City of Albuquerque
Environmental Health Department
Air Quality Programs

BLACK ROCK SERVICES

Invoice ID : **IN0006205** Facility ID: **FA0005584** A/R ID : **AR0005584**

Date	Permit #	Description	Amount
12/12/2016	3306	RAP PLANT 103-115 Llano Del Sur SE -STATIONARY SOURCE REVIEW FEE 1 - 5 TPY	$816.00
12/12/2016	3306	RAP PLANT 103-115 Llano Del Sur SE -40 CFR 60 STANDARD - FEDERAL REVIEW FEE	$1,088.00

Due Date: 12/12/2016 Total Due for This Invoice: $1,904.00

NOTICE TO CUSTOMERS:

When you provide a check as payment, you authorize us either to use information from your check to make a one-time electronic fund transfer (ACH) from your account or to process the payment as a check transaction.

PAID

ITEMS OVER 120 DAYS PAST DUE MAY BE SENT TO COLLECTIONS

1-30 Days	31-60 Days	61-90 Days	91-120 Days	121+ Plus	Account Amount Due
$ 1,904.00	$ 0.00	$ 0.00	$ 0.00	$ -250.00	$ 1,654.00

PLEASE RETURN THE BOTTOM PORTION OF THIS INVOICE NOTICE WITH PAYMENT

Permit #3306.

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	Black Rock Services, LLC		
Company Address	PO Box 1379 Peralta, NM 87042		
Facility Name	Black Rock Services RAP Plant		
Facility Address	103-115 Llano Del Sur SE, Albuquerque, NM 87105		
Contact Person	Robert Caldwell		
Contact Person Phone Number	(505) 206-1101		
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 #**	
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
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	$ 544.00	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	$ 1,088.00	2301
	Not Applicable	*See Sections Below*	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
X	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$ 816.00	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,632.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,265.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,897.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,530.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$8,162.00	2307
	Not Applicable	*See Section Above*	
Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	$ 1,088.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,088.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,088.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,883.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,442.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,442.00	2313
	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	$ 1,088.00	2321
	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	$ 816.00	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,632.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,265.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,897.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,530.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$8,162.00	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	$ 5,442.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	$ 5,442.00	2334
	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)	$ 1,088.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,088.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,088.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,883.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,442.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,442.00	2333
	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
	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
	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	$1904.00
Section III Total	$
Section IV Total	$
Section V Total	$
Total Application Review Fee	**$1904.00**

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 2 **day of** December **20**16

Robert Caldwell — **Print Name**

Managing Member — **Print Title**

R Caldwell

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 Services Section
11850 Sunset Gardens SW - Albuquerque, New Mexico 87121
(505) 768 - 1930 (Voice) (505) 768 - 2482 (TTY) (505) 768 - 1977 (Fax)

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Authority-to-Construct Permits (20.11.41 NMAC)

NOTE: Information relating to process or production techniques unique to owner, or data relating to profits and costs not previously made public can be protected as confidential. Check confidentiality box at signature line (page 6) if requesting confidentiality for this application.

Clearly handwrite or type **Corporate Information** **Submittal Date: 12/02/2016**

1. Company Name Black Rock Services, LLC. Street Address 103-115 Llano Del Sur SE Zip 87105

3. Company City Albuquerque 4. Company State NM 5. Company Phone 505-873-6524 6. Company Fax 505-873-6571

7. Company Mailing Address: PO Box 1379 Peralta, NM Zip: 87042

8. Company Contact: Robert Caldwell 9. Phone: 505-206-1101 10. Title: Managing Member

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&distances to property boundaries]

1. Facility Name Black Rock Services 2. Street Address 103-115 Llano Del Sur SE

3. City Albuquerque 4. State NM 5. Facility Phone (505) 873-6524 6. Facility Fax (505) 873-6571

7. Facility Mailing Address (Local) PO Box 1379 Peralta, NM Zip 87042

8. Latitude - Longitude or UTM Coordinates of Facility UTM 348,610E; 3,874,400N Zone 13, NAD83

9. Facility Contact Robert Caldwell 10. Phone (505) 206-1101 11.Title: Managing Member

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) Portable Recycled Asphalt Plant (RAP)

2. Standard Industrial Classification (SIC 4 digit #) 1499 3. North American Industry Classification System (NAICS Code #) 212399

4. Is facility currently operating in Bernalillo Cnty. NO If yes, date of original construction _____ If no, planned startup is 04/01/2017

5. Is facility permanent YES If no, give dates for requested temporary operation - from ____/____/____ through ____/____/____

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 NO 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 continuous, **intermittent**, batch(circle one) 9. Estimated % of production Jan-Mar 20 Apr-Jun 29 Jul-Sep 29 Oct-Dec 22

10. Current or requested operating times of facility Various hrs/day 7 days/wk 4.3 wks/mo 12 mos/yr 11. Business hrs 5:00 am to 7:30 pm

12. Will there be special or seasonal operating times other than shown above YES If yes, explain See table below.

Month	Start Time	Stop Time	Total Daily Time
January	8:00 AM	5:00 PM	9
February	8:00 AM	5:00 PM	9
March	6:00 AM	6:00 PM	12
April	5:00 AM	7:00 PM	14
May	5:00 AM	7:00 PM	14
June	5:00 AM	7:30 PM	14.5
July	5:00 AM	7:30 PM	14.5
August	5:00 AM	7:00 PM	14
September	5:30 AM	6:30 PM	13
October	6:00 AM	6:00 PM	12
November	6:30 PM	5:00 PM	10.5
December	8:00 AM	5:00 PM	9

13. Raw materials processed Recycled Asphalt Products 14. Saleable item(s) produced Recycled Asphalt Products

PROCESS EQUIPMENT TABLE

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.)

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	TBD	TBD	TBD	TBD	TBD	N/A	300 tons/HR. 550,000 tons/YR.	None
2. Primary Crusher	TBD	TBD	TBD	TBD	TBD	N/A	300 tons/HR. 550,000 tons/YR.	None
3.Crusher Conveyor	TBD	TBD	TBD	TBD	TBD	N/A	300 tons/HR. 550,000 tons/YR.	None
4, 4a, 4b, 4c. Screen with under conveyors (3)	TBD	TBD	TBD	TBD	TBD	N/A	300 tons/HR. 550,000 tons/YR.	None
5. Recycle Conveyor #1	TBD	TBD	TBD	TBD	TBD	N/A	180 tons/HR. 330,000 tons/YR.	None
6. Recycle Conveyor #2	TBD	TBD	TBD	TBD	TBD	N/A	180 tons/HR. 330,000 tons/YR.	None
7. Stacker Conveyor	TBD	TBD	TBD	TBD	TBD	N/A	150 tons/HR. 275,000 tons/YR.	None
8. Stacker Conveyor	TBD	TBD	TBD	TBD	TBD	N/A	150 tons/HR. 275,000 tons/YR.	None
9. Raw Material Handling & Storage	N/A	N/A	N/A	N/A	N/A	N/A	300 tons/HR. 550,000 tons/YR.	None
10. Finish Storage Pile	N/A	N/A	N/A	N/A	N/A	N/A	300 tons/HR. 550,000 tons/YR.	None
11. Haul Roads	N/A	N/A	N/A	N/A	N/A	N/A	12 trucks/HR. YR.	None

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

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	1.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	AP-42 Section 13.2.4, 8.5 MPH Wind Speed, 2% Moisture Content, 70% Inherent Efficiency
	1a.	tons/yr	tons/yr	tons/yr	tons/yr	1.86 tons/yr	
2. Primary Crusher	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	1.62 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Tertiary Crushing Uncontrolled"
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	7.10 tons/yr	
3. Crusher to Crusher Conveyor Drop	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.90 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	3.94 tons/yr	
4. Screen	4.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	7.5 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Screening Uncontrolled"
	4a.	tons/yr	tons/yr	tons/yr	tons/yr	32.9 tons/yr	
4a. Screen Under Conveyor drop to Conveyor	4a.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.45 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	4aa.	tons/yr	tons/yr	tons/yr	tons/yr	1.97 tons/yr	
4b. Screen Under Conveyor drop to Conveyor	4b.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.45 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	4ba.	tons/yr	tons/yr	tons/yr	tons/yr	1.97 tons/yr	
4c. Screen Under Conveyor drop to Conveyor	4c.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.54 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	4ca.	tons/yr	tons/yr	tons/yr	tons/yr	2.37 tons/yr	
5. Recycle Conveyor	5.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.54 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	5a.	tons/yr	tons/yr	tons/yr	tons/yr	2.37 tons/yr	
6. Recycle Conveyor	6.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.54 lbs/hr	AP-42 Section 11.19.2, Table 11.19.2-1"Conveyor Transfer Point Uncontrolled"
	6a.	tons/yr	tons/yr	tons/yr	tons/yr	2.37 tons/yr	
7. Stacker Conveyor	7.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.21 lbs/hr	AP-42 Section 13.2.4, 8.5 MPH Wind Speed, 2% Moisture Content, 70% Inherent Efficiency
	7a.	tons/yr	tons/yr	tons/yr	tons/yr	0.93 tons/yr	
Totals of Uncontrolled Emissions (1 - 7)		lbs/hr	lbs/hr	lbs/hr	lbs/hr	13.18 lbs/hr	
		tons/yr	tons/yr	tons/yr	tons/yr	57.72 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.**

* **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.**

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

Copy this page if additional space is needed for either table (begin numbering with 4., 5., etc.)

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.)
8. Stacker Conveyor	8. lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.21 lbs/hr	AP-42 Section 13.2.4, 8.5 MPH Wind Speed, 2% Moisture Content, 70% Inherent Efficiency
	8a. tons/yr	tons/yr	tons/yr	tons/yr	0.93 tons/yr	
9. Raw Material Handling & Storage	9. lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	AP-42 Section 13.2.4, 8.5 MPH Wind Speed, 2% Moisture Content, 70% Inherent Efficiency
	9a. tons/yr	tons/yr	tons/yr	tons/yr	1.86 tons/yr	
10. Finish Storage Pile	10. lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	AP-42 Section 13.2.4, 8.5 MPH Wind Speed, 2% Moisture Content, 70% Inherent Efficiency
	10a. tons/yr	tons/yr	tons/yr	tons/yr	1.86 tons/yr	
11. Haul Road	11. lbs/hr	lbs/hr	lbs/hr	lbs/hr	22.14 lbs/hr	AP-42 Section 13.2.2, 27.5 tons Vehicle Weight, 4.8% Silt Content
	11a. tons/yr	tons/yr	tons/yr	tons/yr	81.03 tons/yr	
Totals of Uncontrolled Emissions (8 - 11)	lbs/hr	lbs/hr	lbs/hr	lbs/hr	23.20 lbs/hr	
	tons/yr	tons/yr	tons/yr	tons/yr	85.68 tons/yr	

* **If any one (1) of these process units, <u>or</u> 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.**

* **If all of these process units, individually <u>and</u> 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.**

Note: <u>If your source does not require a registration or permit, based on above pollutant emissions, complete the remainder of this application to determine if a registration or permit would be required for any Toxic or Hazardous air pollutants used at your facility.</u>

<u>Copy this page if additional space is needed for either table (begin numbering with 4., 5., etc.)</u>

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	1.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	None	0.0
	1a.	tons/yr	tons/yr	tons/yr	tons/yr	0.39 tons/yr		
2. Primary Crusher	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.36 lbs/hr	Water Sprays	77.8
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	0.33 tons/yr		
3. Crusher to Crusher Conveyor Drop	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.042 lbs/hr	Moisture Carryover	95.3
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	0.039 tons/yr		
4. Screen	4.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.66 lbs/hr	Water Sprays	91.2
	4a.	tons/yr	tons/yr	tons/yr	tons/yr	0.61 tons/yr		
4a. Screen Under Conveyor drop to Conveyor	4a.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.021 lbs/hr	Moisture Carryover	95.3
	4aa.	tons/yr	tons/yr	tons/yr	tons/yr	0.019 tons/yr		
4b. Screen Under Conveyor drop to Conveyor	4b.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.021 lbs/hr	Moisture Carryover	95.3
	4ba.	tons/yr	tons/yr	tons/yr	tons/yr	0.019 tons/yr		
4c. Screen Under Conveyor drop to Conveyor	4c.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.025 lbs/hr	Moisture Carryover	95.3
	4ca.	tons/yr	tons/yr	tons/yr	tons/yr	0.023 tons/yr		
5. Recycle Conveyor	5.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.025 lbs/hr	Moisture Carryover	95.3
	5a.	tons/yr	tons/yr	tons/yr	tons/yr	0.023 tons/yr		
6. Recycle Conveyor	6.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.025 lbs/hr	Moisture Carryover	95.3
	6a.	tons/yr	tons/yr	tons/yr	tons/yr	0.023 tons/yr		
7. Stacker Conveyor	7.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.13 lbs/hr	Moisture Carryover	40.0
	7a.	tons/yr	tons/yr	tons/yr	tons/yr	0.12 tons/yr		
Totals of Controlled Emissions (1 - 7)		lbs/hr	lbs/hr	lbs/hr	lbs/hr	1.73 lbs/hr		
		tons/yr	tons/yr	tons/yr	tons/yr	1.59 tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.)_____
   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
8. Stacker Conveyor	8.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.13 lbs/hr	Moisture Carryover	40.0
	8a.	tons/yr	tons/yr	tons/yr	tons/yr	0.12 tons/yr		
9. Raw Material Handling & Storage	9.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	None	0.0
	9a.	tons/yr	tons/yr	tons/yr	tons/yr	0.39 tons/yr		
10. Finish Storage Pile	10.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.43 lbs/hr	None	0.0
	10a.	tons/yr	tons/yr	tons/yr	tons/yr	0.39 tons/yr		
11. Haul Road	11.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	2.21 lbs/hr	Millings and Water	80.0
	11a.	tons/yr	tons/yr	tons/yr	tons/yr	1.70 tons/yr		
12.	12.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	12a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
13.	13.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	13a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
14.	14.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	14a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
Totals of Controlled Emissions (8 - 11)		lbs/hr	lbs/hr	lbs/hr	lbs/hr	3.19 lbs/hr		
		tons/yr	tons/yr	tons/yr	tons/yr	2.59 tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Equipment control efficiencies based on AP-42 Section 11.19.2 emission factors, Haul road control efficiency based on NMED AQB approved values for millings and watering.
   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
EXAMPLE 1. Cleaning Solvents	TOLUENE	108883	70%	PRODUCT LABEL	lbs/yr 200 gal/yr	(-)	lbs/yr 50 gal/yr	(=)	lbs/yr 150 gal/yr
1. NA					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
2.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
3.					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.

NOTE: **A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, IF THE SOURCE MEETS THE REQUIREMENTS OF PART 41.

MATERIAL AND FUEL STORAGE TABLE

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 4., 5., 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. Raw Material Stockpile	Raw RAP	¼ acre	Above	None	TBD	300 ton/HR. YR.	300 tons/HR. YR.	Psia			
2. Finish Material Stockpile	Raw RAP	¼ acre	Above	None	TBD	300 ton/HR. YR.	300 tons/HR. YR.	Psia			
3.						HR. YR.	HR. YR.	Psia			

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

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

STACK AND EMISSION MEASUREMENT TABLE

f 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 o show the association between the Process Equipment and it's Stack. Copy this table if additional space is needed (begin numbering with 4., 5., 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-
1. NA								
2.								
3.								

