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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☒ Check No.: 88923 in the amount of $500

☐ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.

☒ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.

☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.72.200.A NMAC**

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): NA	Updating Permit/NOI #: NA
1	Facility Name: **Asphalt Plant #6**	Plant primary SIC Code (4 digits): **2951**	
		Plant NAIC code (6 digits): **324121**	
a	Facility Street Address: **1302 North Riverside Dr. Espanola, NM 87532**		
2	Plant Operator Company Name: **Espanola Transit Mix, LLC**	Phone/Fax: **(505) 753-2176 / (505) 753-2490**	
a	Plant Operator Address: **1302 North Riverside Dr. Espanola, NM 87532**		
b	Plant Operator's New Mexico Corporate ID or Tax ID: **03-245049-00-4**		
3	Plant Owner(s) name(s): **Espanola Transit Mix, LLC**	Phone/Fax: **(505) 753-2176 / (505) 753-2490**	

a	Plant Owner(s) Mailing Address(s): **1302 North Riverside Dr. Espanola, NM 87532**	
4	Bill To (Company): **Espanola Transit Mix, LLC**	Phone/Fax: **(505) 753-2176 / (505) 753-2490**
a	Mailing Address: **1302 North Riverside Dr. Espanola, NM 87532**	E-mail: afishman@espmerc.com
5	☒ Preparer: Matt Lane, The Espanola Mercantile Company (see contact info below) ☒ Consultant: Paul Wade, Montrose Air Quality Services, LLC	Phone/Fax: **Paul Wade - (505) 830-9680 ext. 6**
a	Mailing Address: **Montrose Air Quality Services, LLC** **3500 Comanche Rd NE STE G, Albuquerque, NM 87107**	E-mail: **pwade@montrose-env.com**
6	Plant Operator Contact: **Patrick Martinez**	Phone/Fax: **(505) 901-0360 / (505) 753-2490**
a	Address: **1302 North Riverside Dr. Espanola, NM 87532**	E-mail: **dpmartinez@espmerc.com**
7	Air Permit Contact: **Matt Lane**	Title: **Environmental Manager**
a	E-mail: **mlane@espmerc.com**	Phone/Fax: **(505) 490-0887 / (505) 753-2490**
b	Mailing Address: **1302 North Riverside Dr. Espanola, NM 87532**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

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

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: NA	Daily: NA	Annually: NA
b	Proposed	Hourly: 230 tons	Daily: 2,300 tons	Annually: 839,500 tons
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: NA	Daily: NA	Annually: NA
b	Proposed	Hourly: 230 tons	Daily: 2,300 tons	Annually: 839,500 tons

Section 1-D: Facility Location Information

1	Section: 35	Range: 8 E	Township: 21 N	County: Rio Arriba	Elevation (ft): 5,610
2	UTM Zone: ☐ 12 or ☒ 13			Datum: ☐ NAD 27 ☒ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 403,700			UTM N (in meters, to nearest 10 meters): 3,986,020	
b	**AND** Latitude (deg., min., sec.): 36° 00' 50.0967"			Longitude (deg., min., sec.): 106° 04' 7.1520"	
3	Name and zip code of nearest New Mexico town: **Espanola, NM 87532**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Santa Fe, follow NM 285 north to Espanola, NM. Once in Espanola, merge onto NM 68 towards Taos, NM. Follow NM 68 approximately 1.5 miles north (past Fairview Lane) and turn left (west) onto Riley Rd. Follow Riley Rd. west for 700 feet to the Espanola Transit Mix Facility entrance gate.**				
5	The facility is within Espanola, NM.				
6	Status of land at facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **Espanola, Ohkay Owingeh, Santa Clara Pueblo, San Ildefonso Pueblo, Pueblo of Pojoaque, Nambe Pueblo, Santa Fe County, Rio Arriba County**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **Bandelier Wilderness Area – 31.7 km, Pecos Wilderness Area – 19.7 km**				
9	Name nearest Class I area: **Pecos Wilderness Area**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **19.70 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **15 meters**				
12	Method(s) used to delineate the Restricted Area: **Fencing and Signage** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☒ Yes ☐ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☐ No ☒ Yes If yes, what is the name and permit number (if known) of the other facility? **Permit No. 719, Permit No. 1147M1, Permit No. 2749. Permit No. 2879**				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 3650		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: NA	☐AM ☐PM	End: NA	☐AM ☐PM		
3	Month and year of anticipated start of construction: Upon permit approval					
4	Month and year of anticipated construction completion: TBD					
5	Month and year of anticipated startup of new or modified facility: TBD					
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No					

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify:		
a	If yes, NOV date or description of issue: **NA**		NOV Tracking No: **NA**
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below:		
c	Document Title: **NA**	Date: **NA**	Requirement # (or page # and paragraph #): **NA**
d	Provide the required text to be inserted in this permit: **NA**		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☒ Yes ☐ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☒ **Minor** (☐ <10 tpy of any single HAP **AND** ☒ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☒ No		
a	If yes, include the name of company providing commercial electric power to the facility: ___**NA**_____ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application **(This section applies to 20.2.72.300 NMAC Streamline applications only)**

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." **X** N/A (This is not a Streamline application.)

Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC):		Phone:
a	R.O. Title:	R.O. e-mail:	
b	R. O. Address:		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC):		Phone:
a	A. R.O. Title:	A. R.O. e-mail:	
b	A. R. O. Address:		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship):		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.):		
a	Address of Parent Company:		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.):		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations:		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers:

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

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

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

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

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

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

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

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

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

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

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

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

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

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	drum dryer / mixer	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	C1 S1	30500201	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit	NA	NA
2 (C1)	baghouse	Al Mix / 963	336	963	230 tph	230 tph	1993 TBD	NA S1	30500201	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
3a - 3g	transfer conveyors	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	C2 none	30500217	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
4	asphalt silo load out	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	none none	30500214	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
5	asphalt cement heater	CEI / C07-078	1800	C07-078	2,650,000 BTU/hr	2,650,000 BTU/hr	2007 TBD	none S2	30500208	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
6a - 6b	6a - (4) cold feed bins 6b - (2) scalping screens	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	none none	30500216	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
7	asphal cement tanks (3)	M-System, Childers, Shop built	unk	unk	45,000 gal	45,000 gal	unk TBD	none none	30500212	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
8	RAP loading bin	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	none none	30500216	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
9	RAP dual drum roll breaker	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	C3 none	30500202	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
10	Rap single deck screen	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	C4 none	30500202	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
11	Asphalt Sorage Silos (2)	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	none none	30500213	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
12	Slat Conveyor	Al Mix / 963	250 CF	963	230 tph	230 tph	1993 TBD	none none	30500221	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
13a - 13b	maerial storage piles	NA	NA	NA	NA	216.2 tph	NA TBD	none none	30500203	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
14	haul road	NA	NA	NA	NA	108	NA TBD	C5 none	30500290	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA
15	yard	NA	NA	NA	NA	230 tph	NA TBD	none none	30502014	☐ Existing (unchanged) ☐ To be Removed x New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	NA	NA

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

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

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
none	none	none	none	none	none	none	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			none	none	none	none	

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
C1	baghouse	TBD	Particulate	1	99.88%	Low End of Filter Control Efficiency
C2	conveyor transfer points - Wet Dust Suppression System	TBD	Particulate	3a,b,c,d,e,f,g	PM - 95.33%	AP-42 11.19.2 Emission Factors
C3	crushers - wet dust suppression system	TBD	Particulate	9	PM - 77.78%	AP-42 11.19.2 Emission Factors
C4	screen - wet dust suppression system	TBD	Particulate	6b,10	PM - 91.20%	AP-42 11.19.2 Emission Factors
C5	unpaved roads - basecourse and water	TBD	Particulate	14	80%	NMED Policy

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		Asphalt Fumes		H2S	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	5.98	26.19	29.90	131.0	7.36	32.24	0.78	3.43	6440.0	28207.2	1495.0	6548.1	360.0	1576.6	2.76	12.09	0.012	0.052
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3a (T1)	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.023	0.10	-	-	-	-
3b (T2)	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.02	0.10	-	-	-	-
3c (T3)	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.02	0.10	-	-	-	-
3d (T4)	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060	-	-	-	-
3e (T5)	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060	-	-	-	-
3f (T6)	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060	-	-	-	-
3g (T7)	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060	-	-	-	-
4			0.31	1.36	0.96	4.19			0.12	0.53	0.12	0.53	0.12	0.53	0.020	0.088	0.00034	0.0015
5	0.28	1.23	0.24	1.03	0.031	0.14	0.0060	0.026	0.021	0.093	0.021	0.093	0.021	0.093	-	-	-	-
6a	-	-	-	-	-	-	-	-	0.90	3.24	0.42	1.53	0.064	0.23	-	-	-	-
6b	-	-	-	-	-	-	-	-	3.39	14.9	1.18	5.17	0.18	0.78	-	-	-	-
7	-	-	-	-	0.024	0.10	-	-	-	-	-	-	-	-	0.00031	0.0013	-	-
8	-	-	-	-	-	-	-	-	0.16	0.58	0.075	0.27	0.011	0.041	-	-	-	-
9	-	-	-	-	-	-	-	-	0.43	1.90	0.19	0.85	0.029	0.13	-	-	-	-
10	-	-	-	-	-	-	-	-	2.01	8.81	0.70	3.07	0.11	0.47	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	0.27	1.19	2.80	12.28	-	-	0.13	0.59	0.13	0.59	0.13	0.59	0.043	0.19	0.00034	0.0015
13a	-	-	-	-	-	-	-	-	0.90	3.24	0.42	1.53	0.064	0.23	-	-	-	-
13b	-	-	-	-	-	-	-	-	0.16	0.58	0.075	0.27	0.011	0.041	-	-	-	-
14	-	-	-	-	-	-	-	-	103.2	365.3	26.3	93.1	2.63	9.31	-	-	-	-
15	-	-	0.081	0.35	0.25	1.11	-	-	-	-	-	-	-	-	0.0038	0.017	-	-
Totals	**6.26**	**27.4**	**30.8**	**134.9**	**11.4**	**50.0**	**0.79**	**3.45**	**6554**	**28617**	**1525**	**6659**	**363**	**1590**	**2.83**	**12.4**	**0.013**	**0.055**

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		Asphalt Fumes		H2S	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	5.98	10.91	29.9	54.6	7.36	13.43	0.78	1.43	7.59	13.85	5.29	9.65	5.29	9.65	2.76	5.04	0.012	0.022
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3a (T1)	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032	-	-	-	-
3b (T2)	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032	-	-	-	-
3c (T3)	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032	-	-	-	-
3d (T4)	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019	-	-	-	-
3e (T5)	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019	-	-	-	-
3f (T6)	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019	-	-	-	-
3g (T7)	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019	-	-	-	-
4			0.31	0.57	0.96	1.75			0.120	0.22	0.120	0.22	0.120	0.22	0.020	0.037	0.00034	0.00061
5	0.28	1.23	0.24	1.03	0.031	0.14	0.0060	0.026	0.021	0.093	0.021	0.093	0.021	0.093	-	-	-	-
6a	-	-	-	-	-	-	-	-	0.90	1.35	0.42	0.64	0.06	0.10	-	-	-	-
6b	-	-	-	-	-	-	-	-	0.30	0.54	0.10	0.18	0.0068	0.012	-	-	-	-
7	-	-	-	-	0.024	0.10	-	-	-	-	-	-	-	-	0.00031	0.0013	-	-
8	-	-	-	-	-	-	-	-	0.16	0.24	0.075	0.11	0.011	0.017	-	-	-	-
9	-	-	-	-	-	-	-	-	0.10	0.18	0.043	0.079	0.0081	0.015	-	-	-	-
10	-	-	-	-	-	-	-	-	0.18	0.32	0.060	0.11	0.0040	0.0073	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	0.27	0.50	2.80	5.12	-	-	0.13	0.25	0.13	0.25	0.13	0.25	0.043	0.079	0.00034	0.00061
13a	-	-	-	-	-	-	-	-	0.90	1.35	0.42	0.64	0.064	0.10	-	-	-	-
13b	-	-	-	-	-	-	-	-	0.16	0.24	0.075	0.11	0.011	0.017	-	-	-	-
14	-	-	-	-	-	-	-	-	20.6	30.4	5.26	7.76	0.53	0.78	-	-	-	-
15	-	-	0.081	0.15	0.25	0.46	-	-	-	-	-	-	-	-	0.0038	0.0069	-	-
Totals	**6.26**	**12.1**	**30.8**	**56.8**	**11.4**	**21.0**	**0.79**	**1.45**	**31.3**	**49.3**	**12.1**	**19.9**	**6.27**	**11.3**	**2.83**	**5.16**	**0.013**	**0.023**

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

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

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

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

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

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		□ H_2S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
S1	1	V	No	23.2	240	1250.0			74.9	4.61
S2	5	V	No	12.0	600	16.3			20.7	1.00

Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde x HAP or □ TAP		Asphal Fumes □ HAP or X TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
S1	1	1.24	2.26	0.71	1.30	2.76	5.04	-	-	-	-	-	-	-	-	-	-
NA	4	-	-	-	-	0.011	0.020	-	-	-	-	-	-	-	-	-	-
S2	5	0.0049	0.021	-	-			-	-	-	-	-	-	-	-	-	-
NA	7	-	-	-	-	0.00031	0.0013	-	-	-	-	-	-	-	-	-	-
NA	12	-	-	-	-	0.030	0.054	-	-	-	-	-	-	-	-	-	-
NA	15	-	-	-	-	0.0038	0.0069	-	-	-	-	-	-	-	-	-	-
Totals:		**1.24**	**2.28**	**0.71**	**1.30**	**2.80**	**5.12**	-	-	-	-	-	-	-	-	-	-

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	pipeline quality natural gas	945 Btu/CF	75 mmBtu	79365 cubic feet	0.75 gr/100 scf	0
5	Natural Gas	pipeline quality natural gas	945 Btu/CF	2.65 mmBtu	2804 cubic feet	0.75 gr/100 scf	0

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T1	3-05-002-12	Hot Oil Asphalt Cement	Hot Oil Asphalt Cement	9.22	105	350	0.0347	350	0.0347
T2	3-05-002-12	Hot Oil Asphalt Cement	Hot Oil Asphalt Cement	9.22	105	350	0.0347	350	0.0347
T3	3-05-002-12	Hot Oil Asphalt Cement	Hot Oil Asphalt Cement	9.22	105	350	0.0347	350	0.0347

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T1	1988	Hot Oil Asphalt Cement	NA	FX	357.14	56.79	3.048	1.524	OT (Yellow)	OT (Yellow)	Good	3,642,000	242.80
T2	1988	Hot Oil Asphalt Cement	NA	FX	357.14	56.79	3.048	1.524	OT (Yellow)	OT (Yellow)	Good	3,642,000	242.80
T3	1988	Hot Oil Asphalt Cement	NA	FX	357.14	56.79	3.048	1.524	OT (Yellow)	OT (Yellow)	Good	3,642,000	242.80

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Aggregate	Aggregate	Solid	135.7 tph	Asphalt	Aggregate, RAP, Evotherm, Asphalt Cement	Solid	230 tph
Recycled Asphlat (RAP)	Asphalt	Solid	80.5 tph				
Evotherm	Fatty Amine derivattives	liquid	0.23 tph				
Asphalt Cement	Petroleum product	Heated Liquid	13.8 tph				

Table 2-N: CEM Equipment

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

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
none	none	none	none	none	none	none	none	none	none

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
13	Differential Pressure	Baghouse inlet and outlet	inches of water	2 - 6 inches	Annual	Calibrate	Datalogger	1 min

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	13851.8													13851.8	
	CO_2e	13851.8														13851.8
5	**mass GHG**	1473.9													1473.9	
	CO_2e	1473.9														1473.9
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
Total	**mass GHG**														**15326**	
	CO_2e															**15326**

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

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

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

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

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

Section 3

Application Summary

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

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

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

Espanola Transit Mix, LLC (ETM) is applying for a new 20.2.72 NMAC air quality permit for a 230 ton per hour (TPH) hot mix asphalt plant (HMA Plant #6) to be operated within the county of Rio Arriba, state of New Mexico. The plant will be located at the 60.2-acre property located at 1302 North Riverside Dr. Espanola, NM 87532.

Regulation governing this permit application is 20.2.72.200.A(1) NMAC. While facility-wide "potential" emission rates are greater than 100 tons per year for a single pollutant potentially making it a major source; with the proposed emission controls the facility emission rates will be below 100 tons per year and will be permitted as a "synthetic minor source".

ETM has retained Montrose Environmental Solutions, Inc. (Montrose) to assist with the permit application.

Plant #6 HMA

The 230 tph hot mix asphalt plant will include aggregate storage piles, a 4-bin cold aggregate feeder, two (2) scalping screens, RAP auxiliary feeder, RAP single deck screen, RAP dual-drum roll breaker, drum dryer/mixer with baghouse, incline conveyor, two (2) asphalt silos, asphalt heater, six (6) transfer conveyors, and two (2) asphalt cement storage tanks. The plant will be powered by commercial line power. Processed asphalt will be transported from the HMA plant off-site for use at construction locations. The HMA plant will limit production throughput to 2,300 tons per day (operating at maximum production of 230 tons per hour for 10 hours per day), for 7 days per week, 52 weeks per year, or a maximum of 7486 hours per year. The proposed operating schedule includes any hour out of a calendar day during spring through fall with a production limit of 2,300 tons per day. Operations during the winter months will be limited to between the hours of 7:00 am and 4:00 pm. The process rate will be limited to 230 tph, 2,300 tons per day, and 839,500 tpy. The hours of operation are presented below in Table 3-1. Daily production rates are presented below in Table 3-2.

Plant #1 HMA – Permit No. 0719 (Collocated)

The 235 tph hot mix asphalt plant includes aggregate storage piles, a 4-bin cold aggregate feeder, incline conveyor, mineral filler silo with screw conveyor and baghouse, drum dryer with baghouse, hot screens, bucket elevator, pug mill, asphalt heater, transfer conveyors, and two (2) asphalt cement storage tanks. The plant is powered by a 650HP Caterpillar diesel engine and generator. Plant #1 is authorized to operate 24 hours per day. It is proposed that Plant #1 will run for a six-month period after Plant #6 is constructed. Once asphalt quality assurance standards have been met for Plant #6, Plant #1 will be decommissioned. ETM proposes a restriction that allows only one HMA plant operating during any one day (24-hour period).

Concrete Batch Plant – Permit No. 3003 (Collocated)
The 50 cubic yard per hour concrete batch plant includes aggregate storage piles, aggregate feed bins, loading conveyor, aggregate weigh hopper, cement and supplement weigh hopper, concrete storage silo with baghouse, supplement storage silo with baghouse, and truck loading chute. The plant is powered by commercial line power. Hours of operation listed in Permit No. 3003 are limited to 10 hours per day, 5:30 AM to 3:30 PM daily.

Aggregate Wet Screening Plant – No. Permit 2749 (Collocated)
The 250 tph aggregate crushing and wet screening plant includes a feeder, jaw crusher, cone crusher, three (3) screens, and seventeen (17) transfer conveyors. The plant is powered by commercial line power. After oversized aggregate is initially screened off, water is introduced during a wet screening process. The remainder of the aggregate crushing and screening operations downstream of the wet screening step is a wet process with no particulate emissions. The facility is restricted to operate no more than 8 hours per day, 5 days per week, 44 weeks per year, and 12 months per year for a maximum of 1,760 hours per year. The plant may only operate during daylight hours.

Aggregate Plant - Permit No. 1147 (Collocated)
The 300 tph aggregate crushing and screening plant includes material storage piles, feeder, jaw crusher, two (2) impact crushers, three (3) cone crushers, three (3) screens, and nineteen (19) transfer conveyors. The plant is powered by one 1100 horsepower (hp) and one 281 hp engine. Processed aggregate will be transported from the aggregate crushing and screening plant to the HMA plants and/or off-site sales. The process rate shall not exceed 300 tons per hour. The facility is restricted to operate no more than 8.5 hours per day, 5.5 days per week, 52 weeks per year, and 12 months per year for a maximum of 2431 hours per year. The plant may only operate during daylight hours.

Aggregate Wet Screening Plant - Permit No 2879 (Collocated)
The 200 tph wet sand screening plant includes a feeder, screen, and six (6) transfer conveyors. The plant is powered by the engine that powers the Permit 1147 Aggregate Plant. Water is introduced during screening, and the remainder the operations is a wet process. This facility is driven by a 325 hp Caterpillar 3304C diesel generator. The process rate shall not exceed 100 tons per hour. The facility is restricted to operate no more than 8 hours per day, 2 days per week, 44 weeks per year, and 12 months per year for a maximum of 704 hours per year. The plant may only operate during daylight hours.

TABLE 3-1: HMA Plant #6 Plant Hours of Operation (MST)

	Winter	Spring	Summer	Fall
12:00 AM	0	1	1	1
1:00 AM	0	1	1	1
2:00 AM	0	1	1	1
3:00 AM	0	1	1	1
4:00 AM	0	1	1	1
5:00 AM	0	1	1	1
6:00 AM	0	1	1	1
7:00 AM	1	1	1	1
8:00 AM	1	1	1	1
9:00 AM	1	1	1	1
10:00 AM	1	1	1	1
11:00 AM	1	1	1	1
12:00 PM	1	1	1	1
1:00 PM	1	1	1	1
2:00 PM	1	1	1	1
3:00 PM	1	1	1	1
4:00 PM	1	1	1	1
5:00 PM	0	1	1	1
6:00 PM	0	1	1	1
7:00 PM	0	1	1	1
8:00 PM	0	1	1	1
9:00 PM	0	1	1	1
10:00 PM	0	1	1	1
11:00 PM	0	1	1	1
Total	**10**	**24**	**24**	**24**

TABLE 3-2: HMA Plant #6 Daily Production Rates

Plant	Tons Per Day	At Max Hourly Throughput – Hours per Day
Plant #6 HMA	2300	10

Nighttime operations will follow the guidelines issued by the department "Air Quality Permitting Guidelines for Night Operations of Crushing and Screening Plants, Hot Mix Asphalt Plants, and Concrete Batch Plants" (Ver.08/14/06). Nighttime conditions acceptable to ETM include:

Construction and Operation
The permittee shall install data logger(s) capable of continuously recording differential pressure measured by magnahelic gauges or equivalent differential pressure gauges installed on the Drum Dryer/Mixer Baghouse (Unit 2, Control Unit C1).

