant Pressure (Exclusive of Pressure Cap) – $lb/in.^2$ (kPa)	13 (89.6)
Maximum Top Tank Temperature – °F (°C)	210 (99)
Minimum Top Tank Temperature – °F (°C)	160 (71)
Minimum Coolant Fill Rate – gal/min (L/min)	3.0 (11.4)
Deaeration, Air Injection Capacity – ft^3/min (m^3/min)	1.6 (0.045)
Minimum Drawdown Requirement – qt (L)	6.0 (5.7)
Deaeration Time – min.	30

Air System

Maximum Ambient to Turbo Compressor Inlet Temperature Rise – °F (°C)	30 (16.7)
Maximum Air Intake Restriction:	
Clean Air Cleaner – in. H_2O (kPa)	8.7 (2.2)
Dirty Air Cleaner – in. H_2O (kPa)	14.4 (3.6)
Engine Air Flow – ft^3/min (m^3/min)	3510 (99.4)
Fan Air Flow – ft^3/min (m^3/min)	48800 (1382.0)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	57.5 (194.7)
Recommended Intake Pipe Outer Diameter	
Single – in. (mm)	10 (254)
Double – in. (mm)	8 (203)
Maximum Crankcase Pressure – in. H_2O (kPa)	2.6 (0.65)

Exhaust System

Exhaust Flow – ft^3/min (m^3/min)	8260 (233.9)
Exhaust Temperature – °F (°C)	780 (416)
Maximum Back Pressure – in. Hg (kPa)	2.0 (6.8)
Recommended Exhaust Pipe Outer Diameter:	
Single – in. (mm)	10 (254)
Dual – in. (mm)	8 (203)

Performance Data

Rated Power – bhp (kW)	1190 (888)
Rated Speed – r/min	1800
BMEP – $lb/in.^2$ (kPa)	177.9 (1227)
Friction Power – fhp (kW)	154 (114.9)
Altitude Capability – ft (m)	10000 (3048)

Part Load Fuel Consumption

Fuel – gal/hr (L/hr) – 0% Power	7.40 (28.01)
25% Power	20.6 (78.0)
50% Power	33.5 (126.8)
75% Power	46.8 (177.2)
100% Power	61.9 (234.3)

Emissions Data

Noise – dB(A) @ 1m	100
Additional Noise Data	Not Available
Smoke – Bosch Number	0.5

Load	0%	25%	50%	75%	100%
NO_x – g/hr	550	2805	5715	9895	12940
CO – g/hr	480	285	415	1080	3630
HC – g/hr	262	265	289	290	169
SO_2 – g/hr	239	664	1080	1510	2000

All values are at rated speed and power at ISO 3046 with standard engine hardware, unless otherwise noted.

FOR REVIEW AND APPROVAL

Curve No.: E4–8165–32–13
Rev./ Date: 6 / 3–13–97
Sheet No.: 2 of 5

Attachment D
Aerial Map

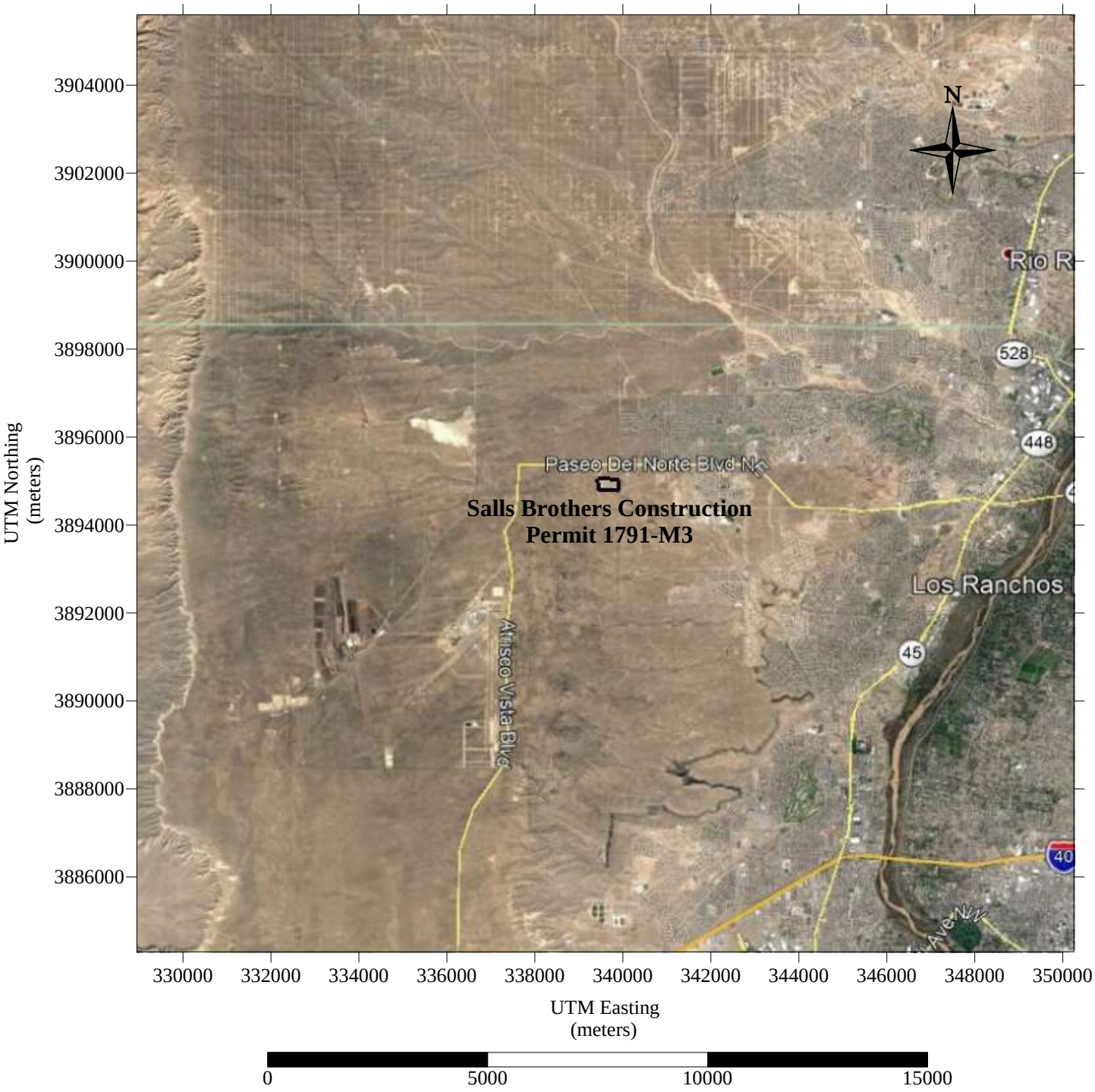


Figure D-1: Aerial Map Showing Site Location and Surrounding Terrain

Attachment E
Facility Process Description

Facility Process Description

The Salls Brothers Construction's Aggregate Plant presently includes a feeder/primary jaw crusher, a 6' x 20' three deck screen, a 6' x 16' three deck screen, a portable riprap screen plant, thirteen (13) conveyor and stacker belts, stacker material storage piles, finish material storage piles, and haul truck loading. The portable aggregate plant is powered by one (1) diesel-fired generator and one (1) diesel-fired engine for the portable riprap screen plant. The plant diesel-fired generator is a powered by a Detroit 1190 horsepower diesel-fired engine. Unit 3, portable riprap screen plant, is powered by a CAT 91.2 horsepower diesel-fired engine. The throughput for each plant, portable aggregate plant and portable riprap screen plant, is 250 tons per hour (TPH) and a limit of annual throughput to 650,000 tons per year.

Salls Brothers is requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Raw recycle/aggregate is delivered to the site in haul trucks on unpaved roads (Unit 11) and unloaded to raw material storage pile (Unit 16). The raw material is then loaded into the feeder/primary jaw crusher (Unit 1) at a rate of 250 tph. From the feeder, the aggregate material will be dropped into the primary jaw crusher. The crushed aggregate will be dropped from the crusher onto a conveyor and sent the 6' x 20' three deck screen (Unit 2), where material is sent to one of two storage pile, or sent to the 6' x 16' three deck screen (Unit 4). Oversized material at Unit 4 is sent to the secondary crusher (Unit 12) at 150 TPH for further processing. From the secondary crusher (Unit 12), processed material is recycled back to the 6' x 20' three deck screen (Unit 2). From the 6' x 16' three deck screen (Unit 4), material is sent to one of four storage pile. Water sprays are located on the primary jaw crusher (Unit 1), 6' x 20' three deck screen (Unit 2), 6' x 16' three deck screen (Unit 4), and secondary crusher (Unit 12). Moisture carryover controls emissions at conveyor transfer points and storage pile loading. Finish material is stored in finish storage piles (Unit 14) until loaded into haul trucks (Unit 15) to be transported on unpaved roads (Unit 11).

The Unit 3 portable riprap screen plant (250 tph) is located north of the main plant. Material will be feed into the RipRap plant and sized then conveyed by conveyor to two separate piles. Material feed into the RipRap plant will be wetted prior to screening to control fugitive emissions. Finish material is stored in finish storage piles (Unit 14) until loaded into haul trucks (Unit 15) to be transported on unpaved roads (Unit 11).

A process flow diagram is presented as Figure A-1.

Attachment F

Regulatory Applicability Determinations

The following is a list of city and federal regulations that may or may not be applicable to Salls Brothers.

Albuquerque/Bernalillo County Regulations

20.11.1 NMAC– General Provisions: Applicable to Salls Brothers

Requirement: Compliance with ambient air quality standards.

Compliance: Compliance with 20.11.8 NMAC is compliance with this regulation.

20.11.2 NMAC– Permit Fees: Applicable to Salls Brothers

Requirement: A one-time permit application fee will be assessed by the Albuquerque/Bernalillo County Environmental Department.

Compliance: Salls Brothers will pay all required permit revision application fees applicable to their facility.

20.11.5 NMAC– Visible Air Contaminants: Applicable to Salls Brothers

Requirement: Places limits of 20 percent opacity on stationary combustion equipment.

Compliance: Salls Brothers will perform any required opacity observations for the portable aggregate/riprap plant engines using Method 9 and/or Method 22 with certified opacity observers.

20.11.8 NMAC– Ambient Air Quality Standards: Applicable to Salls Brothers

Requirement: Compliance with state and federal ambient air quality standards.

Compliance: Salls Brothers' portable aggregate/riprap plants demonstrated compliance by performing and submitting dispersion modeling analysis for applicable pollutants per Albuquerque/ Bernalillo County and New Mexico State Environmental Department's modeling guidelines.

20.11.41 NMAC– Authority to Construct: Applicable to Salls Brothers

Requirement: Requires the facility to obtain a permit prior to start of construction.

Compliance: Salls Brothers is applying for a new 20.11.41 NMAC permit with this application.

20.11.49 NMAC– Excess Emissions: Applicable to Salls Brothers

Requirement: To implement requirements for the reporting of excess emissions and establish affirmative defense provisions for facility owners and operators for excess emissions.

Compliance: Salls Brothers will report all excess emissions following 20.11.49 NMAC guidelines.

20.11.63 NMAC– New Source Performance Standards: Applicable to Salls Brothers

Requirement: Adoption of all federal 40 CFR Part 60 new source performance standards.

Compliance: 40 CFR Part 60 NSPS Subparts OOO and IIII has been identified for this permit application.

The aggregate handling equipment from unloading the initial feed bin to stacker conveyors are applicable to 40 CFR Part 60 NSPS Subpart OOO. Initial 40 CFR Part 60 NSPS Subpart OOO opacity testing will be completed following 40 CFR Part 60 NSPS Subpart A and OOO requirements.

The plant engines are portable and will not be located more than 12 months at the initial site. Under these conditions the engine is a "non-road" engine, not stationary source, so they are exempt under Subpart IIII. If the engine is located at one site for more than 12 consecutive months or seasonally, it would become applicable to Subpart IIII.

20.11.64 NMAC– Emission Standards for Hazardous Air Pollutants for Stationary Sources: Not Applicable to Salls Brothers at this time

Requirement: Adoption of all federal 40 CFR Part 61 and 63 National Emissions Standards for Hazardous Air Pollutants (HAPS).

Compliance: 40 CFR Part 63 NSPS Subpart ZZZZ has been identified for this permit application.

The engines are portable and will not be located more than 12 months at the initial site. Under these conditions the engine is a "non-road" engine, not stationary source, so they are exempt under Subpart ZZZZ. If the engine is located at one site for more than 12 consecutive months or seasonally, it would become applicable to Subpart ZZZZ.

20.11.66 NMAC– Process Equipment: Applicable to Salls Brothers

Requirement: The objective of this Part is to achieve attainment of regulatory air pollution standards and to minimize air pollution emissions.

Compliance: Except as otherwise provided in this section, Salls Brothers shall not cause or allow the emission of particulate matter to the atmosphere from process equipment in any one hour in total quantities in excess of the amount shown in 20.11.66.18 NMAC Table 1.

20.11.67 NMAC–Equipment, Emissions, Limitations: Not Applicable to Salls Brothers

Requirement: To prevent equipment covered by this Part from being constructed, placed, maintained, altered, used, or operated unless the equipment meets the applicable emission limitations established by 20.11.67 NMAC.