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

ADDITIONAL COMMENTS OR INFORMATION

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 2 day of December, 2016

Robert Caldwell
Print Name

Managing Member
Print Title

Signature

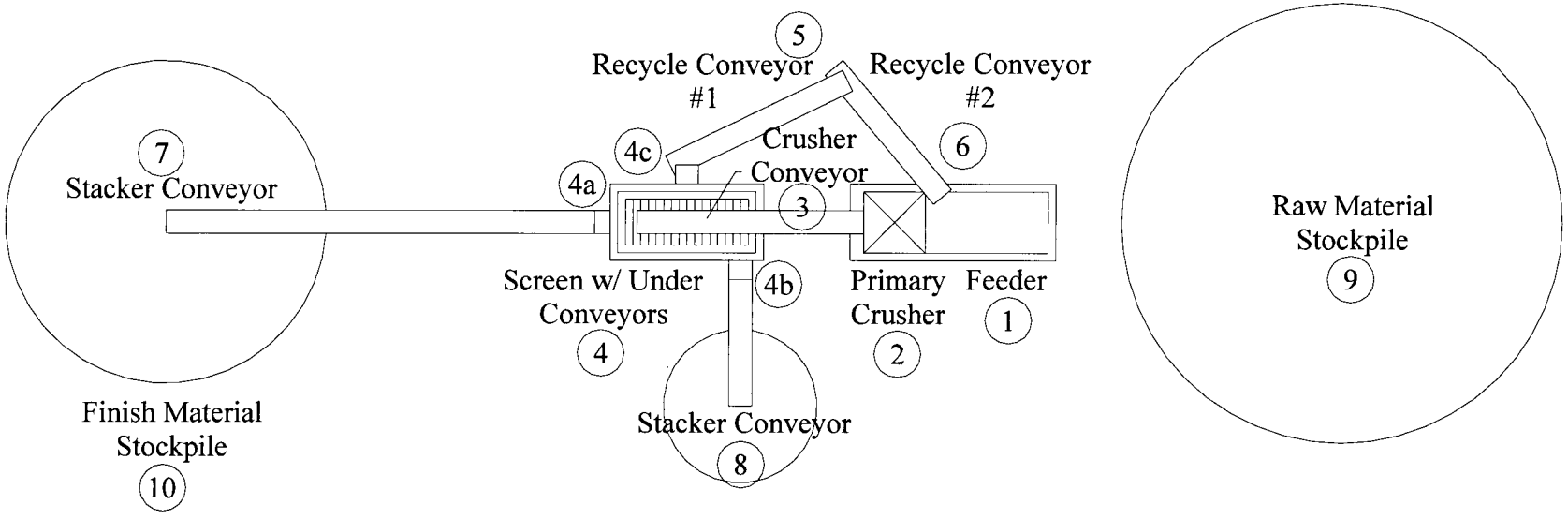

Figure A-1: Black Rock's RAP Process Flow

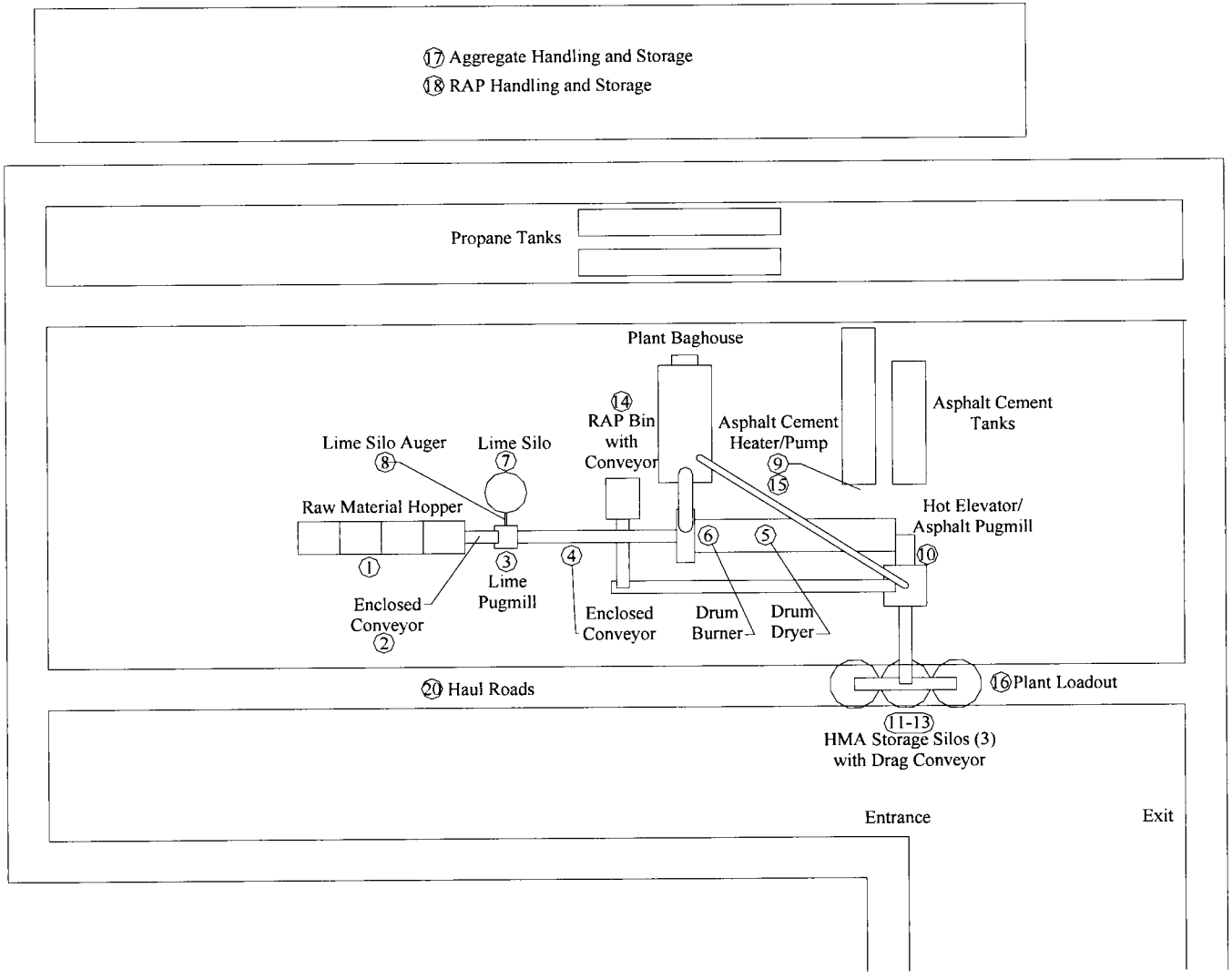

Figure A-2: Black Rock's 300 TPH HMA Plant Process Flow

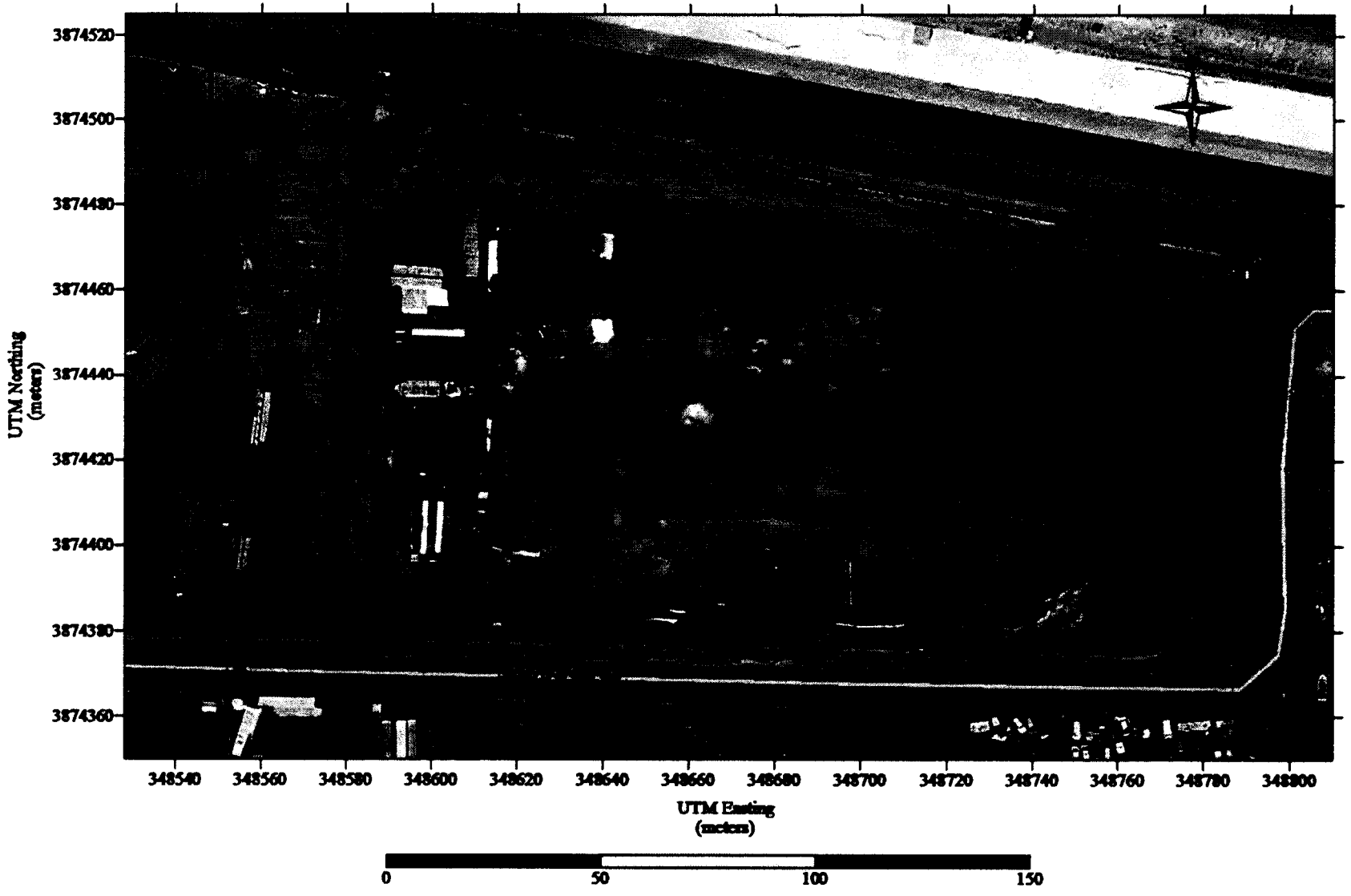

Figure A-3: Black Rock's Broadway Plant Layout

Pre-Control Particulate Emission Rates

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

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 RAP handling operations (RAP piles/ loading feed bins/stacker conveyor drop to pile), 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 and annual emission rate emission rate are 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. Additionally, the emission factors are reduced further because of the inherent properties of RAP with a coating of asphalt cement which captures small particles within the material. Based on EPA documents "EIIP – Preferred and Alternative Methods for Estimating Air Emissions from Hot-Mix-Asphalt Plants, Final Report, July 1996, Table 3.2-1 Fugitive Dust – Crushed RAP material" the inherent typical efficiency of the material is 70% (see Attachment C). The equation in AP-42 Section 13.2.4 was multiplied by 0.3 to account for the 70% reduction in emissions due to RAP material properties.

Maximum hourly RAP production is 300 tons per hours. The recirculation rate from the screen to the crusher is estimated to be a maximum of 180 TPH (60%), but the crusher limit will still be 300 TPH. Uncontrolled annual emissions for tons per year (tpy) were calculated assuming operation for 8760 hours per year.

RAP Storage Piles, Feed Bin Loading, and Stacker Conveyor Drop Emission Equation:

Maximum Hour Emission Factor

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.00142 lbs/ton;

E_{PM10} (lbs/ton) = 0.00067 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00010 lbs/ton

AP-42 Emission Factors:

All 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	TSP 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
Uncontrolled Screen Under Conveyors and Conveyor Transfers	0.00300	0.00110	0.00017
Uncontrolled RAP Storage Piles, RAP Feeder Loading, RAP Stacker Conveyor to Pile	0.00142	0.00067	0.00010

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

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

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

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

Table B-1 Pre-Controlled Material Handling Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	TSP Emission Rate (lbs/hr)	TSP 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)
9	Raw Storage Pile	300	0.42	1.86	0.20	0.88	0.030	0.13
1	Feeder	300	0.42	1.86	0.20	0.88	0.030	0.13
2	Primary Crusher	300	1.62	7.10	0.72	3.15	0.109	0.48
3	Conveyor Transfer Point	300	0.90	3.94	0.33	1.45	0.050	0.22
4	Screen	300	7.5	32.9	2.61	11.4	0.40	1.73
4a	Under Screen Conveyor Transfer Point	150	0.45	1.97	0.17	0.72	0.025	0.11
4b	Under Screen Conveyor Transfer Point	150	0.45	1.97	0.17	0.72	0.025	0.11
4c	Under Screen Conveyor Transfer Point	180	0.54	2.37	0.20	0.87	0.030	0.13
5	Recycle Conveyor Transfer Point	180	0.54	2.37	0.20	0.87	0.030	0.13
6	Recycle Conveyor Transfer Point	180	0.54	2.37	0.20	0.87	0.030	0.13
7,8	Stacker Conveyor Drop	300	0.42	1.86	0.20	0.88	0.030	0.13
10	Finish Storage Pile	300	0.42	1.86	0.20	0.88	0.030	0.13
		TOTALS	14.2	62.4	5.4	23.6	0.82	3.6

HAUL TRUCK TRAVEL

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. The haul road around the plant will be unpaved. Haul trucks will be used to deliver recycled asphalt material to be processed at the site. Table B-2 summarizes the emission rate from haul truck traffic.

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
TSP = 4.9

s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (27.5 tons)
p = number of days with at least 0.01 in of precip. (NMED Policy = 60 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
TSP = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
TSP = 0.45
Trucks per Hour
Total Trucks = 12.0 trucks per hour average

VMT =Vehicle Miles Traveled
Total Trucks Unpaved – 0.26383 miles per vehicle; 3.166 miles/hr

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
TSP = 6.9925 lbs/VMT
PM10 = 1.7821 lbs/VMT
PM2.5 = 0.1782 lbs/VMT

Annual Emission Rate Factor
TSP = 5.8430 lbs/VMT
PM10 = 1.4892 lbs/VMT
PM2.5 = 0.1489 lbs/VMT

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

Process Unit Description	Process Rate	TSP Emission Rate (lbs/hr)	TSP 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)
RAP Truck Unpaved	3.16600 miles/hr; 27,734.1 miles/yr	22.14	81.03	5.64	20.65	0.56	2.07

Controlled Particulate Emission Rates

No fugitive dust controls or emission reductions are proposed for the RAP storage piles or loading of the RAP feed bin (Units 1, 9, and 10) with the exception of limiting annual production rates.

Fugitive dust control for the RAP plant transfer conveyors (Units 3, 4a, 4b, 4c, 5, and 6) will be controlled with material moisture content. It is estimated that these methods will control to an efficiency of 95.3 percent per AP42 Section 11.19.2, Table 11.19.2-2. Additional emission reductions include limiting annual production rates.

Fugitive dust control for the RAP primary crusher (Unit 2) will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 77.8 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 for the RAP screen (Unit 4), will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 91.2 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 pile (Units 7 and 8) will be controlled with material moisture content. 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. 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 uncontrolled particulate emission rates for RAP handling operations (RAP storage piles and loading RAP feeder; Units 1, 9, and 10), 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 and annual emission rate emission rate are 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. Additionally, the emission factors are reduced further because of the inherent properties of RAP with a coating of asphalt which captures small particles within the material. Based on EPA documents "EIIP – Preferred and Alternative Methods for Estimating Air Emissions from Hot-Mix-Asphalt Plants, Final Report, July 1996, Table 3.2-1 Fugitive Dust – Crushed RAP material" the inherent

typical efficiency of the material is 70% (see Attachment C). The equation in AP-42 Section 13.2.4 was multiplied by 0.3 to account for the 70% reduction in emissions due to RAP material properties.

To estimate material handling control particulate emission rates for RAP plant stacker conveyor to storage pile (Units 7 and 8), 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 and annual emission rate emission rate are based on the average wind speed for Albuquerque for the years of 1996 through 2006 of 8.5 mph, and the footnote b of AP-42 Table 11.19.2-2 high moisture content of 2.88 percent. Additionally, the emission factors are reduced further because of the inherent properties of RAP with a coating of asphalt which captures small particles within the material. Based on EPA documents "EIIP – Preferred and Alternative Methods for Estimating Air Emissions from Hot-Mix-Asphalt Plants, Final Report, July 1996, Table 3.2-1 Fugitive Dust – Crushed RAP material" the inherent typical efficiency of the material is 70% (see Attachment C). The equation in AP-42 Section 13.2.4 was multiplied by 0.3 to account for the 70% reduction in emissions due to RAP material properties.

The maximum hourly throughput for the RAP plant feeders is 300 tons per hour and 550,000 tons per year.