Monitoring
The permittee shall, during nighttime operation of the plant continuously monitor and record the differential pressure across the Drum Dryer/Mixer Baghouse (Unit 2, Control Unit C1) by the use of a differential pressure gauge with a data recording system to ensure it is within the manufacturers or facility determined specified operating range.

The permittee shall, during nighttime operating hours, ensure fugitive dust control systems are functioning correctly for Units 3a -3g, 6b, and 10 per {CONDITION X}.

Recordkeeping
During night operation the permittee shall record, by the use of a data logger, a continuous record of the differential pressure across Drum Dryer/Mixer Baghouse (Unit 2, Control Unit C1).

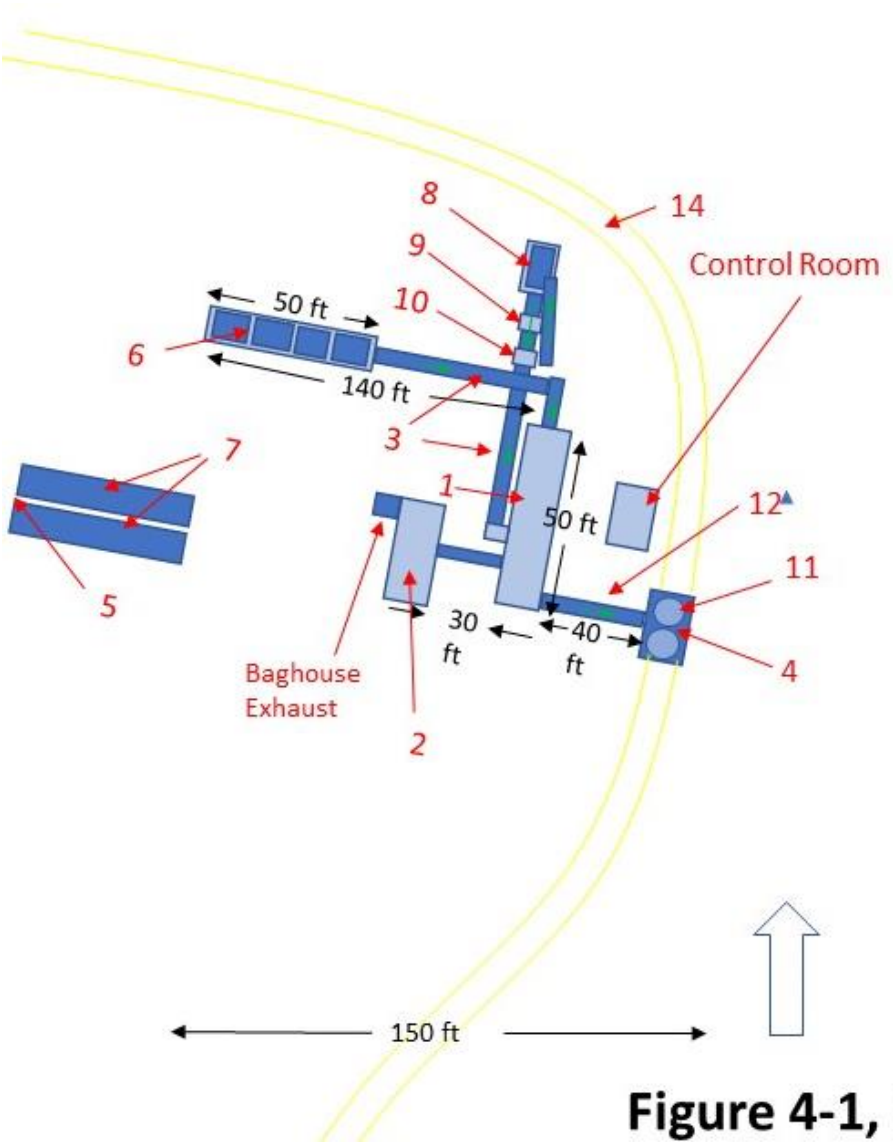
Routine or predictable emissions during Startup, Shutdown, and Maintenance (SSM)

No SSM emissions are predicted for this permit application. All control systems will be operational prior to the start or shutdown of asphalt production or aggregate processing. Maintenance will be performed during period with no production.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.



Unit Number	Component Description
1	Drum dryer / mixer
2	Baghouse
3	Conveyors
4	Asphalt load out
5	AC heater
6	(4) cold feed bins / (2) scalping screens
7	Oil tanks (2)
8	RAP feeder
9	RAP dual drum roll breaker
10	Rap single deck screen
11	Asphalt silos (2)
12	Slat Conveyor
13	Material Storage Piles
14	Haul Road

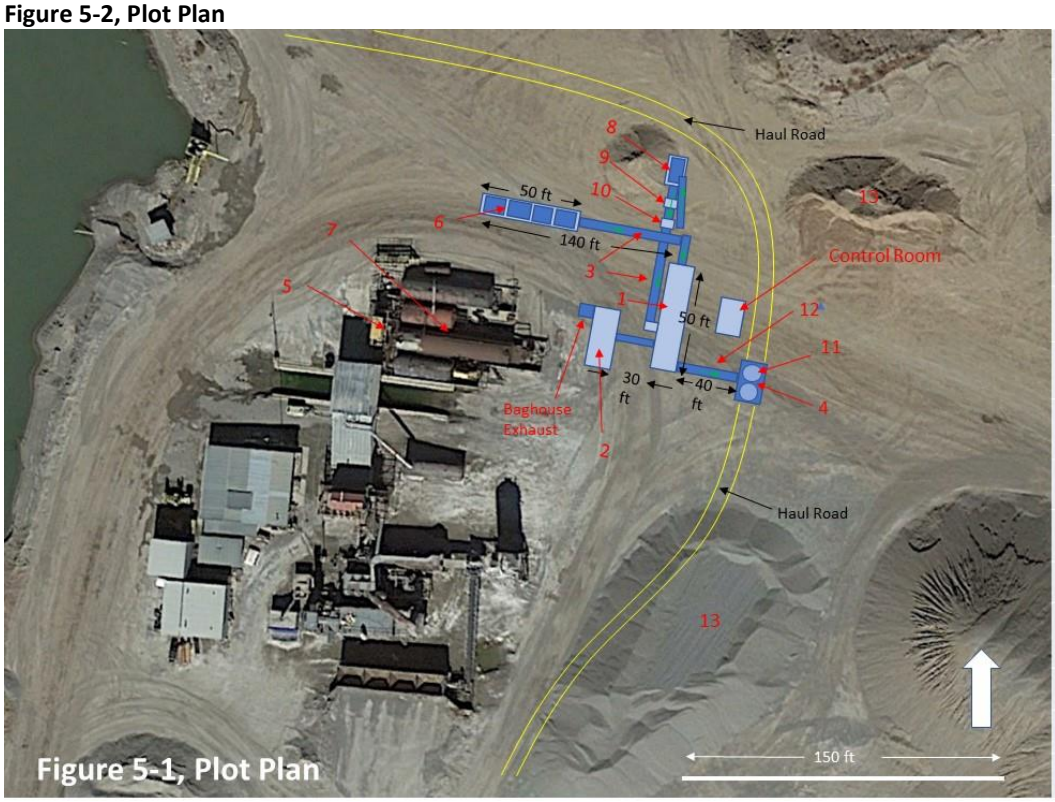
Figure 4-1, Process Flow Sheet

Section 5

Plot Plan Drawn To Scale

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

Figure 5-2, Plot Plan



Unit Number	Component Description
1	Drum dryer / mixer
2	Baghouse
3	Conveyors
4	Asphalt load out
5	AC heater
6	(4) cold feed bins / (2) scalping screens
7	Oil tanks (2)
8	RAP feeder
9	RAP dual drum roll breaker
10	Rap single deck screen
11	Asphalt silos (2)
12	Slat Conveyor
13	Material Storage Piles
14	Haul Road


403500
403750
3986250
3986000
3985750
3985500
Walmart
Lowes
Permit No. 719
Permit No. 1349
Permit No. 1147M1
Permit No. 2749
Permit No. 2879
Permit No. 3003
0
50
100 m
Figure 5-2, Plot Plan
ETM Property Boundary
Chain link fence
Barbed wire fence
Berm
Haul Road
Area of Operations

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

- **(1)** If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;
- **(2)** If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**
- **(3)** If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.
- **(4)** The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the

application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Hot Mix Asphalt Plant #6

Pre-Control Particulate Emission Rates

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

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

To estimate material handling pre-control particulate emission rates for aggregate handling operations (aggregate/RAP piles/ loading cold feed bins/RAP feed bins), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (PM = 0.74, PM_{10} = 0.35, $PM_{2.5}$ = 0.053). Wind speed for determining the maximum hourly emission rate is the NMED default of 11 MPH. The annual emission rate (used in air dispersion modeling) is based on the average wind speed for Santa Fe for the years of 1996 through 2006 of 9.5 mph. The NMED default moisture content of 2 percent was used. Additionally for RAP handling at storage piles and loading the RAP feeder, 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 Section 7). 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 final asphalt product will not contain a mineral filler. Evotherm, which is a liquid fatty amine derivative, will be used as an additive and will make up 0.1% of the final asphalt product.

Maximum hourly asphalt production is 230 tons per hours. The virgin aggregate/recycled asphalt (RAP)/asphalt cement/Evotherm ratio used in estimating material handling particulate emission rates is equal to 59/35/5.9/0.1. The ratio is estimated, and ratios may change with mix requirements. These are not requested permit conditions. Uncontrolled emissions were calculated based on operation at 8760 hours per year.

Aggregate Storage Piles and Feed Bin Loading Emission Equation:

Maximum Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00660 lbs/ton;

E_{PM10} (lbs/ton) = 0.00312 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00047 lbs/ton

Aggregate Storage Piles and Feed Bin Loading Emission Equation:

Annual Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00545 lbs/ton;

E_{PM10} (lbs/ton) = 0.00258 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00039 lbs/ton

RAP Storage Piles and RAP Feed Bin Loading Emission Equation:

Maximum Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM} (lbs/ton) = 0.00198 lbs/ton;

E_{PM10} (lbs/ton) = 0.00094 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00014 lbs/ton

RAP Storage Piles and RAP Feed Bin Loading Emission Equation:

Annual Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(9.5/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM} (lbs/ton) = 0.00164 lbs/ton;

E_{PM10} (lbs/ton) = 0.00077 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00012 lbs/ton

AP-42 Emission Factors:

Aggregate and RAP Bin Unloading and Conveyor Transfers = Uncontrolled Conveyor Transfer Point Emission Factor
Aggregate and RAP Screening = Uncontrolled Screening Emission Factor
RAP Crushing = Uncontrolled Crushing Emission Factor

Table 6-1 Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)
Uncontrolled Screening	0.02500	0.00870	0.00132
Uncontrolled Crushing	0.00220	0.00074	0.00005
Uncontrolled Screen Unloading, Feed Bin Unloading, and Conveyor Transfers	0.00300	0.00110	0.00017
Uncontrolled Aggregate Storage Piles, Cold Aggregate Bin Loading Max Hourly	0.00660	0.00312	0.00047
Uncontrolled Aggregate Storage Piles, Cold Aggregate Bin Loading, Annual	0.00545	0.00258	0.00039
Uncontrolled RAP Pile, RAP Bin Loading Max Hourly	0.00198	0.00094	0.00014
Uncontrolled RAP Pile, RAP Bin Loading Annual	0.00164	0.00077	0.00012

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

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

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

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

Table 6-2 Pre-Controlled Regulated Process Equipment Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
3a	T1 - Aggregate Bin Unloading	135.7	0.41	1.78	0.15	0.65	0.023	0.10
3b	T2 - Aggregate Scalping Screen Unloading	135.7	0.41	1.78	0.15	0.65	0.023	0.10
3c	T3 - Aggregate Conveyor to Sling Conveyor	135.7	0.41	1.78	0.15	0.65	0.023	0.10
3d	T4 - RAP Bin Unloading	80.5	0.24	1.06	0.089	0.39	0.014	0.060
3e	T5 – Rap Screen Recycle Unloading	80.5	0.24	1.06	0.089	0.39	0.014	0.060
3f	T6 - RAP Screen Unloading	80.5	0.24	1.06	0.089	0.39	0.014	0.060
3g	T7 - RAP Transfer Point	80.5	0.24	1.06	0.089	0.39	0.014	0.060
6a	Aggregate Bin Loading	135.7	0.90	3.24	0.42	1.53	0.064	0.23
6b	Aggregate Scalping Screen	135.7	3.39	14.9	1.18	5.17	0.18	0.78
8	RAP Bin Loading	80.5	0.16	0.58	0.075	0.27	0.011	0.041
9	RAP Crusher	80.5	0.43	1.90	0.19	0.85	0.029	0.13
10	RAP Screen	80.5	2.01	8.81	0.70	3.07	0.11	0.47
13a	Aggregate Storage Pile Handling	135.7	0.90	3.24	0.42	1.53	0.064	0.23
13b	RAP Storage Pile Handling	80.5	0.16	0.58	0.075	0.27	0.011	0.041
TOTALS			**10.14**	**42.80**	**3.87**	**16.21**	**0.59**	**2.47**

HMA Plant #6 Haul Truck Travel

Haul truck travel emissions were estimated using AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. See Figure 5-2 for identification of haul roads. Table 6-28 summarizes the emission rate for each haul truck category.

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

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

Where k = constant PM2.5 = 0.15
PM10 = 1.5
PM = 4.9
s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (28.75 tons – 17.5 tons truck, 22.5 tons load)
p = number of days with at least 0.01 in of precip. (70 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
PM = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
PM = 0.45
Vehicle Dust Control 0%

Trucks per Hour
RAP Trucks = 3.57778 truck per hour average
Asphalt Cement Trucks = 0.61333 truck per hour average
Asphalt Trucks = 10.2222 truck per hour average

Trucks per Year
RAP Trucks = 31,341.3 truck per year
Asphalt Cement Trucks = 5,372.8 truck per year
Asphalt Trucks = 89,546.7 truck per year

VMT =Vehicle Miles Traveled

RAP Trucks	Unpaved – 1.0036 miles per vehicle
Asphalt Cement Trucks	Unpaved – 1.0036 miles per vehicle
Aggregate Trucks	Unpaved – 1.0036 miles per vehicle

Miles Traveled
HMA Plant #6 Unpaved – 14.466 miles per hour; 126,720 miles per year

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

Hourly Emission Rate Factor – 0% Control
PM = 7.1338 lbs/VMT
PM10 = 1.8181 lbs/VMT
PM2.5 = 0.18181 lbs/VMT

Annual Emission Rate Factor – 0% Control
PM = 5.7657 lbs/VMT
PM10 = 1.4695 lbs/VMT
PM2.5 = 0.14695 lbs/VMT

Table 6-3 Pre-Controlled Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
RAP Truck Emissions Unpaved	3.59078 miles/hr; 31455.2 miles/yr	25.62	90.68	6.53	23.11	0.65	2.31
Asphalt Cement Truck Emissions Unpaved	0.61556 miles/hr; 5372.8 miles/yr	4.39	15.55	1.12	3.96	0.11	0.40
Asphalt Truck Emissions Unpaved	10.222 miles/hr; 89,546.7 miles/yr	73.19	259.09	18.65	66.03	1.86	6.60
	Total	**103.2**	**365.3**	**26.3**	**93.1**	**2.63**	**9.31**

Drum Mix Hot Mix Asphalt Plant

Drum mix hot mix asphalt plant uncontrolled emissions were estimated using AP-42, Section 11.1 "Hot Mix Asphalt Plants" (revised 03/04), tables 11.1.3, 7, 8 and 14 emission equations. The drum dryer will be permitted to combust natural gas. Hourly emission rates are based on maximum hourly asphalt production (230 tph) and maximum annual emission rates are based on operating 8760 hours per year. To determine missing $PM_{2.5}$ emission factor the sum of uncontrolled filterable from Table 11.1-4 plus uncontrolled organic and inorganic condensable in Table 11.1-3 was used. Silo filling and plant loadout emission factors were calculated using the default value of –0.5 for asphalt volatility and a temperature setting of 325˚ F for HMA mix from drum and a silo temperature setting of 325˚ F for the HMA asphalt silo. Yard emissions were found in AP-42 Section 11.1.2.5. TOC emission equation is 0.0011 lbs/ton of asphalt produced and CO is equal to the TOC emission rate times 0.32.

Pollutant	AP-42 Table 11.1-14, Equation
Drum mix plant load-out (Silo Unloading)	
CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$
TOC	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$
Total PM	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
Silo filling (Drum Unloading)	
CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$
TOC	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$
Total PM	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$

Emissions of VOCs (TOCs) from the asphalt cement storage tanks were determined with EPA's TANK 4.0.9d program and the procedures found in EPA's "Emission Factor Documentation for AP-42 Section 11.1 (12/2000) Section 4.4.5" for input to the TANK program.

Table 6-4 AP-42 Section 11.1 Table 11.1-3, -4, -7, -8, and -14 Uncontrolled Emission Factors

Process Unit	Pollutant	Emission Factor (lbs/ton)
Drum Mixer	NO_X	0.026
	CO	0.13
	SO_2	0.0034
	VOC	0.032
	TOC	0.044
	PM	28.0
	PM_{10}	6.5
	$PM_{2.5}$	1.565
	CO_2	33.0
Drum Unloading	CO	0.001179981
	TOC	0.012186685
	PM	0.000585889
	PM_{10}	0.000585889
	$PM_{2.5}$	0.000585889
Silo Loadout	CO	0.001349240
	TOC	0.004158948
	PM	0.000521937
	PM_{10}	0.000521937
	$PM_{2.5}$	0.000521937
Yard	CO	0.000352
	TOC	0.0011

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

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

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

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

Table 6-5 Pre-Controlled Hot Mix Plant Emission Rates

Process Unit Number	Process Unit Description	Pollutant	Average Hourly Process Rate (tons/hour)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
1	Asphalt Drum Dryer/Mixer	NO_X	230	5.98	26.2
		CO	230	29.9	131
		SO_2	230	0.78	3.43
		VOC	230	7.36	32.2
		PM	230	6,440	28,207
		PM_{10}	230	1,495	6,548
		$PM_{2.5}$	230	360	1,577
		CO_2	230	7590.0	33244.2
12	Drum Mixer Unloading	CO	230	0.27	1.19
		TOC	230	2.80	12.28
		PM	230	0.13	0.59
		PM_{10}	230	0.13	0.59
		$PM_{2.5}$	230	0.13	0.59
4	Asphalt Silo Unloading	CO	230	0.31	1.36
		TOC	230	0.96	4.19
		PM	230	0.12	0.53
		PM_{10}	230	0.12	0.53
		$PM_{2.5}$	230	0.12	0.53
7	Asphalt Cement Storage Tanks	TOC	45,000 gallons	0.024	0.10
15	YARD	TOC	230	0.25	1.11
		CO	230	0.081	0.35

Allowable Particulate Emission Rates

No controls or emission reductions for combustion emissions (NO_X, CO, SO_2, VOC, or TOC) are proposed for the drum dryer (Unit 1), unloading the drum mixer (Unit 12), asphalt silo loadout (Unit 4), and asphalt heater (Unit 5) with the exception of limiting annual production rates for production equipment.

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

No controls for particulate emissions (PM, PM_{10}, $PM_{2.5}$) for cold aggregate storage piles (Unit 13a), cold aggregate feed bin loading (Unit 6a), RAP storage pile (Unit 13b), and RAP Bin Loading (Unit 8) with the exception of limiting annual production rates for production equipment.

Fugitive dust control for unloading the cold aggregate and RAP feed bins onto the cold aggregate and RAP feed bin conveyors (3a and 3d) will be controlled, as needed to limit visible emissions, with enclosures and/or water sprays at the exit of the feed bins. 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 crusher (Unit 9) will be controlled, as needed to limit visible emissions, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 77.5 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 aggregate scalping screen and RAP screen (Units 6b and 10) will be controlled, as needed to limit visible emissions, 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 unloading the aggregate scalping screen and RAP screen (Units 3b, 3e and 3f), aggregate transfer from the scale conveyor to the sling conveyor (3c), and RAP transfer to the drum mixer (Unit 3g) will be controlled, as needed to limit visible emissions, with enclosures and/or water sprays. 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.

Particulate emissions from the drum dryer/mixer (Unit 1) will be controlled with a baghouse dust collector (Unit 2) on the exhaust vent. It is estimated that this method will control to an efficiency of 99.88 percent per AP42 Section 11.1, Table 11.1-3 "controlled emission factor vs. uncontrolled emission factor". Baghouse fines are recycled back to the drum mixer in a closed loop. Additional emission reductions include limiting annual production rates.

No fugitive controls or emission reductions are proposed for unloading the drum dryer/mixer or asphalt silo (Units 12 and 4) with the exception of limiting annual production rates. No fugitive controls are proposed for yard emissions (15) or asphalt storage tanks (7).

To estimate material handling allowable particulate emission rates for aggregate handling operations (aggregate/RAP piles/ loading cold feed bins/RAP feed bins), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2004), where the k (PM = 0.74, PM_{10} = 0.35, $PM_{2.5}$ = 0.053). Wind speed for determining the maximum hourly emission rate is the NMED default of 11 MPH. The annual emission rate (used in air dispersion modeling) is based on the average wind speed for Santa Fe for the years of 1996 through 2006 of 9.5 mph. The NMED default moisture content of 2 percent was used. Additionally for RAP handling at storage piles and loading the RAP feeder, 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 Section 7). 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 final asphalt product will not contain a mineral filler. Evotherm, which is a liquid fatty amine derivative, will be used as an additive and will make up 0.1% of the final asphalt product.