Compliance: No stationary source for Orchard Heaters; Kraft Mills; Coal, Oil, or Gas Burning Equipment is located on site.

20.11.90 NMAC– Administration, Enforcement, Inspection: Applicable to Salls Brothers

Requirement: General requirement on record keeping and data submission. Salls Brothers will notify the bureau regarding periods of excess emissions along with cause of the excess and actions taken to minimize duration and recurrence.

Compliance: It is expected that specific record keeping and data submission requirements will be specified in the 20.11.41 NMAC permit issued to Salls Brothers. It is expected the 20.11.41 NMAC permit issued to Salls Brothers will contain specific methods for determining compliance with each specific emission limitation. Salls Brothers' portable aggregate/riprap plants will report any periods of excess emissions as required by specific 20.11.90 NMAC provisions.

Federal Regulations

40 CFR 50 – National Ambient Air Quality Standards: Applicable to Salls Brothers

Requirement: Compliance with federal ambient air quality standards.

Compliance: Salls Brothers' portable aggregate/riprap plants demonstrated compliance by performing and submitting dispersion modeling analysis for applicable pollutants per Albuquerque/ Bernalillo County and New Mexico State Environmental Department's modeling guidelines in the original and revised permit applications. For this revision the department has waived modeling analysis due to the size of the additional units' emissions.

40 CFR 60 Dc – NSPS Standards of Performance for Small Industrial-Commercial-Institutional Stream Generating Units: Not Applicable to Salls Brothers

Requirement: For any affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 million Btu per hour of less, but greater than or equal to 10 million Btu per hour. A steam generating unit is defined as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium.

Compliance: No hot water boiler is proposed for this emergency permit.

40 CFR 60 OOO – NSPS Standards of Performance for Aggregate Facilities: Applicable to Salls Brothers

Requirement: No facility will discharge or cause to discharge gases containing particulate matter in excess of 0.05 gr/dscm from any stack. No facility will discharge or cause to discharge from any transfer point on belt conveyors or screen exhibiting opacities greater than 7 percent. No facility will discharge or cause to discharge from any crusher exhibiting opacities greater than 12 percent.

Compliance: Salls Brothers' portable aggregate plant will perform any required opacity observations using Method 9 and/or Method 22 with certified opacity observers.

40 CFR 60 IIII – NSPS Standards of Performance for Stationary Compression Ignition Internal Combustion Engine: Not Applicable to Salls Brothers at this time

Requirement: The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE).

Compliance: The engine is portable and will not be located more than 12 months at the initial site. Under these conditions the engine is a "non-road" engine, not stationary source, so they are exempt under Subpart IIII. If the engine is located at one site for more than 12 consecutive months or seasonally, it would become applicable to Subpart IIII.

40 CFR 63 *ZZZZ* – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: Not Applicable to Salls Brothers at this time

Requirement: Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

Compliance: The engine is portable and will not be located more than 12 months at the initial site. Under these conditions the engine is a "non-road" engine, not stationary source, so they are exempt under Subpart ZZZZ. If the engine is located at one site for more than 12 consecutive months or seasonally, it would become applicable to Subpart ZZZZ.

Attachment G
Dispersion Modeling Report

DISPERSION MODEL REPORT
FOR SALLS BROTHERS CONSTRUCTION, INC,
ALBUQUERQUE ROCK
SIGNIFICANT PERMIT MODIFICATION
for PERMIT 1791-M2

Albuquerque, New Mexico

PREPARED FOR
SALLS BROTHERS, INC.

November 9, 2020

Prepared by

Montrose Air Quality Services, LLC

MONTROSE
AIR QUALITY SERVICES

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1.0 INTRODUCTION

This dispersion modeling analysis will be conducted by Montrose Air Quality Service, LLC (Montrose) on behalf of Salls Brothers, Inc., to evaluate ambient air quality impacts for the significant permit modification of their Albuquerque Rock – Portable 250 tph Aggregate Crushing and 250 tph RipRap Plants operating under Permit #1791-M2 to be located south of Paseo Del Norte Blvd NW in Section 17, Township 11N, and Range 2E. The UTM coordinates is approximately 339,600E, 3,894,950N, Zone 13, NAD 83. With this permit modification, Salls Brothers, Inc. is requesting the replacement of the two engines presently allowed in the permit with larger horsepower engines. Additionally, Salls Brothers will include additional sources involved with material handling at finish material storage piles and finish material truck loading. All material handling emission rate are updated to the latest applicable EPA AP-42 emission factors. The objective of this evaluation is to determine whether ambient air concentrations from the maximum operation of the facility for nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter; 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQS) found in 40 CFR part 50 and the City of Albuquerque Environmental Health Department (AEHD) air quality regulation 20.11.8 NMAC.

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), Version 19191. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD will be used to estimate pollutant ambient air concentrations of NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ from the Salls Brothers aggregate plant emission sources. Montrose employs the general modeling procedures outlined in "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 10/10/2019, "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 01/01/2019, and the most up to date EPA's *Guideline on Air Quality Models*.

Figure 1 below shows the location of the site and proposed equipment site layout. Figure 2 presents the plant process flow diagram.

Aggregate plant material handling equipment, stockpiles, and haul roads will be input into the model as volume sources. Exhaust stack sources will be input into the model as point sources. Model input parameters for feeders, screens, crushers, and transfer points will follow the NMED model guidelines Table 27. Model input parameters for haul roads will follow the NMED model guidelines Tables 28 and 29. Model input parameters for storage piles will be based on site conditions and AERMOD volume source methodologies.

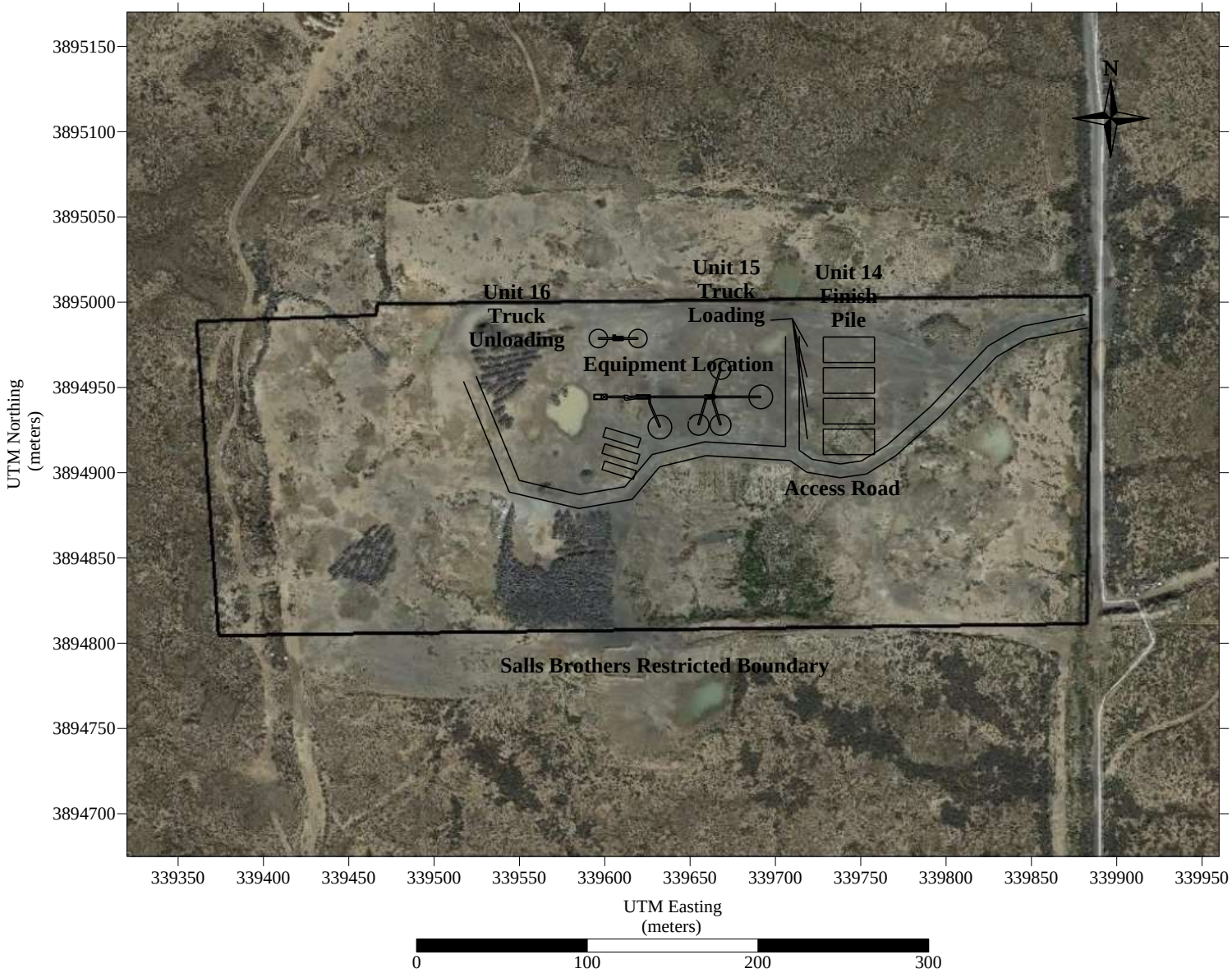


FIGURE 1: Salls Brothers, Inc's Aggregate Plant Site Layout

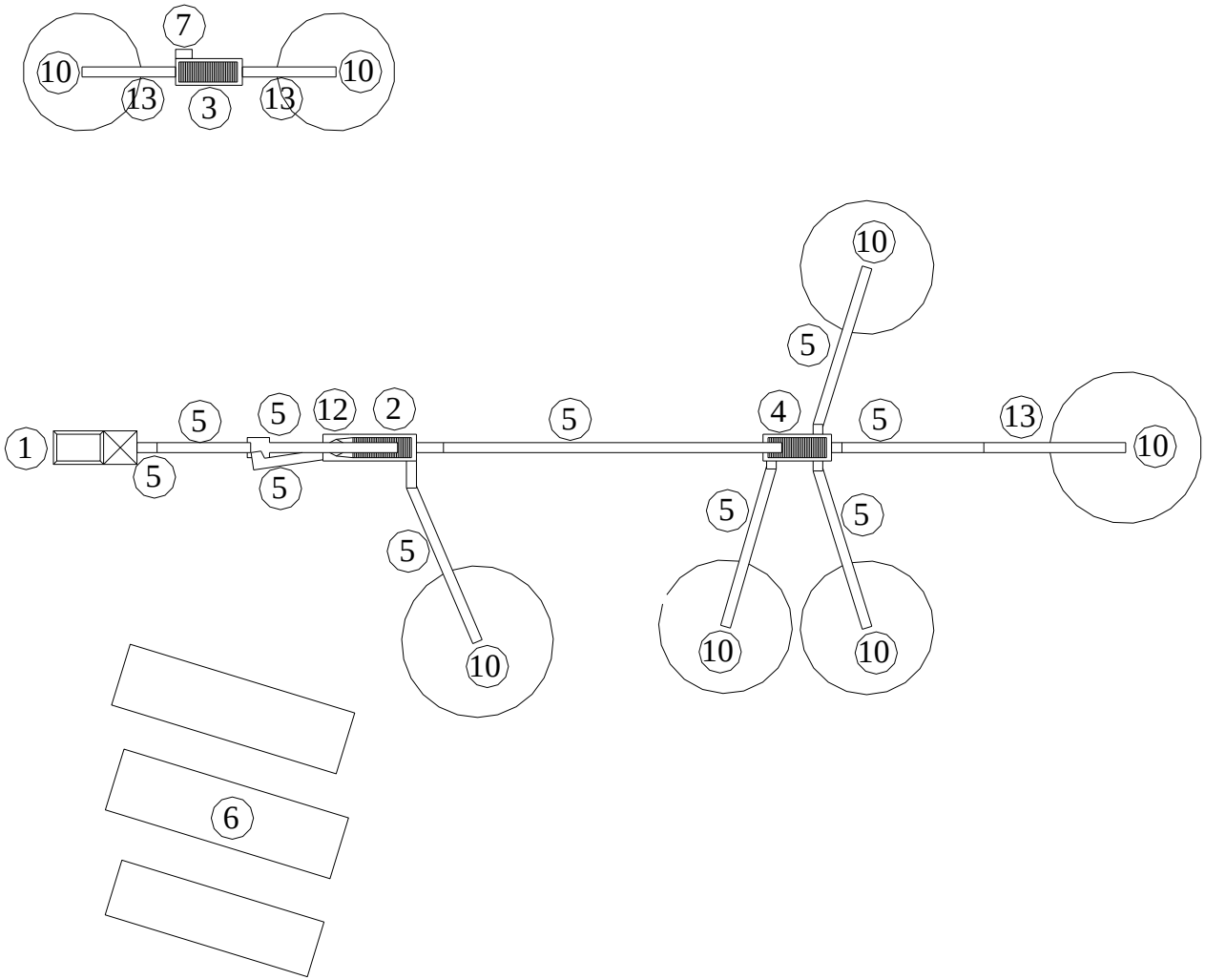


FIGURE 2: Salls Brothers, Inc's Aggregate Plant Equipment Process Flow

2.0 DISPERSION MODELING PROTOCOL

This section identifies the technical approach and dispersion model inputs that will be used for the Class II federal and State ambient air quality standards for this source. AEHD AQP requires that all applicable criteria pollutant emissions be modeled using the most recent versions of US EPA's approved models and be compared with National Ambient Air Quality Standards (NAAQS), and New Mexico Ambient Air Quality Standards (NMAAQS). Table 1 shows the NAAQS and NMAAQS that the source's ambient impacts must meet in order to demonstrate compliance. Table 1 also lists the Class II Significant Impact Levels (SILs) which are used to assess whether a source has a significant impact at downwind receptors.