RAP Storage Piles and RAP Feeder Loading Emission Equation:

Maximum Hour Emission Factor

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.00142 lbs/ton;

E_{PM10} (lbs/ton) = 0.00067 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00010 lbs/ton

RAP Plant Storage Pile Loading from Stacker Conveyor (Units 7 and 8) Emission Equation:

Maximum Hour Emission Factor

E (lbs/ton) = k x 0.0032 x $(U/5)^{1.3}$ / $(M/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.74 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$ x 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$ x 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(8.5/5)^{1.3}$ / $(2.88/2)^{1.4}$ x 0.3

E_{TSP} (lbs/ton) = 0.00085 lbs/ton;

E_{PM10} (lbs/ton) = 0.00040 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00006 lbs/ton

AP-42 Emission Factors:

Crusher = Controlled Tertiary Crusher Emission Factor
Screen = Controlled Screening Emission Factor
Transfer Conveyor = Controlled Conveyor Transfer Point Emission Factor
Screen Under Conveyors = Controlled Conveyor Transfer Point Emission Factor

Material Handling Emission Factors:

Process Unit	TSP 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 Transfer Conveyor	0.00014	0.00005	0.000013
Controlled Screen Unloading	0.00014	0.00005	0.000013
RAP Storage Piles, Feeder Loading, Maximum Hourly	0.00142	0.00067	0.00010
RAP Stacker Conveyor to Pile Maximum Hourly	0.00085	0.00040	0.00006

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:

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

Table B-4 Controlled Material Handling Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	TSP Emission Rate (lbs/hr)	TSP 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)
9	Raw Storage Pile	300	0.42	0.39	0.20	0.18	0.030	0.028
1	Feeder	300	0.42	0.39	0.20	0.18	0.030	0.028
2	Primary Crusher	300	0.36	0.33	0.16	0.15	0.030	0.028
3	Conveyor Transfer Point	300	0.042	0.039	0.014	0.013	0.0039	0.0036
4	Screen	300	0.66	0.61	0.22	0.20	0.015	0.014
4a	Under Screen Conveyor Transfer Point	150	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4b	Under Screen Conveyor Transfer Point	150	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4c	Under Screen Conveyor Transfer Point	180	0.025	0.023	0.0083	0.0076	0.0023	0.0021
5	Recycle Conveyor Transfer Point	180	0.025	0.023	0.0083	0.0076	0.0023	0.0021
6	Recycle Conveyor Transfer Point	180	0.025	0.023	0.0083	0.0076	0.0023	0.0021
7,8	Stacker Conveyor Drop	300	0.25	0.23	0.12	0.11	0.018	0.017
10	Finish Storage Pile	300	0.42	0.39	0.20	0.18	0.030	0.028
TOTALS			2.7	2.5	1.2	1.1	0.17	0.16

Controlled Haul Truck Travel

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. Haul trucks will be used to deliver recycled asphalt material to be processed at the site. Haul road traffic emission rates controlled by asphalt millings and water applied have a control efficiency of 90% per NMED policy. Table B-5 summarizes the emission rate for each haul truck category.

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
TSP = 4.9
s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (27.5 tons)
p = number of days with at least 0.01 in of precip. (NMED Policy = 60 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
TSP = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
TSP = 0.45
Trucks per Hour
Total Trucks = 12.0 trucks per hour average
Total Trucks = 22,000 trucks per year

VMT =Vehicle Miles Traveled
Total Trucks Unpaved – 0.26383 miles per vehicle; 3.166 miles/hr
Total Trucks Unpaved – 5,804.3 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 with 90% CE
TSP = 0.69925 lbs/VMT
PM10 = 0.17821 lbs/VMT
PM2.5 = 0.01782 lbs/VMT

Annual Emission Rate Factor with 90% CE
TSP = 0.58430 lbs/VMT
PM10 = 0.14892 lbs/VMT
PM2.5 = 0.01489 lbs/VMT

Table B-5: Controlled Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	TSP Emission Rate (lbs/hr)	TSP 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)
RAP Truck Unpaved	3.16600 miles/hr; 5804.3 miles/yr	2.2	1.7	0.56	0.43	0.056	0.043

Table B-6 Summary of Uncontrolled PM Emission Rates

Unit #	Description	TSP		PM_{10}		$PM_{2.5}$	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
9	Raw Storage Pile	0.42	1.86	0.20	0.88	0.030	0.13
1	Feeder	0.42	1.86	0.20	0.88	0.030	0.13
2	Primary Crusher	1.62	7.10	0.72	3.15	0.109	0.48
3	Conveyor Transfer Point	0.90	3.94	0.33	1.45	0.050	0.22
4	Screen	7.5	32.9	2.61	11.4	0.40	1.73
4a	Under Screen Conveyor Transfer Point	0.45	1.97	0.17	0.72	0.025	0.11
4b	Under Screen Conveyor Transfer Point	0.45	1.97	0.17	0.72	0.025	0.11
4c	Under Screen Conveyor Transfer Point	0.54	2.37	0.20	0.87	0.030	0.13
5	Recycle Conveyor Transfer Point	0.54	2.37	0.20	0.87	0.030	0.13
6	Recycle Conveyor Transfer Point	0.54	2.37	0.20	0.87	0.030	0.13
7,8	Stacker Conveyor Drops	0.42	1.86	0.20	0.88	0.030	0.13
10	Finish Storage Pile	0.42	1.86	0.20	0.88	0.030	0.13
11	Haul Road Traffic	22.1	81.0	5.64	20.7	0.56	2.07
	Total	**36.4**	**143.4**	**11.0**	**44.2**	**1.38**	**5.64**

Table B-7 Summary of Controlled PM Emission Rates

Unit #	Description	TSP		PM_{10}		$PM_{2.5}$	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
9	Raw Storage Pile	0.42	0.39	0.20	0.18	0.030	0.028
1	Feeder	0.42	0.39	0.20	0.18	0.030	0.028
2	Primary Crusher	0.36	0.33	0.16	0.15	0.030	0.028
3	Conveyor Transfer Point	0.042	0.039	0.014	0.013	0.0039	0.0036
4	Screen	0.66	0.61	0.22	0.20	0.015	0.014
4a	Under Screen Conveyor Transfer Point	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4b	Under Screen Conveyor Transfer Point	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4c	Under Screen Conveyor Transfer Point	0.025	0.023	0.0083	0.0076	0.0023	0.0021
5	Recycle Conveyor Transfer Point	0.025	0.023	0.0083	0.0076	0.0023	0.0021
6	Recycle Conveyor Transfer Point	0.025	0.023	0.0083	0.0076	0.0023	0.0021
7,8	Stacker Conveyor Drops	0.25	0.23	0.12	0.11	0.018	0.017
10	Finish Storage Pile	0.42	0.39	0.20	0.18	0.030	0.028
11	Haul Road Traffic	2.2	1.7	0.56	0.43	0.056	0.043
	Total	**4.9**	**4.2**	**1.72**	**1.50**	**0.23**	**0.20**

Attachment C
Emissions Calculations Background Documents

Black Rock Services, LLC - RAP Plant - Uncontrolled Emission Calculations
300 tph

Plant Throughput	300	tph	Maximum Rated Throughput for Crusher			
Crusher Througput	300		Maximum Rated Throughput for Crusher			
Plant Throughput	2628000	tpy	based on 300 tph and 8760 hours per year			
Uncontrolled Engine Hours	8760	hours/yr				
AP-42 Section 13.2.4 "Aggregate Handling" (ver 11/2006)						
E = k x (0.0032) x (U/5)^1.3 / (M/2)^1.4 lbs/ton						
k(tsp)	0.74			0.74		
k(pm10)	0.35			0.35		
k(pm2.5)	0.053			0.053		
U Annual	8.5	Max MPH	Albq Airport 1996-2006	8.5	Max MPH	Albq Airport 1996-2006
M	2.00	%	Conservative NMED Default	2.00	%	Conservative NMED Default

E(TSP) Annual Hour =	0.00472	lbs/ton	E(TSP) Annual Hour =	0.00472 lbs/ton
E(PM10) Annual Hour =	0.00223	lbs/ton	E(PM10) Annual Hour =	0.00223 lbs/ton
E(PM2.5) Annual Hour =	0.00034	lbs/ton	E(PM2.5) Annual Hour =	0.00034 lbs/ton

Uncontrolled Emission Factors	TSP	PM10	PM2.5	
Crusher	0.00540 lbs/ton	0.00240 lbs/ton	0.00036 lbs/ton	AP-42 Table 11.19.2-2 "Tertiary Crushing Uncontrolled"
Screen	0.02500 lbs/ton	0.00870 lbs/ton	0.00132 lbs/ton	AP-42 Table 11.19.2-2 "Screening Uncontrolled"
Conveyor	0.00300 lbs/ton	0.00110 lbs/ton	0.00017 lbs/ton	AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
Stacker Hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Feeder Hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Storage Pile Hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Product Piles hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%

Uncontrolled RAP Emission Factors*	TSP	PM10	PM2.5	
Crusher	0.00540 lbs/ton	0.00240 lbs/ton	0.00036 lbs/ton	AP-42 Table 11.19.2-2 "Tertiary Crushing Uncontrolled"
Screen	0.02500 lbs/ton	0.00870 lbs/ton	0.00132 lbs/ton	AP-42 Table 11.19.2-2 "Screening Uncontrolled"
Conveyor	0.00300 lbs/ton	0.00110 lbs/ton	0.00017 lbs/ton	AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
Stacker Hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Feeder Hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Storage Pile Hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Product Piles hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%

* RAP emission factors for material handling are based on the "typical efficiency" of 70% inherent for processing recycled asphalt coated with asphalt cement "EIIP Volume II: Chapter 3, Section 2.2.1 and Table 3.2-1"

PER

Process Unit #	Process Unit Description	% of Throughput	Process Rate TPH	Process Rate TPY	TSP lbs/hr	TSP ton/yr	PM10 lbs/hr	PM10 ton/yr	PM2.5 lbs/hr	PM2.5 ton/yr
9	Raw Storage Pile	100	300	2628000	0.42	1.86	0.20	0.88	0.030	0.13
1	Feeder	100	300	2628000	0.42	1.86	0.20	0.88	0.030	0.13
2	Primary Crusher	100	300	2628000	1.62	7.10	0.72	3.15	0.109	0.48
3	Conveyor Transfer Point	100	300	2628000	0.90	3.94	0.33	1.45	0.050	0.22
4	Screen	100	300	2628000	7.5	32.9	2.61	11.4	0.40	1.73
4a	Under Screen Conveyor Transfer Point	50	150	1314000	0.45	1.97	0.17	0.72	0.025	0.11
4b	Under Screen Conveyor Transfer Point	50	150	1314000	0.45	1.97	0.17	0.72	0.025	0.11
4c	Under Screen Conveyor Transfer Point	60	180	1576800	0.54	2.37	0.20	0.87	0.030	0.13
5	Recycle Conveyor Transfer Point	60	180	1576800	0.54	2.37	0.20	0.87	0.030	0.13
6	Recycle Conveyor Transfer Point	60	180	1576800	0.54	2.37	0.20	0.87	0.030	0.13
7,8	Stacker Conveyor Drop	100	300	2628000	0.42	1.86	0.20	0.88	0.030	0.13
10	Finish Storage Pile	100	300	2628000	0.42	1.86	0.20	0.88	0.030	0.13
				Equipment PM	14.2	62.4	5.4	23.6	0.82	3.6
				Haul Road PM	22.1	81.0	5.64	20.7	0.56	2.07
				Total PM	36.4	143.4	11.0	44.2	1.38	5.64

Black Rock Services, LLC - RAP Plant - Uncontrolled Emission Calculations
300 tph

Haul Road Traffic

AP-42 13.2 Unpaved Road (11/06)

Equation:

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

Annual emissions only include p factor

k TSP	4.9				
k PM10	1.5				
k PM25	0.15				
a TSP	0.7				
a PM10	0.9				
a PM25	0.9				
b TSP	0.45				
b PM10	0.45				
b PM25	0.45				
% Silt Content = s	4.8	%	Sand and Gravel (AP-42 13.2.2-1)		
p = days with precipitation over 0.01 inches	60				
Vehicle control		0.0	%		
		25	tons/load	300 tons/hr	2628000 tpy
RAP Truck VMTUnpaved		424.5	meter/round trip		0.26383 miles/vehicle
Max. RAP Truck/hr		12.0	truck/hr	105120 trucks/yr	
RAP Truck VMTUnpaved		3.16600	miles/hr	27734.1 miles/yr	
RAP Truck weight		27.5	tons		
			TSP Uncontrolled		
Max. RAP Truck Emissions Unpaved		22.14	lbs/hr	81.03 tons/yr	
			PM10 Uncontrolled		
Max. RAP Truck Emissions Unpaved		5.64	lbs/hr	20.65 tons/yr	
			PM2.5 Uncontrolled		
Max. RAP Truck Emissions Unpaved		0.56	lbs/hr	2.07 tons/yr	

Black Rock Services, LLC - RAP Plant - Regulated Emission Calculations
300 tph

Plant Throughput	300 tph	Maximum Rated Throughput for Crusher			
Crusher Througput	300	Maximum Rated Throughput for Crusher			
Plant Throughput	550000 tpy				
Uncontrolled Engine Hours	4380 hours/yr				
AP-42 Section 13.2.4 "Aggregate Handling" (ver 11/2006)					
E = k x (0.0032) x (U/5)^1.3 / (M/2)^1.4 lbs/ton					
k(tsp)	0.74		0.74		
k(pm10)	0.35		0.35		
k(pm2.5)	0.053		0.053		
U Annual	8.5 Max MPH	Albq Airport 1996-2006	8.5 Max MPH	Albq Airport 1996-2006	
M	2.00 %	Conservative NMED Default	2.88 %	Raw Storage Pile Measured Moisture Content	

E(TSP) Annual Hour =	0.00472 lbs/ton	E(TSP) Annual Hour =	0.00283 lbs/ton	
E(PM10) Annual Hour =	0.00223 lbs/ton	E(PM10) Annual Hour =	0.00134 lbs/ton	
E(PM2.5) Annual Hour =	0.00034 lbs/ton	E(PM2.5) Annual Hour =	0.00020 lbs/ton	

Controlled Emission Factors	TSP	PM10	PM2.5	
Crusher	0.00120 lbs/ton	0.00054 lbs/ton	0.00010 lbs/ton	AP-42 Table 11.19.2-2 "Tertiary Crushing Controlled"
Screen	0.00220 lbs/ton	0.00074 lbs/ton	0.00005 lbs/ton	AP-42 Table 11.19.2-2 "Screening Controlled"
Conveyor	0.00014 lbs/ton	0.00005 lbs/ton	0.000013 lbs/ton	AP-42 Table 11.19.2-2 "Conveyor Transfer Point Controlled"
Stacker Hour	0.00283 lbs/ton	0.00134 lbs/ton	0.00020 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Feeder Hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Storage Pile Hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Product Piles hour	0.00472 lbs/ton	0.00223 lbs/ton	0.00034 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%

Controlled RAP Emission Factors*	TSP	PM10	PM2.5	
Crusher	0.00120 lbs/ton	0.00054 lbs/ton	0.00010 lbs/ton	AP-42 Table 11.19.2-2 "Tertiary Crushing Controlled"
Screen	0.00220 lbs/ton	0.00074 lbs/ton	0.000050 lbs/ton	AP-42 Table 11.19.2-2 "Screening Controlled"
Conveyor	0.00014 lbs/ton	0.000046 lbs/ton	0.000013 lbs/ton	AP-42 Table 11.19.2-2 "Conveyor Transfer Point Controlled"
Stacker Hour	0.00085 lbs/ton	0.00040 lbs/ton	0.000061 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Feeder Hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Storage Pile Hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%
Product Piles hour	0.00142 lbs/ton	0.00067 lbs/ton	0.00010 lbs/ton	AP-42 Section 13.2.4 "Aggregate Handling" w=8.5 MPH;M=2%

* RAP emission factors for material handling are based on the "typical efficiency" of 70% inherent for processing recycled asphalt coated with asphalt cement "EIIP Volume II: Chapter 3, Section 2.2.1 and Table 3.2-1"

PTE

Process Unit #	Process Unit Description	% of Throughput	Process Rate TPH	Process Rate TPY	TSP lbs/hr	TSP ton/yr	PM10 lbs/hr	PM10 ton/yr	PM2.5 lbs/hr	PM2.5 ton/yr
9	Raw Storage Pile	100	300	550000	0.42	0.39	0.20	0.18	0.030	0.028
1	Feeder	100	300	550000	0.42	0.39	0.20	0.18	0.030	0.028
2	Primary Crusher	100	300	550000	0.36	0.33	0.16	0.15	0.030	0.028
3	Conveyor Transfer Point	100	300	550000	0.042	0.039	0.014	0.013	0.0039	0.0036
4	Screen	100	300	550000	0.66	0.61	0.22	0.20	0.015	0.014
4a	Under Screen Conveyor Transfer Point	50	150	275000	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4b	Under Screen Conveyor Transfer Point	50	150	275000	0.021	0.019	0.0069	0.0063	0.0020	0.0018
4c	Under Screen Conveyor Transfer Point	60	180	330000	0.025	0.023	0.0083	0.0076	0.0023	0.0021
5	Recycle Conveyor Transfer Point	60	180	330000	0.025	0.023	0.0083	0.0076	0.0023	0.0021
6	Recycle Conveyor Transfer Point	60	180	330000	0.025	0.023	0.0083	0.0076	0.0023	0.0021
7,8	Stacker Conveyor Drop	100	300	550000	0.25	0.23	0.12	0.11	0.018	0.017
10	Finish Storage Pile	100	300	550000	0.42	0.39	0.20	0.18	0.030	0.028
				Equipment PM	2.7	2.5	1.2	1.1	0.17	0.16
				Haul Road PM	2.2	1.7	0.56	0.43	0.056	0.043
				Total PM	4.9	4.2	1.72	1.50	0.23	0.20

Black Rock Services, LLC - RAP Plant - Regulated Emission Calculations
300 tph

Haul Road Traffic (11)
AP-42 13.2 Unpaved Road (11/06)
Equation:
E = k(s/12)^a*(W/3)^b*[(365-p)/365]

Annual emissions only include p factor

k TSP	4.9		
k PM10	1.5		
k PM25	0.15		
a TSP	0.7		
a PM10	0.9		
a PM25	0.9		
b TSP	0.45		
b PM10	0.45		
b PM25	0.45		
% Silt Content = s	4.8 %	Sand and Gravel (AP-42 13.2.2-1)	
p = days with precipitation over 0.01 inches	60		
Vehicle control	90.0 %	millings and water	
	25 tons/load	300 tons/hr	550000 tpy
RAP Truck VMTUnpaved	424.5 meter/round trip		0.26383 miles/vehicle
Max. RAP Truck/hr	12.0 truck/hr	22000 trucks/yr	
RAP Truck VMTUnpaved	3.16600 miles/hr	5804.3 miles/yr	
RAP Truck weight	27.5 tons		
		TSP Control	
Max. RAP Truck Emissions Unpaved	2.21 lbs/hr	1.70 tons/yr	
		PM10 Control	
Max. RAP Truck Emissions Unpaved	0.56 lbs/hr	0.43 tons/yr	
		PM2.5 Control	
Max. RAP Truck Emissions Unpaved	0.056 lbs/hr	0.043 tons/yr	

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[f]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022[d]	E	0.00074[m]	C	0.000050[q]	E
Fines Screening (SCC 3-05-020-21)	0.30[g]	E	0.072[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036[g]	E	0.0022[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030[h]	E	0.00110[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[t]	E	4.6×10^{-5}[t]	D	1.3×10^{-5}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0×10^{-5}[j]	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6×10^{-5}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

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

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

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

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

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

o. References 2, 3, 7, 8

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

q. Reference 15

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

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

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:

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

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

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

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

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

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

VOLUME II: CHAPTER 3

PREFERRED AND ALTERNATIVE METHODS FOR ESTIMATING AIR EMISSIONS FROM HOT-MIX ASPHALT PLANTS

Final Report

July 1996

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Prepared for:
Point Sources Committee
Emission Inventory Improvement Program

In the counterflow drum mixing process, the aggregate is proportioned through a cold feed system prior to introduction to the drying process. As opposed to the parallel flow drum mixing process though, the aggregate moves opposite to the flow of the exhaust gases. After drying and heating take place, the aggregate is transferred to a part of the drum that is not exposed to the exhaust gas and coated with asphalt cement. This process prevents stripping of the asphalt cement by the hot exhaust gas. If RAP is used, it is usually introduced into the coating chamber.