Maximum hourly asphalt production is 230 tons per hours. The virgin aggregate/recycled asphalt (RAP)/asphalt cement/Evotherm ratio used in estimating material handling particulate emission rates is equal to 59/35/5.9/0.1. The ratio is estimated, and ratios may change with mix requirements. These are not requested permit conditions. Annual emissions in tons per year (tpy) were calculated assuming an annual production throughput of 839,500 tons of asphalt per year.

Aggregate Storage Piles and Feed Bin Loading Emission Equation:

Maximum Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00660 lbs/ton;

E_{PM10} (lbs/ton) = 0.00312 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00047 lbs/ton

Aggregate Storage Piles and Feed Bin Loading Emission Equation:

Annual Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$

E_{PM} (lbs/ton) = 0.00545 lbs/ton;

E_{PM10} (lbs/ton) = 0.00258 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00039 lbs/ton

RAP Storage Piles and RAP Feed Bin Loading Emission Equation:

Maximum Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM} (lbs/ton) = 0.00198 lbs/ton;

E_{PM10} (lbs/ton) = 0.00094 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00014 lbs/ton

RAP Storage Piles and RAP Feed Bin Loading Emission Equation:

Annual Hour Emission Factor

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

E_{PM} (lbs/ton) = 0.74 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM10} (lbs/ton) = 0.35 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

$E_{PM2.5}$ (lbs/ton) = 0.053 x 0.0032 x $(11/5)^{1.3}$ / $(2/2)^{1.4}$ * 0.3

E_{PM} (lbs/ton) = 0.00164 lbs/ton;

E_{PM10} (lbs/ton) = 0.00077 lbs/ton

$E_{PM2.5}$ (lbs/ton) = 0.00012 lbs/ton

AP-42 Emission Factors:

Aggregate and RAP Feed Bin Unloading = Controlled Conveyor Transfer Point Emission Factor
Crusher = Controlled Tertiary Crusher Emission Factor
Screen = Controlled Screening Emission Factor
Transfer Conveyor = Controlled Conveyor Transfer Point Emission Factor
Aggregate Scalping Screen and RAP Screen Conveyor = Controlled Conveyor Transfer Point Emission Factor

Table 6-6 Material Handling Emission Factors

Process Unit	PM Emission Factor (lbs/ton)	PM_{10} Emission Factor (lbs/ton)	$PM_{2.5}$ Emission Factor (lbs/ton)
Feed Bin Unloading	0.00014	0.00005	0.000013
Controlled Screening	0.00220	0.00074	0.00005
Transfer Conveyor	0.00014	0.00005	0.000013
Controlled Crushing	0.00120	0.00054	0.00010
Uncontrolled Aggregate Storage Piles, Cold Aggregate Bin Loading Max Hourly	0.00660	0.00312	0.00047
Uncontrolled Aggregate Storage Piles, Cold Aggregate Bin Loading, Annual	0.00545	0.00258	0.00039
Uncontrolled RAP Pile, RAP Bin Loading Max Hourly	0.00198	0.00094	0.00014
Uncontrolled RAP Pile, RAP Bin Loading Annual	0.00164	0.00077	0.00012

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:

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

Table 6-7 Allowable Regulated Process Equipment Emission Rates

Unit #	Process Unit Description	Process Rate (tph)	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
3a	T1 - Aggregate Bin Unloading	135.7	0.019	0.035	0.0062	0.011	0.0018	0.0032
3b	T2 - Aggregate Scalping Screen Unloading	135.7	0.019	0.035	0.0062	0.011	0.0018	0.0032
3c	T3 - Aggregate Conveyor to Sling Conveyor	135.7	0.019	0.035	0.0062	0.011	0.0018	0.0032
3d	T4 - RAP Bin Unloading	80.5	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3e	T5 – Rap Screen Recycle Unloading	80.5	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3f	T6 - RAP Screen Unloading	80.5	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3g	T7 - RAP Transfer Point	80.5	0.011	0.021	0.0037	0.0068	0.0010	0.0019
6a	Aggregate Bin Loading	135.7	0.90	1.35	0.42	0.64	0.064	0.097
6b	Aggregate Scalping Screen	135.7	0.30	0.54	0.10	0.18	0.0068	0.012
8	RAP Bin Loading	80.5	0.16	0.24	0.075	0.11	0.011	0.017
9	RAP Crusher	80.5	0.097	0.18	0.043	0.079	0.0081	0.015
10	RAP Screen	80.5	0.18	0.32	0.060	0.11	0.0040	0.0073
13a	Aggregate Storage Pile Handling	135.7	0.90	1.35	0.42	0.64	0.064	0.097
13b	RAP Storage Pile Handling	80.5	0.16	0.24	0.075	0.11	0.011	0.017
	TOTALS		**2.78**	**4.41**	**1.23**	**1.94**	**0.18**	**0.28**

Allowable HMA Plant #6 Haul Truck Travel

Haul truck travel emissions were estimated using the AP-42, Section 13.2.2 (ver.11/06) "Unpaved Roads" emission equation. Haul roads throughout the plant are unpaved that will be controlled with basecourse and water. Haul road traffic emission rates controlled by with basecourse and water have applied a control efficiency of 80%. Table 6-8 summarizes the emission rate for each haul truck category.

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

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

Where k = constant PM2.5 = 0.15
PM10 = 1.5
PM = 4.9
s = % silt content (Table 13.2.2-1, "Sand and Gravel" 4.8%)
W = mean vehicle weight (28.75 tons – 17.5 tons truck, 22.5 tons load)
p = number of days with at least 0.01 in of precip. (70 days)
a = Constant PM2.5 = 0.9
PM10 = 0.9
PM = 0.7
b = Constant PM2.5 = 0.45
PM10 = 0.45
PM = 0.45
Vehicle Dust Control 80% Basecourse and Watering

Trucks per Hour
RAP Trucks = 3.57778 truck per hour average
Asphalt Cement Trucks = 0.61333 truck per hour average
Asphalt Trucks = 10.2222 truck per hour average

Trucks per Year
RAP Trucks = 22,013.6 truck per year
Asphalt Cement Trucks = 2,238.7 truck per year
Asphalt Trucks = 61,563.3 truck per year

VMT =Vehicle Miles Traveled
RAP Trucks Unpaved – 1.0036 miles per vehicle
Asphalt Cement Trucks Unpaved – 1.0036 miles per vehicle
Aggregate Trucks Unpaved – 1.0036 miles per vehicle

Miles Traveled
HMA Plant #6 Unpaved – 14.466 miles per hour; 61,787 miles per year

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 – 80% Control
PM = 1.4268 lbs/VMT
PM10 = 0.36363 lbs/VMT
PM2.5 = 0.03636 lbs/VMT

Annual Emission Rate Factor – 80% Control
PM = 1.1531 lbs/VMT
PM10 = 0.29389 lbs/VMT
PM2.5 = 0.02939 lbs/VMT

Table 6-8 Allowable Haul Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
RAP Truck Emissions Unpaved	3.59078 miles/hr; 22,093.6 miles/yr	5.12	7.56	1.31	1.93	0.13	0.19
Asphalt Cement Truck Emissions Unpaved	0.61556 miles/hr; 2,246.8 miles/yr	0.89	1.30	0.22	0.33	0.022	0.033
Asphalt Truck Emissions Unpaved	10.222 miles/hr; 37,447 miles/yr	14.64	21.59	3.73	5.50	0.37	0.55
	Total	**20.64**	**30.44**	**5.26**	**7.76**	**0.53**	**0.78**

Drum Mix Hot Mix Asphalt Plant

Particulate emissions from the drum dryer/mixer (Unit 1) will be controlled with a baghouse dust collector (Unit 2, Control Unit C1) on the exhaust vent. This dust collector consists of filter bags and a fan that draws all the drum mixer exhaust through the dust collector. It is estimated that this method will control to an efficiency of 99.88 percent per AP42 Section 11.1, Table 11.1-3. Additional emission reductions include limiting annual production rates. No fugitive controls are proposed for unloading the drum dryer/mixer or asphalt silos (Units 12 and 4) with the exception of limiting annual production rates. No fugitive controls are proposed for yard emissions or asphalt storage tank emissions.

Drum mix hot mix asphalt plant controlled emissions were estimated using AP-42, Section 11.1 "Hot Mix Asphalt Plants" (revised 03/04), tables 11.1-3, -4, -7, -8 and -14 emission rates for all pollutants. The drum dryer will be permitted to combust natural gas. Hourly emission rates are based on maximum hourly asphalt production (230 tph) and annual emission rates are based on maximum annual asphalt production (839,500 tpy). PM emission rates were estimated using the controlled Total PM emission factor found in Table 11.1-3, Fabric Filter. PM_{10} and $PM_{2.5}$ emission rates were estimated using the controlled Total PM_{10} emission factor found in Table 11.1-3, Fabric Filter. Silo filling and drum mixer plant loadout emission factors were calculated using the default value of –0.5 for asphalt volatility and a temperature setting of 325˚ F for HMA mix from drum and a silo temperature setting of 325˚ F for the HMA asphalt silo. Yard emissions were found in AP-42 Section 11.1.2.5. TOC emission equation is 0.0011 lbs/ton of asphalt produced and CO is equal to the TOC emission rate times 0.32.

Pollutant	AP-42 Table 11.1-14, Equation
Drum mix plant load-out (Silo Unloading)	
CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$
TOC	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$
Total PM	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
Silo filling (Drum Unloading)	
CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$
TOC	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$
Total PM	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$

Emissions of VOCs (TOCs) from the asphalt cement storage tank (Unit 7) were determined with EPA's TANK 4.0.9d program and the procedures found in EPA's "Emission Factor Documentation for AP-42 Section 11.1 (12/2000) Section 4.4.5" for input to the TANK program.

AP-42 Section 11.1 Table 11.1-3, 7, 8, and 14 Controlled Emission Factors:

Process Unit	Pollutant	Emission Factor (lbs/ton)
Drum Mixer	NO_X	0.026
	CO	0.13
	SO_2	0.0034
	VOC	0.032
	TOC	0.044
	PM	0.033
	PM_{10}	0.023
	$PM_{2.5}$	0.023
	CO_2	33.0
Drum Unloading	CO	0.001179981
	TOC	0.012186685
	PM	0.000585889
	PM_{10}	0.000585889
	$PM_{2.5}$	0.000585889
Silo Loadout	CO	0.001349240
	TOC	0.004158948
	PM	0.000521937
	PM_{10}	0.000521937
	$PM_{2.5}$	0.000521937
Yard	CO	0.000352
	TOC	0.0011

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 6-9: Allowable Hot Mix Plant Emission Rates

Process Unit Number	Process Unit Description	Pollutant	Average Hourly Process Rate (tons/hour)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
1	Asphalt Drum Dryer/Mixer	NO_X	230	5.98	10.9
		CO	230	29.9	54.6
		SO_2	230	0.782	1.43
		VOC	230	7.36	13.4
		PM	230	7.59	13.9
		PM_{10}	230	5.29	9.65
		$PM_{2.5}$	230	5.29	9.65
		CO_2	230	7590.0	13851.8
12	Drum Mixer Unloading	CO	230	0.27	0.50
		TOC	230	2.80	5.12
		PM	230	0.13	0.25
		PM_{10}	230	0.13	0.25
		$PM_{2.5}$	230	0.13	0.25
4	Asphalt Silo Unloading	CO	230	0.31	0.57
		TOC	230	0.96	1.75
		PM	230	0.12	0.22
		PM_{10}	230	0.12	0.22
		$PM_{2.5}$	230	0.12	0.22
7	Asphalt Cement Storage Tanks	TOC	45,000 gallons	0.024	0.10
15	YARD	TOC	230	0.25	0.46
		CO	230	0.081	0.15

Natural Gas-Fired Asphalt Heater

One natural gas asphalt heater (Unit 5) heats the asphalt oil before it is mixed with the aggregate in the drum dryer/mixer. The unit is rated at 2,650,000 Btu/hr. The estimated hourly natural gas combusted is 2,804 scf/hr (945 BTU/scf). Emissions of nitrogen oxides (NO_X), carbon monoxides (CO), sulfur dioxide (SO_2), hydrocarbons (VOC) and particulate (PM) are estimated using AP-42 Section 1.4 "Natural Gas Combustion" (7/98). Sulfur content of natural gas will not exceed 0.75 gr/100 scf. No controls are proposed for the fuel asphalt heater. Annual emissions in tons per year (tpy) were calculated assuming operation of 8760 hours per year.

Table 6-10 AP-42 Emission Factors: Section 1.4

Natural Gas/ Propane Emission Factors

Pollutant	Emission Factor
Nitrogen Oxides	100 lbs/MMscf
Carbon Monoxides	84 lbs/MMscf
Particulate	7.6 lbs/MMscf
Hydrocarbons	5.5 lbs/MMscf
Sulfur Dioxides	0.75 gr/100 scf
Carbon Dioxide	120000 lbs/MMscf

The following equation was used to calculate the hourly emission rate for asphalt heater pollutant (NO_X, CO, VOC, PM):

Emission Rate (lbs/hr) = EF (lbs/MMscf) * fuel usage (MMscf/hr)

The following equation was used to calculate the hourly emission rate for asphalt heater pollutant (SO_2):

Emission Rate (lbs/hr) = Sulfer Content (gr/100 scf) * fuel usage (100 scf/hr) / 7000 gr/lb *2 S/SO_2

The following equation was used to calculate the annual emission rate for asphalt heater pollutant (NO_X, CO, VOC, PM):

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

Table 6-11 Allowable Combustion Emission Rates for Asphalt Heater

Process Unit Number	Pollutant	Fuel Usage (scf/hr)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
5	NO_X	2,804	0.28	1.23
	CO	2,804	0.24	1.03
	VOC	2,804	0.031	0.14
	SO_2	2,804	0.0060	0.026
	PM	2,804	0.021	0.093
	CO_2	2,804	336.5	1473.9

Table 6-12 Summary of Pre-controlled NOx, CO, SO_2, and PM Emission Rates

Pre-Controlled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1,2	Drum Dryer / Mixer	5.98	26.19	29.90	131.0	0.78	3.43	7.36	32.24	6440.0	28207.2	1495.0	6548.1	360.0	1576.6
3a (T1)	T1 - Aggregate Bin Unloading	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.023	0.10
3b (T2)	T2 - Aggregate Scalping Screen Unloading	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.023	0.10
3c (T3)	T3 - Aggregate Conveyor to Sling Conveyor	-	-	-	-	-	-	-	-	0.41	1.78	0.15	0.65	0.023	0.10
3d (T4)	T4 - RAP Bin Unloading	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060
3e (T5)	T5 – Rap Screen Recycle Unloading	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060
3f (T6)	T6 - RAP screen unloading	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060
3g (T7)	T7 - RAP Transfer Point	-	-	-	-	-	-	-	-	0.24	1.06	0.089	0.39	0.014	0.060
4	Asphalt Silo Unloading	-	-	0.31	1.36	-	-	0.96	4.19	0.12	0.53	0.12	0.53	0.12	0.53
5	Asphalt Cement Heater	0.28	1.23	0.24	1.03	0.0060	0.026	0.031	0.14	0.021	0.093	0.021	0.093	0.021	0.093
6a	Aggregate cold feed bins	-	-	-	-	-	-	-	-	0.90	3.24	0.42	1.53	0.064	0.23
6b	Aggregate Scalping Screens	-	-	-	-	-	-	-	-	3.39	14.9	1.18	5.17	0.18	0.78
7	Asphalt Cement Tanks	-	-	-	-	-	-	0.024	0.10	-	-	-	-	-	-
8	RAP loading bin	-	-	-	-	-	-	-	-	0.16	0.58	0.075	0.27	0.011	0.041
9	RAP dual drum roll breaker	-	-	-	-	-	-	-	-	0.435	1.90	0.193	0.846	0.029	0.128
10	Rap single deck screen	-	-	-	-	-	-	-	-	2.013	8.815	0.700	3.068	0.106	0.465
11	Asphalt Storage Silos	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Slat Conveyor / Mixer Drum Unloading	-	-	0.27	1.19	-	-	2.80	12.28	0.13	0.59	0.13	0.59	0.13	0.59
13a	Aggregate Storage Pile	-	-	-	-	-	-	-	-	0.90	3.24	0.42	1.53	0.064	0.23

Table 6-12 Summary of Pre-controlled NOx, CO, SO_2, and PM Emission Rates

Pre-Controlled Emission Totals															
Unit #	Description	NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
13b	RAP Storage Pile	-	-	-	-	-	-	-	-	0.16	0.58	0.075	0.27	0.011	0.041
14	Haul Road	-	-	-	-	-	-	-	-	103.2	365.3	26.3	93.1	2.63	9.31
15	Yard	-	-	0.081	0.35	-	-	0.25	1.11	-	-	-	-	-	-
Totals		**6.26**	**27.4**	**30.8**	**134.9**	**0.79**	**3.45**	**11.4**	**50.0**	**6554**	**28617**	**1525**	**6659**	**363**	**1590**

Table 6-13 Summary of Allowable NOx, CO, SO_2, and PM Emission Rates

Controlled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1,2	Drum Dryer / Mixer	5.98	10.91	29.90	54.57	0.78	1.43	7.36	13.43	7.59	13.85	5.29	9.65	5.29	9.65
3a (T1)	T1 - Aggregate Bin Unloading	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032
3b (T2)	T2 - Aggregate Scalping Screen Unloading	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032
3c (T3)	T3 - Aggregate Conveyor to Sling Conveyor	-	-	-	-	-	-	-	-	0.019	0.035	0.0062	0.011	0.0018	0.0032
3d (T4)	T4 - RAP Bin Unloading	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3e (T5)	T5 – Rap Screen Recycle Unloading	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3f (T6)	T6 - RAP screen unloading	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019
3g (T7)	T7 - RAP Transfer Point	-	-	-	-	-	-	-	-	0.011	0.021	0.0037	0.0068	0.0010	0.0019
4	Asphalt Silo Unloading	-	-	0.31	0.57	-	-	0.96	1.75	0.12	0.22	0.12	0.22	0.12	0.22
5	Asphalt Cement Heater	0.28	1.23	0.24	1.03	0.0060	0.026	0.031	0.14	0.021	0.093	0.021	0.093	0.021	0.093
6a	Aggregate cold feed bins	-	-	-	-	-	-	-	-	0.90	1.35	0.42	0.64	0.064	0.097
6b	Aggregate Scalping Screens	-	-	-	-	-	-	-	-	0.30	0.54	0.10	0.18	0.0068	0.012
7	Asphalt Cement Tanks	-	-	-	-	-	-	0.024	0.10	-	-	-	-	-	-
8	RAP loading bin	-	-	-	-	-	-	-	-	0.16	0.24	0.075	0.11	0.011	0.017
9	RAP dual drum roll breaker	-	-	-	-	-	-	-	-	0.097	0.18	0.043	0.079	0.0081	0.015
10	Rap single deck screen	-	-	-	-	-	-	-	-	0.18	0.32	0.060	0.11	0.0040	0.0073
11	Asphalt Sorage Silos	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Slat Conveyor / Mixer Drum Unloading	-	-	0.27	0.50	-	-	2.80	5.12	0.13	0.25	0.13	0.25	0.13	0.25
13a	Aggregate Storage Pile	-	-	-	-	-	-	-	-	0.896	1.634	0.424	0.773	0.064	0.117

Table 6-13 Summary of Allowable NOx, CO, SO_2, and PM Emission Rates

Controlled Emission Totals															
		NOx		CO		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$	
Unit #	Description	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
13b	RAP Storage Pile	-	-	-	-	-	-	-	-	0.16	0.24	0.075	0.11	0.011	0.017
14	Haul Road	-	-	-	-	-	-	-	-	20.6	30.4	5.26	7.76	0.53	0.78
15	Yard	-	-	0.081	0.15	-	-	0.25	0.46	-	-	-	-	-	-
	Totals	**6.26**	**12.1**	**30.8**	**56.8**	**0.79**	**1.45**	**11.43**	**21.0**	**31.3**	**49.3**	**12.1**	**19.9**	**6.27**	**11.3**

Estimates for Hydrogen Sulfide Pollutants

The Hot Mix Asphalt Plant (HMA) drum dryer/mixer, asphalt silo loading, and asphalt silo unloading are sources of hydrogen sulfide (H_2S) listed as a state regulated ambient air quality standard. Emission factors of H_2S from the drum dryer/mixer, asphalt silo loading, and asphalt silo unloading are based on a 2001 study performed by the North Carolina Division of Air Quality and the city of Salisbury, NC. Emission calculations are based on a production of 230 tph and 839,500 tons per year. From the study the H_2S emission factors from these sources are:

Process Unit Number	Process Unit Description	H_2S Emission Factor
1, C1	Asphalt Drum Dryer and Baghouse	0.0000518 lbs/ton
12	Drum Mixer Unloading	0.000001460 lbs/ton
4	Asphalt Silo Unloading	0.000001460 lbs/ton

Table 6-14: Controlled Hot Mix Plant Emission Rates

Process Unit Number	Process Unit Description	Pollutant	Average Hourly Process Rate (tons/hour)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
1, C1	Asphalt Drum Dryer and Baghouse	H_2S	230	0.012	0.022
12	Drum Mixer Unloading	H_2S	230	0.00034	0.00061
4	Asphalt Silo Unloading	H_2S	230	0.00034	0.00061
			Total	**0.013**	**0.023**

Estimates for State Toxic Air Pollutants (Asphalt Fumes)

The Hot Mix Asphalt Plant #6 (HMA) drum dryer/mixer, asphalt silo loading, asphalt silo unloading, yard emissions, and heated asphalt cement storage tank are sources of asphalt fumes listed in the NMED's 20.2.72 NMAC, 502 "Toxic Air Pollutants and Emissions", Table A. Emissions of asphalt fumes from the drum dryer/mixer (Unit 1) are based on PM organic condensable emission factors found in AP-42 Section 11.1, Table 11.1-3 (0.012 pounds per ton x 230 tons/hr) from the drum dryer/mixer baghouse stack or 2.76 pounds per hour/ 5.04 tons per year.