The dispersion modeling analysis will be performed to estimate concentrations resulting from the operation of the Salls Brothers Aggregate Plants using the maximum hourly emission rates while all emission sources are operating. With this permit modification, Salls Brothers, Inc. is requesting replacement of the two engines presently allowed in the permit with larger horsepower engines. In addition, Salls Brothers has included additional sources involved with material handling at finish material storage piles and finish material truck loading. All material handling emission rate are updated to the latest applicable emission factors. The objective of this evaluation is to determine whether ambient air concentrations from the maximum operation of the facility for nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter; 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQS) found in 40 CFR part 50 and the City of Albuquerque Environmental Health Department (AEHD) air quality regulation 20.11.8 NMAC. The modeling will follow the guidance and protocols outlined in the "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 10/10/2019, "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 01/01/2019, and the most up to date EPA's *Guideline on Air Quality Models*.

Initial modeling will be performed with Salls Brothers Aggregate Plant sources only to determine pollutant and averaging periods that exceeds pollutant SILs. If initial modeling for any pollutant and averaging period exceeds SILs, then cumulative modeling will be performed for those pollutants and averaging periods that exceeds the SILs and will include applicable ambient background concentrations.

TABLE 1: National and New Mexico Ambient Air Quality Standard Summary

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

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

2.1 DISPERSION MODEL SELECTION

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), Version 19191. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD will be used to estimate pollutant ambient air concentrations of NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ from the Salls Brothers aggregate plant emission sources.

AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principles for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function

and the superposition of several Gaussian plumes. AERMOD modeling system has three components: AERMAP, AERMET, and AERMOD. AERMAP is the terrain preprocessor program. AERMET is the meteorological data preprocessor. AERMOD includes the dispersion modeling algorithms and was developed to handle simple and complex terrain issues using improved algorithms. AERMOD uses the dividing streamline concept to address plume interactions with elevated terrain.

AERMOD will be run using all the regulatory default options including use of:

- Gradual Plume Rise
- Stack-tip Downwash
- Buoyancy-induced Dispersion
- Calms and Missing Data Processing Routine
- Upper-bound downwash concentrations for super-squat buildings
- Default wind speed profile exponents
- Calculate Vertical Potential Temperature Gradient
- No use of gradual plume rise
- Rural Dispersion

2.2 BUILDING WAKE EFFECTS

No buildings are located at the site. No building downwash will be used in the modeling analysis.

2.3 METEOROLOGICAL DATA

Dispersion model meteorological input file to be used in this modeling analysis are years 2005 - 2008 Rio Rancho meteorological data (AERMET version 19191) provided by the AEHD AQP.

2.4 RECEPTORS AND TOPOGRAPHY

Modeling will be completed using as many receptor locations to ensure that the maximum estimated impacts are identified. Initial (ROI) modeling will identify the model receptors where Salls Brothers sources are above the significant impact levels (SILs) with a Cartesian grid of 25 meters spacing on the fenceline, 50 meters spacing from the fenceline to 500 meters from the fenceline, 100 meters spacing from 500 meters to 1000 meters from the fenceline, 250 meters spacing from 1000 meters to 3000 meters from the fenceline, and 500 meters spacing from 3000 meters to 5000 meters from the fenceline. Cumulative impact analysis (CIA) modeling will be run for each pollutant with receptors above the SILs and will include applicable background concentrations.

All refined model receptors will be preprocessed using the AERMAP software associated with AERMOD. The AERMAP software establishes a base elevation and a height scale for each receptor location. The height scale is a measure of the receptor's location and base elevation

and its relation to the terrain feature that has the greatest influence in dispersion for that receptor. AERMAP will be run using U.S. Geological Survey (USGS) digital elevation data (DEM) data. Output from AERMAP will be used as input to the AERMOD runstream file for each model run.

2.5 MODELED EMISSION SOURCES INPUTS

For this significant permit application, the present permitted operating time for the aggregate plant is presented in Table 2. These hourly factors will be used in material handling and process emission sources (short-term modeling) and plant engines (all modeling).

TABLE 2: Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	1	1	1	1	1	0	0	0	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	0	0
8:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
9:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
10:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
11:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
12:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
1:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
2:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
3:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
4:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
5:00 PM	0	0	1	1	1	1	1	1	1	1	0	0
6:00 PM	0	0	0	1	1	1	1	1	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	**9**	**9**	**11**	**13**	**13**	**13**	**13**	**13**	**11**	**11**	**9**	**9**

Annual $PM_{2.5}$ dispersion modeling will include hourly factors for material handling and process sources to account for the difference between annual throughput based on maximum hourly throughput and annual hours of operation, and the existing annual throughput limit. The annual throughput is 1,020,250 tons, based on 250 tph maximum throughput and annual modeling hours of 4,081. The hourly factor is then 0.6371 (650,000/1,020,250) will be input in the $PM_{2.5}$ annual modeling analysis is found in Table 3.

TABLE 3: Annual Hourly Model Input Factor

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0	0	0	0
7:00 AM	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0	0
8:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
9:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
10:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
11:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
12:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
1:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
2:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
3:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
4:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
5:00 PM	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0	0
6:00 PM	0	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0

2.5.1 Salls Brothers Road Vehicle Traffic Model Inputs

The access road fugitive dust for truck traffic will be modeled as a line of volume sources. The NMED AQB's approved procedure for Modeling Haul Roads will be followed to develop modeling input parameters for haul roads. Volume source characterization followed the steps described in the Air Quality Bureau's Guidelines.

2.5.2 Salls Brothers Material Handling Volume Source Model Inputs

Particulate emissions from material handling and processing from both the aggregate and RipRap plants will be modeled as volume sources. Model input parameters for feeders, crushers, screens, and transfer points follow the NMED AQB model guidelines Table 27. Model input parameters for storage piles will be based on site conditions (release height 8 feet, pile width 50 feet) and AERMOD volume source methodologies.

2.5.3 Salls Brothers Point Source Model Inputs

Emissions from exhaust stacks will be modeled as point sources. Model input parameters are based on actual release height, release diameter, release velocity or flow rate, and release temperature. For horizontal or raincap releases, the AERMOD version for horizontal and raincap releases will be used with actual release parameters. For Salls Brothers, the two generators/engines (Units 6 and 7) will be modeled as horizontal release sources. For Unit 6, the engine has two exhaust stack that will be show in the model as two sources, GEN1 and GEN2.

Tables 4 and 5 summarize the point source model inputs for the Salls Brothers Aggregate Plant.

TABLE 4: Summary of Model Inputs for Point Sources at the Salls Brothers Aggregate Plant - Combustion

Neighbor Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	NO2 Emission Rate (lb/hr)	CO Emission Rate (lb/hr)	SO2 Emission Rate (lb/hr)
Plant Generator (Unit #6) Stack 1	GEN1	4.115	688.706	60.098	0.203	14.26367	4.00132	0.21420
Plant Generator (Unit #6) Stack 2	GEN2	4.115	688.706	60.098	0.203	14.26367	4.00132	0.21420
RipRap Plant Engine (Unit #7)	ENGINE	1.829	672.039	45.720	0.076	0.70468	0.74966	0.03500

TABLE 5: Summary of Model Inputs for Point Sources at the Salls Brothers Aggregate Plant - Particulate

Neighbor Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Plant Generator (Unit #6) Stack 1	GEN1	4.115	688.706	60.098	0.203	0.41650	0.41650
Plant Generator (Unit #6) Stack 2	GEN2	4.115	688.706	60.098	0.203	0.41650	0.41650
RipRap Plant Engine (Unit #7)	ENGINE	1.829	672.039	45.720	0.076	0.05997	0.05997

Table 6 summarize the volume source model inputs for the Salls Brothers Aggregate Plant.

TABLE 6: Summary of Model Inputs for Volume Sources at the Salls Brothers HMA Plant - Particulate

Neighbor Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Salls Brothers Feeder (Unit #1)	FEEDER	6.000	1.160	2.330	0.55814	0.08452
Salls Brothers Primary Crusher (Unit #1)	PRIMARY	6.000	1.160	2.330	0.13500	0.02500
Salls Brothers Screen (Unit #2)	SCREEN1	4.000	1.160	2.330	0.29600	0.02000
Salls Brothers Screen (Unit #3)	SCREEN2	4.000	1.160	2.330	0.18500	0.01250
Salls Brothers Screen (Unit #4)	SCREEN3	4.000	1.160	2.330	0.18500	0.01250
Salls Brothers Cone Crusher (Unit #12)	SCRUSHER	6.000	1.160	2.330	0.08100	0.01500
Salls Brothers Conveyor Transfer Point (Unit 5)	TP1	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP2	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP3	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP4	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP5	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP6	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP7	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP8	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP9	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 5)	TP10	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 13)	TP11	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 13)	TP12	2.000	0.470	0.930	0.01150	0.00325
Salls Brothers Conveyor Transfer Point (Unit 13)	TP13	2.000	0.470	0.930	0.01150	0.00325

Neighbor Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Salls Brothers RIPRAP Stacker Conveyor Drop 1 (Unit10)	PILE1	4.000	0.470	0.930	0.16750	0.02536
Salls Brothers RIPRAP Stacker Conveyor Drop 2 (Unit10)	PILE2	4.000	0.470	0.930	0.16750	0.02536
Salls Brothers Plant Stacker Conveyor Drop 1 (Unit10)	PILE3	4.000	0.470	0.930	0.06700	0.01015
Salls Brothers Plant Stacker Conveyor Drop 2 (Unit10)	PILE4	4.000	0.470	0.930	0.06700	0.01015
Salls Brothers Plant Stacker Conveyor Drop 3 (Unit10)	PILE5	4.000	0.470	0.930	0.06700	0.01015
Salls Brothers Plant Stacker Conveyor Drop 4 (Unit10)	PILE6	4.000	0.470	0.930	0.06700	0.01015
Salls Brothers Plant Stacker Conveyor Drop 5 (Unit10)	PILE7	4.000	0.470	0.930	0.06700	0.01015
Salls Brothers Material Storage Pile Loading 1 (Unit14)	SPILE1	2.438	3.544	2.268	0.27907	0.04226
Salls Brothers Material Storage Pile Loading 2 (Unit14)	SPILE2	2.438	3.544	2.268	0.27907	0.04226
Salls Brothers Material Storage Pile Loading 3 (Unit14)	SPILE3	2.438	3.544	2.268	0.27907	0.04226
Salls Brothers Material Storage Pile Loading 4 (Unit14)	SPILE4	2.438	3.544	2.268	0.27907	0.04226
Salls Brothers Plant Truck Loading 1 (Unit 15)	TL1	6.000	1.160	2.330	0.27907	0.04226
Salls Brothers Plant Truck Loading 2 (Unit 15)	TL2	6.000	1.160	2.330	0.27907	0.04226
Salls Brothers Plant Truck Loading 3 (Unit 15)	TL3	6.000	1.160	2.330	0.27907	0.04226
Salls Brothers Plant Truck Loading 4 (Unit 15)	TL4	6.000	1.160	2.330	0.27907	0.04226
Salls Brothers Plant Truck Unloading (Unit 16)	RAWIN	2.438	3.544	2.268	1.11628	0.16904
Salls Brothers Haul Road Out Volume 1-21 (each)	HRO_0001-0021	3.400	6.050	3.160	0.06185	0.00618
Salls Brothers Haul Road In Volume 1-34 (each)	HRI_0001-0034	3.400	6.050	3.160	0.06237	0.00624

2.6 $PM_{2.5}$ SECONDARY EMISSIONS MODELING

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

- Sulfates formed from sulfur dioxide emissions from power plants and industrial facilities;
- Nitrates formed from nitrogen oxide emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

AERMOD does not account for secondary formation of $PM_{2.5}$ for near-field modeling. Any secondary contribution of the Salls Brother's source emissions is not explicitly accounted for in the model results. While representative background monitoring data for $PM_{2.5}$ should adequately account for secondary contribution from existing background sources, the Salls Brothers assessment of their potential contribution to cumulative impacts as secondary $PM_{2.5}$ was performed based on guidance from the NMED Modeling Section. Total permit modification Salls Brothers emissions of precursors include:

- Nitrogen Oxides (NO_X) – 61.4 tons per year (below SER)
- Sulfur Dioxides (SO_2) – 0.97 tons per year (below SER)
- Volatile Organic Carbon (VOC) – 1.5 tons per year (below SER).

$PM_{2.5}$ secondary emission concentration analysis will follow EPA and NMED AQB guidelines. Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, Salls Brothers emissions are compared to appropriate western MERPs values (NO_X 24 Hr – 1155 tpy; NO_X Annual – 3184 tpy; SO_2 24 Hr – 225 tpy; SO_2 Annual – 2289 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, will be added to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS.