2.2 EMISSION SOURCES

Emissions from HMA plants derive from both controlled (i.e., ducted) and uncontrolled sources. Section 7 lists the source classification codes (SCCs) for these emission points.

2.2.1 MATERIAL HANDLING (FUGITIVE EMISSIONS)

Material handling includes the receipt, movement, and processing of fuel and materials used at the HMA facility. Fugitive particulate matter (PM) emissions from aggregate storage piles are typically caused by front-end loader operations that transport the aggregate to the cold feed unit hoppers. The amount of fugitive PM emissions from aggregate piles will be greater in strong winds (Gunkel, 1992). Piles of RAP, because RAP is coated with asphalt cement, are not likely to cause significant fugitive dust problems. Other pre-dryer fugitive emission sources include the transfer of aggregate from the cold feed unit hoppers to the dryer feed conveyor and, subsequently, to the dryer entrance. Aggregate moisture content prior to entry into the dryer is typically 3 percent to 7 percent. This moisture content, along with aggregate size classification, tend to minimize emissions from these sources, which contribute little to total facility PM emissions. PM less than or equal to 10 μm in diameter (PM_{10}) emissions from these sources are reported to account for about 19 percent of their total PM emissions (NAPA, 1995).

If crushing, breaking, or grinding operations occur at the plant, these may result in fugitive PM emissions (TNRCC, 1994). Also, fine particulate collected from the baghouses can be a source of fugitive emissions as the overflow PM is transported by truck (enclosed or tarped) for on-site disposal. At all HMA plants there may be PM and slight process fugitive volatile organic compound (VOC) emissions from the transport and handling of the hot-mix from the mixer to the storage silo and also from the load-out operations to the delivery trucks (EPA, 1994a). Small amounts of VOC emissions can also result from the transfer of liquid and gaseous fuels, although natural gas is normally transported in a pipeline (Gunkel, 1992, Wiese, 1995).

TABLE 3.2-1

TYPICAL HOT-MIX ASPHALT PLANT EMISSION CONTROL TECHNIQUES

Emission Source	Pollutant	Control Technique	Typical Efficiency (%)
Process	PM and PM_{10}	Cyclones	50 - 75[a,b]
		Multiple cyclones	90[c]
		Settling chamber	<50[b]
		Baghouse	99 - 99.97[a,d]
		Venturi scrubber	90 - 99.5[d,e]
	VOC	Dryer and combustion process modifications	37 - 86[f,g]
	SO_x	Limestone	50[b,e]
		Low sulfur fuel	80[c]
Fugitive dust	PM and PM_{10}	Paving and maintenance	60 - 99[g]
		Wetting and crusting agents	70[b] - 80[c]
		Crushed RAP material, asphalt shingles	70[h]

[a] Control efficiency dependent on particle size ratio and size of equipment.
[b] Source: Patterson, 1995c.
[c] Source: EIIP, 1995.
[d] Typical efficiencies at a hot-mix asphalt plant.
[e] Source: TNRCC, 1995.
[f] Source: Gunkel, 1992.
[g] Source: TNRCC, 1994.
[h] Source: Patterson, 1995a.

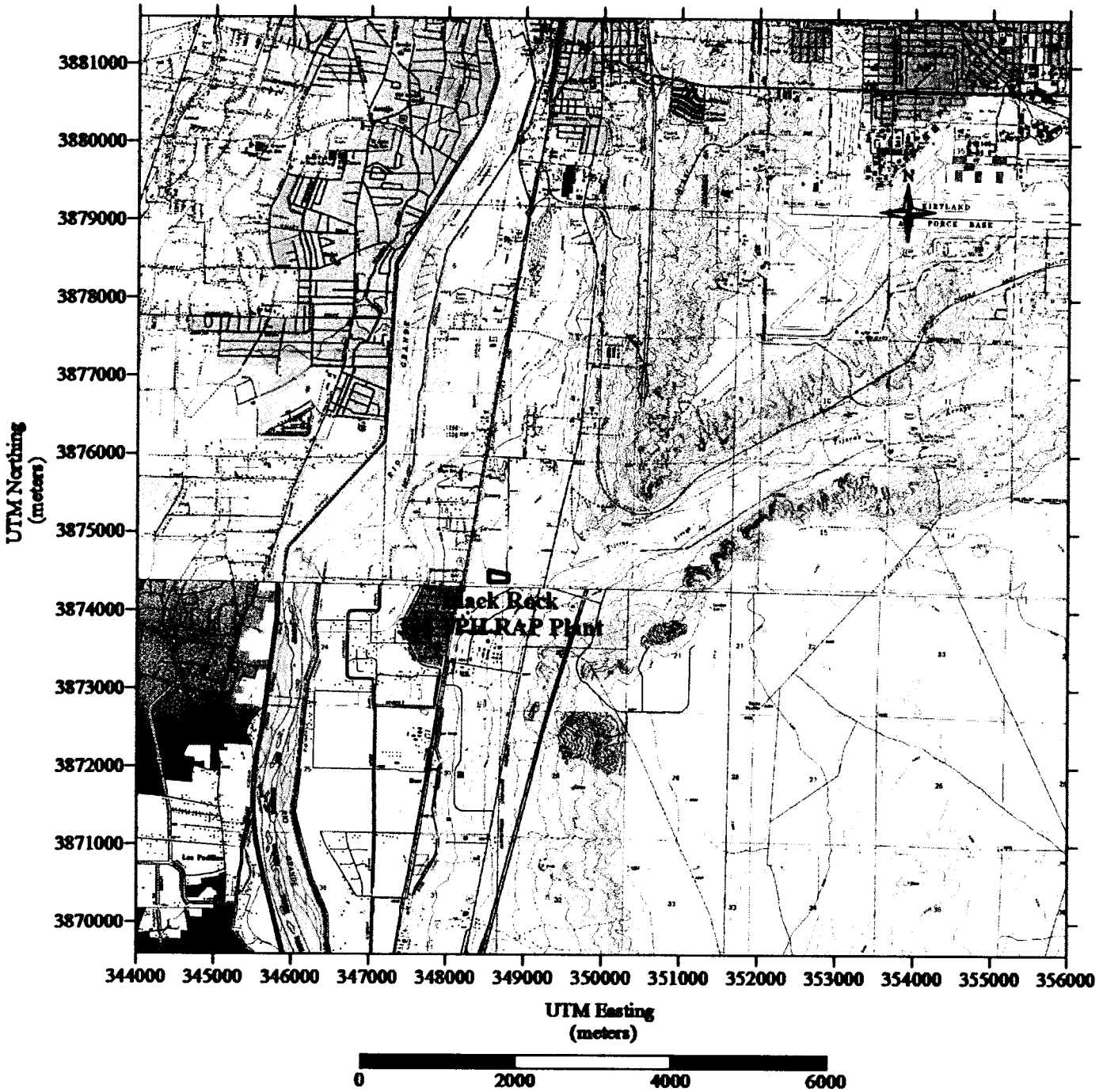

Figure D-1: 7 ½ Minute Topo Map Showing Site Location
Albuquerque West 7 ½ Minute Quadrant
NAD 83

Attachment E
Facility Process Description

Facility Process Description

The Black Rock Services 300 TPH RAP Plant will resize recycled asphalt products (RAP) to be used as raw material in the production of asphalt products. The proposed RAP Plant will consist of a feeder, primary crusher, screen with under conveyors, three (3) transfer conveyors, two (2) stacker conveyors, and storage piles.

For the facility's proposed site, the proposed hours of operation for the RAP plant is daylight hours, for 7 days per week, and 52 weeks per year. Black Rock will take site-specific conditions on daily and annual operating throughput. The hourly throughput for the RAP plant will be 300 tons per hour, with a daily throughput limit of 1800 tons per day (equivalent to operating 6 hours at maximum hourly throughput) for winter months of December through February, a daily throughput limit of 2400 tons per day (equivalent to operating 8 hours at maximum hourly throughput) for spring months of March through May, a daily throughput limit of 3000 tons per day (equivalent to operating 10 hours at maximum hourly throughput) for summer months of June through August, and a daily throughput limit of 2400 tons per day (equivalent to operating 8 hours at maximum hourly throughput) for fall months of September through November. The annual throughput limit for the RAP plant will be 550,000 tons per year. The RAP plant will be powered by commercial line power. At this time no equipment has been purchased.

RAP will be trucked into the site (Unit 11) and unloaded at the raw material pile (Unit 9). The RAP will then be loaded into the feeder (Unit 1) and transferred to the primary crusher (Unit 2) where it will be resized. From the primary crusher, resized material will be conveyed (Unit 3) to the screen (Unit 4) where oversized material is conveyed (Units 4c, 5 and 6) back to the primary crusher for resizing. Waste material will be conveyed to the waste pile (Unit 10) by conveyer (Unit 4a) and stacker conveyor (Unit 8). Product material will be conveyed to the finish pile (Unit 10) by conveyer (Unit 4b) and stacker conveyor (Unit 7).

The facility will utilize water sprays to increase material moisture content at the crusher and screen to reduce the amount of particulate emitted from the plant. Moisture carryover will control particulate emissions at conveyor transfers and stacker conveyor transfers to storage piles. Furthermore, the use of asphalt millings and watering on roadways will be utilized as controls for particulate emissions from haul road traffic.

Process flow diagrams are presented in Attachment A.

Attachment F
Regulatory Applicability Determinations

The following is a list of city and federal regulations that may or may not be applicable to Black Rock

Albuquerque/Bernalillo County Regulations

20.11.1 NMAC– General Provisions: Applicable to Black Rock

Requirement: Consists of definitions which are generally applicable to Albuquerque - Bernalillo county air quality control board regulations.

Compliance: Black Rock will use generally applicable definitions in this permit application.

20.11.2 NMAC– Permit Fees: Applicable to Black Rock

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

Compliance: Black Rock will pay all required permit revision application fees applicable to their facility.

20.11.5 NMAC– Visible Air Contaminants: Applicable to Black Rock

Requirement: Places limits of 20 percent opacity on stationary sources.

Compliance: Black Rock's RAP Plant will limit the opacity from all stationary sources to 20 percent.

20.11.8 NMAC– Ambient Air Quality Standards: Applicable to Black Rock

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

Compliance: Black Rock's RAP Plant 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.

20.11.20 NMAC– Airborne Particulate Matter: Applicable to Black Rock

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

Compliance: Black Rock will apply for a 20.11.20 NMAC permit prior to start of surface disturbances.

20.11.41 NMAC– Authority to Construct: Applicable to Black Rock

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

Compliance: Black Rock is applying for a revision to an existing 20.11.41 NMAC permit with this application.

20.11.49 NMAC– Excess Emissions: Applicable to Black Rock

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

Compliance: Black Rock will report all excess emissions following 20.11.49 NMAC guidelines.

20.11.63 NMAC– New Source Performance Standards: Applicable to Black Rock

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

Compliance: Black Rock will comply with all applicable 40 CFR Part 60 NSPS that have been identified for this facility. For this facility 40 CFR Part 60 Subparts OOO has been identified as applicable standards. Individual requirements will not be identified until specific equipment is purchased.

20.11.66 NMAC– Process Equipment: Applicable to Black Rock

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, Black Rock 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.

20.11.90 NMAC– Administration, Enforcement, Inspection: Applicable to Black Rock

Requirement: General requirement on record keeping and data submission. Black Rock 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 Black Rock. It is expected the 20.11.41 NMAC permit issued to Black Rock will contain specific methods for determining compliance with each specific emission limitation. Black Rock's RAP Plant 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 Black Rock

Requirement: Compliance with federal ambient air quality standards.

Compliance: Black Rock's RAP Plant will demonstrate compliance by performing and submitting dispersion modeling analysis for applicable pollutants per the Albuquerque/ Bernalillo County and New Mexico State Environmental Department's modeling guidelines.

40 CFR 60 OOO – NSPS Standards of Performance for Aggregate Facilities: Applicable to Black Rock RAP Plant

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: Black Rock Services, LLC will perform any required opacity observations using Method 9 and/or Method 22 with certified opacity observers.

Attachment G

Dispersion Modeling Summary

DISPERSION MODEL REPORT
FOR BLACK ROCK SERVICES, LLC.
PROPOSED RAP PLANT PROJECT

Albuquerque, New Mexico

PREPARED FOR
BLACK ROCK SERVICES, LLC.

December 2, 2016

Prepared by

Class One Technical Services, Inc.

CLASS 1
TECHNICAL SERVICES

MONTROSE
ENVIRONMENTAL

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1.0 INTRODUCTION

This dispersion modeling analysis will be conducted by Class One Technical Services, Inc. (CTS) on behalf of Black Rock Services, LLC. (Black Rock Services), to evaluate ambient air quality impacts from the proposed recycled asphalt products (RAP) plant project. The project will include a new recycled asphalt products (RAP) plant operating at 103-115 Llano Del Sur SE. The objective of this evaluation is to determine whether ambient air concentrations from the maximum operation of the proposed project for particulate matter; total suspended particles (TSP), and both 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQS) found in 40 CFR part 50 and the City of Albuquerque/Bernalillo County (COABC) 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 15181. 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 TSP, PM_{10}, and $PM_{2.5}$ from the Black Rock RAP plant emission sources. CTS employs the general modeling procedures outlined in "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 02/03/2016, "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 08/08/2016, and the most up to date EPA's *Guideline on Air Quality Models*.

RAP plant material handling equipment, stockpiles, and haul roads will be input into the model as volume sources. Model input parameters for feeders, crushers, screens, and transfer points will follow the NMED model guidelines Table 23. Model input parameters for haul roads will follow the NMED model guidelines Tables 24 and 25.

The RAP plant will be co-located with Black Rock's 300 TPH portable hot mix asphalt plant operating under Air Quality Permit #1694-M2-RV4. Figure 1 below shows the location of the site and proposed equipment layout, Figure 2 shows the equipment process flow for the RAP plant, and Figure 3 shows the equipment process flow for the HMA plant. This could change during the final modeling analysis.

Neighboring sources will be included in the PM models. A recent permit application was submitted to the COABC AQP Program for a HMA plant located northeast of the site by Mountain States Constructors, Inc (MSCI). Since this facility is not presently included in the PM monitored background, MSCI Broadway HMA will be included for total facility PM emissions in all models along with the various operating scenarios submitted in its model analysis.