Emissions of asphalt fumes from the asphalt silo loading (Unit 12), asphalt silo unloading (Unit 4), yard (asphalt transported in asphalt trucks-Unit 15), and hot oil asphalt storage tanks (Unit 7) were based on the assumption that the emissions of concern from the silo filling, silo unloading, hot oil asphalt storage tanks, and yard asphalt fumes sources are the PAH HAPs plus other semi-volatile HAPs from the particulate (PM) organics and the volatile organic HAPs from the Total Organic Compounds (TOC). These two combined make up asphalt fume emissions from the silo filling, silo unloading, hot oil asphalt storage tanks, and yard sources. Using information found in AP-42 Section 11.1, Tables 11.1-14, 15, and 16 were reviewed and the following emission equations or emission factors were used to estimate asphalt fumes emissions from silo filling, silo unloading, hot oil asphalt storage tanks, and yard.

Drum Loadout
Asphalt Fumes EF = $0.00036(-V)e^{((0.0251)(T+460)-20.43)}$

Silo Filling
Asphalt Fumes EF = $0.00078(-V)e^{((0.0251)(T+460)-20.43)}$

Asphalt Storage Tanks
Asphalt Fumes EF = VOC emissions from TANKs * 1.3%

Yard
Asphalt Fumes EF = 0.0000165 lbs/ton of asphalt loaded

Silo filling and drum mixer plant loadout emission factors were calculated using the default value of –0.5 for asphalt volatility and a temperature setting of 325˚ F for HMA mix from drum and a silo temperature setting of 325˚ F for the HMA asphalt silo unloadimg. Inputting these values in to the equations gives you a pound per ton value of 0.000188603 lbs/ton and 0.000087048 lbs/ton or asphalt fumes emission rates of 0.043 pounds/hour/0.079 tons/yr and 0.020 pounds per hour/0.037 tons/yr (230 tph of asphalt production).

Emissions of asphalt fumes from the Yard were based on 1.5 percent of the TOC emission. Yard emission factors are found in AP-42 Section 11.1.2.5. TOC emission factor is 0.0011 lbs/ton of asphalt produced. Asphalt fumes emissions are 0.0000165 lbs/ton of asphalt produced or 0.0038 pounds per hour and 0.0069 tons/yr (230 tph of asphalt production).

Emissions of asphalt fumes from the asphalt cement storage (3) tanks (Unit 7) were determined with EPA's TANK 4.0.9d program and the procedures found in EPA's "Emission Factor Documentation for AP-42 Section 11.1 (12/2000) Section 4.4.5" for input to the TANK program. The annual VOC emissions for working and breathing losses from three tanks with a combined capacity of 45,000 gallon were estimated at 206.46 pounds per year or 0.024 pounds per hour. Based on 1.3 percent of the VOC emissions, the asphalt fumes emission rate is 0.00031 pounds per hour and 0.0013 tons/yr.

Total asphalt fumes from the HMA Plant #6 are **2.83 pounds per hour** and **5.16 tons per year**.

Estimates for Federal HAPs Air Pollutants

The Hot Mix Asphalt Plant (HMA) drum dryer (Unit 1) and asphalt heater (Unit 5) are sources of HAPs as it appears in Section 112 (b) of the 1990 CAAA. Emissions of HAPs were determined for the drum mixer using AP-42 Section 11.1 Tables 11.1-10, 11.1-12. Emissions of HAPs were determined for the asphalt heaters using AP-42 Section 1.4.

The following tables summarize the HAPs emission rates from the drum mixer and asphalt heater. Total combined HAPs emissions from ETM HMA Plant #6 is **1.24 pounds per hour** and **2.28 tons per year**.

Table 6-15: HAPs Emission Rates from the Drum Dryer/Mixer (Unit 1)

EPA HAPS Emissions Drum Mixer Hot Mix Asphalt Plant with Fabric Filter

Average Hourly Production Rate:	230	tons per hour
Yearly Production Rate:	839500	tons per year

Type of Fuel:	Natural Gas
Emission Factors	AP-42 Section 11.1 Tables 11.1-10, 11.1-11

Non-PAH HAPS	CAS#	Emission Factor (lbs/ton)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Benzene	71-43-2	3.9E-04	0.089700	0.163703
Ethylbenzene	100-41-4	2.4E-04	0.055200	0.100740
Formaldehyde	50-00-0	3.1E-03	0.713000	1.301225
Hexane	110-54-3	9.2E-04	0.211600	0.386170
Isooctane	540-84-1	4.0E-05	0.009200	0.016790
Methyl chorlform	71-55-6	4.8E-05	0.011040	0.020148
Toluene	108-88-3	2.9E-03	0.034500	0.062963
Xylene	1330-20-7	2.0E-04	0.046000	0.083950
	Total Non-PAH HAPS	5.1E-03	1.170240	2.135688

PAH HAPS	CAS#	Emission Factor (lbs/ton)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
2-Methylnaphthalene	91-57-6	7.4E-05	0.017020	0.031062
Acenaphthene	83-32-9	1.4E-06	0.000322	0.000588
Acenaphthylene	208-96-8	8.6E-06	0.001978	0.003610
Anthracene	120-12-7	2.2E-07	0.000051	0.000092
Benzo(a)anthracene	56-55-3	2.1E-07	0.000048	0.000088
Benzo(a)pyrene	50-32-8	9.8E-09	0.000002	0.000004
Benzo(b)fluoranthene	205-99-2	1.0E-07	0.000023	0.000042
Benzo(b)pyrene	192-97-2	1.1E-07	0.000025	0.000046
Benzo(g,h,I)perylene	191-24-2	4.0E-08	0.000009	0.000017
Benzo(k)fluoranthene	207-08-9	4.1E-08	0.000009	0.000017
Chrysene	218-01-9	1.8E-07	0.000041	0.000076
Fluoranthene	206-44-0	6.1E-07	0.000140	0.000256
Fluorene	86-73-7	3.8E-06	0.000874	0.001595
Indeno(1,2,3-cd)pyrene	193-39-5	7.0E-09	0.000002	0.000003
Naphthalene	91-20-3	9.0E-05	0.020700	0.037778
Perylene	198-55-0	8.8E-09	0.000002	0.000004
Phenanthrene	85-01-8	7.6E-06	0.001748	0.003190
Pyrene	129-00-0	5.4E-07	0.000124	0.000227
	Total PAH HAPS	1.9E-04	0.043120	0.078693

HAPS Metals		Emission Factor (lbs/ton)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic		5.6E-07	0.000129	0.000235
Beryllium		0.0E+00	0.000000	0.000000
Cadmium		4.1E-07	0.000094	0.000172
Chromium		5.5E-06	0.001265	0.002309
Cobalt		2.6E-08	0.000006	0.000011
Hexavalent Chromium		4.5E-07	0.000104	0.000189
Lead		1.5E-05	0.000143	0.000260
Manganese		6.2E-07	0.001771	0.003232
Mercury		7.7E-06	0.000055	0.000101
Nickel		2.4E-07	0.014490	0.026444
Phosphorus		6.3E-05	0.006440	0.011753
Selenium		2.8E-05	0.000081	0.000147
	Total Metals HAPS	1.1E-04	0.024577	0.044853
	Total HAPS		**1.23794**	**2.25923**

Table 6-16: HAPs Emission Rates from the Asphalt Heater (Unit 5)

Btu Rating	2.65	mmBtu/hr	
Fuel Usage:	2804.2	scf/hr	(based on 1020 Btu/scf)
Btu x 10^-12/hr:	0.002804233	Btu x10^-12	
Yearly Operating Hours:	7680	hours per year	

Type of Fuel: Natural Gas
Emission Factors AP-42 Section 1.4

Organic Compounds	CAS#		Emission Factor (lbs/MM scf)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Benzene	71-43-2		2.10E-03	0.000006	0.000026
Formaldehyde	50-00-0		7.50E-02	0.000210	0.000921
Hexane	110-54-3		1.80E+00	0.005048	0.022109
Naphthalene	91-20-3		6.10E-04	0.000002	0.000007
Toluene	108-88-3		3.40E-03	0.000010	0.000042
		Total Organic Compounds	1.88+00	0.005275	0.023105

HAPS Metals			Emission Factor (lbs/MM scf)	Emission Rate (lbs/hr)	Emission Rate (ton/yr)
Arsenic			2.00E-04	0.000001	0.000002
Beryllium			1.20E-05	0.000000	0.000000
Cadmium			1.10E-03	0.000003	0.000014
Chromium			1.40E-03	0.000004	0.000017
Cobalt			8.40E-05	0.000000	0.000001
Lead			5.00E-04	0.000001	0.000006
Manganese			3.80E-04	0.000001	0.000005
Mercury			2.60E-04	0.000001	0.000003
Nickel			2.10E-03	0.000006	0.000026
Selenium			2.40E-05	0.000000	0.000000
		Total Metals HAPS	6.06E-03	0.000017	0.000074
		Total HAPS		**0.005292**	**0.023179**

Table 6-17 Summary of Allowable HAPS and Asphalt Fumes Emission Rates for Whole Facility

Controlled Emission Totals				
	HAPS		Asphalt Fumes (State TAPS)	
Description	lbs/hr	tons/yr	lbs/hr	tons/yr
HMA Plant #6	1.24	2.28	2.80	5.12

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☐ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- **X** If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- ☐ If an older version of AP-42 is used, include a complete copy of the section.
- ☐ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- **X** If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

A-XXXX-7-AP42S1-4	Asphalt Heater Combustion and HAPs Emission Factors
A-XXXX-7-AP42S11-1	HMA Plant and HAPs Emission Factors
A-XXXX-7-AP42S11-19-2	Screen, Crusher, and Transfer Point Emission Factors
A-XXXX-7-AP42S13-2-2	Unpaved Road Emission Factors
A-XXXX-7-AP42S13-2-4	Material Handling Emission Factors
A-XXXX-7-EPAii03	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"
A-XXXX-7-WindspeedsNewMexico	Santa Fe Wind Speed Annual Average 1996 to 2006
A-XXXX-7-ACTANK1-3	Unit 7: Asphalt Cement Storage Tanks (3)
A-XXXX-7-P6HMA.xls	ETM HMA Plant #6 Emissions Spreadsheet
A-XXXX-7-DrumP6HAPs.xls	HAPs Emissions from Drum/Mixer (Unit 1)
A-XXXX-7-HeaterP6HAPs.xls	HAPs Emissions from Asphalt Heater (Unit 5)

1.4 Natural Gas Combustion

1.4.1 General[1-2]

Natural gas is one of the major combustion fuels used throughout the country. It is mainly used to generate industrial and utility electric power, produce industrial process steam and heat, and heat residential and commercial space. Natural gas consists of a high percentage of methane (generally above 85 percent) and varying amounts of ethane, propane, butane, and inerts (typically nitrogen, carbon dioxide, and helium). The average gross heating value of natural gas is approximately 1,020 British thermal units per standard cubic foot (Btu/scf), usually varying from 950 to 1,050 Btu/scf.

1.4.2 Firing Practices[3-5]

There are three major types of boilers used for natural gas combustion in commercial, industrial, and utility applications: watertube, firetube, and cast iron. Watertube boilers are designed to pass water through the inside of heat transfer tubes while the outside of the tubes is heated by direct contact with the hot combustion gases and through radiant heat transfer. The watertube design is the most common in utility and large industrial boilers. Watertube boilers are used for a variety of applications, ranging from providing large amounts of process steam, to providing hot water or steam for space heating, to generating high-temperature, high-pressure steam for producing electricity. Furthermore, watertube boilers can be distinguished either as field erected units or packaged units.

Field erected boilers are boilers that are constructed on site and comprise the larger sized watertube boilers. Generally, boilers with heat input levels greater than 100 MMBtu/hr, are field erected. Field erected units usually have multiple burners and, given the customized nature of their construction, also have greater operational flexibility and NO_x control options. Field erected units can also be further categorized as wall-fired or tangential-fired. Wall-fired units are characterized by multiple individual burners located on a single wall or on opposing walls of the furnace while tangential units have several rows of air and fuel nozzles located in each of the four corners of the boiler.

Package units are constructed off-site and shipped to the location where they are needed. While the heat input levels of packaged units may range up to 250 MMBtu/hr, the physical size of these units are constrained by shipping considerations and generally have heat input levels less than 100 MMBtu/hr. Packaged units are always wall-fired units with one or more individual burners. Given the size limitations imposed on packaged boilers, they have limited operational flexibility and cannot feasibly incorporate some NO_x control options.

Firetube boilers are designed such that the hot combustion gases flow through tubes, which heat the water circulating outside of the tubes. These boilers are used primarily for space heating systems, industrial process steam, and portable power boilers. Firetube boilers are almost exclusively packaged units. The two major types of firetube units are Scotch Marine boilers and the older firebox boilers. In cast iron boilers, as in firetube boilers, the hot gases are contained inside the tubes and the water being heated circulates outside the tubes. However, the units are constructed of cast iron rather than steel. Virtually all cast iron boilers are constructed as package boilers. These boilers are used to produce either low-pressure steam or hot water, and are most commonly used in small commercial applications.

Natural gas is also combusted in residential boilers and furnaces. Residential boilers and furnaces generally resemble firetube boilers with flue gas traveling through several channels or tubes with water or air circulated outside the channels or tubes.

1.4.3 Emissions[3-4]

The emissions from natural gas-fired boilers and furnaces include nitrogen oxides (NO_x), carbon monoxide (CO), and carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO_2), and particulate matter (PM).

Nitrogen Oxides -

Nitrogen oxides formation occurs by three fundamentally different mechanisms. The principal mechanism of NO_x formation in natural gas combustion is thermal NO_x. The thermal NO_x mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2) molecules in the combustion air. Most NO_x formed through the thermal NO_x mechanism occurs in the high temperature flame zone near the burners. The formation of thermal NO_x is affected by three furnace-zone factors: (1) oxygen concentration, (2) peak temperature, and (3) time of exposure at peak temperature. As these three factors increase, NO_x emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of natural gas-fired boilers and furnaces. Emission levels vary considerably with the type and size of combustor and with operating conditions (e.g., combustion air temperature, volumetric heat release rate, load, and excess oxygen level).

The second mechanism of NO_x formation, called prompt NO_x, occurs through early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NO_x reactions occur within the flame and are usually negligible when compared to the amount of NO_x formed through the thermal NO_x mechanism. However, prompt NO_x levels may become significant with ultra-low-NO_x burners.

The third mechanism of NO_x formation, called fuel NO_x, stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Due to the characteristically low fuel nitrogen content of natural gas, NO_x formation through the fuel NO_x mechanism is insignificant.

Carbon Monoxide -

The rate of CO emissions from boilers depends on the efficiency of natural gas combustion. Improperly tuned boilers and boilers operating at off-design levels decrease combustion efficiency resulting in increased CO emissions. In some cases, the addition of NO_x control systems such as low NO_x burners and flue gas recirculation (FGR) may also reduce combustion efficiency, resulting in higher CO emissions relative to uncontrolled boilers.

Volatile Organic Compounds -

The rate of VOC emissions from boilers and furnaces also depends on combustion efficiency. VOC emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and turbulent mixing of fuel and combustion air. Trace amounts of VOC species in the natural gas fuel (e.g., formaldehyde and benzene) may also contribute to VOC emissions if they are not completely combusted in the boiler.

Sulfur Oxides -

Emissions of SO_2 from natural gas-fired boilers are low because pipeline quality natural gas typically has sulfur levels of 2,000 grains per million cubic feet. However, sulfur-containing odorants are added to natural gas for detecting leaks, leading to small amounts of SO_2 emissions. Boilers combusting unprocessed natural gas may have higher SO_2 emissions due to higher levels of sulfur in the natural gas. For these units, a sulfur mass balance should be used to determine SO_2 emissions.

Particulate Matter -

Because natural gas is a gaseous fuel, filterable PM emissions are typically low. Particulate matter from natural gas combustion has been estimated to be less than 1 micrometer in size and has filterable and condensable fractions. Particulate matter in natural gas combustion are usually larger molecular weight hydrocarbons that are not fully combusted. Increased PM emissions may result from poor air/fuel mixing or maintenance problems.

Greenhouse Gases -[6-9]

CO_2, CH_4, and N_2O emissions are all produced during natural gas combustion. In properly tuned boilers, nearly all of the fuel carbon (99.9 percent) in natural gas is converted to CO_2 during the combustion process. This conversion is relatively independent of boiler or combustor type. Fuel carbon not converted to CO_2 results in CH_4, CO, and/or VOC emissions and is due to incomplete combustion. Even in boilers operating with poor combustion efficiency, the amount of CH_4, CO, and VOC produced is insignificant compared to CO_2 levels.

Formation of N_2O during the combustion process is affected by two furnace-zone factors. N_2O emissions are minimized when combustion temperatures are kept high (above 1475°F) and excess oxygen is kept to a minimum (less than 1 percent).

Methane emissions are highest during low-temperature combustion or incomplete combustion, such as the start-up or shut-down cycle for boilers. Typically, conditions that favor formation of N_2O also favor emissions of methane.

1.4.4 Controls[4,10]

NO_x Controls -

Currently, the two most prevalent combustion control techniques used to reduce NO_x emissions from natural gas-fired boilers are flue gas recirculation (FGR) and low NO_x burners. In an FGR system, a portion of the flue gas is recycled from the stack to the burner windbox. Upon entering the windbox, the recirculated gas is mixed with combustion air prior to being fed to the burner. The recycled flue gas consists of combustion products which act as inerts during combustion of the fuel/air mixture. The FGR system reduces NO_x emissions by two mechanisms. Primarily, the recirculated gas acts as a dilutent to reduce combustion temperatures, thus suppressing the thermal NO_x mechanism. To a lesser extent, FGR also reduces NO_x formation by lowering the oxygen concentration in the primary flame zone. The amount of recirculated flue gas is a key operating parameter influencing NO_x emission rates for these systems. An FGR system is normally used in combination with specially designed low NO_x burners capable of sustaining a stable flame with the increased inert gas flow resulting from the use of FGR. When low NO_x burners and FGR are used in combination, these techniques are capable of reducing NO_x emissions by 60 to 90 percent.

Low NO_x burners reduce NO_x by accomplishing the combustion process in stages. Staging partially delays the combustion process, resulting in a cooler flame which suppresses thermal NO_x formation. The two most common types of low NO_x burners being applied to natural gas-fired boilers are staged air burners and staged fuel burners. NO_x emission reductions of 40 to 85 percent (relative to uncontrolled emission levels) have been observed with low NO_x burners.

Other combustion control techniques used to reduce NO_x emissions include staged combustion and gas reburning. In staged combustion (e.g., burners-out-of-service and overfire air), the degree of staging is a key operating parameter influencing NO_x emission rates. Gas reburning is similar to the use of overfire

in the use of combustion staging. However, gas reburning injects additional amounts of natural gas in the upper furnace, just before the overfire air ports, to provide increased reduction of NO_x to NO_2.

Two postcombustion technologies that may be applied to natural gas-fired boilers to reduce NO_x emissions are selective noncatalytic reduction (SNCR) and selective catalytic reduction (SCR). The SNCR system injects ammonia (NH_3) or urea into combustion flue gases (in a specific temperature zone) to reduce NO_x emission. The Alternative Control Techniques (ACT) document for NO_x emissions from utility boilers, maximum SNCR performance was estimated to range from 25 to 40 percent for natural gas-fired boilers.[12] Performance data available from several natural gas fired utility boilers with SNCR show a 24 percent reduction in NO_x for applications on wall-fired boilers and a 13 percent reduction in NO_x for applications on tangential-fired boilers.[11] In many situations, a boiler may have an SNCR system installed to trim NO_x emissions to meet permitted levels. In these cases, the SNCR system may not be operated to achieve maximum NO_x reduction. The SCR system involves injecting NH_3 into the flue gas in the presence of a catalyst to reduce NO_x emissions. No data were available on SCR performance on natural gas fired boilers at the time of this publication. However, the ACT Document for utility boilers estimates NO_x reduction efficiencies for SCR control ranging from 80 to 90 percent.[12]

Emission factors for natural gas combustion in boilers and furnaces are presented in Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4.[11] Tables in this section present emission factors on a volume basis (lb/10^6 scf). To convert to an energy basis (lb/MMBtu), divide by a heating value of 1,020 MMBtu/10^6 scf. For the purposes of developing emission factors, natural gas combustors have been organized into three general categories: large wall-fired boilers with greater than 100 MMBtu/hr of heat input, boilers and residential furnaces with less than 100 MMBtu/hr of heat input, and tangential-fired boilers. Boilers within these categories share the same general design and operating characteristics and hence have similar emission characteristics when combusting natural gas.

Emission factors are rated from A to E to provide the user with an indication of how "good" the factor is, with "A" being excellent and "E" being poor. The criteria that are used to determine a rating for an emission factor can be found in the Emission Factor Documentation for AP-42 Section 1.4 and in the introduction to the AP-42 document.

1.4.5 Updates Since the Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section are summarized below. For further detail, consult the Emission Factor Documentation for this section. These and other documents can be found on the Emission Factor and Inventory Group (EFIG) home page (http://www.epa.gov/ttn/chief).

Supplement D, March 1998

- Text was revised concerning Firing Practices, Emissions, and Controls.
- All emission factors were updated based on 482 data points taken from 151 source tests. Many new emission factors have been added for speciated organic compounds, including hazardous air pollutants.