$PM_{2.5}$ annual = ((NO_X emission rate (tpy)/3184 + (SO_2 emission rate (tpy)/2289)) x 0.2 $\mu g/m^3$

$PM_{2.5}$ annual = ((61.4/3184) + (0.97/2289)) x 0.2 $\mu g/m^3$ = **0.0039 µg/m³**

$PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/1155 + (SO_2 emission rate (tpy)/225)) x 1.2 $\mu g/m^3$

$PM_{2.5}$ 24 hour = ((61.4/1155) + (0.97/225)) x 1.2 $\mu g/m^3$ = **0.069 µg/m³**

2.7 NO_2 DISPERSION MODELING ANALYSIS

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

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

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

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

For ARM2, two inputs can be selected in the model. For this modeling anaylsis, EPA default minimum and maximum ambient NO_2/NO_X ratio for the ambient air of 0.5 and 0.9, respectively, were selected. For OLM or PVMRM, three inputs can be selected in the model, the ISR, the NO_2/NO_X equilibrium ratio for the ambient air, and the ambient ozone concentration. The ISR will be determined for each source or group of sources. The NO_2/NO_X equilibrium ratio will be the EPA default of 0.90. Ozone input will be from monitored ozone data collected from city monitoring station.

Based on EPA's ISR databases, a proposed conservative NO_2/NO_X ISR ratio for the proposed site diesel-fired RICE is 0.15. For neighboring sources, since the ISR has a diminishing impact on ambient NO_2/NO_X ratios as a plume is transported farther downwind due to mixing and reaction towards background ambient NO_2/NO_X ratios, a default ISR of 0.20[1] in lieu of source specific data will be used. Table 7 summarizes the ISR selected for each NO_X source in the NO_2 1-hour modeling.

TABLE 7: Summary of Selected ISR

Source Description	Selected ISR
Generator/Engine	0.15

For NO_X, NAAQS and NMAAQS applicable averaging periods include 1-hour and annual averages.

[1] Technical support document (TSD) for NO2-related AERMOD modifications, EPA- 454/B-15-004, July 2015

Model Ozone Data

For OLM or PVMRM, modeling of the project-generated 1-hour NO_2 concentrations requires use of ambient monitored O_3 concentrations. This ozone data was provided by the AEHD AQP for the referenced meteorological data.

2.8 AMBIENT MODELING BACKGROUND

Ambient background concentrations will be added to the dispersion modeling results and compared to the NAAQS and NMAAQS. Conservative background concentrations were obtained from the COABC AQP Modeling Section for the South Valley with the exception of the 1-hour NO_2 background.

CO 1-hr:	2366 micrograms per cubic meter
CO 8-hr:	1450 micrograms per cubic meter
NO_2 Annual:	30 micrograms per cubic meter
SO_2 1-hr:	13.1 micrograms per cubic meter
SO_2 24-hr:	0 micrograms per cubic meter
SO_2 Annual:	0 micrograms per cubic meter
PM_{10} 24-hr:	35.0 micrograms per cubic meter
$PM_{2.5}$ 24-hr:	20.0 micrograms per cubic meter
$PM_{2.5}$ annual:	7.8 micrograms per cubic meter

NO_2 1-hour Background data

NO_2 1-hour background data was developed by the COABC AQP based on the Tier 2 procedure found in EPA guidance documents[2] for determining background concentrations.

> *"Based on this guidance, we believe that an appropriate methodology for incorporating background concentrations in the cumulative impact assessment for the 1-hour NO_2 standard would be to use multiyear averages of the 98th-percentile of the available background concentrations by season and hour-of-day, excluding periods when the source in question is expected to impact the monitored concentration (which is only relevant for modified sources). For situations involving a significant mobile source component to the background monitored concentrations, inclusion of a day-of-week component to the temporal variability may also be appropriate. The rank associated with the 98th-percentile of daily maximum 1-hour values should be generally consistent with the number of "samples" within that distribution for each combination based on the temporal resolution but also account for the number of samples "ignored" in specifying the 98th-percentile based on the annual distribution. For example, Table 1 in Section 5 of Appendix S specifies the rank associated with the 98th-percentile value based on the annual number of days with valid data. Since the number of days per season will range from 90 to 92, Table 1 would indicate that the 2nd-highest value from the seasonal distribution should be used to represent the 98th-percentile. On the other hand, use of the 2nd-highest value for each season would effectively "ignore" only 4 values for the year rather than the 7 values "ignored" from the annual distribution. Balancing these considerations, we recommend*

[2] Memo: "Additional Clarification Regarding Application of Appendix W Modeling Guidance for 1-hour N02 National Ambient Air Quality Standard" Tyler Fox, Leader, Air Quality Modeling Group, C439-01, dated March 1, 2011.

that background values by season and hour-of-day used in this context should be based on the 3rd-highest value for each season and hour-of-day combination, whereas the 8th-highest value should be used if values vary by hour-of-day only. For more detailed temporal pairing, such as season by hour-of- day and day-of-week or month by hour-of-day, the 1st-highest values from the distribution for each temporal combination should be used."

The NO_2 background data was provided by the AEHD AQP Modeling Section and is presented below.

TABLE 8: Monitored Seasonal NO_2 Background – 3rd Highest Hourly µg/m³

Hour	Winter	Spring	Summer	Fall
1	72.1	47.6	29.3	65.6
2	67.8	48.3	27.7	59.7
3	67.7	46	26.4	57.9
4	68.4	48.9	26.6	58.9
5	69.1	51.7	32.7	58
6	69.7	63.9	39.3	57.8
7	72.8	70.7	46.4	63.5
8	77.6	71.8	48.5	64.5
9	80	61.1	34.2	65.9
10	71.4	48	27.3	55
11	62	28.6	24.3	47.3
12	48.1	18.9	19.9	35.4
13	36.9	17.6	17	28.2
14	35.1	15.7	15.9	25.3
15	33.6	14.8	17.4	24.2
16	37.2	15.3	19.4	28
17	48.4	17.1	20.4	38
18	73	19.4	19.3	69.6
19	79.3	38.5	21.7	79.1
20	78.1	53.2	30.9	77.1
21	77.3	48	34.1	73.4
22	76.5	56.3	30.8	70.4
23	75	58.8	34.9	69.7
24	72.4	57.9	33.6	70.9

3.0 MODEL SUMMARY

This section summarizes the model results, following the technical approach approved in Section 2 of this report, for Class II federal ambient air quality standards for this facility. Model results show for each modeled criteria pollutant and applicable averaging periods for nitrogen dioxide, carbon monoxide, sulfur dioxide, and particulate matter; both 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), the modified Salls Brothers aggregate plant does not contribute to an exceedance of Class II federal and state ambient air quality standards (NAAQS and NMAAQS) and the City of Albuquerque/Bernalillo County (COABC) air quality regulation 20.11.8 NMAC. The modeling followed the guidance and protocols outlined in the protocol found in Section 2 of this report; the "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 12/20/2018; "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 01/01/2019; and the most up to date EPA's *Guideline on Air Quality Models*. No neighboring sources were identified for inclusion with the modeling analysis.

For this significant permit application, the present permitted operating time for the aggregate plant is presented in Table 9. These hourly factors will be used in material handling and process emission sources (short-term modeling) and plant engines (all modeling).

TABLE 9: Daily Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	1	1	1	1	1	0	0	0	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	0	0
8:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
9:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
10:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
11:00 AM	1	1	1	1	1	1	1	1	1	1	1	1
12:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
1:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
2:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
3:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
4:00 PM	1	1	1	1	1	1	1	1	1	1	1	1
5:00 PM	0	0	1	1	1	1	1	1	1	1	0	0
6:00 PM	0	0	0	1	1	1	1	1	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	9	11	13	13	13	13	13	11	11	9	9

Annual $PM_{2.5}$ dispersion modeling will include hourly factors for material handling and process sources to account for the difference between annual throughput based on maximum hourly throughput and annual hours of operation, and the existing annual throughput limit. The annual throughput is 1,020,250 tons, based on 250 tph maximum throughput and annual modeling hours of 4,081. The hourly factor is then 0.6371 (650,000/1,020,250) will be input in the $PM_{2.5}$ annual modeling analysis is found in Table 10.

TABLE 10: Annual Hourly Model Input Factor

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	0	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0	0	0	0
7:00 AM	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0	0
8:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
9:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
10:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
11:00 AM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
12:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
1:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
2:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
3:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
4:00 PM	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371
5:00 PM	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0.6371	0	0
6:00 PM	0	0	0	0.6371	0.6371	0.6371	0.6371	0.6371	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0

3.1 SIGNIFICANT IMPACT LEVEL (SILs) MODELING ANALYSIS

Significant impact level AERMOD dispersion modeling was completed for NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. All SIL models were run in terrain mode with Salls Brothers aggregate plant emission sources only. Table 11 lists the results of the modeling for pollutant and averaging period that falls below the applicable SILs.

TABLE 11: Summary of Air Dispersion Modeling Results below SILs

Parameter	Maximum Modeled Concentration ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	% of SIL
CO 1 Hr.	558.1	2000	27.9
CO 8 Hr.	327.2	500	65.4
SO_2 3 Hr.	18.4	25.0	73.6
SO_2 Annual	0.60	1.0	60.0

For CO 1-hour and 8-hour averaging periods and SO_2 3-hour and annual averaging periods the model results show impacts below the SILs. No cumulative impact analysis modeling was performed for CO 1-hour and 8-hour averaging periods and SO_2 3-hour and annual averaging periods.

3.2 CUMULATIVE IMPACT ANALYSIS (CIA) MODEL RESULTS

The model results using the maximum operation at Salls Brothers aggregate plant and approved ambient background are summarized below in Table 12. Dispersion modeling analysis followed the modeling protocol outline in Section 2 of this report.

TABLE 12: Summary of CIA Modeling Results Including Background and $PM_{2.5}$ Secondary

Parameter	Maximum Modeled Concentration ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Maximum Modeled Concentration With Background ($\mu g/m^3$)	Lowest Applicable Standard ($\mu g/m^3$)	% of Standard
NO_2 1 Hr. 8th highest 1-hour daily maximum	71.0	7.52	127.6	188	67.9
NO_2 Annual	22.3	1	52.3	94	55.7
$PM_{2.5}$ 24 Hr. High 8th High (1)	10.2	1.2	30.2	35	86.3
$PM_{2.5}$ Annual (1)	4.1	0.2	11.9	12	99.2
PM_{10} 24 Hr. High 2nd High	87.8	5	122.8	150	81.9
SO_2 1 Hr. 4th highest 1-hour daily maximum	19.3	7.8	32.4	196.4	16.5
SO_2 24 Hr. High	8.5	5	8.5	261.9	3.2

Note: Background concentrations are found in Section 2.8 of the modeling protocol. Dispersion modeling inputs and settings are presented in Section 2.

(1) Includes $PM_{2.5}$ Secondary Emissions Concentration

3.2.1 NO_2 Cumulative Impact Analysis Modeling Results

NO_2 CIA modeling was performed with terrain elevations and no building downwash. NO_X emission rates represented the maximum hourly rate for Salls Brothers aggregate plant point sources. NO_2 CIA modeling included all initial modeling receptors that were above the NO_2 SILs. No 24-hour averaging period was modeled following NMED AQB Model Guidelines, which states; "Demonstration of compliance with 1-hour standard is automatically a demonstration of compliance with the 24-hour NMAAQS."

Table 13 shows the NO_2 8th highest 1-hour daily maximum and annual model results and highest impact locations for receptors above the SILs.

TABLE 13: NO_2 CIA MODEL RESULTS

	Modeled Concentration ($\mu g/m^3$)	Modeled Concentration With Background ($\mu g/m^3$)	Location UTMs E/N	
NO_2 1 Hr. 8th highest 1-hour daily maximum	71.0	127.6	339541.7	3894804.3
NO_2 Annual	22.3	52.3	339590.8	3895002.4

For NO_2 1-hour modeling and annual average, the Tier III PVMRM approach found in Section 2.8 of this report was used for the analysis. For NO_2 annual average modeling, the Tier II ARM2 approach found in Section 2.8 of this report was used for the analysis

Dispersion modeling meteorology for this analysis included 4 years of data, 2005 – 2008 Rio Rancho Meteorological data, was obtained from the COABC AQP.

The latest Albuquerque Del Norte Monitor Station 1-hour and annual NO_2 background concentrations found in Section 2.8 of this report were added to the modeled results and compared to the lowest applicable ambient standard.

Model results show the highest annual concentrations, where Salls Brothers aggregate plant source makes a significant contribution, occurred along the northern Salls Brothers aggregate plant restricted boundary.

For the NO_2 1-hour model, 8th highest 1-hour daily maximum concentrations, where Salls Brothers aggregate plant source makes a significant contribution, occurred along the southern Salls Brothers aggregate plant restricted boundary.

Figure 3 shows aa aerial map of the NO_2 8th highest 1-hour daily maximum concentration and highest annual concentration locations including background where Salls Brothers aggregate plant sources contribute above the NO_2 SILs.