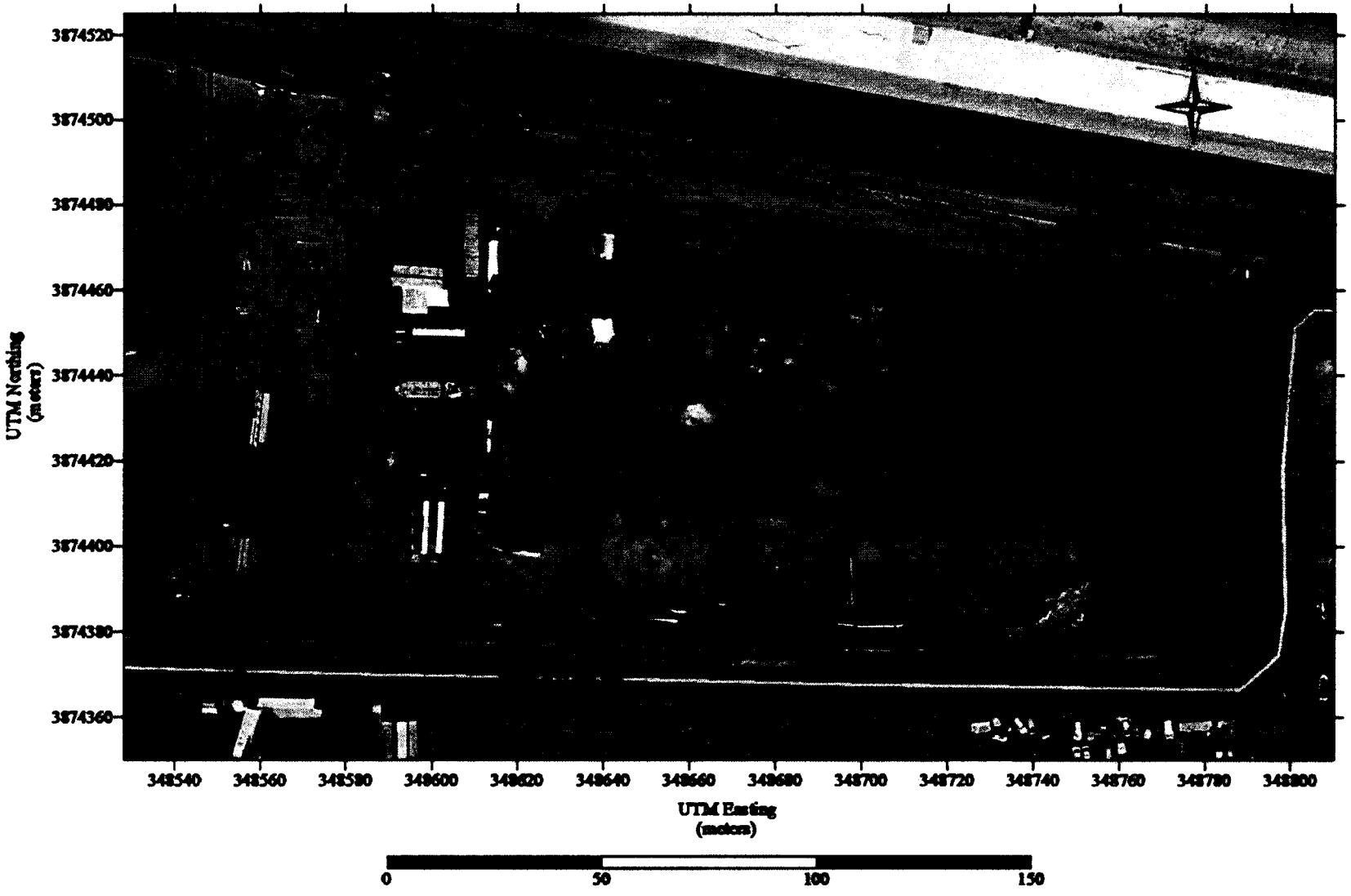

FIGURE 1: Proposed 300 TPH RAP Plant and 300 HMA Plant Site Layout

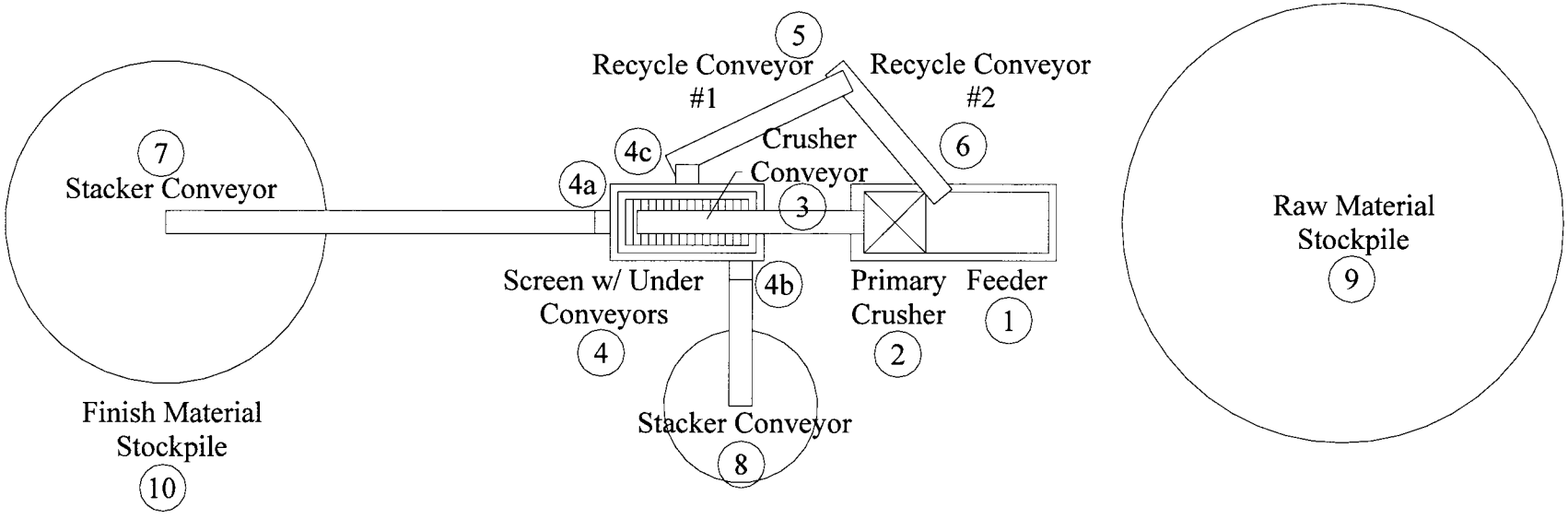

FIGURE 2: Black Rock Services, LLC's RAP Plant Layout Plan

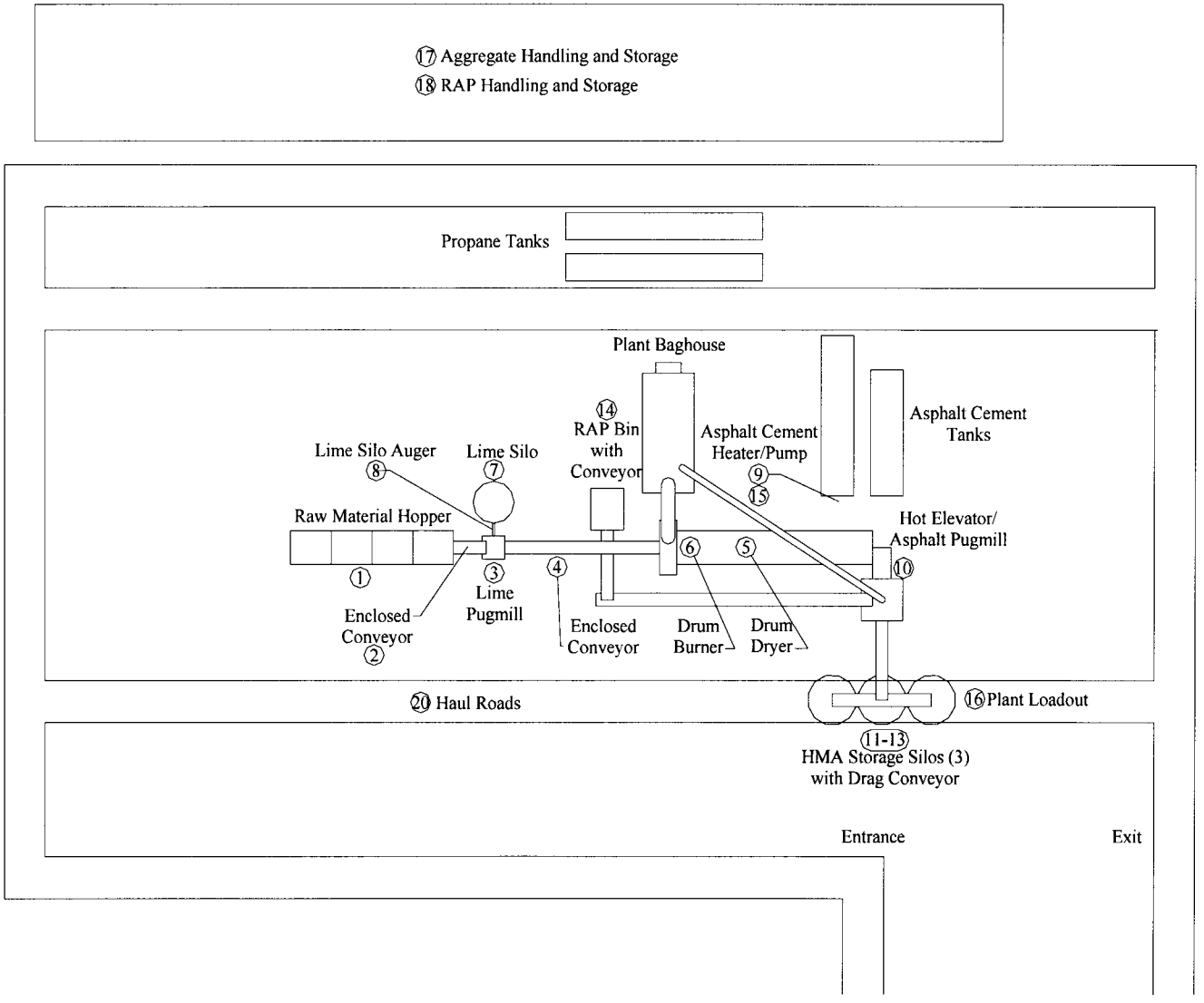

FIGURE 3: Black Rock Services, LLC's 300 TPH HMA Layout Plan

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. COABC Air Quality Program (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 Black Rock RAP Plant using the maximum hourly emission rates while all emission sources are operating. The modeling will determine maximum off site concentrations for particulate matter; total suspended particles (TSP), and both 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), for comparison with modeling significance levels, national/New Mexico ambient air quality standards (AAQS). The modeling will follow the guidance and protocols outlined in the "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 02/03/2016, "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 08/08/2016, and the most up to date EPA's *Guideline on Air Quality Models*.

Initial modeling will be performed with Black Rock RAP Plant sources only to determine pollutant and averaging periods that exceeds pollutant SILs. If initial modeling for any pollutant and averaging period exceeds SILs, than cumulative modeling will be performed for those pollutants and averaging periods that exceeds the SILs will include significant neighboring sources along with background ambient concentrations.

TABLE 1: 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	7.54		100 ppb(4)			
$PM_{2.5}$	annual	0.3	0.06	12 $\mu g/m^3$(5)		1 $\mu g/m^3$	4 $\mu g/m^3$
	24-hour	1.2	0.07	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 $\mu g/m^3$
TSP	7-day				110 $\mu g/m^3$		
	30-day				90 $\mu g/m^3$		
	annual	1.0			60$\mu g/m^3$		
	24-hour	5.0			150$\mu g/m^3$		
SO_2	annual	1.0	0.1		20 ppb(2)	2 $\mu g/m^3$	20 $\mu g/m^3$
	24-hour	5.0	0.2		100 ppb(2)	5 $\mu g/m^3$	91 $\mu g/m^3$
	3-hour	25.0	1.0	500 ppb(1)		25 $\mu g/m^3$	512 $\mu g/m^3$
	1-hour	7.8		75 ppb(8)			

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

TABLE 2: Standards for Which Modeling Is Not Required.

Standard not Modeled	Surrogate that Demonstrates Compliance
TSP 7-day NMAAQS	TSP 24-hour NMAAQS

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 15181. 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 TSP, PM_{10}, and $PM_{2.5}$ from Black Rock's proposed RAP 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 near point sources, so no building downwash will be included.

2.3 METEOROLOGICAL DATA

Dispersion model meteorological input file to be used in this modeling analysis are years 2001 - 2005 Albuquerque met data available from the COABC AQP website. For TSP modeling only, one year, 2003, will be used for the modeling analysis.

2.4 RECEPTORS AND TOPOGRAPHY

Modeling will be completed using as many receptor locations to ensure that the maximum estimated impacts are identified. Modeling will be performed with receptors within 1 kilometer of the model boundary. Because of the nature of the emissions from the site, it is expected the maximum concentrations will be on or near the site fenceline.

The refined receptor grid will include receptors located at 50 meters apart out to 500 meters from the property line, and 100 meters apart from 500 meters out to 1000 meters. Fenceline receptor spacing will be 50 meters.

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) national elevation data (NED) 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 the facility's proposed site, the proposed hours of operation for the RAP plant is summarized in Table 3, for 7 days per week, and 52 weeks per year. Black Rock will take site-specific conditions on daily and annual operating throughput. The hourly throughput for the RAP plant will be 300 tons per hour, with a daily throughput limit of 1800 tons per day (equivalent to operating 6 hours at maximum hourly throughput) for winter months of December through February, a daily throughput limit of 2400 tons per day (equivalent to operating 8 hours at maximum hourly throughput) for spring months of March through May, a daily throughput limit of 3000 tons per day (equivalent to operating 10 hours at maximum hourly throughput) for summer months of June through August, and a daily throughput limit of 2400 tons per day (equivalent to operating 8 hours at maximum hourly throughput) for fall months of September through November. The annual throughput limit for the RAP plant will be 550,000 tons per year.

For annual averaging period TSP and $PM_{2.5}$ dispersion modeling, the RAP plant hourly emission factor included in the model is based on the annual throughput limit. The RAP plant is limited to the daily tons per day limits discussed above and 550,000 tons per year. If the RAP plant was run 365 days per year at the proposed tons per day limits, that would be equivalent to 877,200 tons per year. For RAP annual model hourly emission factor, this reduces the hourly emission rate by a factor of 0.627 (1 * 550,000/877,200) for all throughput based emission rate sources.

For the RAP plant, hours of operation will be monthly as defined in the following table.

TABLE 3: Modeled 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	1	1	1	1	1	0.5	0	0	0
6:00 AM	0	0	1	1	1	1	1	1	1	1	0.5	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	1	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	0.5	0	0	0
7:00 PM	0	0	0	0	0	0.5	0.5	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	12	14	14	14.5	14.5	14	13	12	10.5	9

Because of the daily limit on production, the model will be run in two scenarios to account for this limit. Tables 4 and 5 summarizes the two modeling scenarios (designated a and b) that will be used in this modeling analysis for the RAP plant. They account for both early morning and late afternoon periods that historically produce the highest modeled concentrations for fugitive dust sources. Additional hourly scenarios will be modeled to account for the proposed Mountain States Constructors' Broadway HMA plant.

TABLE 4: RAP Plant Morning Modeled 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	1	1	1	1	1	0.5	0	0	0
6:00 AM	0	0	1	1	1	1	1	1	1	1	0.5	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	1	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	0	0	1	1	1	0.5	1	1	1
2:00 PM	0	0	0	0	0	1	1	1	0	0	0.5	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	6	8	8	8	10	10	10	8	8	8	6

TABLE 5: RAP Plant Afternoon Modeled 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	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0.5	0.5	1	0	0	1	0
10:00 AM	0	0	1	0	0	1	1	1	0.5	1	1	0
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	0.5	0	0	0
7:00 PM	0	0	0	0	0	0.5	0.5	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	6	6	8	8	8	10	10	10	8	8	8	6

2.5.1 Black Rock Services RAP Plant Road Vehicle Traffic Model Inputs

The access road fugitive dust for truck traffic well 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 Black Rock Services RAP Plant Material Handling Volume Source Model Inputs

Particulate emissions from material handling and process from both HMA and RAP plants will be modeled as volume sources. Model input parameters for feeders, crushers, screens, and transfer points follow the NMED AQB model guidelines Table 23.

Table 6 summarizes the model input for the proposed Black Rock Services 300 TPH RAP Plant.