July 1998 - minor changes

- Footnote D was added to table 1.4-3 to explain why the sum of individual HAP may exceed VOC or TOC, the web address was updated, and the references were reordered.

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

TABLE 1.4-4. EMISSION FACTORS FOR METALS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
7440-38-2	Arsenic[b]	2.0E-04	E
7440-39-3	Barium	4.4E-03	D
7440-41-7	Beryllium[b]	<1.2E-05	E
7440-43-9	Cadmium[b]	1.1E-03	D
7440-47-3	Chromium[b]	1.4E-03	D
7440-48-4	Cobalt[b]	8.4E-05	D
7440-50-8	Copper	8.5E-04	C
7439-96-5	Manganese[b]	3.8E-04	D
7439-97-6	Mercury[b]	2.6E-04	D
7439-98-7	Molybdenum	1.1E-03	D
7440-02-0	Nickel[b]	2.1E-03	C
7782-49-2	Selenium[b]	<2.4E-05	E
7440-62-2	Vanadium	2.3E-03	D
7440-66-6	Zinc	2.9E-02	E

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. Emission factors preceeded by a less-than symbol are based on method detection limits. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by l6. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020.

[b] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

References For Section 1.4

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3. *Background Information Document For Industrial Boilers*, EPA-450/3-82-006a, U. S. Environmental Protection Agency, Research Triangle Park, NC, March 1982.

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5. J. L. Muhlbaier, "Particulate and Gaseous Emissions From Natural Gas Furnaces and Water Heaters", *Journal Of The Air Pollution Control Association*, December 1981.

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11. *Emission Factor Documentation for AP-42 Section 1.4—Natural Gas Combustion*, Technical Support Division, Office of Air Quality Planning and Standards, U. S. Environmental Protection Agency, Research Triangle Park, NC, 1997.

12. *Alternate Control Techniques Document - NO_x Emissions from Utility Boilers*, EPA-453/R-94-023, U. S. Environmental Protection Agency, Research Triangle Park, NC, March 1994.

AP-42 Section 1.4: Natural Gas Combustion Data Files

The data that supports the emission factors are presented in summary in the background report and are reported more completely in an electronic database. The database is in Microsoft Access 97®. The file is located on the CHIEF web site at http://www.epa.gov/ttn/chief/ap42c1.html.

11.1 Hot Mix Asphalt Plants

11.1.1 General[1-3,23, 392-394]

Hot mix asphalt (HMA) paving materials are a mixture of size-graded, high quality aggregate (which can include reclaimed asphalt pavement [RAP]), and liquid asphalt cement, which is heated and mixed in measured quantities to produce HMA. Aggregate and RAP (if used) constitute over 92 percent by weight of the total mixture. Aside from the amount and grade of asphalt cement used, mix characteristics are determined by the relative amounts and types of aggregate and RAP used. A certain percentage of fine aggregate (less than 74 micrometers [μm] in physical diameter) is required for the production of good quality HMA.

Hot mix asphalt paving materials can be manufactured by: (1) batch mix plants, (2) continuous mix (mix outside dryer drum) plants, (3) parallel flow drum mix plants, and (4) counterflow drum mix plants. This order of listing generally reflects the chronological order of development and use within the HMA industry.

In 1996, approximately 500 million tons of HMA were produced at the 3,600 (estimated) active asphalt plants in the United States. Of these 3,600 plants, approximately 2,300 are batch plants, 1,000 are parallel flow drum mix plants, and 300 are counterflow drum mix plants. The total 1996 HMA production from batch and drum mix plants is estimated at about 240 million tons and 260 million tons, respectively. About 85 percent of plants being manufactured today are of the counterflow drum mix design, while batch plants and parallel flow drum mix plants account for 10 percent and 5 percent respectively. Continuous mix plants represent a very small fraction of the plants in use ($\leq$0.5 percent) and, therefore, are not discussed further.

An HMA plant can be constructed as a permanent plant, a skid-mounted (easily relocated) plant, or a portable plant. All plants can have RAP processing capabilities. Virtually all plants being manufactured today have RAP processing capability. Most plants have the capability to use either gaseous fuels (natural gas) or fuel oil. However, based upon Department of Energy and limited State inventory information, between 70 and 90 percent of the HMA is produced using natural gas as the fuel to dry and heat the aggregate.

11.1.1.1 Batch Mix Plants –

Figure 11.1-1 shows the batch mix HMA production process. Raw aggregate normally is stockpiled near the production unit. The bulk aggregate moisture content typically stabilizes between 3 to 5 percent by weight.

Processing begins as the aggregate is hauled from the storage piles and is placed in the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transported into a rotary dryer (typically gas- or oil-fired). Dryers are equipped with flights designed to shower the aggregate inside the drum to promote drying efficiency.

As the hot aggregate leaves the dryer, it drops into a bucket elevator and is transferred to a set of vibrating screens, where it is classified into as many as four different grades (sizes) and is dropped into individual "hot" bins according to size. At newer facilities, RAP also may be transferred to a separate heated storage bin. To control aggregate size distribution in the final batch mix, the operator opens various hot bins over a weigh hopper until the desired mix and weight are obtained. Concurrent with the aggregate being weighed, liquid asphalt cement is pumped from a heated storage tank to an asphalt bucket, where it is weighed to achieve the desired aggregate-to-asphalt cement ratio in the final mix.

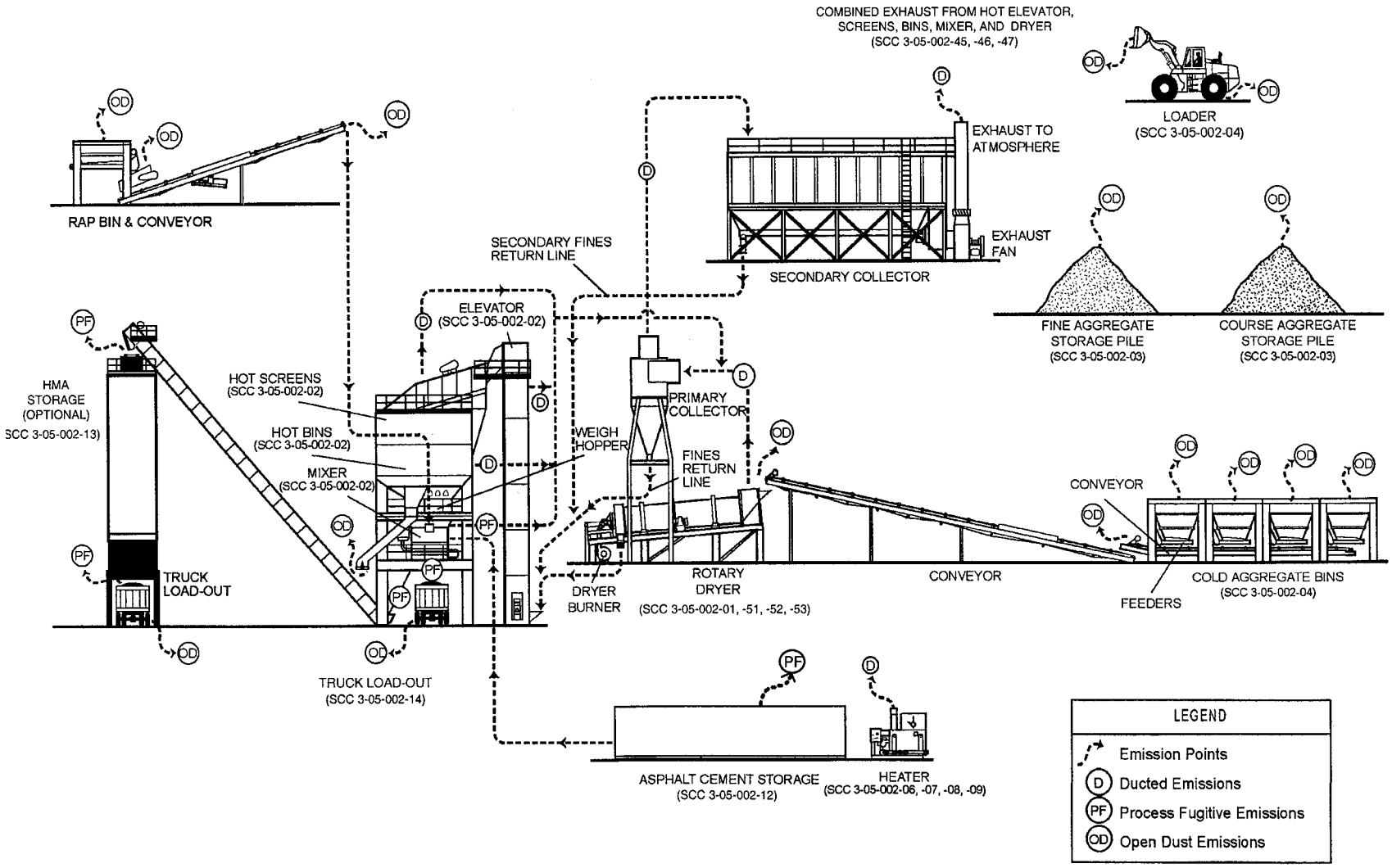


Figure 11.1-1. General process flow diagram for batch mix asphalt plants (source classification codes in parentheses).[3]

The aggregate from the weigh hopper is dropped into the mixer (pug mill) and dry-mixed for 6 to 10 seconds. The liquid asphalt is then dropped into the pug mill where it is mixed for an additional period of time. At older plants, RAP typically is conveyed directly to the pug mill from storage hoppers and combined with the hot aggregate. Total mixing time usually is less than 60 seconds. Then the hot mix is conveyed to a hot storage silo or is dropped directly into a truck and hauled to the job site.

11.1.1.2 Parallel Flow Drum Mix Plants –

Figure 11.1-2 shows the parallel flow drum mix process. This process is a continuous mixing type process, using proportioning cold feed controls for the process materials. The major difference between this process and the batch process is that the dryer is used not only to dry the material but also to mix the heated and dried aggregates with the liquid asphalt cement. Aggregate, which has been proportioned by size gradations, is introduced to the drum at the burner end. As the drum rotates, the aggregates, as well as the combustion products, move toward the other end of the drum in parallel. Liquid asphalt cement flow is controlled by a variable flow pump electronically linked to the new (virgin) aggregate and RAP weigh scales. The asphalt cement is introduced in the mixing zone midway down the drum in a lower temperature zone, along with any RAP and particulate matter (PM) from collectors.

The mixture is discharged at the end of the drum and is conveyed to either a surge bin or HMA storage silos, where it is loaded into transport trucks. The exhaust gases also exit the end of the drum and pass on to the collection system.

Parallel flow drum mixers have an advantage, in that mixing in the discharge end of the drum captures a substantial portion of the aggregate dust, therefore lowering the load on the downstream PM collection equipment. For this reason, most parallel flow drum mixers are followed only by primary collection equipment (usually a baghouse or venturi scrubber). However, because the mixing of aggregate and liquid asphalt cement occurs in the hot combustion product flow, organic emissions (gaseous and liquid aerosol) may be greater than in other asphalt mixing processes. Because data are not available to distinguish significant emissions differences between the two process designs, this effect on emissions cannot be verified.

11.1.1.3 Counterflow Drum Mix Plants –

Figure 11.1-3 shows a counterflow drum mix plant. In this type of plant, the material flow in the drum is opposite or counterflow to the direction of exhaust gases. In addition, the liquid asphalt cement mixing zone is located behind the burner flame zone so as to remove the materials from direct contact with hot exhaust gases.

Liquid asphalt cement flow is controlled by a variable flow pump which is electronically linked to the virgin aggregate and RAP weigh scales. It is injected into the mixing zone along with any RAP and particulate matter from primary and secondary collectors.

Because the liquid asphalt cement, virgin aggregate, and RAP are mixed in a zone removed from the exhaust gas stream, counterflow drum mix plants will likely have organic emissions (gaseous and liquid aerosol) that are lower than parallel flow drum mix plants. However, the available data are insufficient to discern any differences in emissions that result from differences in the two processes. A counterflow drum mix plant can normally process RAP at ratios up to 50 percent with little or no observed effect upon emissions.

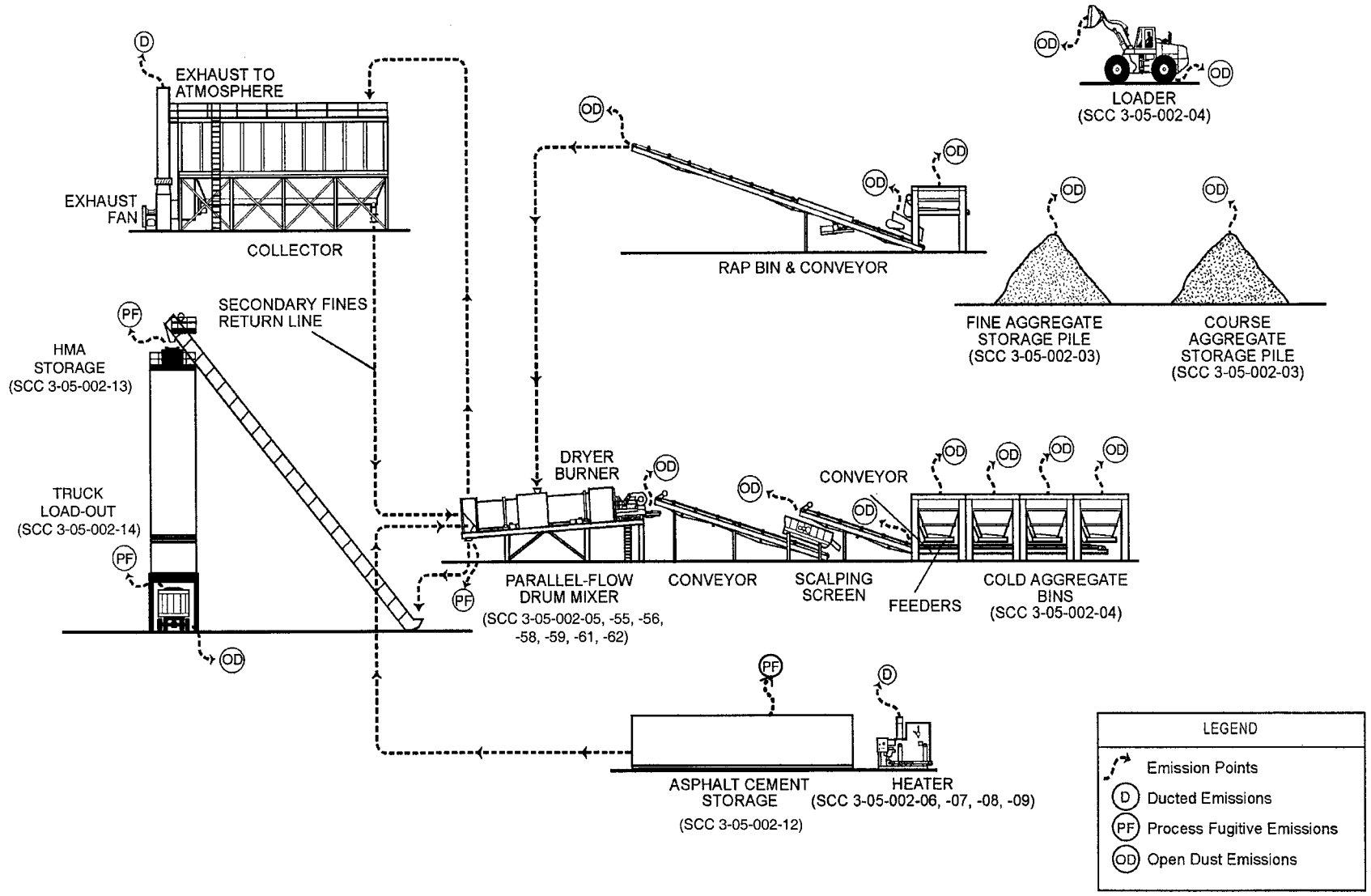


Figure 11.1-2. General process flow diagram for parallel-flow drum mix asphalt plants (source classification codes in parentheses).[3]

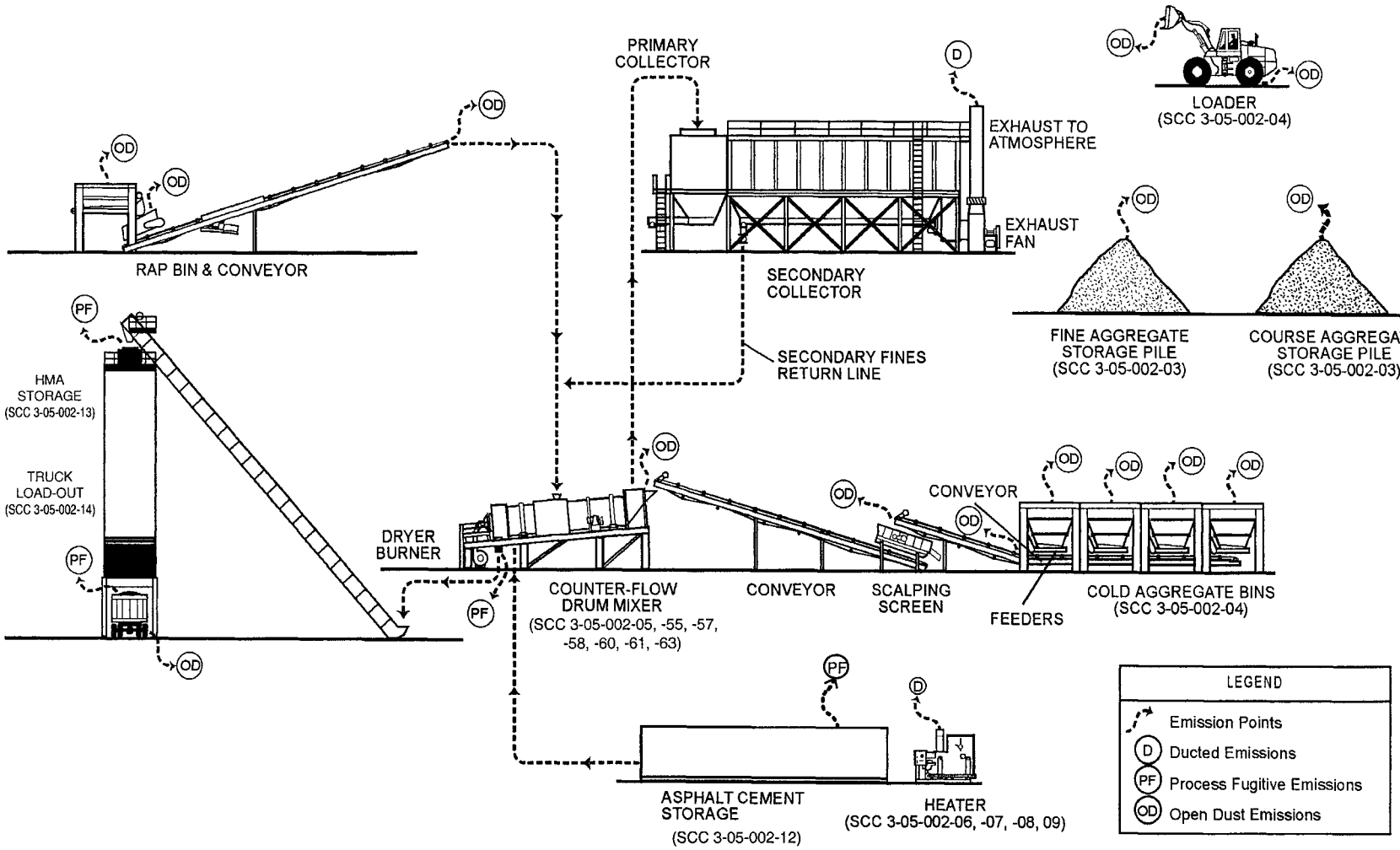


Figure 11.1-3. General process flow diagram for counter-flow drum mix asphalt plants (source classification codes in parentheses).[3]

11.1.1.4 Recycle Processes[393] –

In recent years, the use of RAP has been initiated in the HMA industry. Reclaimed asphalt pavement significantly reduces the amount of virgin rock and asphalt cement needed to produce HMA.

In the reclamation process, old asphalt pavement is removed from the road base. This material is then transported to the plant, and is crushed and screened to the appropriate size for further processing. The paving material is then heated and mixed with new aggregate (if applicable), and the proper amount of new asphalt cement is added to produce HMA that meets the required quality specifications.

11.1.2 Emissions And Controls[2-3,23]

Emissions from HMA plants may be divided into ducted production emissions, pre-production fugitive dust emissions, and other production-related fugitive emissions. Pre-production fugitive dust sources associated with HMA plants include vehicular traffic generating fugitive dust on paved and unpaved roads, aggregate material handling, and other aggregate processing operations. Fugitive dust may range from 0.1 μm to more than 300 μm in aerodynamic diameter. On average, 5 percent of cold aggregate feed is less than 74 μm (minus 200 mesh). Fugitive dust that may escape collection before primary control generally consists of PM with 50 to 70 percent of the total mass less than 74 μm. Uncontrolled PM emission factors for various types of fugitive sources in HMA plants are addressed in Sections 11.19.2, "Crushed Stone Processing", 13.2.1, "Paved Roads", 13.2.2, "Unpaved Roads", 13.2.3, "Heavy Construction Operations", and 13.2.4, "Aggregate Handling and Storage Piles." Production-related fugitive emissions and emissions from ducted production operations are discussed below. Emission points discussed below refer to Figure 11.1-1 for batch mix asphalt plants and to Figures 11.1-2 and 11.1-3 for drum mix plants.