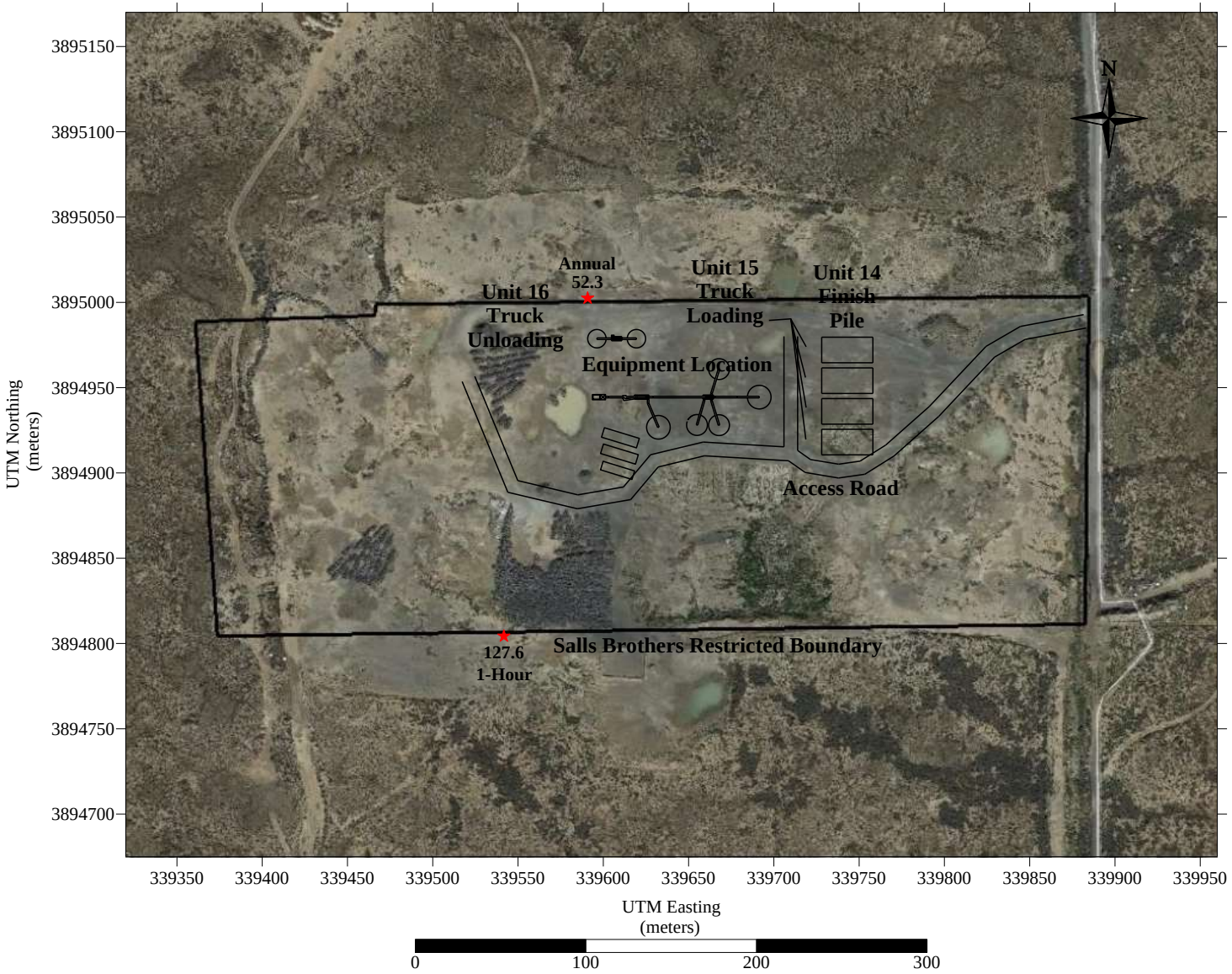


Figure 3: Aerial Map Showing the Location of the NO_2 Highest Concentration Model Result ($\mu g/m^3$)

3.2.2 $PM_{2.5}$ Direct and Secondary Formation CIA Modeling Results

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

- Sulfates formed from sulfur dioxide emissions from power plants and industrial facilities;
- Nitrates formed from nitrogen oxide emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

AERMOD does not account for secondary formation of $PM_{2.5}$ for near-field modeling. Any secondary contribution of the Salls Brother's source emissions is not explicitly accounted for in the model results. While representative background monitoring data for $PM_{2.5}$ should adequately account for secondary contribution from existing background sources, the Salls Brothers assessment of their potential contribution to cumulative impacts as secondary $PM_{2.5}$ was performed based on guidance from the NMED Modeling Section. Total permit modification Salls Brothers emissions of precursors include:

- Nitrogen Oxides (NO_X) – 61.4 tons per year (below SER)
- Sulfur Dioxides (SO_2) – 0.97 tons per year (below SER)
- Volatile Organic Carbon (VOC) – 1.5 tons per year (below SER).

$PM_{2.5}$ secondary emission concentration analysis will follow EPA and NMED AQB guidelines. Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, Salls Brothers emissions are compared to appropriate western MERPs values (NO_X 24 Hr – 1155 tpy; NO_X Annual – 3184 tpy; SO_2 24 Hr – 225 tpy; SO_2 Annual – 2289 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, will be added to primary emission concentrations to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS.

$PM_{2.5}$ annual = ((NO_X emission rate (tpy)/3184 + (SO_2 emission rate (tpy)/2289)) x 0.2 µg/m^3

$PM_{2.5}$ annual = ((61.4/3184) + (0.97/2289)) x 0.2 µg/m^3 = **0.0039 µg/m^3**

$PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/1155 + (SO_2 emission rate (tpy)/225)) x 1.2 µg/m^3

$PM_{2.5}$ 24 hour = ((61.4/1155) + (0.97/225)) x 1.2 µg/m^3 = **0.069 µg/m^3**

CIA direct "primary" $PM_{2.5}$ modeling was performed with terrain and meteorology which included 4 years of data, 2005 – 2008 Rio Rancho Meteorological data, obtained from the AEHD AQP. Modeling was performed for both 24 hour and annual averaging periods with maximum $PM_{2.5}$ hourly emission rate for Salls Brothers aggregate plant sources and all Salls Brothers aggregate plant initial modeling receptors that were above the $PM_{2.5}$ SILs. $PM_{2.5}$ emission rates represented the maximum hourly rate for all emission sources. South Valley representative 24-hour and annual $PM_{2.5}$ background concentrations was added to the modeled results and compared to the lowest applicable ambient standard. The 24-hour and annual background concentrations that were used for $PM_{2.5}$ averaging periods are found in Section 2.8 of this report.

Results showed that direct "primary" $PM_{2.5}$ annual and 24-hour averaging period from Salls Brothers aggregate plant sources, where Salls Brothers aggregate plant source makes a significant contribution, are located on the northern Salls Brothers aggregate plant boundary. The result from direct "primary" $PM_{2.5}$ emissions dispersion modeling, plus a representative $PM_{2.5}$ background concentrations from Section 2.8 of this report and secondary concentrations listed above were used to show compliance with national $PM_{2.5}$ annual and 24-hour average AAQS.

Table 14 shows the $PM_{2.5}$ 8^{th} highest 24-hour daily maximum and annual model results and locations.

TABLE 14: $PM_{2.5}$ CIA MODEL RESULTS

	Modeled Concentration with Secondary ($\mu g/m^3$)	**Modeled Concentration With Background ($\mu g/m^3$)**	**Location UTMs E/N**	
24 Hour Average Highest 8^{th} High	10.2	30.2	339590.8	3895002.4
Annual Average	4.1	11.9	339615.1	3895002.3

Figure 4 summarize the results of the modeling analysis.

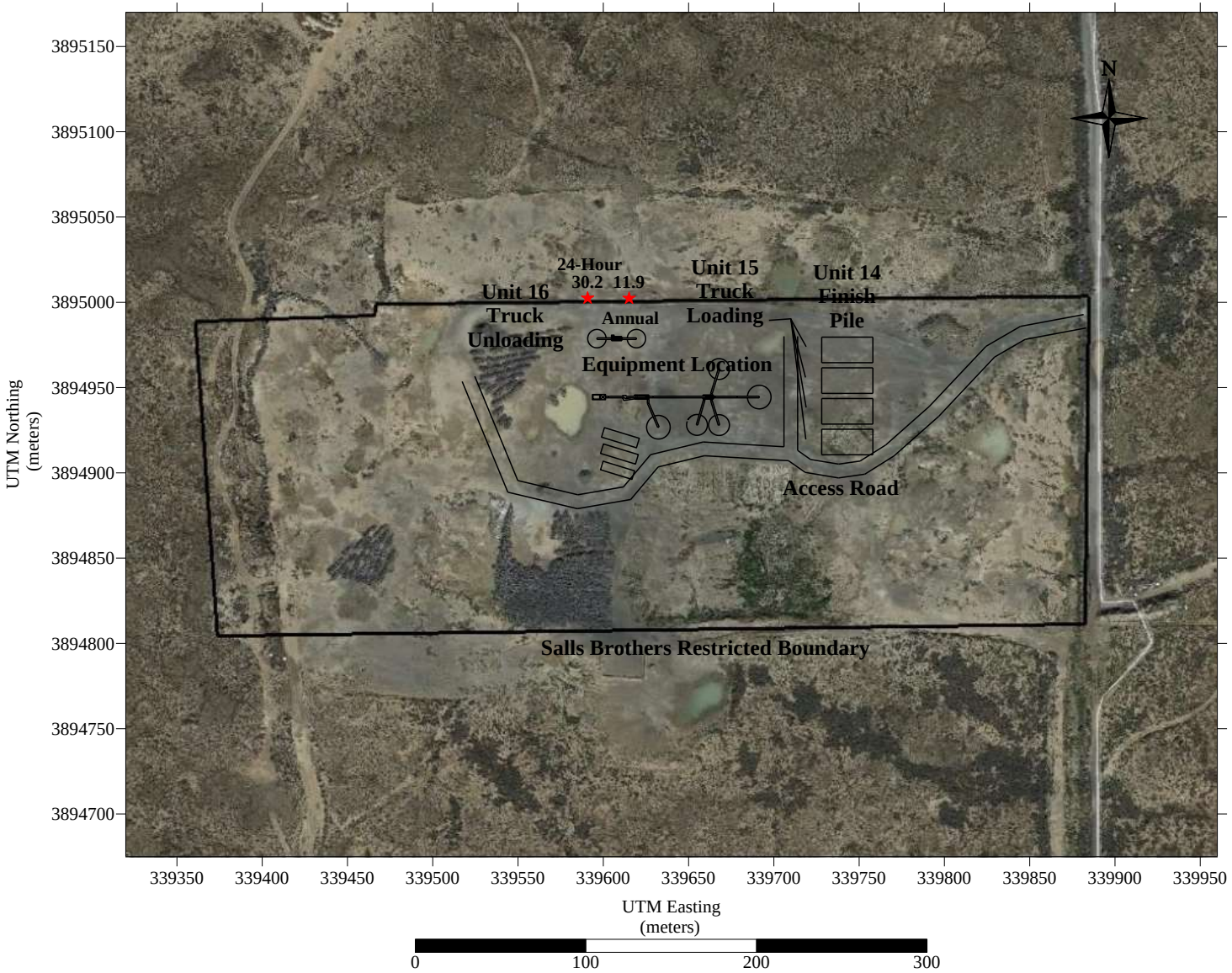


Figure 4: Aerial Map Showing the Location of the $PM_{2.5}$ Highest Model Results ($\mu g/m^3$)

3.2.3 PM_{10} Cumulative Impact Analysis Modeling Results

CIA PM_{10} modeling was performed with terrain and meteorology which included 4 years of data, 2005 – 2008 Rio Rancho Meteorological data, obtained from the AEHD AQP. Modeling was performed for 24-hour averaging period with maximum PM_{10} hourly emission rate for Salls Brothers aggregate plant sources and all Salls Brothers aggregate plant initial modeling receptors that were above the PM_{10} SILs. South Valley representative 24-hour PM_{10} background concentrations was added to the modeled results and compared to the lowest applicable ambient standard. The 24-hour background concentration that was used for PM_{10} 24-Hour averaging period are found in Section 2.8 of this report.

Results showed that PM_{10}, where Salls Brothers aggregate plant source makes a significant contribution, is located on the northern Salls Brothers aggregate plant boundary.

The result from PM_{10} emissions dispersion modeling, plus a representative PM_{10} background concentrations from Section 2.8 of this report, were used to show compliance with national PM_{10} 24-hour average AAQS.

Table 15 shows the PM_{10} 2nd highest 24-hour daily maximum model result and location.

TABLE 15: PM_{10} CIA MODEL RESULTS

	Modeled Concentration ($\mu g/m^3$)	**Modeled Concentration With Background ($\mu g/m^3$)**	**Location UTMs E/N**	
24 Hour Average Highest 2nd High	87.8	122.8	339712.5	3895001.8

Figure 5 summarize the results of the modeling analysis.