TABLE 6: Summary of Model Inputs for Volume Sources at the Proposed Black Rock 300 TPH RAP Plant

Source Description	Source ID	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Raw Material Storage Pile	9	RAW	2.50	4.25	2.33	0.42482	0.20093	0.03043
Feeder	1	FEED	6.00	1.16	2.33	0.42482	0.20093	0.03043
Primary Crusher	2	PCRUSH	6.00	1.16	2.33	0.36000	0.16200	0.03000
Conveyor Transfer Point	3	TP1	2.00	0.47	0.93	0.04200	0.01380	0.00390
Screen	4	SCR	4.00	1.16	2.33	0.66000	0.22200	0.01500
Conveyor Transfer Point	4a	TP2	2.00	0.47	0.93	0.02100	0.00690	0.00195
Conveyor Transfer Point	4b	TP3	2.00	0.47	0.93	0.02100	0.00690	0.00195
Conveyor Transfer Point	4c	TP4	2.00	0.47	0.93	0.02520	0.00828	0.00234
Conveyor Transfer Point	5	TP5	2.00	0.47	0.93	0.02520	0.00828	0.00234
Conveyor Transfer Point	6	TP5	2.00	0.47	0.93	0.02520	0.00828	0.00234
Stacker Conveyor Drop 1	7	STK1	4.00	0.47	0.93	0.12749	0.06030	0.00913
Stacker Conveyor Drop 2	8	STK2	4.00	0.47	0.93	0.12749	0.06030	0.00913
Finish Storage Pile 1	10	FPILE1	2.50	4.25	2.33	0.21241	0.10046	0.01521
Finish Storage Pile 2		FPILE2	2.50	4.25	2.33	0.21241	0.10046	0.01521
Black Rock RAP Plant Haul Road Volume 1-43	11	BRR_0001-0043	3.40	6.05	3.16	2.21383	0.56422	0.05642

Tables 7 and 8 summarize the model inputs for the existing Black Rock Services 300 TPH HMA Plant.

TABLE 7: Summary of Model Inputs for Point Sources at the Co-Located Black Rock 300 TPH HMA Plant

Neighbor Description	Source ID	Model ID	Stack Height (ft)	Stack Temp. (F)	Exit Vel. (ft/s)	Stack Dia. (ft)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Black Rock HMA Baghouse Stack	5	BPBM	30.0	250.0	64.2	3.40	17.30	5.40	1.62
Black Rock HMA Asphalt Cement Heater	15	BRAH	8.0	250.0	50.0	0.83	0.20	0.20	0.20
Black Rock HMA Mineral Filler Silo Loading	7	BPLS	40.0	Ambient	21.2	1.00	0.05	0.03	0.01

TABLE 8: Summary of Model Inputs for Volume Sources at the Co-Located Black Rock 300 TPH HMA Plant

Neighbor Description	Source ID	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Black Rock HMA Asphalt Silo Loading	11-13	BPAS	2.00	0.47	0.93	0.08000	0.08000	0.08000
Black Rock HMA Asphalt Silo Unloading	16	BRPL	4.00	0.47	0.93	0.06000	0.06000	0.06000
Black Rock HMA Storage Pile 1	17-18	BRAGGP1	2.44	7.16	2.27	0.32000	0.15000	0.02300
Black Rock HMA Storage Pile 2		BRAGGP2	2.44	7.16	2.27			
Black Rock HMA Storage Pile 3		BRAGGP3	2.44	7.16	2.27			
Black Rock HMA Storage Pile 4		BRAGGP4	2.44	7.16	2.27			
Black Rock HMA Bin Loading	1	BRRB	6.00	1.16	2.33	0.83000	0.40000	0.06000
Black Rock Lime Pugmill	3	BRLP	4.00	1.16	2.33	0.05000	0.02000	0.00300

Neighbor Description	Source ID	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
Black Rock HMA RAP Bin Loading	14	BRRAPB	6.00	1.16	2.33	0.45000	0.22000	0.03000
Black Rock HMA Propane Volume 1-43	20	BRP_ 0001-43	3.40	6.05	3.16	1.12000	0.31000	0.03100
Black Rock HMA Customer Volume 1-32		BRC_ 0001-32	3.40	6.05	3.16			
Black Rock HMA Aggregate Volume 1-46		BRA_ 0001-46	3.40	6.05	3.16			

2.6 PARTICLE SIZE DISTRIBUTION

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

The particle size distribution data used in the modeling for aggregate handling (aggregate, RAP) is based upon data obtained from the City of Albuquerque AQB's "Air Dispersion Modeling Guidelines for Air Quality Permitting", revised 02/03/2016, Table 1. Particle size distribution for fugitive road dust was obtained from the particle size *k* factors found in the AP-42 13.2.2 emission equations for unpaved roads (ver. 11/06). Silo loading baghouse emission sources (mineral filler) particle size distribution came from NMED AQB accepted values derived from a fly ash classification analysis plus a baghouse that controls to 94% of particles less than 2.5 micrometers, 99% of particles between 2.5 and ten micrometers, and 99.5% of particles between ten and 30 micrometers for a total control efficiency of 99%. Particle size distribution for HMA baghouse stack emissions was obtained from New Mexico Environmental Department (NMED) Air Quality Bureau accepted values for hot mix asphalt plant stack particle size distributions.

The mass-mean particle diameter was calculated using the formula:

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

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

Representative average particle densities for particle types emitted in the modeling analysis were obtained from NMED accepted values. The list below summarizes these values.

Material	Bulk Density (g/cm^3)	Density Information Source
Lime (Mineral Filler)	3.3	NMED
Aggregate, Road Dust	2.5	NMED
Soot (Exhaust)	1.5	NMED
Asphalt Exhaust	1.5	NMED

The densities and size distribution for TSP emission sources are presented in Tables 9, 10, 11, 12, and 13.

TABLE 9: Aggregate Handling Fugitive Source Depletion Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
TSP			
2.5 – 5	3.88	6.0	2.5
5 – 10	7.77	20.5	2.5
10 – 15	12.66	16.0	2.5
15 – 20	17.62	17.5	2.5
20 – 30	25.33	22.5	2.5
30 – 45	38.00	17.5	2.5

Parameters based on values from the Albuquerque Air Quality Division Modeling Guidelines.

TABLE 10: HMA Mineral Filler Silo Baghouse Source Depletion Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
TSP			
0 – 2.5	1.57	34.7	3.3
2.5 – 10	6.91	34.7	3.3
10 – 30	21.54	30.6	3.3

Parameters based on fly ash particle size distribution and a baghouse control efficiency of 99%

TABLE 11: HMA Baghouse Stack Depletion Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
TSP			
0 – 1.0	0.63	15.0	1.5
1.0– 2.5	1.85	6.0	1.5
2.5 – 5	6.92	9.0	1.5
5 – 10	12.66	5.0	1.5
15 – 30	23.3	65.0	1.5

Based on AP-42 Section 11.1 Tables 11.1-3 and 11.1-4.

TABLE 12: Combustion Depletion Parameters

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

TABLE 13: Vehicle Fugitive Dust Depletion Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
TSP			
0 – 2.5	1.57	2.6	2.5
2.5 – 10	6.92	22.9	2.5
10 – 30	21.54	74.5	2.5

Based on AP-42 Section 13.2.2 k factors

2.7 $PM_{2.5}$ SECONDARY EMISSIONS MODELING

The form of the $PM_{2.5}$ 24 hour design value is based on the 98th percentile or the highest 8th high model result. Fugitive dust (Direct $PM_{2.5}$) emission sources do not consist of a condensable component and will not create secondary emissions of $PM_{2.5}$. Secondary $PM_{2.5}$ emissions from combustion sources are created by the conversion to nitrates and sulfates as the exhaust plume travels away from the source and mixes with ambient air. Since the RAP plant will be powered by line power with no combustion sources, the facility will be a fugitive dust (Direct $PM_{2.5}$) source only. No additional analysis for secondary $PM_{2.5}$ emissions is proposed.

2.8 AMBIENT MODELING BACKGROUND

Ambient background concentrations will be added to the dispersion modeling results and compared to the NAAQS and NMAAQS. Background concentrations were obtained from the COABC AQP Modeling Section.

TSP annual, 24-hr:	31 micrograms per cubic meter
PM_{10} 24-hr:	31 micrograms per cubic meter
$PM_{2.5}$ 24-hr:	18.0 micrograms per cubic meter
$PM_{2.5}$ annual:	7.5 micrograms per cubic meter

3.0 MODEL SUMMARY

This section summarizes the model results, following the technical approach in Section 2 of this report for Class II federal ambient air quality standards for this facility. Model results show for each criteria pollutant and applicable averaging periods for total suspended particulate (TSP) matter and particulate matter with aerodynamic diameter less than 10 micrometers (PM_{10}) and particulate matter with aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$), the proposed Black Rock RAP Plant does not contribute to an exceedance of the national/New Mexico ambient air quality standards (AAQS). The modeling followed the general modeling procedures outlined in "Permit Modeling Guidelines, Albuquerque Environmental Health Department", revised 02/03/2016, "New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines", revised 08/08/2016, and the most up to date EPA's *Guideline on Air Quality Models*.

For Black Rock Services RAP Plant, because of the daily limit on production, the model was run in two scenarios to account for this limit. Tables 14 and 15 summarizes the two modeling scenarios (designated a and b) that will be used in this modeling analysis for the RAP plant. They account for both early morning and late afternoon periods that historically produce the highest modeled concentrations for fugitive dust sources.

TABLE 14: RAP Plant Morning Modeled 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	1	1	1	1	1	0.5	0	0	0
6:00 AM	0	0	1	1	1	1	1	1	1	1	0.5	0
7:00 AM	0	0	1	1	1	1	1	1	1	1	1	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	0	0	1	1	1	0.5	1	1	1
2:00 PM	0	0	0	0	0	1	1	1	0	0	0.5	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	6	8	8	8	10	10	10	8	8	8	6

TABLE 15: RAP Plant Afternoon Modeled 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	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0.5	0.5	1	0	0	1	0
10:00 AM	0	0	1	0	0	1	1	1	0.5	1	1	0
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	0.5	0	0	0
7:00 PM	0	0	0	0	0	0.5	0.5	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	6	6	8	8	8	10	10	10	8	8	8	6

For Black Rock Services HMA Plant, tables 16 summarizes the modeling hours of operation. These hours are based on the HMA plant's permit limits.

TABLE 16: Black Rock HMA Plant Modeled Hours of Operation (MST)

	Hours
12:00 AM	0
1:00 AM	0
2:00 AM	0
3:00 AM	0
4:00 AM	0
5:00 AM	0
6:00 AM	1
7:00 AM	1
8:00 AM	1
9:00 AM	1
10:00 AM	1
11:00 AM	1
12:00 PM	1
1:00 PM	1
2:00 PM	1
3:00 PM	1
4:00 PM	1
5:00 PM	1
6:00 PM	1
7:00 PM	0
8:00 PM	0
9:00 PM	0
10:00 PM	0
11:00 PM	0
Total	13

For annual averaging period TSP and $PM_{2.5}$ dispersion modeling, the HMA plant hourly emission factor included in the model is based on the annual throughput limit. The HMA plant is limited to 876,000 tons per year. If the HMA plant was run 365 days per year at 200 tons per hour and 13 hours per day limits, that would be equivalent to 949,000 tons per year. For HMA annual model hourly emission factor, this reduces the hourly emission rate by a factor of 0.923 (1 * 876,000/949,000) for all throughput based emission rate sources.

For the MSCI HMA plant, 12 hour scenarios were modeled. These represent the HMA plant operating 7 or 10 hours per day as discussed in Section 2.5 of this report. Table 17 below presents the hours of operation of MSCI Broadway HMA for each modeled scenario.

TABLE 17: MSCI Model Scenario Time Segments

Model Scenario	Time Segments 10-Hour Blocks
1	12 AM to 10 AM
2	2 AM to 12 PM
3	4 AM to 2 PM
4	6 AM to 4 PM
5	8 AM to 6 PM
6	10 AM to 8 PM
7	12 PM to 10 PM
8	2 PM to 12 AM
9	4 PM to 2 AM
10	6 PM to 4 AM
11	8 PM to 6 AM
12	10 PM to 8 AM

Included in the dispersion modeling analysis is the proposed Mountain States Constructors Inc.'s Broadway HMA. The following tables present the model inputs for these sources. They were obtained from the dispersion modeling analysis submitted to the COABC AQP for the Mountain States Constructors Inc.'s Broadway HMA Permit Application. Tables 18 and 19 summarize the emissions from neighboring source Mountain States Constructors Inc.'s Broadway HMA.

TABLE 18: Summary of Model Inputs for Point Sources at the Neighboring MSCI Broadway HMA Plant

Neighbor Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
MSCI HMA Baghouse Stack	MSHMASTK	12.19	383.15	10.36	1.420	13.20000	9.20000	9.20000
MSCI HMA Plant Generator	MSHMAGEN	4.57	790.93	78.16	0.254	0.49669	0.49669	0.49669
MSCI HMA Plant Standby Generator	MSHMASGEN	4.27	699.82	36.58	0.152	0.17637	0.17637	0.17637
MSCI HMA Asphalt Cement Heater	MSHMAHEAT1	3.66	699.82	4.57	0.305	0.03906	0.03906	0.03906
MSCI HMA Mineral Filler Silo Loading	MSHMAFILL	9.14	0.00	12.94	0.152	0.18000	0.11500	0.00900
MSCI Main RAP Plant Generator	MSGEN	3.96	750.93	66.55	0.204	0.85000	0.85000	0.85000

TABLE 19: Summary of Model Inputs for Volume Sources at the Neighboring MSCI Broadway HMA Plant

Neighbor Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
MSCI HMA Asphalt Silo Loading	MSDRUMUNL	2.00	0.47	0.93	0.23436	0.23436	0.23436
MSCI HMA Asphalt Silo Unloading	MSHMASILO	4.00	0.47	0.93	0.20877	0.20877	0.20877
MSCI HMA Storage Pile Handling 1	MSHMAPILE1	2.44	7.16	2.27	0.43662	0.20651	0.03127
MSCI HMA Storage Pile Handling 2	MSHMAPILE2	2.44	7.16	2.27	0.43662	0.20651	0.03127

Neighbor Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
MSCI HMA Storage Pile Handling 3	MSHMAPILE3	2.44	7.16	2.27	0.43662	0.20651	0.03127
MSCI HMA Storage Pile Handling 4	MSHMAPILE4	2.44	7.16	2.27	0.43662	0.20651	0.03127
MSCI HMA Bin Loading	MSHMABIN	6.00	1.16	2.33	1.08566	0.51349	0.07776
MSCI HMA Bin Unloading	MSHMATP1	2.00	0.47	0.93	0.03220	0.01058	0.00299
MSCI HMA Scalping Screen	MSHMASCR	4.00	1.16	2.33	0.50600	0.17020	0.01150
MSCI HMA Scalping Screen Unloading	MSHMATP2	2.00	0.47	0.93	0.03220	0.01058	0.00299
MSCI HMA Pug Mill	MSHMAPUG	4.00	1.16	2.33	0.03304	0.01086	0.00307
MSCI HMA Pug Mill Unloading	MSHMATP3	2.00	0.47	0.93	0.03304	0.01086	0.00307
MSCI HMA Conveyor Transfer to Drum Conveyor	MSHMATP4	2.00	0.47	0.93	0.03304	0.01086	0.00307
MSCI HMA RAP Bin Loading	MSRAPBIN	6.00	1.16	2.33	0.19825	0.09377	0.01420
MSCI HMA RAP Bin Unloading	MSRAPTP1	2.00	0.47	0.93	0.01960	0.00644	0.00182
MSCI HMA RAP Screen	MSRAPSCR	4.00	1.16	2.33	0.30800	0.10360	0.00700
MSCI HMA RAP Screen Unloading	MSRAPTP2	2.00	0.47	0.93	0.01960	0.00644	0.00182
MSCI HMA RAP Transfer Point	MSRAPTP3	2.00	0.47	0.93	0.01960	0.00644	0.00182
MSCI HMA RAP Transfer Point	MSRAPTP4	2.00	0.47	0.93	0.01960	0.00644	0.00182
MSCI Raw Material Pile	MSCIRAW	2.50	4.25	2.33	0.42482	0.20093	0.03043
MSCI Feeder	MSCIFEED	6.00	1.16	2.33	0.42482	0.20093	0.03043
MSCI Primary Crusher	MSCIPCRSH	6.00	1.16	2.33	0.36000	0.16200	0.03000

Neighbor Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	TSP Emission Rate (lb/hr)	PM10 Emission Rate (lb/hr)	PM2.5 Emission Rate (lb/hr)
MSCI Transfer Point	MSCITP1	2.00	0.47	0.93	0.04200	0.01380	0.00390
MSCI Transfer Point (Belt Feeder)	MSCISURGE	2.00	0.47	0.93	0.04200	0.01380	0.00390
MSCI Screen	MSCISCRN	4.00	1.16	2.33	1.05600	0.35520	0.02400
MSCI Secondary Crusher	MSCISCRUSH	6.00	1.16	2.33	0.21600	0.09720	0.01800
MSCI Transfer Point	MSCITP2	2.00	0.47	0.93	0.02520	0.00828	0.00234
MSCI Transfer Point	MSCITP3	2.00	0.47	0.93	0.02520	0.00828	0.00234
MSCI Transfer Point	MSCITP4	2.00	0.47	0.93	0.02520	0.00828	0.00234
MSCI Transfer Point	MSCITP5	2.00	0.47	0.93	0.04200	0.01380	0.00390
MSCI Transfer Point	MSCITP6	2.00	0.47	0.93	0.04200	0.01380	0.00390
MSCI Transfer Point	MSCITP7	2.00	0.47	0.93	0.04200	0.01380	0.00390
MSCI Stacker Drop to Finish Storage Pile	MSPPILE	4.00	0.47	0.93	0.25498	0.12060	0.01826
MSCI HMA Haul Road Paved Asphalt Volume 1-18	PAS_0001-18	3.40	6.05	3.16	0.02683	0.00537	0.00132
MSCI HMA Haul Road Paved Aggregate Volume 1-24	PAG_0001-24	3.40	6.05	3.16	0.02455	0.00491	0.00121
MSCI HMA Haul Road Unpaved Aggregate Volume 1-14	UAG_0001-14	3.40	6.05	3.16	0.07854	0.02002	0.00200
MSCI HMA Paved Exit Volume 1-21	PEX_0001-21	3.40	6.05	3.16	0.05387	0.01077	0.00264
MSCI HMA Haul Road Unpaved Asphalt Volume 1-14	UAS_0001-14	3.40	6.05	3.16	0.09050	0.02307	0.00231

3.1 SIGNIFICANT IMPACT LEVEL (SILs) MODELING ANALYSIS

Significant impact level AERMOD dispersion modeling was completed for TSP, PM_{10}, and $PM_{2.5}$. All significant impact models were run in terrain mode, no building downwash with Black Rock Services emission sources only. Results for all significant impact level dispersion modeling were above the applicable SILs.