11.1.2.1 Batch Mix Plants –

As with most facilities in the mineral products industry, batch mix HMA plants have two major categories of emissions: ducted sources (those vented to the atmosphere through some type of stack, vent, or pipe), and fugitive sources (those not confined to ducts and vents but emitted directly from the source to the ambient air). Ducted emissions are usually collected and transported by an industrial ventilation system having one or more fans or air movers, eventually to be emitted to the atmosphere through some type of stack. Fugitive emissions result from process and open sources and consist of a combination of gaseous pollutants and PM.

The most significant ducted source of emissions of most pollutants from batch mix HMA plants is the rotary drum dryer. The dryer emissions consist of water (as steam evaporated from the aggregate); PM; products of combustion (carbon dioxide [CO_2], nitrogen oxides [NO_x], and sulfur oxides [SO_x]); carbon monoxide (CO); and small amounts of organic compounds of various species (including volatile organic compounds [VOC], methane [CH_4], and hazardous air pollutants [HAP]). The CO and organic compound emissions result from incomplete combustion of the fuel. It is estimated that between 70 and 90 percent of the energy used at HMA plants is from the combustion of natural gas.

Other potential process sources include the hot-side conveying, classifying, and mixing equipment, which are vented either to the primary dust collector (along with the dryer gas) or to a separate dust collection system. The vents and enclosures that collect emissions from these sources are commonly called "fugitive air" or "scavenger" systems. The scavenger system may or may not have its own separate air mover device, depending on the particular facility. The emissions captured and transported by the scavenger system are mostly aggregate dust, but they may also contain gaseous organic compounds and a fine aerosol of condensed organic particles. This organic aerosol is created by the condensation of vapor into particles during cooling of organic vapors volatilized from the asphalt cement in the mixer (pug mill). The amount of organic aerosol produced depends to a large extent on the temperature of the asphalt cement and aggregate entering the pug mill. Organic vapor and its associated

aerosol also are emitted directly to the atmosphere as process fugitives during truck load-out, from the bed of the truck itself during transport to the job site, and from the asphalt storage tank. Both the low molecular weight organic compounds and the higher weight organic aerosol contain small amounts of HAP. The ducted emissions from the heated asphalt storage tanks include gaseous and aerosol organic compounds and combustion products from the tank heater.

The choice of applicable emission controls for PM emissions from the dryer and vent line includes dry mechanical collectors, scrubbers, and fabric filters. Attempts to apply electrostatic precipitators have met with little success. Practically all plants use primary dust collection equipment such as large diameter cyclones, skimmers, or settling chambers. These chambers often are used as classifiers to return collected material to the hot elevator and to combine it with the drier aggregate. To capture remaining PM, the primary collector effluent is ducted to a secondary collection device. Most plants use either a fabric filter or a venturi scrubber for secondary emissions control. As with any combustion process, the design, operation, and maintenance of the burner provides opportunities to minimize emissions of NO_x, CO, and organic compounds.

11.1.2.2 Parallel Flow Drum Mix Plants –

The most significant ducted source of emissions from parallel-flow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The organic compound and CO emissions result from incomplete combustion of the fuel and from heating and mixing of the liquid asphalt cement inside the drum. Although it has been suggested that the processing of RAP materials at these type plants may increase organic compound emissions because of an increase in mixing zone temperature during processing, the data supporting this hypothesis are very weak. Specifically, although the data show a relationship only between RAP content and condensible organic particulate emissions, 89 percent of the variations in the data were the result of other unknown process variables.

Once the organic compounds cool after discharge from the process stack, some condense to form a fine organic aerosol or "blue smoke" plume. A number of process modifications or restrictions have been introduced to reduce blue smoke, including installation of flame shields, rearrangement of flights inside the drum, adjustments of the asphalt injection point, and other design changes.

11.1.2.3 Counterflow Drum Mix Plants –

The most significant ducted source of emissions from counterflow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The CO and organic compound emissions result primarily from incomplete combustion of the fuel, and can also be released from the heated asphalt. Liquid asphalt cement, aggregate, and sometimes RAP, are mixed in a zone not in contact with the hot exhaust gas stream. As a result, kiln stack emissions of organic compounds from counterflow drum mix plants may be lower than parallel flow drum mix plants. However, variations in the emissions due to other unknown process variables are more significant. As a result, the emission factors for parallel flow and counterflow drum mix plants are the same.

11.1.2.4 Parallel and Counterflow Drum Mix Plants –

Process fugitive emissions associated with batch plant hot screens, elevators, and the mixer (pug mill) are not present in the drum mix processes. However, there are fugitive PM and VOC emissions from transport and handling of the HMA from the drum mixer to the storage silo and also from the load-out operations to the delivery trucks. Since the drum process is continuous, these plants have surge

bins or storage silos. The fugitive dust sources associated with drum mix plants are similar to those of batch mix plants with regard to truck traffic and to aggregate material feed and handling operations.

Table 11.1-1 presents emission factors for filterable PM and PM-10, condensable PM, and total PM for batch mix HMA plants. Particle size data for batch mix HMA plants, based on the control technology used, are shown in Table 11.1-2. Table 11.1-3 presents filterable PM and PM-10, condensable PM, and total PM emission factors for drum mix HMA plants. Particle size data for drum mix HMA plants, based on the control technology used, are shown in Table 11.1-4. Tables 11.1-5 and -6 present emission factors for CO, CO_2, NO_x, sulfur dioxide (SO_2), total organic compounds (TOC), formaldehyde, CH_4, and VOC from batch mix plants. Tables 11.1-7 and -8 present emission factors for CO, CO_2, NO_x, SO_2, TOC, CH_4, VOC, and hydrochloric acid (HCl) from drum mix plants. The emission factors for CO, NO_x, and organic compounds represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information provided in Reference 390 indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce these emissions. Table 11.1-9 presents organic pollutant emission factors for batch mix plants. Table 11.1-10 presents organic pollutant emission factors for drum mix plants. Tables 11.1-11 and -12 present metals emission factors for batch and drum mix plants, respectively. Table 11.1-13 presents organic pollutant emission factors for hot (asphalt) oil systems.

11.1.2.5 Fugitive Emissions from Production Operations –

Emission factors for HMA load-out and silo filling operations can be estimated using the data in Tables 11.1-14, -15, and -16. Table 11.1-14 presents predictive emission factor equations for HMA load-out and silo filling operations. Separate equations are presented for total PM, extractable organic PM (as measured by EPA Method 315), TOC, and CO. For example, to estimate total PM emissions from drum mix or batch mix plant load-out operations using an asphalt loss-on-heating of 0.41 percent and temperature of 290°F, the following calculation is made:

$$
\begin{aligned}
EF &= 0.000181 + 0.00141(-V)e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.000181 + 0.00141(-(-0.41))e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.000181 + 0.00141(0.41)e^{(-1.605)} \\
&= 0.000181 + 0.00141(0.41)(0.2009) \\
&= 0.000181 + 0.000116 \\
&= 0.00030 \text{ lb total PM/ton of asphalt loaded}
\end{aligned}
$$

Tables 11.1-15 and -16 present speciation profiles for organic particulate-based and volatile particulate-based compounds, respectively. The speciation profile shown in Table 11.1-15 can be applied to the extractable organic PM emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific organic PM compounds. The speciation profile presented in Table 11.1-16 can be applied to the TOC emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific volatile organic compounds. The derivations of the predictive emission factor equations and the speciation profiles can be found in Reference 1.

For example, to estimate TOC emissions from drum mix plant load-out operations using an asphalt loss-on-heating of 0.41 percent and temperature of 290°F, the following calculation is made:

$$
\begin{aligned}
EF &= 0.0172(-V)e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.0172(-(-0.41))e^{((0.0251)(290 + 460) - 20.43)} \\
&= 0.0172(0.41)e^{(-1.605)} \\
&= 0.0172(0.41)(0.2009) \\
&= 0.0014 \text{ lb TOC/ton of asphalt loaded}
\end{aligned}
$$

To estimate the benzene emissions from the same operation, use the TOC emission factor calculated above and apply the benzene fraction for load-out emissions from Table 11.1-16:

EF = 0.0014 (0.00052)
= 7.3×10^{-7} lb benzene/ton of asphalt loaded

Emissions from asphalt storage tanks can be estimated using the procedures described in AP-42 Section 7.1, Organic Liquid Storage Tanks, and the TANKS software. Site-specific data should be used for storage tank specifications and operating parameters, such as temperature. If site-specific data for Antoine's constants for an average asphalt binder used by the facility are unavailable, the following values for an average liquid asphalt binder can be used:

A = 75,350.06
B = 9.00346

These values should be inserted into the Antoine's equation in the following form:

$$\log_{10} P = \frac{-0.05223A}{T} + B$$

where:

P = vapor pressure, mm Hg
T = absolute temperature, Kelvin

The assumed average liquid molecular weight associated with these Antoine's constants is 1,000 atomic mass units and the average vapor molecular weight is 105. Emission factors estimated using these default values should be assigned a rating of E. Carbon monoxide emissions can be estimated by multiplying the THC emissions calculated by the TANKS program by 0.097 (the ratio of silo filling CO emissions to silo filling TOC emissions).

Vapors from the HMA loaded into transport trucks continue following load-out operations. The TOC emissions for the 8-minute period immediately following load-out (yard emissions) can be estimated using an emission factor of 0.00055 kg/Mg (0.0011 lb/ton) of asphalt loaded. This factor is assigned a rating of E. The derivation of this emission factor is described in Reference 1. Carbon monoxide emissions can be estimated by multiplying the TOC emissions by 0.32 (the ratio of truck load-out CO emissions to truck load-out THC emissions).

11.2.3 Updates Since the Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section. This and other documents can be found on the CHIEF Web Site at http://www.epa.gov/ttn/chief/, or by calling the Info CHIEF Help Desk at (919)541-1000.

December 2000

- All emission factors were revised and new factors were added. For selected pollutant emissions, separate factors were developed for distilate oil, No. 6 oil and waste oil fired dryers. Dioxin and Furan emission factors were developed for oil fired drum mix plants. Particulate, VOC and CO factors were developed for silo filling, truck load out and post truck load out operations at batch plants and drum mix plants. Organic species profiles were developed for silo filling, truck load out and post truck load out operations.

March 2004

- The emission factor for formaldehyde for oil fired hot oil heaters was revised. An emission factor for formaldehyde for gas fired hot oil heaters and emission factors for CO and CO_2 for gas and oil fired hot oil heaters were developed. (Table 11.1-13)

Table 11.1-1. PARTICULATE MATTER EMISSION FACTORS FOR BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Filterable PM				Condensable PM[b]				Total PM			
	PM[c]	EMISSION FACTOR RATING	PM-10[d]	EMISSION FACTOR RATING	Inorganic	EMISSION FACTOR RATING	Organic	EMISSION FACTOR RATING	PM[e]	EMISSION FACTOR RATING	PM-10[f]	EMISSION FACTOR RATING
Dryer, hot screens, mixer[g] (SCC 3-05-002-45, -46, -47)												
Uncontrolled	32[h]	E	4.5	E	0.013[j]	E	0.0041[j]	E	32	E	4.5	E
Venturi or wet scrubber	0.12[k]	C	ND	NA	0.013[m]	B	0.0041[n]	B	0.14	C	ND	NA
Fabric filter	0.025[p]	A	0.0098	C	0.013[m]	A	0.0041[n]	A	0.042	B	0.027	C

[a] Factors are lb/ton of product. SCC = Source Classification Code. ND = no data. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Condensable PM is that PM collected using an EPA Method 202, Method 5 (analysis of "back-half" or impingers), or equivalent sampling train.

[c] Filterable PM is that PM collected on or before the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Particle size data from Reference 23 were used in conjunction with the filterable PM emission factors shown.

[e] Total PM is the sum of filterable PM, condensable inorganic PM, and condensable organic PM.

[f] Total PM-10 is the sum of filterable PM-10, condensable inorganic PM, and condensable organic PM.

[g] Batch mix dryer fired with natural gas, propane, fuel oil, waste oil, and coal. The data indicate that fuel type does not significantly effect PM emissions.

[h] Reference 5.

[j] Although no data are available for uncontrolled condensable PM, values are assumed to be equal to the controlled value measured.

[k] Reference 1, Table 4-19. Average of data from 16 facilities. Range: 0.047 to 0.40 lb/ton. Median: 0.049 lb/ton. Standard deviation: 0.11 lb/ton.

[m] Reference 1, Table 4-19. Average of data from 35 facilities. Range: 0.00073 to 0.12 lb/ton. Median: 0.0042 lb/ton. Standard deviation: 0.024 lb/ton.

[n] Reference 1, Table 4-19. Average of data from 24 facilities. Range: 0.000012 to 0.018 lb/ton. Median: 0.0026 lb/ton. Standard deviation: 0.0042 lb/ton.

[p] Reference 1, Table 4-19. Average of data from 89 facilities. Range: 0.0023 to 0.18 lb/ton. Median: 0.012 lb/ton. Standard deviation: 0.033 lb/ton.

Table 11.1-2. SUMMARY OF PARTICLE SIZE DISTRIBUTION FOR BATCH MIX DRYERS, HOT SCREENS, AND MIXERS[a]

EMISSION FACTOR RATING: E

Particle Size, μm[b]	Cumulative Mass Less Than or Equal to Stated Size (%)[c]		Emission Factors, lb/ton	
	Uncontrolled[d]	Fabric Filter	Uncontrolled[d]	Fabric Filter
1.0	ND	30[e]	ND	0.0075[e]
2.5	0.83	33[e]	0.27	0.0083[e]
5.0	3.5	36[e]	1.1	0.0090[e]
10.0	14	39[f]	4.5	0.0098[f]
15.0	23	47[e]	7.4	0.012[e]

[a] Emission factor units are lb/ton of HMA provided. Rounded to two significant figures. SCC 3-05-002-45, -46, -47. ND = no data available. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Aerodynamic diameter.

[c] Applies only to the mass of filterable PM.

[d] References 23, Table 3-36. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-1.

[e] References 23, Page J-61. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-1.

[f] References 23-24. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-1.

Table 11.1-3. PARTICULATE MATTER EMISSION FACTORS FOR DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Filterable PM				Condensable PM[b]				Total PM			
	PM[c]	EMISSION FACTOR RATING	PM-10[d]	EMISSION FACTOR RATING	Inorganic	EMISSION FACTOR RATING	Organic	EMISSION FACTOR RATING	PM[e]	EMISSION FACTOR RATING	PM-10[f]	EMISSION FACTOR RATING
Dryer[g] (SCC 3-05-002-05,-55 to -63)												
Uncontrolled	28[h]	D	6.4	D	0.0074[j]	E	0.058[k]	E	28	D	6.5	D
Venturi or wet scrubber	0.026[m]	A	ND	NA	0.0074[n]	A	0.012[p]	A	0.045	A	ND	NA
Fabric filter	0.014[q]	A	0.0039	C	0.0074[n]	A	0.012[p]	A	0.033	A	0.023	C

[a] Factors are lb/ton of product. SCC = Source Classification Code. ND = no data. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Condensable PM is that PM collected using an EPA Method 202, Method 5 (analysis of "back-half" or impingers), or equivalent sampling train.

[c] Filterable PM is that PM collected on or before the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Particle size data from Reference 23 were used in conjunction with the filterable PM emission factors shown.

[e] Total PM is the sum of filterable PM, condensable inorganic PM, and condensable organic PM.

[f] Total PM-10 is the sum of filterable PM-10, condensable inorganic PM, and condensable organic PM.

[g] Drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. The data indicate that fuel type does not significantly effect PM emissions.

[h] References 31, 36-38, 340.

[j] Because no data are available for uncontrolled condensable inorganic PM, the emission factor is assumed to be equal to the maximum controlled condensable inorganic PM emission factor.

[k] References 36-37.

[m] Reference 1, Table 4-14. Average of data from 36 facilities. Range: 0.0036 to 0.097 lb/ton. Median: 0.020 lb/ton. Standard deviation: 0.022 lb/ton.

[n] Reference 1, Table 4-14. Average of data from 30 facilities. Range: 0.0012 to 0.027 lb/ton. Median: 0.0051 lb/ton. Standard deviation: 0.0063 lb/ton.

[p] Reference 1, Table 4-14. Average of data from 41 facilities. Range: 0.00035 to 0.074 lb/ton. Median: 0.0046 lb/ton. Standard deviation: 0.016 lb/ton.

[q] Reference 1, Table 4-14. Average of data from 155 facilities. Range: 0.00089 to 0.14 lb/ton. Median: 0.010 lb/ton. Standard deviation: 0.017 lb/ton.

Table 11.1-4. SUMMARY OF PARTICLE SIZE DISTRIBUTION FOR DRUM MIX DRYERS[a]

EMISSION FACTOR RATING: E

Particle Size, μm[b]	Cumulative Mass Less Than or Equal to Stated Size (%)[c]		Emission Factors, lb/ton	
	Uncontrolled[d]	Fabric Filter	Uncontrolled[d]	Fabric Filter
1.0	ND	15[e]	ND	0.0021[e]
2.5	5.5	21[f]	1.5	0.0029[f]
10.0	23	30[g]	6.4	0.0042[g]
15.0	27	35[d]	7.6	0.0049[d]

[a] Emission factor units are lb/ton of HMA produced. Rounded to two significant figures. SCC 3-05-002-05, and 3-05-002-55 to -63. ND = no data available. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Aerodynamic diameter.

[c] Applies only to the mass of filterable PM.

[d] Reference 23, Table 3-35. The emission factors are calculated using the particle size data from this reference in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[e] References 214, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[f] References 23, 214, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3.

[g] Reference 23, 25, 229. The emission factors are calculated using the particle size data from these references in conjunction with the filterable PM emission factor shown in Table 11.1-3. EMISSION FACTOR RATING: D.

Table 11.1-5. EMISSION FACTORS FOR CO, CO_2, NO_x, AND SO_2 FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	CO[b]	EMISSION FACTOR RATING	CO_2[c]	EMISSION FACTOR RATING	NO_x	EMISSION FACTOR RATING	SO_2[c]	EMISSION FACTOR RATING
Natural gas-fired dryer, hot screens, and mixer (SCC 3-05-002-45)	0.40	C	37[d]	A	0.025[e]	D	0.0046[f]	E
No. 2 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-46)	0.40	C	37[d]	A	0.12[g]	E	0.088[h]	E
Waste oil-fired dryer, hot screens, and mixer (SCC 3-05-002-47)	0.40	C	37[d]	A	0.12[g]	E	0.088[h]	E
Coal-fired dryer, hot screens, and mixer[j] (SCC 3-05-002-98)	ND	NA	37[d]	A	ND	NA	0.043[k]	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] References 24, 34, 46-47, 49, 161, 204, 215-217, 282, 370, 378, 381. The CO emission factors represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information is available that indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce CO emissions. Data for dryers firing natural gas, No. 2 fuel oil, and No. 6 fuel oil were combined to develop a single emission factor because the magnitude of emissions was similar for dryers fired with these fuels.

[c] Emissions of CO_2 and SO_2 can also be estimated based on fuel usage and the fuel combustion emission factors (for the appropriate fuel) presented in AP-42 Chapter 1. The CO_2 emission factors are an average of all available data, regardless of the dryer fuel (emissions were similar from dryers firing any of the various fuels). Based on data for drum mix facilities, 50 percent of the fuel-bound sulfur, up to a maximum (as SO_2) of 0.1 lb/ton of product, is expected to be retained in the product, with the remainder emitted as SO_2.

[d] Reference 1, Table 4-20. Average of data from 115 facilities. Range: 6.9 to 160 lb/ton. Median: 32 lb/ton. Standard deviation: 22 lb/ton.

[e] References 24, 34, 46-47.

[f] References 46-47.

[g] References 49, 226.

[h] References 49, 226, 228, 385.

[j] Dryer fired with coal and supplemental natural gas or fuel oil.

[k] Reference 126.

Table 11.1-6. EMISSION FACTORS FOR TOC, METHANE, AND VOC FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	TOC[b]	EMISSION FACTOR RATING	CH_4[c]	EMISSION FACTOR RATING	VOC[d]	EMISSION FACTOR RATING
Natural gas-fired dryer, hot screens, and mixer (SCC 3-05-002-45)	0.015[e]	D	0.0074	D	0.0082	D
No. 2 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-46)	0.015[e]	D	0.0074	D	0.0082	D
No. 6 fuel oil-fired dryer, hot screens, and mixer (SCC 3-05-002-47)	0.043[f]	E	0.0074	D	0.036	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] TOC equals total hydrocarbons as propane, as measured with an EPA Method 25A or equivalent sampling train plus formaldehyde.

[c] References 24, 46-47, 49. Factor includes data from natural gas- and No. 6 fuel oil-fired dryers. Methane measured with an EPA Method 18 or equivalent sampling train.

[d] The VOC emission factors are equal to the TOC factors minus the methane emission factors; differences in values reported are due to rounding.

[e] References 24, 46-47, 155.

[f] Reference 49.

Table 11.1-7. EMISSION FACTORS FOR CO, CO_2, NO_x, AND SO_2 FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	CO[b]	EMISSION FACTOR RATING	CO_2[c]	EMISSION FACTOR RATING	NO_x	EMISSION FACTOR RATING	SO_2[c]	EMISSION FACTOR RATING
Natural gas-fired dryer (SCC 3-05-002-55,-56,-57)	0.13	B	33[d]	A	0.026[e]	D	0.0034[f]	D
No. 2 fuel oil-fired dryer (SCC 3-05-002-58,-59,-60)	0.13	B	33[d]	A	0.055[g]	C	0.011[h]	E
Waste oil-fired dryer (SCC 3-05-002-61,-62,-63)	0.13	B	33[d]	A	0.055[g]	C	0.058[j]	B
Coal-fired dryer[k] (SCC 3-05-002-98)	ND	NA	33[d]	A	ND	NA	0.19[m]	E

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] References 25, 44, 48, 50, 149, 154, 197, 214, 229, 254, 339-342, 344, 346, 347, 390. The CO emission factors represent normal plant operations without scrutiny of the burner design, operation, and maintenance. Information is available that indicates that attention to burner design, periodic evaluation of burner operation, and appropriate maintenance can reduce CO emissions. Data for dryers firing natural gas, No. 2 fuel oil, and No. 6 fuel oil were combined to develop a single emission factor because the magnitude of emissions was similar for dryers fired with these fuels.