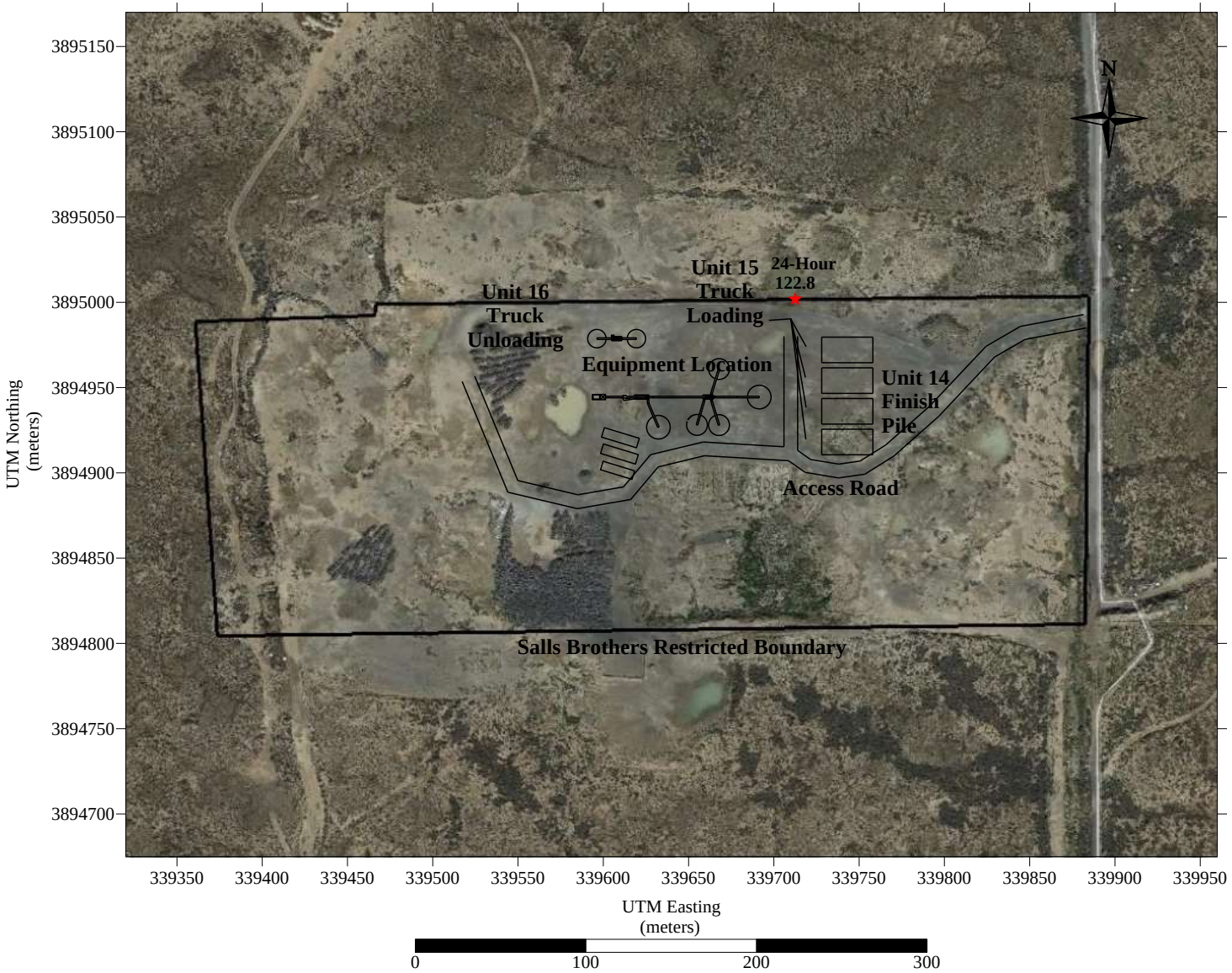


Figure 5: Aerial Map Showing the Location of the PM_{10} High Model Results ($\mu g/m^3$)

3.2.4 SO_2 Cumulative Impact Analysis Modeling Results

SO_2 CIA modeling was performed with terrain elevations for Salls Brothers aggregate plant. SO_2 emission rates represented the maximum hourly rate for Salls Brothers aggregate plant point sources for all Salls Brothers aggregate plant initial modeling receptors that were above the SO_2 SILs. SO_2 3 hour and annual ROI modeling was below the SO_2 SILs.

Table 16 shows the SO_2 4th highest 1-hour daily maximum model result and highest concentration location.

TABLE 16: SO_2 CIA MODEL RESULTS

	Modeled Concentration ($\mu g/m^3$)	Modeled Concentration With Background ($\mu g/m^3$)	Location UTMs E/N	
Highest 4th highest 1-hour daily maximum	19.3	32.4	339613.5	3894804
Highest 24-Hour Average	8.5	8.5	339613.5	3894804

Dispersion modeling meteorology for this analysis included 4 years of data, 2005 – 2008 Rio Rancho Meteorological data, obtained from the COABC AQP.

Albuquerque city-wide 1-hour SO_2 background concentrations found in Section 2.8 of this report were added to the 1-hour modeled results and compared to the lowest applicable ambient standard.

Maximum 1-hour and 24-hour concentrations, where Salls Brothers aggregate plant source makes a significant contribution, occurred along the southern Salls Brothers aggregate plant restricted boundary.

Figure 6 shows an aerial map of the SO_2 4th highest 1 hour daily maximum concentration and highest 24-hour average locations including background where Salls Brothers aggregate plant sources contribute above the SO_2 SILs.

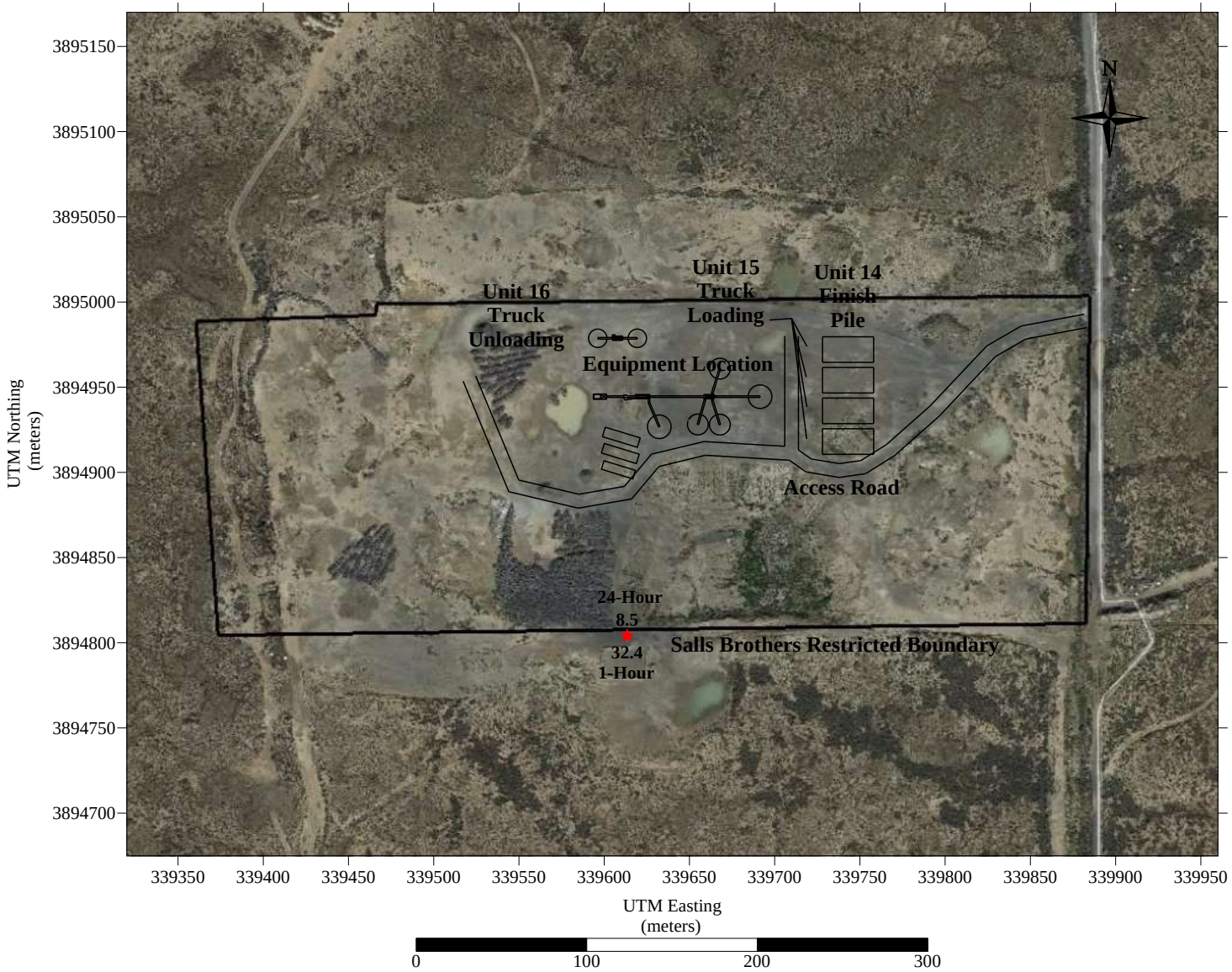


Figure 6: Aerial Map Showing the Location of the SO_2 Highest Model Results ($\mu g/m^3$)

Modeling File List

Model File Name	Description
Salls Brother 1791 Combustion ROI	Salls Brothers aggregate plant Combustion ROI modeling
Salls Brother 1791 PM ROI	Salls Brothers aggregate plant PM10 and PM2.5 ROI modeling
Salls Brother 1791 NO2	Salls Brothers aggregate plant CIA NO2 annual averaging period
Salls Brother 1791 NO2 1Hr	Salls Brothers aggregate plant CIA NO2 1-hour averaging period
Salls Brother 1791 PM 24hr	Salls Brothers aggregate plant CIA PM10 and PM2.5 24-hour averaging periods
Salls Brother 1791 PM25 yr	Salls Brothers aggregate plant CIA PM2.5 annual averaging periods
Salls Brother 1791 SO2	Salls Brothers aggregate plant CIA SO2 1-hour and 24-hour averaging periods

MONTROSE ENVIRONMENTAL

Paul Wade <pwade@montrose-env.com>

Approval of the revised modeling protocol submitted for Salls Brothers 1791-M2-R5-1AR

2 messages

Tumpane, Kyle <ktumpane@cabq.gov> Tue, Sep 22, 2020 at 9:09 AM
To: Paul Wade <pwade@montrose-env.com>
Cc: Arthur Young <ayoung@sallsbrothers.com>, "Stonesifer, Jeff W." <JStonesifer@cabq.gov>, "Munoz-Dyer, Carina G." <cmunoz-dyer@cabq.gov>

Paul,

Thank you for addressing the questions and providing the revised modeling protocol. I only have one additional question. Why are the PM10 and PM2.5 emission rates for the haul road in this revised protocol half of what they were in the original protocol? The haul road has the same number of segments in both protocol versions.

The protocol is approved. Please go ahead and submit the application and modeling when you are ready.

Thank you,

Kyle

From: Tumpane, Kyle
Sent: Thursday, September 17, 2020 12:33 PM
To: 'Paul Wade' <pwade@montrose-env.com>
Cc: Arthur Young <ayoung@sallsbrothers.com>; Stonesifer, Jeff W. <JStonesifer@cabq.gov>; Munoz-Dyer, Carina G. <cmunoz-dyer@cabq.gov>
Subject: RE: Concerns with the modeling protocol submitted for Salls Brothers 1791-M2-R5-1AR

Thank you Paul. We have received the revised protocol.

From: Paul Wade <pwade@montrose-env.com>
Sent: Tuesday, September 15, 2020 4:21 PM
To: Tumpane, Kyle <ktumpane@cabq.gov>
Cc: Arthur Young <ayoung@sallsbrothers.com>; Stonesifer, Jeff W. <JStonesifer@cabq.gov>; Munoz-Dyer, Carina G. <cmunoz-dyer@cabq.gov>
Subject: Re: Concerns with the modeling protocol submitted for Salls Brothers 1791-M2-R5-1AR

Kyle

Below are the responses to your questions and comments in red. Also attached is the revised modeling protocol incorporating the change discussed below.

1. Receptor spacing is not addressed at all and it needs to be. It just says "modeling will be completed using as many receptor locations to ensure that the maximum estimated impacts are identified."

The revised model protocol addresses this issue.

2. No discussion of NO2 modeling is included, specifically which tier methodologies will be used. No minimum or maximum ratios are discussed if ARM2 is to be used. ISRs to be used for Tier 3 1-hour NO2 modeling, if necessary, for the two engines are not discussed. Will an hourly ozone file be used?

The revised model protocol addresses this issue.

3. Rio Rancho MET and NW ABQ ozone data would be more appropriate than KABQ for this modeling. The AQP will provide this data.

We will use the provided meteorological and ozone data provided by the city. This is discussed in the revised model protocol.

4. Where are the emissions for working the raw material piles to load into the crushers accounted for? Are there multiple raw piles?

The emissions from moving the raw material to loading the feeder is addressed in Unit 1 emission rate. There are multiple raw material storage piles presently located at the site.

5. What are the storage pile loading (Unit 14) emissions for? Are they for working the piles created by the stacker conveyors and dumping to create the 4 finish piles or are they for working the 4 finish piles to load into trucks? It seems like there needs to be another set of sources for working the piles that is not included currently. The 4 truck loading sources (Unit 15) are for loading from the finish piles into trucks, correct? These two units are not included in the figures.

Unit 14 is the finish storage pile loading from the piles created by the plant stacker conveyors (Unit 10). Unit 15 is the emission rate from loading material from the finish piles (Unit 14) into haul trucks. Units 14 and 15 locations have been incorporated into Figure 1 of the revised model protocol.