3.2 CUMULATIVE IMPACT ANALYSIS (CIA) MODEL RESULTS

The model results using the maximum operation at MSCI's Broadway HMA, significant neighboring sources, and approved ambient background are summarized below in Table 20. Dispersion modeling analysis followed the modeling protocol outline in Section 2 of this report.

TABLE 20: Summary of CIA PM Modeling Results Including all Significant Neighboring Sources and Background

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
$PM_{2.5}$ 24 Hr. High 8th High	12.4	1.2	30.4	35	86.9
$PM_{2.5}$ Annual	3.0	0.3	10.5	12	87.5
PM_{10} 24 Hr. High 2nd High	77.8	5	108.8	150	72.5
TSP 24 Hr.	109.7	5	140.7	150	93.8
TSP Annual	27.9	1	58.9	60	98.2

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

3.2.1 $PM_{2.5}$ Direct 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. Since the RAP Plant will be powered by line power, no combustion emissions (secondary PM) are expected.

CIA direct "primary" $PM_{2.5}$ modeling was performed with terrain and meteorology which included 5 years of data, 2001 – 2005 Albuquerque Meteorological data, obtained from the COABC AQP. Modeling was performed for both 24 hour and annual averaging periods. $PM_{2.5}$ 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.

Model results show the highest concentrations occur within the MSCI boundary. When emissions from MSCI sources were excluded from the modeled concentration there were no model results above NAAQS. Maximum 24 hour concentrations (where Black Rock Services source concentrations were above SILs and outside of the MSCI boundary) occurred along the southern MSCI restricted boundary. Maximum annual concentrations occurred along the northern Black Rock Services restricted boundary.

$PM_{2.5}$ 5-Year 24 Hr. High 8th High model results show the highest 5 year 24 hour average occurred during Black Rock RAP Plant model scenario a and MSCI Broadway HMA modeling scenario 12 (10 PM to 8 AM). Annual $PM_{2.5}$ model results show the highest 5 year annual average occurred during Black Rock RAP Plant model scenario a and MSCI Broadway HMA modeling scenario 1 (12 PM to 10 AM).

TABLE 21: $PM_{2.5}$ 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 8th High	12.4	30.4	349097	3874465
Annual Average	3.0	10.5	348644.4	3874497

Figures 4 and 5 summarize the results of the modeling analysis.

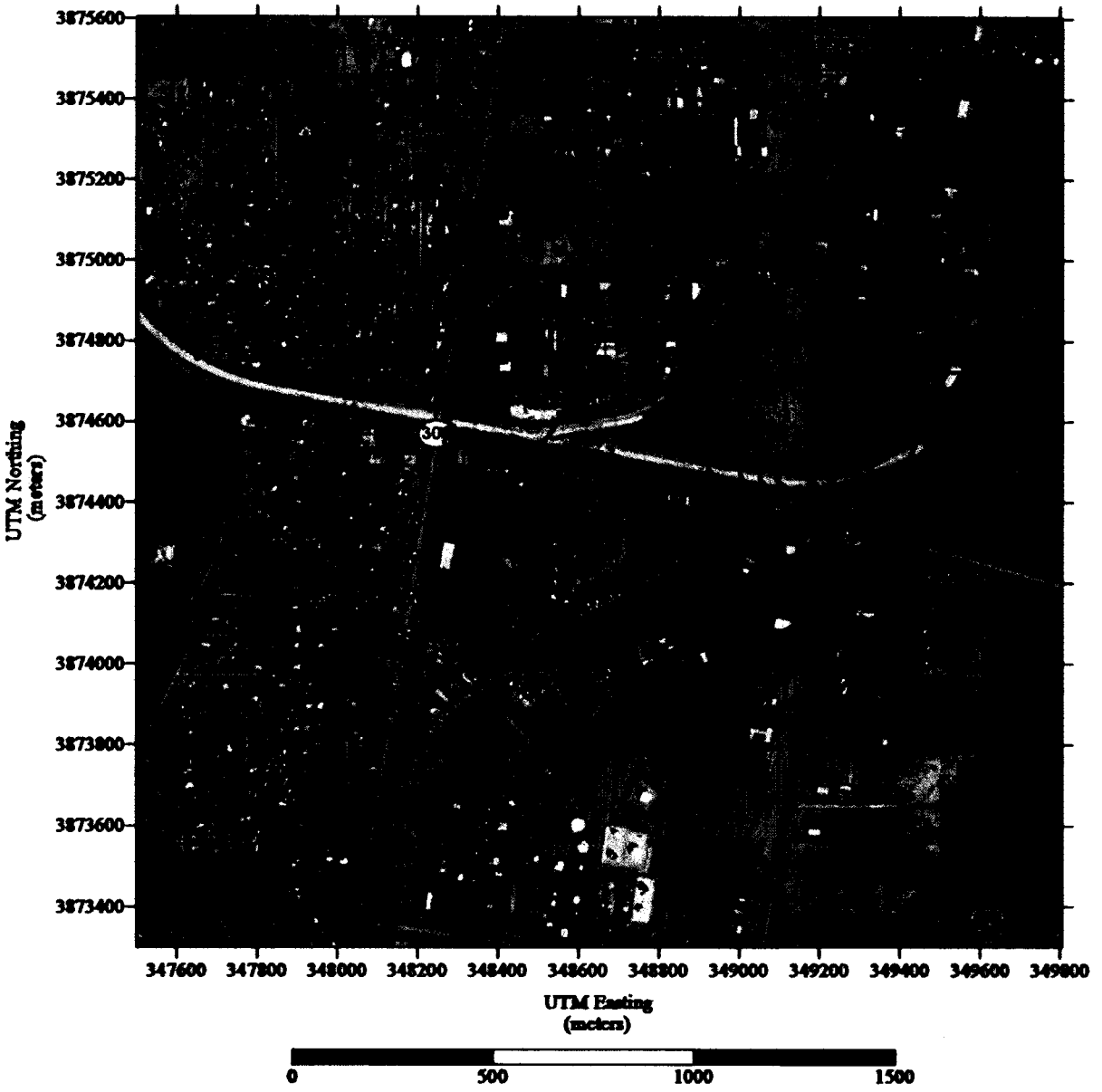

Figure 4: Contour Map of $PM_{2.5}$ 8th Highest Daily Maximum High 24 Hour Model Results ($\mu g/m^3$)

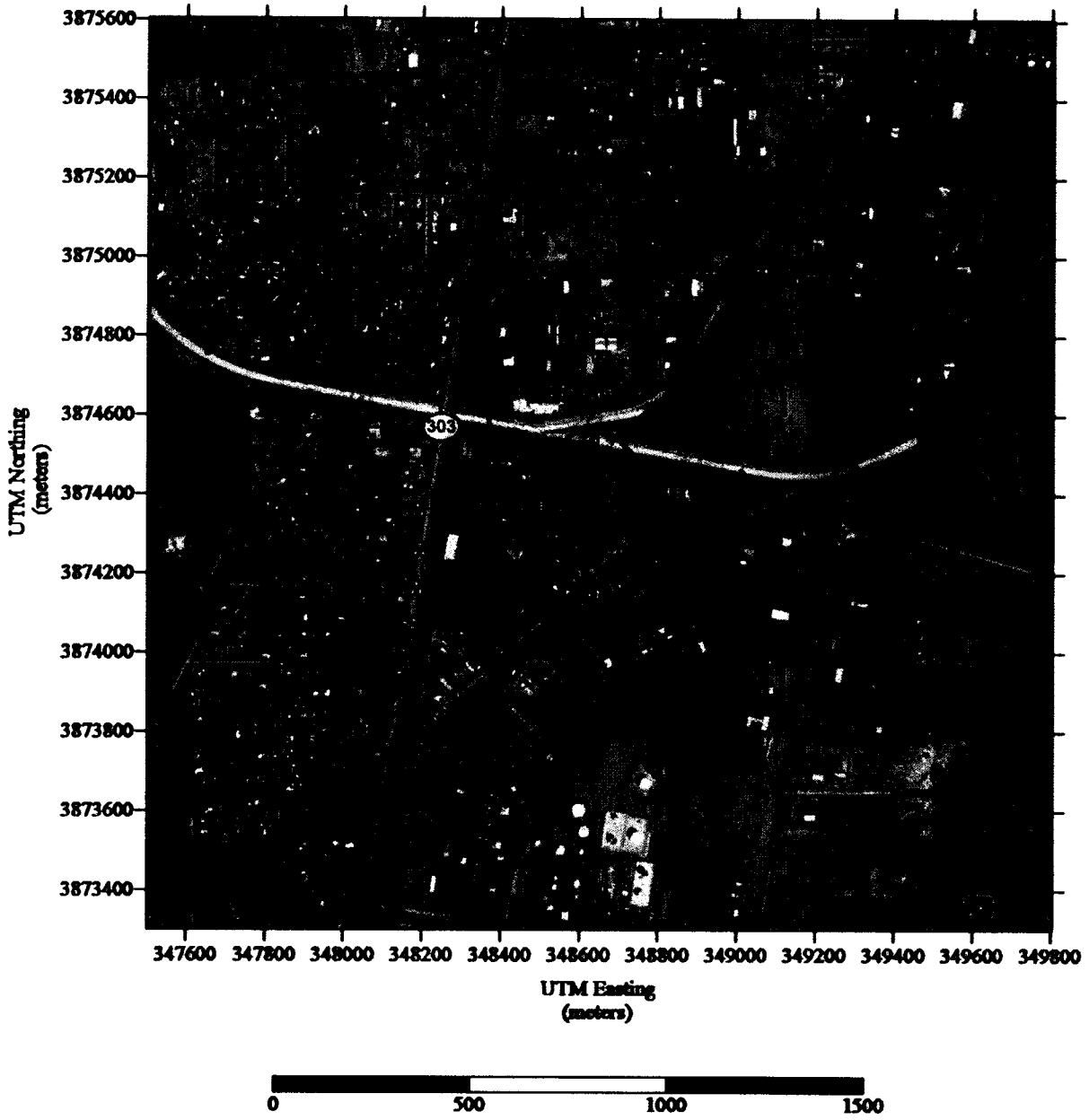

Figure 5: Contour Map of $PM_{2.5}$ Annual Model Results ($\mu g/m^3$)

3.2.2 PM_{10} Cumulative Impact Analysis Modeling Results

CIA PM_{10} modeling was performed with terrain and meteorology, which included 5 years of data, 2001 – 2005 Albuquerque Meteorological data obtained from the COABC AQP. Modeling was performed for the 24 hour averaging period. PM_{10} modeled emissions rates represented the maximum hourly rate for all emission sources. 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 concentrations that were used for PM_{10} 24 hour averaging period is found in Section 2.8 of this report.

Model results show the highest concentrations occur within the MSCI boundary. When emissions generated from MSCI sources were excluded from the modeled concentration there were no model results above NAAQS. Maximum 24 hour concentrations (where Black Rock Services source concentrations were above SILs and outside of the MSCI boundary) occurred along the southern restricted boundary of MSCI. Maximum 24 hr concentrations from Black Rock Services sources only occurred along the southern Black Rock Services restricted boundary.

PM_{10} 24 Hr. model results show the highest 2nd high 24 hour average occurred during Black Rock RAP Plant model scenario b and MSCI Broadway HMA modeling scenario 1 (12 AM to 10 AM).

TABLE 22: 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	77.8	108.8	349150	3874450

Figure 6 summarize the results of the modeling analysis.

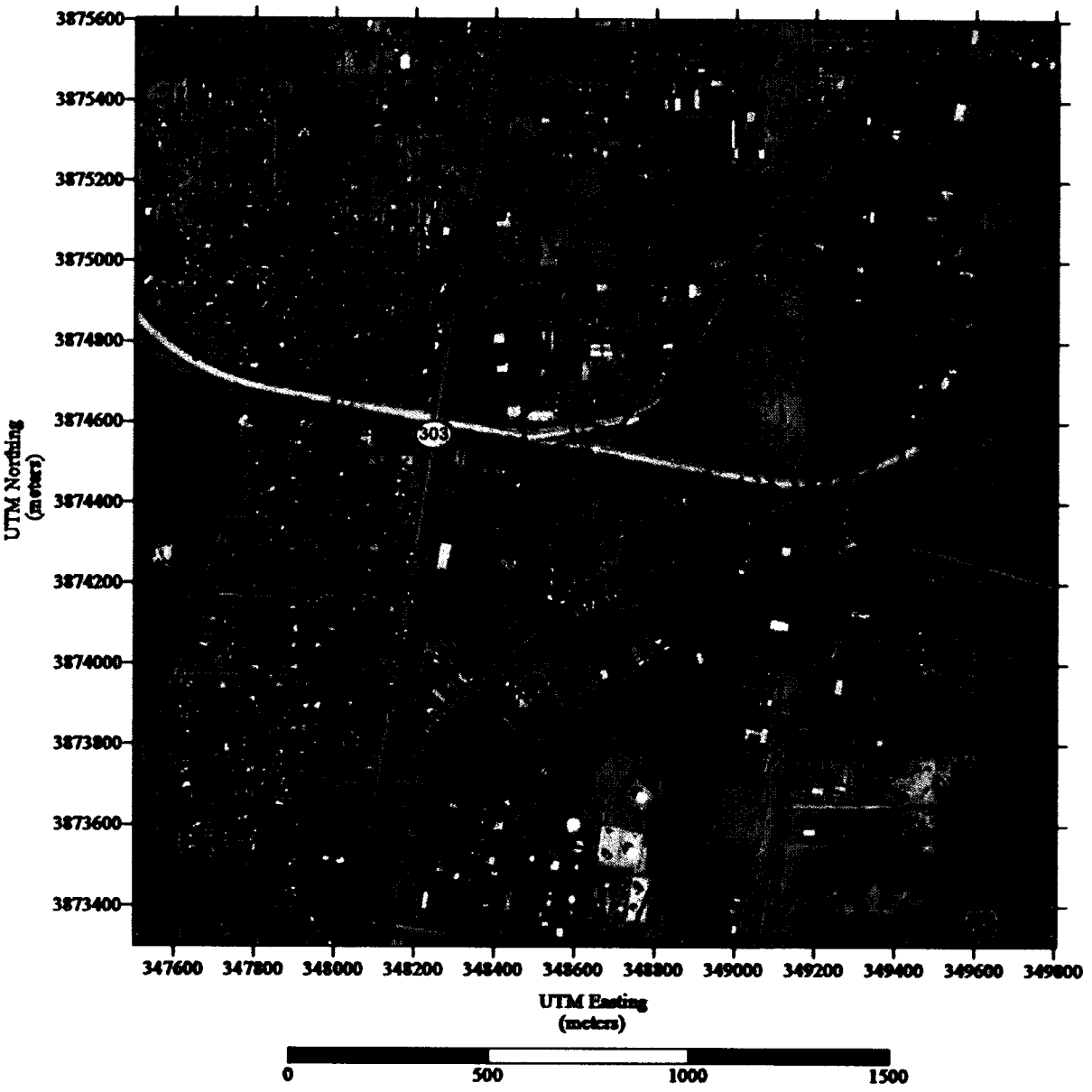

Figure 6: Contour Map of PM_{10} Highest 2nd High 24 Hour Model Results ($\mu g/m^3$)

3.2.3 TSP Cumulative Impact Analysis Modeling Results

CIA TSP modeling was performed with terrain and meteorology which included 1 year of data, 2003 Albuquerque Meteorological data, obtained from the COABC AQP. Modeling was performed for both 24 hour and annual averaging periods. TSP emission rates represented the maximum hourly rate for all emission sources. South Valley representative 24-hour and annual TSP background concentrations were added to the modeled results and compared to the lowest applicable ambient standard. The 24-hour and annual background concentrations that were used for TSP averaging periods are found in Section 2.8 of this report.