[c] Emissions of CO_2 and SO_2 can also be estimated based on fuel usage and the fuel combustion emission factors (for the appropriate fuel) presented in AP-42 Chapter 1. The CO_2 emission factors are an average of all available data, regardless of the dryer fuel (emissions were similar from dryers firing any of the various fuels). Fifty percent of the fuel-bound sulfur, up to a maximum (as SO_2) of 0.1 lb/ton of product, is expected to be retained in the product, with the remainder emitted as SO_2.

[d] Reference 1, Table 4-15. Average of data from 180 facilities. Range: 2.6 to 96 lb/ton. Median: 31 lb/ton. Standard deviation: 13 lb/ton.

[e] References 44-45, 48, 209, 341, 342.

[f] References 44-45, 48.

[g] References 25, 50, 153, 214, 229, 344, 346, 347, 352-354.

[h] References 50, 119, 255, 340

[j] References 25, 299, 300, 339, 345, 351, 371-377, 379, 380, 386-388.

[k] Dryer fired with coal and supplemental natural gas or fuel oil.

[m] References 88, 108, 189-190.

Table 11.1-8. EMISSION FACTORS FOR TOC, METHANE, VOC, AND HCl FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	TOC[b]	EMISSION FACTOR RATING	CH_4[c]	EMISSION FACTOR RATING	VOC[d]	EMISSION FACTOR RATING	HCl[e]	EMISSION FACTOR RATING
Natural gas-fired dryer (SCC 3-05-002-55, -56,-57)	0.044[f]	B	0.012	C	0.032	C	ND	NA
No. 2 fuel oil-fired dryer (SCC 3-05-002-58, -59,-60)	0.044[f]	B	0.012	C	0.032	C	ND	NA
Waste oil-fired dryer (SCC 3-05-002-61, -62,-63)	0.044[f]	E	0.012	C	0.032	E	0.00021	D

[a] Emission factor units are lb per ton of HMA produced. SCC = Source Classification Code. ND = no data available. NA = not applicable. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] TOC equals total hydrocarbons as propane as measured with an EPA Method 25A or equivalent sampling train plus formaldehyde.

[c] References 25, 44-45, 48, 50, 339-340, 355. Factor includes data from natural gas-, No. 2 fuel oil, and waste oil-fired dryers. Methane measured with an EPA Method 18 or equivalent sampling train.

[d] The VOC emission factors are equal to the TOC factors minus the sum of the methane emission factors and the emission factors for compounds with negligible photochemical reactivity shown in Table 11.1-10; differences in values reported are due to rounding.

[e] References 348, 374, 376, 379, 380.

[f] References 25, 44-45, 48, 50, 149, 153-154, 209-212, 214, 241, 242, 339-340, 355.

Table 11.1-9. EMISSION FACTORS FOR ORGANIC POLLUTANT EMISSIONS FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. Nos.
	CASRN	Name			
Natural gas- or No. 2 fuel oil-fired dryer, hot screens, and mixer with fabric filter (SCC 3-05-002-45,-46)	Non-PAH Hazardous Air Pollutants[b]				
	75-07-0	Acetaldehyde	0.00032	E	24,34
	71-43-2	Benzene	0.00028	D	24,34,46, 382
	100-41-4	Ethylbenzene	0.0022	D	24,46,47,49
	50-00-0	Formaldehyde	0.00074	D	24,34,46,47,49,226,382
	106-51-4	Quinone	0.00027	E	24
	108-88-3	Toluene	0.0010	D	24,34,46,47
	1330-20-7	Xylene	0.0027	D	24,46,47,49
		Total non-PAH HAPs	0.0075		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[c]	7.1×10^{-5}	D	24,47,49
	83-32-9	Acenaphthene[c]	9.0×10^{-7}	D	34,46,226
	208-96-8	Acenaphthylene[c]	5.8×10^{-7}	D	34,46,226
	120-12-7	Anthracene[c]	2.1×10^{-7}	D	34,46,226
	56-55-3	Benzo(a)anthracene[c]	4.6×10^{-9}	E	46,226
	50-32-8	Benzo(a)pyrene[c]	3.1×10^{-10}	E	226
	205-99-2	Benzo(b)fluoranthene[c]	9.4×10^{-9}	D	34,46,226
	191-24-2	Benzo(g,h,i)perylene[c]	5.0×10^{-10}	E	226
	207-08-9	Benzo(k)fluoranthene[c]	1.3×10^{-8}	E	34,226
	218-01-9	Chrysene[c]	3.8×10^{-9}	E	46,226
	53-70-3	Dibenz(a,h)anthracene[c]	9.5×10^{-11}	E	226
	206-44-0	Fluoranthene[c]	1.6×10^{-7}	D	34,46,47,226
	86-73-7	Fluorene[c]	1.6×10^{-6}	D	34,46,47,226
	193-39-5	Indeno(1,2,3-cd)pyrene[c]	3.0×10^{-10}	E	226
	91-20-3	Naphthalene	3.6×10^{-5}	D	34,46,47,49,226
	85-01-8	Phenanthrene[c]	2.6×10^{-6}	D	34,46,47,226
	129-00-0	Pyrene[c]	6.2×10^{-8}	D	34,46,226
		Total PAH HAPs	0.00011		
	Total HAPs		0.0076		
	Non-HAP organic compounds				
	100-52-7	Benzaldehyde	0.00013	E	24
	78-84-2	Butyraldehyde/ isobutyraldehyde	3.0×10^{-5}	E	24
	4170-30-3	Crotonaldehyde	2.9×10^{-5}	E	24
	66-25-1	Hexanal	2.4×10^{-5}	E	24
		Total non-HAPs	0.00019		

Table 11.1-9 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. Nos.
	CASRN	Name			
Waste oil-, drain oil-, or No. 6 fuel oil-fired dryer, hot screens, and mixer with fabric filter (SCC 3-05-002-47)	Non-PAH Hazardous Air Pollutants[b]				
	75-07-0	Acetaldehyde	0.00032	E	24,34
	71-43-2	Benzene	0.00028	D	24,34,46, 382
	100-41-4	Ethylbenzene	0.0022	D	24,46,47,49
	50-00-0	Formaldehyde	0.00074	D	24,34,46,47,49,226, 382
	106-51-4	Quinone	0.00027	E	24
	108-88-3	Toluene	0.0010	D	24,34,46,47
	1330-20-7	Xylene	0.0027	D	24,46,47,49
		Total non-PAH HAPs	0.0075		
	PAH HAPs[b]				
	91-57-6	2-Methylnaphthalene[c]	7.1×10^{-5}	D	24,47,49
	83-32-9	Acenaphthene[c]	9.0×10^{-7}	D	34,46,226
	208-96-8	Acenaphthylene[c]	5.8×10^{-7}	D	34,46,226
	120-12-7	Anthracene[c]	2.1×10^{-7}	D	34,46,226
	56-55-3	Benzo(a)anthracene[c]	4.6×10^{-9}	E	46,226
	50-32-8	Benzo(a)pyrene[c]	3.1×10^{-10}	E	226
	205-99-2	Benzo(b)fluoranthene[c]	9.4×10^{-9}	D	34,46,226
	191-24-2	Benzo(g,h,i)perylene[c]	5.0×10^{-10}	E	226
	207-08-9	Benzo(k)fluoranthene[c]	1.3×10^{-8}	E	34,226
	218-01-9	Chrysene[c]	3.8×10^{-9}	E	46,226
	53-70-3	Dibenz(a,h)anthracene[c]	9.5×10^{-11}	E	226
	206-44-0	Fluoranthene[c]	2.4×10^{-5}	E	49
	86-73-7	Fluorene[c]	1.6×10^{-6}	D	34,46,47,226
	193-39-5	Indeno(1,2,3-cd)pyrene[c]	3.0×10^{-10}	E	226
	91-20-3	Naphthalene	3.6×10^{-5}	D	34,46,47,49, 226
	85-01-8	Phenanthrene[c]	3.7×10^{-5}	E	49
	129-00-0	Pyrene[c]	5.5×10^{-5}	E	49
		Total PAH HAPs	0.00023		
	Total HAPs		0.0077		
	Non-HAP organic compounds				
	100-52-7	Benzaldehyde	0.00013	E	24
	78-84-2	Butyraldehyde/ isobutyraldehyde	3.0×10^{-5}	E	24
	4170-30-3	Crotonaldehyde	2.9×10^{-5}	E	24
	66-25-1	Hexanal	2.4×10^{-5}	E	24
		Total non-HAPs	0.00019		

[a] Emission factor units are lb/ton of hot mix asphalt produced. Factors represent uncontrolled emissions, unless noted. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Hazardous air pollutants (HAP) as defined in the 1990 Clean Air Act Amendments (CAAA).

[c] Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA.

Table 11.1-10. EMISSION FACTORS FOR ORGANIC POLLUTANT EMISSIONS FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter[b] (SCC 3-05-002-55, -56,-57)	Non-PAH hazardous air pollutants[c]				
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50, 341, 342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50, 339-344, 347-349, 371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.00015	D	35,44,45
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0051		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	7.4×10^{-5}	D	44,45,48
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	8.6×10^{-6}	D	35,45,48
	120-12-7	Anthracene[g]	2.2×10^{-7}	E	35,48
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48
	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48
	207-08-9	Benzo(k)fluoranthene[g]	4.1×10^{-8}	E	35,48
	218-01-9	Chrysene[g]	1.8×10^{-7}	E	35,48
	206-44-0	Fluoranthene[g]	6.1×10^{-7}	D	35,45,48
	86-73-7	Fluorene[g]	3.8×10^{-6}	D	35,45,48,163
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	7.0×10^{-9}	E	48
	91-20-3	Naphthalene[g]	9.0×10^{-5}	D	35,44,45,48,163
	198-55-0	Perylene[g]	8.8×10^{-9}	E	48
	85-01-8	Phenanthrene[g]	7.6×10^{-6}	D	35,44,45,48,163
	129-00-0	Pyrene[g]	5.4×10^{-7}	D	45,48
		Total PAH HAPs	0.00019		

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter[b] (SCC 3-05-002-55, -56,-57) (cont.)	Total HAPs		0.0053		
	Non-HAP organic compounds				
	106-97-8	Butane	0.00067	E	339
	74-85-1	Ethylene	0.0070	E	339-340
	142-82-5	Heptane	0.0094	E	339-340
	763-29-1	2-Methyl-1-pentene	0.0040	E	339,340
	513-35-9	2-Methyl-2-butene	0.00058	E	339,340
	96-14-0	3-Methylpentane	0.00019	D	339,340
	109-67-1	1-Pentene	0.0022	E	339-340
	109-66-0	n-Pentane	0.00021	E	339-340
		Total non-HAP organics	0.024		
No. 2 fuel oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60)	Non-PAH HAPs[c]				
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50, 341, 342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50, 339-344, 347-349, 371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.0029	E	25, 50, 339-340
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0078		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	0.00017	E	50
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	2.2×10^{-5}	E	50
	120-12-7	Anthracene[g]	3.1×10^{-6}	E	50,162
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
No. 2 fuel oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60) (cont.)	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48
	207-08-9	Benzo(k)fluoranthene[g]	4.1×10^{-8}	E	35,48
	218-01-9	Chrysene[g]	1.8×10^{-7}	E	35,48
	206-44-0	Fluoranthene[g]	6.1×10^{-7}	D	35,45,48
	86-73-7	Fluorene[g]	1.1×10^{-5}	E	50,164
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	7.0×10^{-9}	E	48
	91-20-3	Naphthalene[g]	0.00065	D	25,50,162,164
	198-55-0	Perylene[g]	8.8×10^{-9}	E	48
	85-01-8	Phenanthrene[g]	2.3×10^{-5}	D	50,162,164
	129-00-0	Pyrene[g]	3.0×10^{-6}	E	50
		Total PAH HAPs	0.00088		
		Total HAPs	0.0087		
	Non-HAP organic compounds				
	106-97-8	Butane	0.00067	E	339
	74-85-1	Ethylene	0.0070	E	339-340
	142-82-5	Heptane	0.0094	E	339-340
	763-29-1	2-Methyl-1-pentene	0.0040	E	339,340
	513-35-9	2-Methyl-2-butene	0.00058	E	339,340
	96-14-0	3-Methylpentane	0.00019	D	339,340
	109-67-1	1-Pentene	0.0022	E	339-340
	109-66-0	n-Pentane	0.00021	E	339-340
		Total non-HAP organics	0.024		

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Fuel oil- or waste oil-fired dryer with fabric filter (SCC 3-05-002-58, -59,-60,-61,-62, -63)	Dioxins				
	1746-01-6	2,3,7,8-TCDD[g]	$2.1x10^{-13}$	E	339
		Total TCDD[g]	$9.3x10^{-13}$	E	339
	40321-76-4	1,2,3,7,8-PeCDD[g]	$3.1x10^{-13}$	E	339
		Total PeCDD[g]	$2.2x10^{-11}$	E	339-340
	39227-28-6	1,2,3,4,7,8-HxCDD[g]	$4.2x10^{-13}$	E	339
	57653-85-7	1,2,3,6,7,8-HxCDD[g]	$1.3x10^{-12}$	E	339
	19408-24-3	1,2,3,7,8,9-HxCDD[g]	$9.8x10^{-13}$	E	339
		Total HxCDD[g]	$1.2x10^{-11}$	E	339-340
	35822-46-9	1,2,3,4,6,7,8-HpCDD[g]	$4.8x10^{-12}$	E	339
		Total HpCDD[g]	$1.9x10^{-11}$	E	339-340
	3268-87-9	Octa CDD[g]	$2.5x10^{-11}$	E	339
		Total PCDD[g]	$7.9x10^{-11}$	E	339-340
	Furans				
	51207-31-9	2,3,7,8-TCDF[g]	$9.7x10^{-13}$	E	339
		Total TCDF[g]	$3.7x10^{-12}$	E	339-340
		1,2,3,7,8-PeCDF[g]	$4.3x10^{-12}$	E	339-340
		2,3,4,7,8-PeCDF[g]	$8.4x10^{-13}$	E	339
		Total PeCDF[g]	$8.4x10^{-11}$	E	339-340
		1,2,3,4,7,8-HxCDF[g]	$4.0x10^{-12}$	E	339
		1,2,3,6,7,8-HxCDF[g]	$1.2x10^{-12}$	E	339
		2,3,4,6,7,8-HxCDF[g]	$1.9x10^{-12}$	E	339
		1,2,3,7,8,9-HxCDF[g]	$8.4x10^{-12}$	E	340
		Total HxCDF[g]	$1.3x10^{-11}$	E	339-340
		1,2,3,4,6,7,8-HpCDF[g]	$6.5x10^{-12}$	E	339
		1,2,3,4,7,8,9-HpCDF[g]	$2.7x10^{-12}$	E	339
		Total HpCDF[g]	$1.0x10^{-11}$	E	339-340
	39001-02-0	Octa CDF[g]	$4.8x10^{-12}$	E	339
		Total PCDF[g]	$4.0x10^{-11}$	E	339-340
		Total PCDD/PCDF[g]	$1.2x10^{-10}$	E	339-340

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Fuel oil- or waste oil-fired dryer (uncontrolled) (SCC 3-05-002-58, -59,-60,-61,-62, -63)	Hazardous air pollutants[c]				
	Dioxins				
		Total HxCDD[g]	$5.4x10^{-12}$	E	340
	35822-46-9	1,2,3,4,6,7,8-HpCDD[g]	$3.4x10^{-11}$	E	340
		Total HpCDD[g]	$7.1x10^{-11}$	E	340
	3268-87-9	Octa CDD[g]	$2.7x10^{-9}$	E	340
		Total PCDD[g]	$2.8x10^{-9}$	E	340
	Furans				
		Total TCDF[g]	$3.3x10^{-11}$	E	340
		Total PeCDF[g]	$7.4x10^{-11}$	E	340
		1,2,3,4,7,8-HxCDF[g]	$5.4x10^{-12}$	E	340
		2,3,4,6,7,8-HxCDF[g]	$1.6x10^{-12}$	E	340
		Total HxCDF[g]	$8.1x10^{-12}$	E	340
Fuel oil- or waste oil-fired dryer (uncontrolled) (SCC 3-05-002-58, -59,-60,-61,-62, -63) (cont.)		1,2,3,4,6,7,8-HpCDF[g]	$1.1x10^{-11}$	E	340
		Total HpCDF[g]	$3.8x10^{-11}$	E	340
		Total PCDF[g]	$1.5x10^{-10}$	E	340
		Total PCDD/PCDF[g]	$3.0x10^{-9}$	E	340

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Waste oil-fired dryer with fabric filter (SCC 3-05-002-61, -62,-63)	Non-PAH HAPs[c]				
	75-07-0	Acetaldehyde	0.0013	E	25
	107-02-8	Acrolein	2.6×10^{-5}	E	25
	71-43-2	Benzene[d]	0.00039	A	25,44,45,50,341,342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde[e]	0.0031	A	25,35,44,45,50,339-344,347-349,371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0×10^{-5}	E	339-340
	78-93-3	Methyl Ethyl Ketone	2.0×10^{-5}	E	25
	123-38-6	Propionaldehyde	0.00013	E	25
	106-51-4	Quinone	0.00016	E	25
	71-55-6	Methyl chloroform[f]	4.8×10^{-5}	E	35
	108-88-3	Toluene	0.0029	E	25, 50, 339-340
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0095		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene[g]	0.00017	E	50
	83-32-9	Acenaphthene[g]	1.4×10^{-6}	E	48
	208-96-8	Acenaphthylene[g]	2.2×10^{-5}	E	50
	120-12-7	Anthracene[g]	3.1×10^{-6}	E	50,162
	56-55-3	Benzo(a)anthracene[g]	2.1×10^{-7}	E	48
	50-32-8	Benzo(a)pyrene[g]	9.8×10^{-9}	E	48
	205-99-2	Benzo(b)fluoranthene[g]	1.0×10^{-7}	E	35,48
	192-97-2	Benzo(e)pyrene[g]	1.1×10^{-7}	E	48
	191-24-2	Benzo(g,h,i)perylene[g]	4.0×10^{-8}	E	48

Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Waste oil-fired dryer with fabric filter (SCC 3-05-002-61, -62,-63) (cont.)	207-08-9	Benzo(k)fluoranthene[g]	$4.1x10^{-8}$	E	35,48
	218-01-9	Chrysene[g]	$1.8x10^{-7}$	E	35,48
	206-44-0	Fluoranthene[g]	$6.1x10^{-7}$	D	35,45,48
	86-73-7	Fluorene[g]	$1.1x10^{-5}$	E	50,164
	193-39-5	Indeno(1,2,3-cd)pyrene[g]	$7.0x10^{-9}$	E	48
	91-20-3	Naphthalene[g]	0.00065	D	25,50,162,164
	198-55-0	Perylene[g]	$8.8x10^{-9}$	E	48
	85-01-8	Phenanthrene[g]	$2.3x10^{-5}$	D	50,162,164
	129-00-0	Pyrene[g]	$3.0x10^{-6}$	E	50
		Total PAH HAPs	0.00088		
		Total HAPs	0.010		
	Non-HAP organic compounds				
	67-64-1	Acetone[f]	0.00083	E	25
	100-52-7	Benzaldehyde	0.00011	E	25
	106-97-8	Butane	0.00067	E	339
	78-84-2	Butyraldehyde	0.00016	E	25
	4170-30-3	Crotonaldehyde	$8.6x10^{-5}$	E	25
	74-85-1	Ethylene	0.0070	E	339, 340
	142-82-5	Heptane	0.0094	E	339, 340
	66-25-1	Hexanal	0.00011	E	25
	590-86-3	Isovaleraldehyde	$3.2x10^{-5}$	E	25
	763-29-1	2-Methyl-1-pentene	0.0040	E	339, 340
	513-35-9	2-Methyl-2-butene	0.00058	E	339, 340
	96-14-0	3-Methylpentane	0.00019	D	339, 340
	109-67-1	1-Pentene	0.0022	E	339, 340
	109-66-0	n-Pentane	0.00021	E	339, 340
	110-62-3	Valeraldehyde	$6.7x10^{-5}$	E	25
		Total non-HAP organics	0.026		

[a] Emission factor units are lb/ton of hot mix asphalt produced. Table includes data from both parallel flow and counterflow drum mix dryers. Organic compound emissions from counterflow systems are expected to be less than from parallel flow systems, but the available data are insufficient to quantify

accurately the difference in these emissions. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Tests included dryers that were processing reclaimed asphalt pavement. Because of limited data, the effect of RAP processing on emissions could not be determined.

[c] Hazardous air pollutants (HAP) as defined in the 1990 Clean Air Act Amendments (CAAA).

[d] Based on data from 19 tests. Range: 0.000063 to 0.0012 lb/ton; median: 0.00030; Standard deviation: 0.00031.

[e] Based on data from 21 tests. Range: 0.0030 to 0.014 lb/ton; median: 0.0020; Standard deviation: 0.0036.

[f] Compound has negligible photochemical reactivity.