6. Based on the City's Advanced Map Viewer, a portion of the area inside the length of the northern fence line is not owned by Salls Brothers. Do they have an agreement with the owners of the properties or is this a display issue with the viewer? The property boundary appears to be just north of the entrance road, heavily tracked area, and proposed Rip Rap plant location.

Based on discussions with Salls Brothers, the modeling boundary has been adjusted to follow the lot lines for the lands owned by Salls Brothers. This new boundary is presented in Figure 1 of the model protocol.

7. CO background values provided do not match Del Norte or South Valley background values from Dec 2019. Perhaps these are background values from a previous year? Based on South Valley monitoring station, CO 1-hr background = 2366 ug/m3 and CO 8-hr background = 1450 ug/m3. Based on Del Norte, CO 1-hr background = 1908 ug/m3 and CO 8-hr background = 1221 ug/m3.

Revised CO background numbers have been incorporated in the revised model protocol.

The revised modeling protocol also discusses an hourly factor for annual PM2.5 modeling for material handling and haul road emission sources. Please let me know if you have any additional comments or questions.

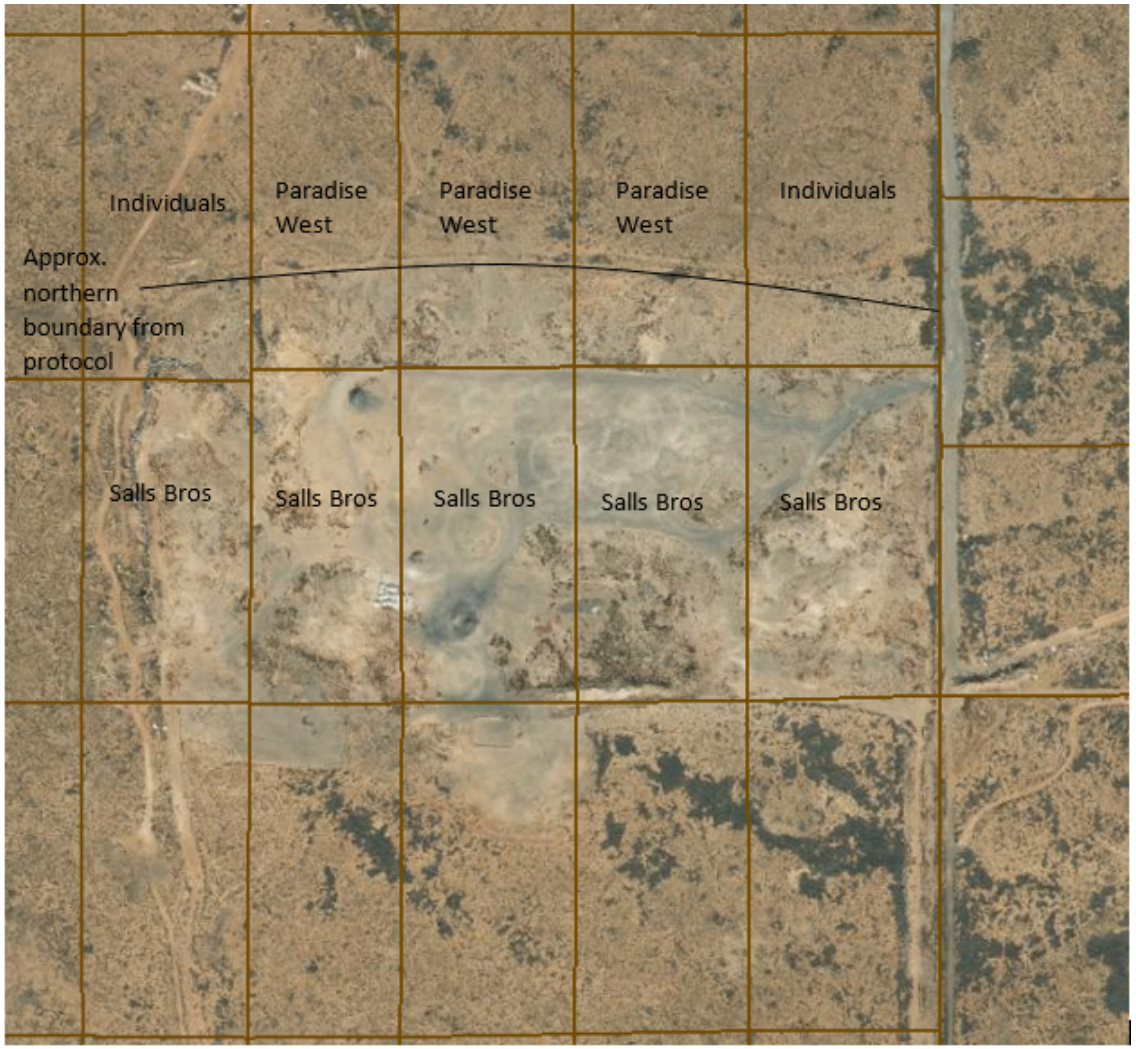
Thanks

On Thu, Sep 10, 2020 at 1:46 PM Tumpane, Kyle <ktumpane@cabq.gov> wrote:

> Mr. Wade and Mr. Young,
>
> The Air Quality Program (AQP) has reviewed the dispersion modeling protocol submitted for the modification to permit #1791-M2-R5-1AR and the protocol is denied. There are a number of issues and questions that need to be resolved. Please resolve and address these issues and submit an updated dispersion modeling protocol.
>
> 1. Receptor spacing is not addressed at all and it needs to be. It just says "modeling will be completed using as many receptor locations to ensure that the maximum estimated impacts are identified."
>
> 2. No discussion of NO2 modeling is included, specifically which tier methodologies will be used. No minimum or maximum ratios are discussed if ARM2 is to be used. ISRs to be used for Tier 3 1-hour NO2 modeling, if necessary, for the two engines are not discussed. Will an hourly ozone file be used?
>
> 3. Rio Rancho MET and NW ABQ ozone data would be more appropriate than KABQ for this modeling. The AQP will provide this data.
>
> 4. Where are the emissions for working the raw material piles to load into the crushers accounted for? Are there multiple raw piles?

5. What are the storage pile loading (Unit 14) emissions for? Are they for working the piles created by the stacker conveyors and dumping to create the 4 finish piles or are they for working the 4 finish piles to load into trucks? It seems like there needs to be another set of sources for working the piles that is not included currently. The 4 truck loading sources (Unit 15) are for loading from the finish piles into trucks, correct? These two units are not included in the figures.

6. Based on the City's Advanced Map Viewer, a portion of the area inside the length of the northern fence line is not owned by Salls Brothers. Do they have an agreement with the owners of the properties or is this a display issue with the viewer? The property boundary appears to be just north of the entrance road, heavily tracked area, and proposed Rip Rap plant location.



7. CO background values provided do not match Del Norte or South Valley background values from Dec 2019. Perhaps these are background values from a previous year? Based on South Valley monitoring station, CO 1-hr background = 2366 ug/m3 and CO 8-hr background = 1450 ug/m3. Based on Del Norte, CO 1-hr background = 1908 ug/m3 and CO 8-hr background = 1221 ug/m3.

Thank you,

KYLE TUMPANE

environmental health scientist | environmental health department

o 505.768.2872

cabq.gov/environmentalhealth/

--

Paul Wade

Sr. Engineer

Montrose Air Quality Services, LLC

3500 G Comanche Rd. NE, Albuquerque, NM 87107

T: 505.830.9680 x6 | F: 505.830.9678

PWade@montrose-env.com

www.montrose-env.com

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---

Paul Wade <pwade@montrose-env.com> Tue, Sep 22, 2020 at 9:28 AM
To: "Tumpane, Kyle" <ktumpane@cabq.gov>
Cc: Arthur Young <ayoung@sallsbrothers.com>, "Stonesifer, Jeff W." <JStonesifer@cabq.gov>, "Munoz-Dyer, Carina G." <cmunoz-dyer@cabq.gov>

Kyle
Salls Brothers will increase the fugitive dust control efficiency for the haul road.

Thanks
[Quoted text hidden]
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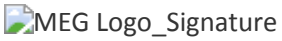

[Quoted text hidden]

Attachment H
Public Notice Documents

Tim Keller,
Mayor

Public Participation

List of Neighborhood Associations,
Neighborhood Coalitions
MEMORANDUM

Ryan C. Mast,
Director

To: Arthur Young, Safety Manager
Salls Brothers Construction, Inc.
From: Noel Begay
Program Specialist
Subject: Determination of Neighborhood Associations and Coalitions within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM (35.184501 Latitude, -106.761645 Longitude)
Date: September 29, 2020

DETERMINATION:

On September 29, 2020 I used the City of Albuquerque Zoning Advanced Map Viewer (http://sharepoint.cabq.gov/gis) to review which City of Albuquerque (COA) Neighborhood Associations (NAs) and Neighborhood Coalitions (NCs) and which Bernalillo County (BC) NAs and NCs are located within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM.

I then used the City of Albuquerque Office of Neighborhood Coordination's Monthly Master NA List dated September 2020 and the Bernalillo County Monthly Neighborhood Association September 2020 Excel file to determine the contact information for each NA and NC located within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM (35.184501 Latitude, -106.761645 Longitude).

The table below contains the contact information, which will be used in the applicant's public notice.

City of Albuquerque and/or BC Association or Coalition	Name	Email or Mailing Address
There are no Neighborhood Associations nor Coalitions within 0.5 mile of the site.	N/A	N/A

Notice of Intent to Construct

Under 20.11.41.13B NMAC, the owner/operator is required to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half-mile of the exterior boundaries of the property on which the source is or is proposed to be located if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC – Construction Permits. **A copy of this form must be included with the application.**

Applicant's name and address:
Nombre y domicilio del solicitante: Salls Brothers Construction, Inc., 7301 Reading Dr. NE, Albuquerque, NM, 87105

Owner or operator's name and address:
Nombre y domicilio del propietario u operador: Salls Brothers Construction, Inc., 7301 Reading Dr. NE, Albuquerque, NM, 87105

Actual or estimated date the application will be submitted to the department:
Fecha actual o estimada en que se entregará la solicitud al departamento: October 5, 2020

Description of the source:
Descripción de la fuente: A 250 tons per hour portable aggregate plant and 250 tons per hour portable riprap screen plant

Exact location of the source or proposed source:
Ubicación exacta de la fuente o fuente propuesta: The plant will be located south of Paseo Del Norte Blvd NW in New Mexico Meridian, Section 17, Township 11N, and Range 2E. The UTM coordinates is approximately 339,600E, 3,894,950N, Zone 13, NAD 83

Nature of business:
Tipo de negocio: Operation of a 250 tons per hour portable aggregate plant and 250 tons per hour portable riprap screen plant

Process or change for which the permit is requested:
Proceso or cambio para el cuál de solicita el permiso: For the permit modification, Salls Brothers will modify Permit #1791-M2 to replace the existing engines with larger engines.

Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant *Contaminante de aire*	**Proposed Construction Permit** *Permiso de Construcción Propuesto*		**Net Changes (for permit modification or technical revision)** *Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)*	
	pounds per hour *libras por hora*	tons per year *toneladas por año*	pounds per hour *libras por hora*	tons per year *toneladas por año*
CO	8.75	18.38	4.61	9.68
NOx	29.23	61.37	10.01	20.98
VOC	0.71	1.49	-0.82	-1.73
SO2	0.46	0.97	0.22	0.47
PM10	9.92	10.97	-22.35	-32.91
PM2.5	2.06	3.07	-3.80	-5.78

City of Albuquerque – Environmental Health Department
Air Quality Program – Permitting Division
Phone (505) 768-1972 **E-mail: aqd@cabq.gov**

HAP	0.055	0.0089	0	0

Maximum operating schedule:
Horario máximo de operaciones:
The facility requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Normal operating schedule:
Horario normal de operaciones:
The facility requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Current contact information for comments and inquires:
Datos actuales para comentarios y preguntas:

Name *(Nombre):* Arther Young
Address *(Domicilio):* PO Box 66239, Albuquerque, NM 87193-6239
Phone Number *(Número Telefónico)*: (505) 873-8780
E-mail Address *(Correo Electrónico)*: ayoung@sallsbrothers.com

If you have any comments about the construction or operation of the above facility, and you want your comments to be made part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager
Permitting Division
Albuquerque Environmental Health Department
Air Quality Program
P.O. Box 1293
Albuquerque, New Mexico 87103
(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published on the City of Albuquerque's website, https://www.cabq.gov/airquality/air-quality-permits and sent to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.