TSP emissions are modeled using plume depletion. Plume deposition simulates the effect of gravity as particles '"fall-out" from the plume to the ground as the plume travels downwind. Therefore, the farther the plume travels from the emission point to the receptor, the greater the effect of plume deposition and the greater the decrease in modeled impacts or concentrations. Particle size distribution, particle mass fraction, and particle density are required inputs to the model to perform this function (see Section 2.6).

Model results show the highest concentrations occur within the MSCI boundary. When emissions from MSCI sources were deleted from the modeled concentration there were no model results above NMAAQS. Maximum 24 hour concentrations (where Black Rock Services source concentrations were above SILs and outside of the MSCI boundary) occurred along the northern Black Rock Services restricted boundary. Maximum annual concentrations occurred along the northern Black Rock Services restricted boundary.

TSP 24 Hr. Highest High model results show the highest 24 hour average occurred during Black Rock RAP Plant model scenario b and MSCI Broadway HMA modeling scenario 1 (12 PM to 10 AM). Annual TSP model results show the highest annual average occurred during Black Rock RAP Plant model scenario b and MSCI Broadway HMA modeling scenario 11 (8 PM to 6 AM).

TABLE 23: TSP 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 High	109.7	140.7	348740.8	3874478
Annual Average	27.9	58.9	348692.6	3874488

Figures 7 and 8 summarize the results of the modeling analysis.

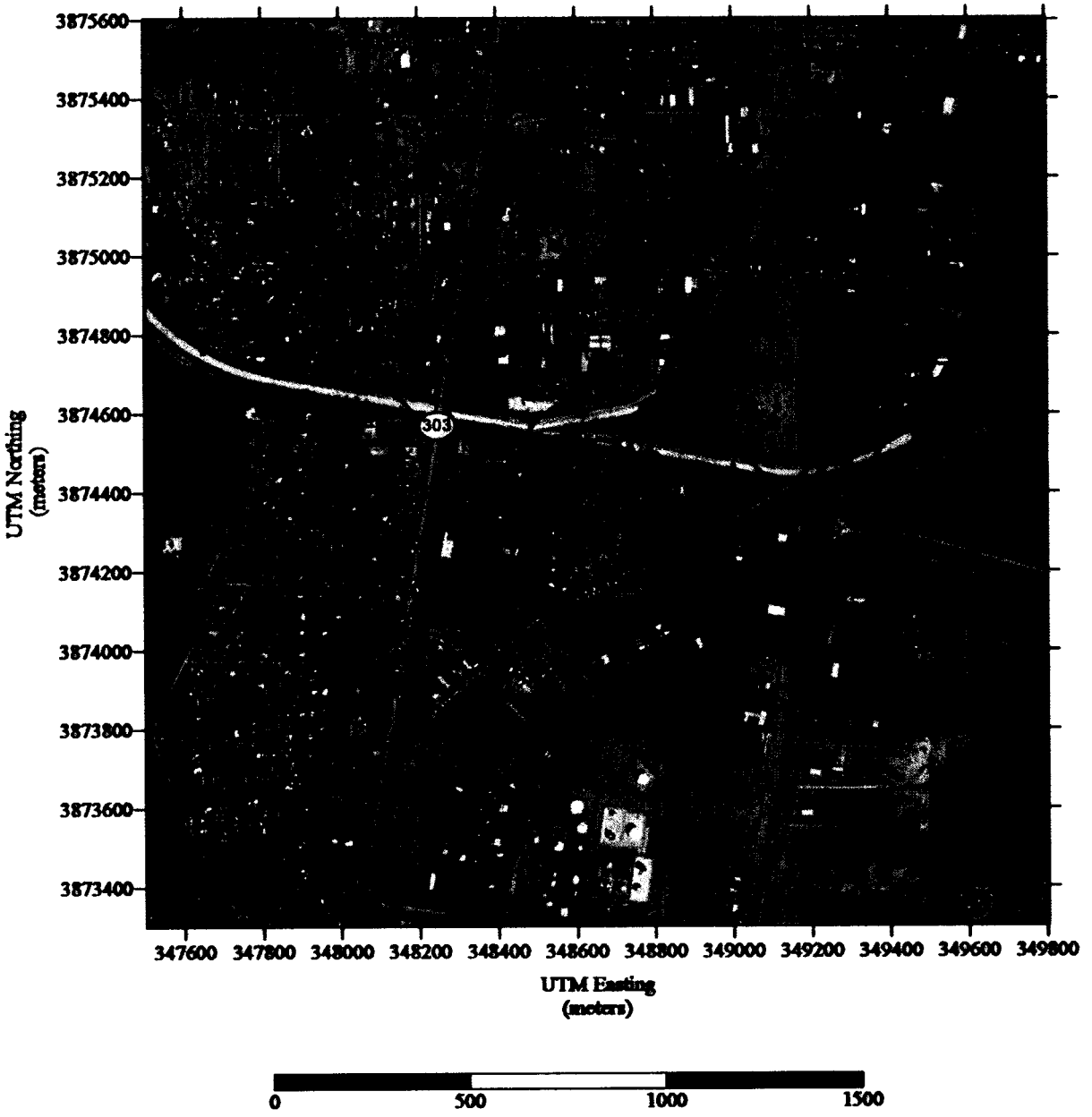

Figure 7: Contour Map of TSP Highest High 24 Hour Model Results (µg/m^3)

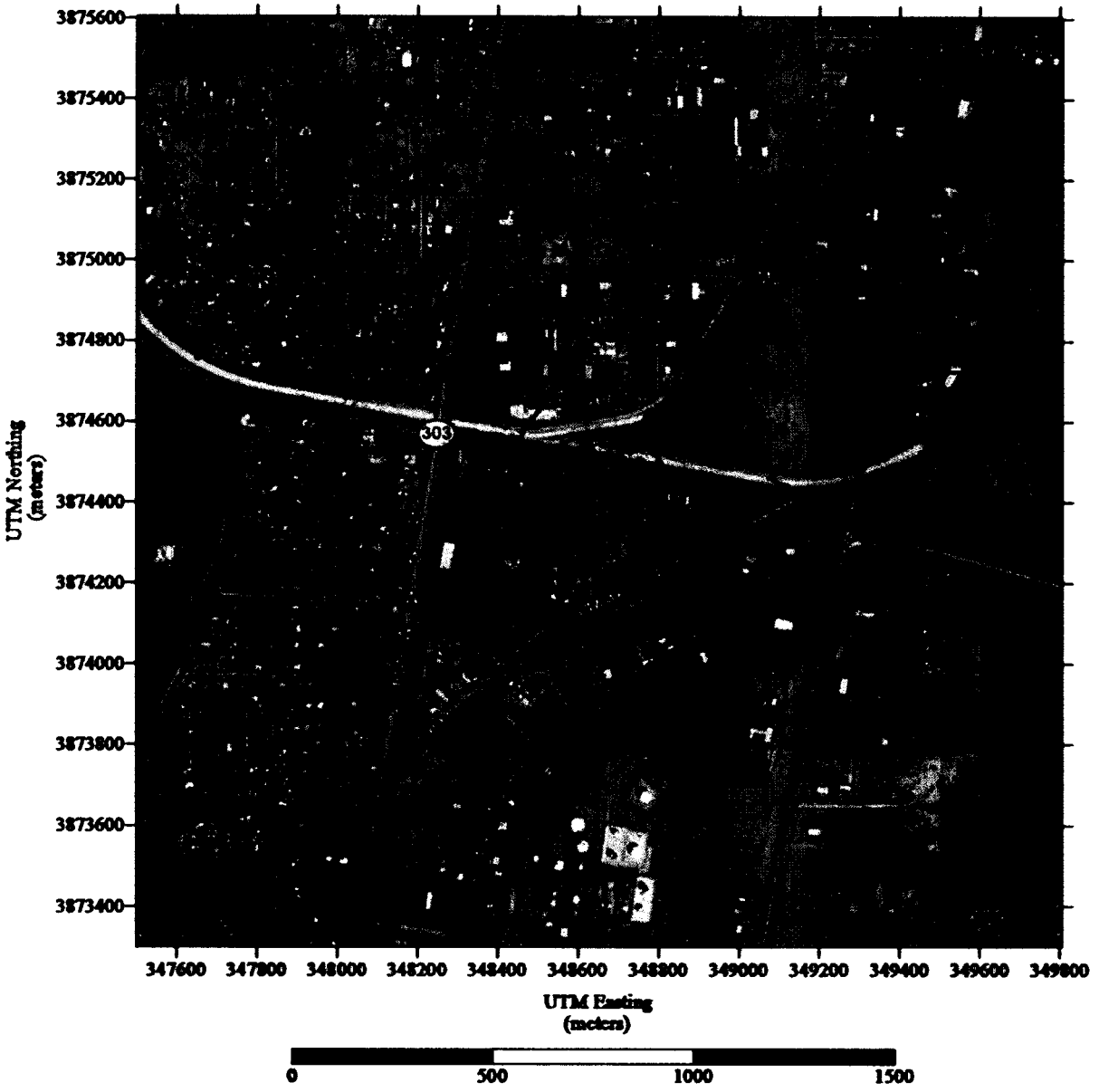

Figure 8: Contour Map of TSP Annual Model Results (µg/m^3)

Modeling File List

Model File Name	Description
Black Rock PM 24hr Sxxa	Cumulative $PM_{2.5}$ and PM_{10} Modeling – 24 Hour MSCI Scenario Sxx Black Rock Scenario a
Black Rock PM 24hr Sxxb	Cumulative $PM_{2.5}$ and PM_{10} Modeling – 24 Hour MSCI Scenario Sxx Black Rock Scenario b
Black Rock PM25 Annual Sxxa	Cumulative $PM_{2.5}$ Modeling – Annual MSCI Scenario Sxx Black Rock Scenario a
Black Rock PM25 Annual Sxxb	Cumulative $PM_{2.5}$ Modeling – Annual MSCI Scenario Sxx Black Rock Scenario b
Black Rock TSP 24hr Sxxa	Cumulative TSP Modeling – 24 Hour MSCI Scenario Sxx Black Rock Scenario a
Black Rock TSP 24hr Sxxb	Cumulative TSP Modeling – 24 Hour MSCI Scenario Sxx Black Rock Scenario b
Black Rock TSP Annual Sxxa	Cumulative TSP Modeling – Annual MSCI Scenario Sxx Black Rock Scenario a
Black Rock TSP Annual Sxxb	Cumulative TSP Modeling – Annual MSCI Scenario Sxx Black Rock Scenario b

Richard J. Berry, Mayor

Environmental Health Department

Air Quality Program

Interoffice Memorandum

Mary Lou Leonard, Director

TO: PAUL WADE, SENIOR ENGINEER

FROM: ELIZABETH YEPEZ, PROGRAM SPECIALIST

SUBJECT: DETERMINATION OF NEIGHBORHOOD ASSOCIATIONS AND COALITIONS WITHIN 0.5 MILES OF UTM COORDINATES 3874450N AND 348610E, ALBUQUERQUE, NM 87105

DATE: NOVEMBER 28, 2016

DETERMINATION:

On November 28, 2016 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) are located within 0.5 miles of UTM coordinates 3874450N and 348610E, Albuquerque in Bernalillo County, NM.

I then used the City of Albuquerque Office of Neighborhood Coordination's Monthly Master NA List dated November 4, 2016 and the Bernalillo County Monthly Neighborhood Association November 2016 Excel file to determine the contact information for each NA and NC located within 0.5 miles of UTM coordinates 3874450N and 348610E, Albuquerque in Bernalillo County, NM.

From http://sharepoint.cabq.gov/gis using the zoning advanced map viewer and the list of NA's and NC's from CABQ Office of Neighborhood Coordination:

COA Association or Coalition	Name	Email or Mailing Address
South Valley Coalition of N.A.'s	Rod Mahoney	rmahoney01@comcast.net
South Valley Coalition of N.A.'s	Marcia Fernandez	mbfernandez1@gmail.com
District 6 Coalition of N.A.'s	Nancy Bearce	nancymbearce@gmail.com
District 6 Coalition of N.A.'s	Gina Dennis	ginadennis@relerience.com

From http://sharepoint.cabq.gov/gis using the zoning advanced map viewer and the list of NA's and NC's from County of Bernalillo:

BC Association or Coalition	Name	Email or Mailing Address
Mountain View Community Action	Marla Painter	marladesk@gmail.com
Mountain View Community Action	Maria Globus	mlglobus@gmail.com

Mountain View N.A.	Nora Garcia	ngarcia49@yahoo.com
Mountain View N.A.	Lauro Silva	alcoatl944@gmail.com
South Valley Alliance	Sara Newton Juarez	snjart@yahoo.com
South Valley Alliance	Zoe Economou	zoecon@unm.edu

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	Black Rock Services, LLC
Site or Facility Name	Black Rock Services Portable Recycled Asphalt Plant (RAP)
Site or Facility Address	103-115 Llano Del Sur SE, Albuquerque, NM 87105
New or Existing Source	New Source
Anticipated Date of Application Submittal	December 11, 2016
Summary of Proposed Source to Be Permitted	This facility will resize recycled asphalt products (RAP) for use in new asphalt products. The RAP Plant will consist of a crusher, screen and various conveyors. The plant will be powered by commercial line power.

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:
- Robert Caldwell
- rcaldwell@blackrock-services.com
- (505) 206-1101

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 with-in 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:
Black Rock Services, LLC, PO Box 1379 Peralta, NM 87042

Owner / Operator's Name and Address:
Black Rock Services, LLC, PO Box 1379 Peralta, NM 87042

Actual or Estimated Date the Application will be submitted to the Department:
December 11, 2016

Exact Location of the Source or Proposed Source:
103-115 Llano Del Sur SE, Albuquerque, NM 87105

Description of the Source:
This facility will resize recycled asphalt products (RAP) for use in new asphalt products. The RAP Plant will consist of a crusher, screen and various conveyors. The plant will be powered by commercial line power.

Nature of the Business:
Provide recycled asphalt as raw material for production of new asphalt material.

Process or Change for which the permit is requested:
Facility is a new source.

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Initial Construction Permit

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	***	***
NOx	***	***
SO2	***	***
VOC	***	***
TSP	4.9	4.2
PM10	1.7	1.5
PM2.5	0.23	0.20
VHAP	***	***

Net Changes In Emissions

(Only for permit Modifications or Technical Revisions)

	lbs/hr	tpy	Estimated Total TPY
CO	+/-	+/-	
NOx	+/-	+/-	
SO2	+/-	+/-	
VOC	+/-	+/-	
TSP	+/-	+/-	
PM10	+/-	+/-	
PM2.5	+/-	+/-	
VHAP	+/-	+/-	

Maximum Operating Schedule:
Daylight hours, 7 days per week, 52 weeks per year

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Section
Phone: (505) 768-1972 Email: aqd@cabq.gov

Normal Operating Schedule:
8 hours per day, 7 days per week, 52 weeks per year

Current Contact Information for Comments and Inquires:

Name: Robert Caldwell
Address: PO Box 1379 Peralta, NM 87042
Phone Number: (505) 206-1101
E-Mail Address: rcaldwell@blackrock-services.com

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

Environmental Health Manager

Stationary Source Permitting

Albuquerque Environmental Health Department

Air Quality Program

PO 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 in the legal section of the Albuquerque Journal and mailed to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.

From:	Paul Wade
To:	"rmahoney01@comcast.net"; "mbfernandez1@gmail.com"; "nancymbearce@gmail.com"; "ginadennis@relerience.com"; "marladesk@gmail.com"; "mlglobus@gmail.com"; "ngarcia49@yahoo.com"; "alcoatl944@gmail.com"; "snjart@yahoo.com"; "zoecon@unm.edu"
Cc:	"Robert Caldwell"; Tavarez, Isreal L.
Subject:	Black RockServices LLC Proposed RAP Plant
Date:	Friday, December 02, 2016 5:22:00 PM
Attachments:	image001.png Black Rock RAP Plant NOI Cover Letter.pdf Black Rock RAP Plant NOI Form.pdf

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 with-in 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.

Any questions, comments, or concerns can be addressed to the contacts listed on the Notice of Intent. Attached is a notice of intent for submittal of a construction permit application for Black Rock Services, LLC proposed RAP Plant.

Respectfully,

MONTROSE

Paul Wade
Sr. Engineer
Air Quality Services
Class One Technical Services
(an affiliate of Montrose Environmental Group, Inc.)
3500 G Comanche Rd. NE, Albuquerque, NM 87107
T: 505.830.9680 x6 | F: 505.830.9678
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