Proposed Air Quality Construction Permit

Permiso de Construcción de Calidad del Aire Propuesto

1. **Applicant's Name:**
   Nombre del solicitante: Salls Brothers Construction, Inc.
   Owner or Operator's Name:
   Nombre del Propietario u Operador: Salls Brothers Construction, Inc.
2. **Actual or Estimated Date the Application will be Submitted to the Department:**
   Fecha Actual o Estimada en que se Entragará la Solicitud al Departamento: November 9, 2020
3. **Exact Location of the Source or Proposed Source:**
   Ubicación Excata de la Fuente o Fuente Propuesta: Section 14, T-11N, R-2E; UTM 339,600E, 3894,950N Zone 13
4. **Description of the Source:**
   Descripción del Fuente: A 250 tph portable aggregate plant/250 tph portable riprap screen
   Nature of Business:
   Tipo de Negocio: Crush and size aggregate/RAP/concrete
   Process or change for which a permit is requested:
   Proceso o cambio para el cuál se solicita el permiso: Replace existing engines with larger engine

Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant *Contaminante de Aire*	Proposed Construction Permit *Permiso de Construcción Propuesto*		Net Change Emissions (for permit modification or technical revision) *Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)*	
	Pounds per hour *libras por hora*	Tons per year *toneladas por año*	Pounds per hour *libras por hora*	Tons per year *toneladas por año*
CO	8.75	18.38	4.61	9.68
NOX	29.23	61.37	10.01	20.96
SO2	0.46	0.97	0.22	0.47
PM10	9.92	10.97	-22.35	-32.91
PM2.5	2.06	3.07	-3.80	-5.76
HAP	0.055	0.0089	0	0
VOC	0.71	1.49	-0.82	-1.73

5. ~~Maximum~~ Operating Schedule:
   Horario Máximo de Operaciones: 8AM - 5PM Monday - Saturday
   ~~Normal~~ Operation Schedule:
   Horario Normal de Operaciones: November - February 8AM-5PM; April - August 6AM-7PM; March, September, October 7AM-6PM; 7 day/week; 4081 hour/yr
6. **Current Contact Information for Comments and Inquiries**
   Datos actuales para Comentarios y Preguntas
   Name *(Nombre):* Arthur Young
   Address *(Domicilio):* PO Box 66239, Albuquerque, NM 87193-6239
   Phone Number *(Número Telefónico):* (505) 873-8780
   Email Address *(Correo Electrónico):* ayoung@sallsbrothers.com

Call 311 for additional information concerning this project, the Air Quality Program, or to file a complaint.
Llame al 311 para obtener información adicional sobre este proyecto, del Programa de Calidad del Aire, o para presenter una queja.
Gọi 311 để biết thêm thông tin hoặc để khiếu nại về dự án này, Chương Trình Chất Lượng Không Khí
City of Albuquerque, Environmental Health Department, Air Quality Program – Stationary Source Permitting
Ciudad de Albuquerque, Departamento de Salud Ambiental, Programa de Calidad del Aire - Permisos para Fuentes Inmóviles
(505) 768-1972, aqd@cabq.gov

THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION
ESTE AVISO DEBERÁ DE MANTENERSE PUESTO HASTA QUE EL DEPARTAMENTO TOME UNA DECISIÓN SOBRE LA SOLICITUD DE PERMISO


Proposed Air Quality Construction Permit
Permiso de Construcción de Calidad del Aire Propuesto
1. Applicant's Name:
Owner or Operator's Name:
2. Actual or Estimated Date the Application will be Submitted to the Department:
3. Exact Location of the Source or Proposed Source:
4. Description of the Source:
Nature of Business:
Process or change for which a permit is requested:
Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
Air Contaminant
Proposed Construction Permit
Net Change Emissions (for permit modification or technical revision)
CO
NOX
SO2
PM10
PM2.5
HAP
VOC
5. Operating Schedule:
Operation Schedule:
6. Current Contact Information for Comments and Inquiries
Name
Address
Phone Number
Email Address
Call 311 for additional information concerning this project, the Air Quality Program, or to file a complaint.
City of Albuquerque, Environmental Health Department, Air Quality Program – Stationary Source Permitting
(505) 768-1972, aqd@cabq.gov
THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION
ESTE AVISO DEBERÁ DE MANTENERSE PUESTO HASTA QUE EL DEPARTAMENTO TOME UNA DECISIÓN SOBRE LA SOLICITUD DE PERMISO
Think Safety
SILVERADO
407 SNM

November 24, 2020

City of Albuquerque
Environmental Health Department
Air Quality Program
P.O. Box 1293
Albuquerque, New Mexico 87103

Subject: Resubmittal of Permit Modification Application for Salls Brothers Construction, Inc. Permit #1791-M2, Albuquerque Rock

Dear Sirs:

Attached please find a copy of the 20.2.41.2 NMAC Permit Modification Application for Permit #1791-M2, Salls Brothers Construction, Inc.'s 250 tons per hour aggregate plant and 250 tons per hour RipRap screen plant. This letter is attached to the application copy that has the original signature page.

For the significant permit modification of Permit 1791-M2 to replace the existing 580 hp engine (Unit 6) with a larger 1190 bhp engine. No change in processing equipment or process rate is proposed.

Please let me know if you have any questions or need additional information.

Sincerely,

Paul Wade

Paul Wade
Sr. Project Manager
Montrose Air Quality Services, LLC

Cc: Arthur Young, Salls Brothers Construction, Inc.

Montrose Air Quality Services, LLC
3500 Comanche Road NE Suite G
Albuquerque, NM 87107-4546

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

Tim Keller,
Mayor

Public Participation

List of Neighborhood Associations,
Neighborhood Coalitions
MEMORANDUM

Ryan C. Mast,
Director

To: Arthur Young, Safety Manager
Salls Brothers Construction, Inc.

From: Carina G. Munoz-Dyer
Environmental Scientist Supervisor

Subject: Determination of Neighborhood Associations and Coalitions within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM (35.184501 Latitude, -106.761645 Longitude)

Date: December 18, 2020

DETERMINATION:

On December 18, 2020 I used the City of Albuquerque Zoning Advanced Map Viewer (http://sharepoint.cabq.gov/gis) to review which City of Albuquerque (COA) Neighborhood Associations (NAs) and Neighborhood Coalitions (NCs) and which Bernalillo County (BC) NAs and NCs are located within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM.

I then used the City of Albuquerque Office of Neighborhood Coordination's Monthly Master NA List dated September 2020 and the Bernalillo County Monthly Neighborhood Association September 2020 Excel file to determine the contact information for each NA and NC located within 0.5 miles of Salls Brothers Portable Aggregate Crushing Plant located 1.25 miles west of Rainbow Boulevard in Bernalillo County, NM (35.184501 Latitude, -106.761645 Longitude).

The table below contains the contact information, which will be used in the applicant's public notice.

City of Albuquerque and/or BC Association or Coalition	Name	Email or Mailing Address
Westside Coaliton of Neighborhood Associations	Elizabeth Haley	ekhaley@comcast.net;
	Rene Horvath	aboard111@gmail.com;

From:	Paul Wade
To:	ekhaley@comcast.net; aboard111@gmail.com
Cc:	Arthur Young; Munoz-Dyer, Carina G.
Subject:	Salls Brothers Air Quality Permit Public Notice
Date:	Friday, December 18, 2020 1:01:11 PM
Attachments:	Salls Brothers NOI Permit 1791M2 Revision Cover Letter.pdf Salls NOI Permit 1791M2 Revision 112520.pdf

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External

Dear Neighborhood Association/Coalition Representative(s)

This email is sent to you per the requirements of Bernalillo County/City of Albuquerque Air Quality Regulation 20.11.41.B.1 NMAC “Applicant’s Public Notice Requirements”. The attached “Notice of Intent” (NOI) addresses a modification to “Authority to Construct” permit 1791-M2 for Salls Brothers Construction, Inc's Portable 250 Ton/Hr Aggregate Crushing Plant. Attached also is the NOI cover letter.

Thank You

--

MEG Logo_Signature

Paul Wade

Sr. Engineer

Montrose Air Quality Services, LLC

3500 G Comanche Rd. NE, Albuquerque, NM 87107

T: 505.830.9680 x6 | F: 505.830.9678

PWade@montrose-env.com

www.montrose-env.com

CONFIDENTIALITY NOTICE: The contents of this email message and any attachments are intended solely for the addressee(s) and may contain confidential, proprietary and/or privileged information and may be legally protected from disclosure. If you are not the intended recipient of this message or their agent, or if this message has been addressed to you in error, please immediately alert the sender by reply email and then delete this message and any attachments and the reply from your system. If you are not the intended recipient, you are hereby notified that any disclosure, use, dissemination, copying, or storage of this message or its attachments is strictly prohibited.

SUBJECT: Public Notice of Proposed Air Quality Construction Permit Application

Dear Neighborhood Association/Coalition Representative(s),

Why did I receive this public notice?
You are receiving this notice in accordance with New Mexico Administrative Code (NMAC) 20.11.41.13.B(1) which requires any applicant seeking an Air Quality Construction Permit pursuant to 20.11.41 NMAC to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located.

What is the Air Quality Permit application review process?
The City of Albuquerque, Environmental Health Department, Air Quality Program (Program) is responsible for the review and issuance of Air Quality Permits for any stationary source of air contaminants within Bernalillo County. Once the application is received, the Program reviews each application and rules it either complete or incomplete. Complete applications will then go through a 30-day public comment period. Within 90 days after the Program has ruled the application complete, the Program shall issue the permit, issue the permit subject to conditions, or deny the requested permit or permit modification. The Program shall hold a Public Information Hearing pursuant to 20.11.41.15 NMAC if the Director determines there is significant public interest and a significant air quality issue is involved.

What do I need to know about this proposed application?

Applicant Name	Salls Brothers Construction, Inc.
Site or Facility Name	Portable 250 ton/hr Aggregate Crushing Plant
Site or Facility Address	The plant will be located south of Paseo Del Norte Blvd NW in New Mexico Meridian, Section 17, Township 11N, and Range 2E. The UTM coordinates is approximately 339,600E, 3,894,950N, Zone 13, NAD 83
New or Existing Source	Existing
Anticipated Date of Application Submittal	November 25, 2020
Summary of Proposed Source to Be Permitted	For the permit modification, Salls Brothers will modify Permit #1791-M2 to replace the existing diesel-fired engines with larger engines.

What emission limits and operating schedule are being requested?
See attached Notice of Intent to Construct form for this information.

How do I get additional information regarding this proposed application?
For inquiries regarding the proposed source, contact:
- Paul Wade
- pwade@montrose-env.com
- (505) 830-9680 x6

For inquiries regarding the air quality permitting process, contact:
- City of Albuquerque Environmental Health Department Air Quality Program
- aqd@cabq.gov
- (505) 768-1972

Notice of Intent to Construct

Under 20.11.41.13B NMAC, the owner/operator is required to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half-mile of the exterior boundaries of the property on which the source is or is proposed to be located if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC – Construction Permits. **A copy of this form must be included with the application.**

Applicant's name and address:
Nombre y domicilio del solicitante: Salls Brothers Construction, Inc., 7301 Reading Dr. NE, Albuquerque, NM, 87105

Owner or operator's name and address:
Nombre y domicilio del propietario u operador: Salls Brothers Construction, Inc., 7301 Reading Dr. NE, Albuquerque, NM, 87105

Actual or estimated date the application will be submitted to the department:
Fecha actual o estimada en que se entregará la solicitud al departamento: November 25, 2020

Description of the source:
Descripción de la fuente: A 250 tons per hour portable aggregate plant and 250 tons per hour portable riprap screen plant

Exact location of the source or proposed source:
Ubicación exacta de la fuente o fuente propuesta: The plant will be located south of Paseo Del Norte Blvd NW in New Mexico Meridian, Section 17, Township 11N, and Range 2E. The UTM coordinates is approximately 339,600E, 3,894,950N, Zone 13, NAD 83

Nature of business:
Tipo de negocio: Operation of a 250 tons per hour portable aggregate plant and 250 tons per hour portable riprap screen plant

Process or change for which the permit is requested:
Proceso or cambio para el cuál de solicita el permiso: For the permit modification, Salls Brothers will modify Permit #1791-M2 to replace the existing engines with larger engines.

Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant *Contaminante de aire*	**Proposed Construction Permit** *Permiso de Construcción Propuesto*		**Net Changes (for permit modification or technical revision)** *Cambio Neto de Emisiones (para modificación de permiso o revisión técnica)*	
	pounds per hour *libras por hora*	tons per year *toneladas por año*	pounds per hour *libras por hora*	tons per year *toneladas por año*
CO	8.75	17.9	4.61	9.2
NOx	29.2	59.7	10.0	19.3
VOC	0.71	1.44	-0.82	-1.78
SO2	0.46	0.95	0.22	0.45
PM10	9.95	10.97	-22.42	-32.91
PM2.5	2.05	3.07	-3.81	-5.78

City of Albuquerque – Environmental Health Department
Air Quality Program – Permitting Division
Phone (505) 768-1972 **E-mail: aqd@cabq.gov**

HAP	0.055	0.0087	<0.055	<0.0087

Maximum operating schedule:
Horario máximo de operaciones:
The facility requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Normal operating schedule:
Horario normal de operaciones:
The facility requested operating time will be 9 hours per day for the months of November through February, 13 hours per day for the months of April through August, and 11 hours per day for the months of March, September, and October, 7 days per week, 4081 hours per year.

Current contact information for comments and inquires:
Datos actuales para comentarios y preguntas:

Name *(Nombre):* Arther Young
Address *(Domicilio):* PO Box 66239, Albuquerque, NM 87193-6239
Phone Number *(Número Telefónico)*: (505) 873-8780
E-mail Address *(Correo Electrónico)*: ayoung@sallsbrothers.com

If you have any comments about the construction or operation of the above facility, and you want your comments to be made part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager
Permitting Division
Albuquerque Environmental Health Department
Air Quality Program
P.O. Box 1293
Albuquerque, New Mexico 87103
(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published on the City of Albuquerque's website, https://www.cabq.gov/airquality/air-quality-permits and sent to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.