[g] Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Table 11.1-11. EMISSION FACTORS FOR METAL EMISSIONS FROM BATCH MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Dryer, hot screens, and mixer[b] (SCC 3-05-002-45,-46,-47)	Arsenic[c]	4.6×10^{-7}	D	34, 40, 226
	Barium	1.5×10^{-6}	E	24
	Beryllium[c]	1.5×10^{-7}	E	34, 226
	Cadmium[c]	6.1×10^{-7}	D	24, 34, 226
	Chromium[c]	5.7×10^{-7}	D	24, 34, 226
	Hexavalent chromium[c]	4.8×10^{-8}	E	34, 226
	Copper	2.8×10^{-6}	D	24, 34, 226
	Lead[c]	8.9×10^{-7}	D	24, 34, 226
	Manganese[c]	6.9×10^{-6}	D	24, 34, 226
	Mercury[c]	4.1×10^{-7}	E	34, 226
	Nickel[c]	3.0×10^{-6}	D	24, 34, 226
	Selenium[c]	4.9×10^{-7}	E	34, 226
	Zinc	6.8×10^{-6}	D	24, 34, 226

[a] Emission factor units are lb/ton of HMA produced. Emissions controlled by a fabric filter. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

[b] Natural gas-, propane-, No. 2 fuel oil-, or waste oil-/drain oil-/No. 6 fuel oil-fired dryer. For waste oil-/drain oil-/No. 6 fuel oil-fired dryer, use a lead emission factor of 1.0×10^{-5} lb/ton (References 177 and 321, Emission factor rating: E) in lieu of the emission factor shown.

[c] Arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, manganese, mercury, nickel, and selenium are HAPs as defined in the 1990 CAAA.

Table 11.1-12. EMISSION FACTORS FOR METAL EMISSIONS FROM DRUM MIX HOT MIX ASPHALT PLANTS[a]

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Fuel oil-fired dryer, uncontrolled (SCC 3-05-002-58, -59,-60)	Arsenic[b]	1.3×10^{-6}	E	340
	Barium	0.00025	E	340
	Beryllium[b]	0.0	E	340
	Cadmium[b]	4.2×10^{-6}	E	340
	Chromium[b]	2.4×10^{-5}	E	340
	Cobalt[b]	1.5×10^{-5}	E	340
	Copper	0.00017	E	340
	Lead[b]	0.00054	E	340
	Manganese[b]	0.00065	E	340
	Nickel[b]	0.0013	E	340
	Phosphorus[b]	0.0012	E	340
	Selenium[b]	2.4×10^{-6}	E	340
	Thallium	2.2×10^{-6}	E	340
	Zinc	0.00018	E	340
Natural gas- or propane-fired dryer, with fabric filter (SCC 3-05-002-55, -56,-57))	Antimony	1.8×10^{-7}	E	339
	Arsenic[b]	5.6×10^{-7}	D	25, 35, 339-340
	Barium	5.8×10^{-6}	E	25, 339-340
	Beryllium[b]	0.0	E	339-340
	Cadmium[b]	4.1×10^{-7}	D	25, 35, 162, 301, 339-340
	Chromium[b]	5.5×10^{-6}	C	25, 162-164, 301, 339-340
	Cobalt[b]	2.6×10^{-8}	E	339-340
	Copper	3.1×10^{-6}	D	25, 162-164, 339-340
	Hexavalent chromium[b]	4.5×10^{-7}	E	163
	Lead[b]	6.2×10^{-7}	E	35
	Manganese[b]	7.7×10^{-6}	D	25, 162-164, 339-340
	Mercury[b]	2.4×10^{-7}	E	35, 163
	Nickel[b]	6.3×10^{-5}	D	25, 163-164, 339-340
	Phosphorus[b]	2.8×10^{-5}	E	25, 339-340
	Silver	4.8×10^{-7}	E	25, 339-340
	Selenium[b]	3.5×10^{-7}	E	339-340
	Thallium	4.1×10^{-9}	E	339-340
	Zinc	6.1×10^{-5}	C	25, 35, 162-164, 339-340

Table 11.1-12 (cont.)

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
No. 2 fuel oil-fired dryer or waste oil/drain oil/No. 6 fuel oil-fired dryer, with fabric filter (SCC 3-05-002-58, -59,-60,-61,-62,-63)	Antimony	1.8×10^{-7}	E	339
	Arsenic[b]	5.6×10^{-7}	D	25, 35, 339-340
	Barium	5.8×10^{-6}	E	25, 339-340
	Beryllium[b]	0.0	E	339-340
	Cadmium[b]	4.1×10^{-7}	D	25, 35, 162, 301, 339-340
	Chromium[b]	5.5×10^{-6}	C	25, 162-164, 301, 339-340
	Cobalt[b]	2.6×10^{-8}	E	339-340
	Copper	3.1×10^{-6}	D	25, 162-164, 339-340
	Hexavalent chromium[b]	4.5×10^{-7}	E	163
	Lead[b]	1.5×10^{-5}	C	25, 162, 164, 178-179, 183, 301, 315, 339-340
	Manganese[b]	7.7×10^{-6}	D	25, 162-164, 339-340
	Mercury[b]	2.6×10^{-6}	D	162, 164, 339-340
	Nickel[b]	6.3×10^{-5}	D	25, 163-164, 339-340
	Phosphorus[b]	2.8×10^{-5}	E	25, 339-340
	Silver	4.8×10^{-7}	E	25, 339-340
	Selenium[b]	3.5×10^{-7}	E	339-340
	Thallium	4.1×10^{-9}	E	339-340
	Zinc	6.1×10^{-5}	C	25, 35, 162-164, 339-340

[a] Emission factor units are lb/ton of HMA produced. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5. Emission factors apply to facilities processing virgin aggregate or a combination of virgin aggregate and RAP.

[b] Arsenic, beryllium, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, nickel, and selenium compounds are HAPs as defined in the 1990 CAAA. Elemental phosphorus also is a listed HAP, but the phosphorus measured by Method 29 is not elemental phosphorus.

Table 11.1-13. EMISSION FACTORS FOR HOT MIX ASPHALT HOT OIL SYSTEMS[a]

Process	Pollutant		Emission factor	Emission factor units	EMISSION FACTOR RATING	Reference
	CASRN	Name				
Hot oil system fired with natural gas (SCC 3-05-002-06)	630-08-0	Carbon monoxide	8.9×10^{-6}	lb/ft^3	C	395
	124-38-9	Carbon dioxide	0.20	lb/ft^3	C	395
	50-00-0	Formaldehyde	2.6×10^{-8}	lb/ft^3	C	395
Hot oil system fired with No. 2 fuel oil (SCC 3-05-002-08)	630-08-0	Carbon monoxide	0.0012	lb/gal	C	395
	124-38-9	Carbon dioxide	28	lb/gal	C	395
	50-00-0	Formaldehyde	3.5×10^{-6}	lb/gal	C	395
	83-32-9	Acenaphthene[b]	5.3×10^{-7}	lb/gal	E	35
	208-96-8	Acenaphthylene[b]	2.0×10^{-7}	lb/gal	E	35
	120-12-7	Anthracene[b]	1.8×10^{-7}	lb/gal	E	35
	205-99-2	Benzo(b)fluoranthene[b]	1.0×10^{-7}	lb/gal	E	35
	206-44-0	Fluoranthene[b]	4.4×10^{-8}	lb/gal	E	35
	86-73-7	Fluorene[b]	3.2×10^{-8}	lb/gal	E	35
	91-20-3	Naphthalene[b]	1.7×10^{-5}	lb/gal	E	35
	85-01-8	Phenanthrene[b]	4.9×10^{-6}	lb/gal	E	35
	129-00-0	Pyrene[b]	3.2×10^{-8}	lb/gal	E	35
	Dioxins					
	19408-74-3	1,2,3,7,8,9-HxCDD[b]	7.6×10^{-13}	lb/gal	E	35
	39227-28-6	1,2,3,4,7,8-HxCDD[b]	6.9×10^{-13}	lb/gal	E	35
		HxCDD[b]	6.2×10^{-12}	lb/gal	E	35
	35822-46-9	1,2,3,4,6,7,8-HpCDD[b]	1.5×10^{-11}	lb/gal	E	35
		HpCDD[b]	2.0×10^{-11}	lb/gal	E	35
	3268-87-9	OCDD[b]	1.6×10^{-10}	lb/gal	E	35
		Total PCDD	2.0×10^{-10}	lb/gal	E	35
	Furans					
		TCDF[b]	3.3×10^{-12}	lb/gal	E	35
		PeCDF[b]	4.8×10^{-13}	lb/gal	E	35
		HxCDF[b]	2.0×10^{-12}	lb/gal	E	35
		HpCDF[b]	9.7×10^{-12}	lb/gal	E	35
	67562-39-4	1,2,3,4,6,7,8-HpCDF[b]	3.5×10^{-12}	lb/gal	E	35
	39001-02-0	OCDF[b]	1.2×10^{-11}	lb/gal	E	35
		Total PCDF	3.1×10^{-11}	lb/gal	E	35
		Total PCDD/PCDF	2.3×10^{-10}	lb/gal	E	35

[a] Emission factor units are lb/gal of fuel consumed. To convert from pounds per standard cubic foot (lb/ft^3) to kilograms per standard cubic meter (kg/m^3), multiply by 16. To convert from lb/gal to kilograms per liter (kg/l), multiply by 0.12. CASRN = Chemical Abstracts Service Registry Number. SCC = Source Classification Code.

[b] Compound is classified as polycyclic organic matter, as defined in the 1990 Clean Air Act Amendments (CAAA). Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Table 11.1-14. PREDICTIVE EMISSION FACTOR EQUATIONS FOR LOAD-OUT AND SILO FILLING OPERATIONS[a]

EMISSION FACTOR RATING: C

Source	Pollutant	Equation
Drum mix or batch mix plant load-out (SCC 3-05-002-14)	Total PM[b]	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM[c]	$EF = 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC[d]	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$
Silo filling (SCC 3-05-002-13)	Total PM[b]	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM[c]	$EF = 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC[d]	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$

[a] Emission factor units are lb/ton of HMA produced. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5. EF = emission factor; V = asphalt volatility, as determined by ASTM Method D2872-88 "Effects of Heat and Air on a Moving Film of Asphalt (Rolling Thin Film Oven Test - RTFOT)," where a 0.5 percent loss-on-heating is expressed as "-0.5." Regional- or site-specific data for asphalt volatility should be used, whenever possible; otherwise, a default value of -0.5 should be used for V in these equations. T = HMA mix temperature in °F. Site-specific temperature data should be used, whenever possible; otherwise a default temperature of 325°F can be used. Reference 1, Tables 4-27 through 4-31, 4-34 through 4-36, and 4-38 through 4-41.

[b] Total PM, as measured by EPA Method 315 (EPA Method 5 plus the extractable organic particulate from the impingers). Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors.

[c] Extractable organic PM, as measured by EPA Method 315 (methylene chloride extract of EPA Method 5 particulate plus methylene chloride extract of impinger particulate).

[d] TOC as propane, as measured with an EPA Method 25A sampling train or equivalent sampling train.

Table 11.1-15. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS–ORGANIC PARTICULATE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

Pollutant	CASRN[a]	Speciation Profile for Load-out and Yard Emissions[b] Compound/Organic PM[c]	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions Compound/Organic PM[c]
PAH HAPs			
Acenaphthene	83-32-9	0.26%	0.47%
Acenaphthylene	208-96-8	0.028%	0.014%
Anthracene	120-1207	0.070%	0.13%
Benzo(a)anthracene	56-55-3	0.019%	0.056%
Benzo(b)fluoranthene	205-99-2	0.0076%	ND[d]
Benzo(k)fluoranthene	207-08-9	0.0022%	ND[d]
Benzo(g,h,i)perylene	191-24-2	0.0019%	ND[d]
Benzo(a)pyrene	50-32-8	0.0023%	ND[d]
Benzo(e)pyrene	192-97-2	0.0078%	0.0095%
Chrysene	218-01-9	0.103%	0.21%
Dibenz(a,h)anthracene	53-70-3	0.00037%	ND[d]
Fluoranthene	206-44-0	0.050%	0.15%
Fluorene	86-73-7	0.77%	1.01%
Indeno(1,2,3-cd)pyrene	193-39-5	0.00047%	ND[d]
2-Methylnaphthalene	91-57-6	2.38%	5.27%
Naphthalene	91-20-3	1.25%	1.82%
Perylene	198-55-0	0.022%	0.030%
Phenanthrene	85-01-8	0.81%	1.80%
Pyrene	129-00-0	0.15%	0.44%
Total PAH HAPs		5.93%	11.40%
Other semi-volatile HAPs			
Phenol		1.18%	ND[d]

[a] Chemical Abstract Service Registry Number.
[b] Emissions from loaded trucks during the period between load-out and the time the truck departs the plant.
[c] Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for extractable organic particulate (organic PM) as determined from Table 11.1-14.
[d] ND = Measured data below detection limits.

Table 11.1-16. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS–ORGANIC VOLATILE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

Pollutant	CASRN	Speciation Profile for Load-Out and Yard Emissions Compound/TOC[a]	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions Compound/TOC (%)[a]
VOC[b]		94%[b]	100%
<u>Non-VOC/non-HAPs</u>			
Methane	74-82-8	6.5%	0.26%
Acetone	67-64-1	0.046%	0.055%
Ethylene	74-85-1	0.71%	1.1%
Total non-VOC/non-HAPS		7.3%	1.4%
<u>Volatile organic HAPS</u>			
Benzene	71-43-2	0.052%	0.032%
Bromomethane	74-83-9	0.0096%	0.0049%
2-Butanone	78-93-3	0.049%	0.039%
Carbon Disulfide	75-15-0	0.013%	0.016%
Chloroethane	75-00-3	0.00021%	0.0040%
Chloromethane	74-87-3	0.015%	0.023%
Cumene	92-82-8	0.11%	ND[c]
Ethylbenzene	100-41-4	0.28%	0.038%
Formaldehyde	50-00-0	0.088%	0.69%
n-Hexane	100-54-3	0.15%	0.10%
Isooctane	540-84-1	0.0018%	0.00031%
Methylene Chloride	75-09-2	0.0%[d]	0.00027%
MTBE	596899	0.0%[d]	ND[c]
Styrene	100-42-5	0.0073%	0.0054%
Tetrachloroethene	127-18-4	0.0077%	ND[c]
Toluene	100-88-3	0.21%	0.062%
1,1,1-Trichloroethane	71-55-6	0.0%[d]	ND[c]
Trichloroethene	79-01-6	0.0%[d]	ND[c]
Trichlorofluoromethane	75-69-4	0.0013%	ND[c]
m-/p-Xylene	1330-20-7	0.41%	0.2%
o-Xylene	95-47-6	0.08%	0.057%
Total volatile organic HAPs		1.5%	1.3%

Table 11.1-16 (cont.)

[a] Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for total organic compounds (TOC) as determined from Table 11.1-14.

[b] The VOC percentages are equal to 100 percent of TOC minus the methane, acetone, methylene chloride, and 1,1,1-trichloroethane percentages.

[c] ND = Measured data below detection limits. Additional compounds that were not detected are: acrylonitrile, allyl chloride, bromodichloromethane, bromoform, 1,3-butadiene, carbon tetrachloride, chlorobenzene, chloroform, dibromochloromethane, 1,2-dibromoethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, 1,2-epoxybutane, ethyl acrylate, 2-hexanone, iodomethane, methyl methacrylate, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, vinyl acetate, vinyl bromide, and vinyl chloride

[d] Values presented as 0.0% had background concentrations higher than the capture efficiency-corrected measured concentration.

11.19.2 Crushed Stone Processing and Pulverized Mineral Processing

11.19.2.1 Process Description [24, 25]

Crushed Stone Processing

Major rock types processed by the crushed stone industry include limestone, granite, dolomite, traprock, sandstone, quartz, and quartzite. Minor types include calcareous marl, marble, shell, and slate. Major mineral types processed by the pulverized minerals industry, a subset of the crushed stone processing industry, include calcium carbonate, talc, and barite. Industry classifications vary considerably and, in many cases, do not reflect actual geological definitions.

Rock and crushed stone products generally are loosened by drilling and blasting and then are loaded by power shovel or front-end loader into large haul trucks that transport the material to the processing operations. Techniques used for extraction vary with the nature and location of the deposit. Processing operations may include crushing, screening, size classification, material handling and storage operations. All of these processes can be significant sources of PM and PM-10 emissions if uncontrolled.

Quarried stone normally is delivered to the processing plant by truck and is dumped into a bin. A feeder is used as illustrated in Figure 11.19.2-1. The feeder or screens separate large boulders from finer rocks that do not require primary crushing, thus reducing the load to the primary crusher. Jaw, impactor, or gyratory crushers are usually used for initial reduction. The crusher product, normally 7.5 to 30 centimeters (3 to 12 inches) in diameter, and the grizzly throughs (undersize material) are discharged onto a belt conveyor and usually are conveyed to a surge pile for temporary storage or are sold as coarse aggregates.

The stone from the surge pile is conveyed to a vibrating inclined screen called the scalping screen. This unit separates oversized rock from the smaller stone. The undersized material from the scalping screen is considered to be a product stream and is transported to a storage pile and sold as base material. The stone that is too large to pass through the top deck of the scalping screen is processed in the secondary crusher. Cone crushers are commonly used for secondary crushing (although impact crushers are sometimes used), which typically reduces material to about 2.5 to 10 centimeters (1 to 4 inches). The material (throughs) from the second level of the screen bypasses the secondary crusher because it is sufficiently small for the last crushing step. The output from the secondary crusher and the throughs from the secondary screen are transported by conveyor to the tertiary circuit, which includes a sizing screen and a tertiary crusher.

Tertiary crushing is usually performed using cone crushers or other types of impactor crushers. Oversize material from the top deck of the sizing screen is fed to the tertiary crusher. The tertiary crusher output, which is typically about 0.50 to 2.5 centimeters (3/16th to 1 inch), is returned to the sizing screen. Various product streams with different size gradations are separated in the screening operation. The products are conveyed or trucked directly to finished product bins, to open area stock piles, or to other processing systems such as washing, air separators, and screens and classifiers (for the production of manufactured sand).

Some stone crushing plants produce manufactured sand. This is a small-sized rock product with a maximum size of 0.50 centimeters (3/16 th inch). Crushed stone from the tertiary sizing screen is sized in a vibrating inclined screen (fines screen) with relatively small mesh sizes.

Oversized material is processed in a cone crusher or a hammermill (fines crusher) adjusted to produce small diameter material. The output is returned to the fines screen for resizing.

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

Pulverized Mineral Processing

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

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

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

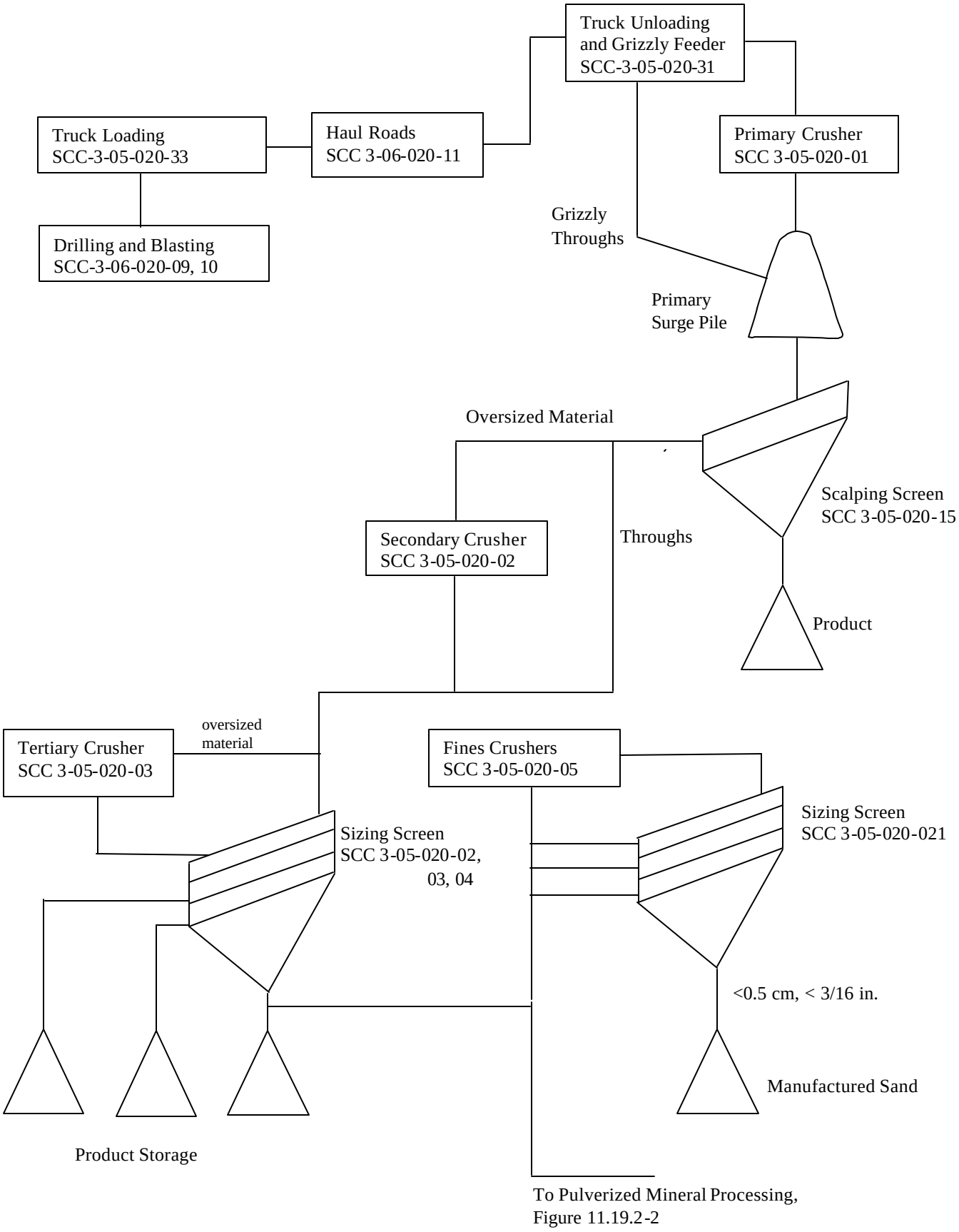


Figure 11.19.2-1. Typical stone processing plant

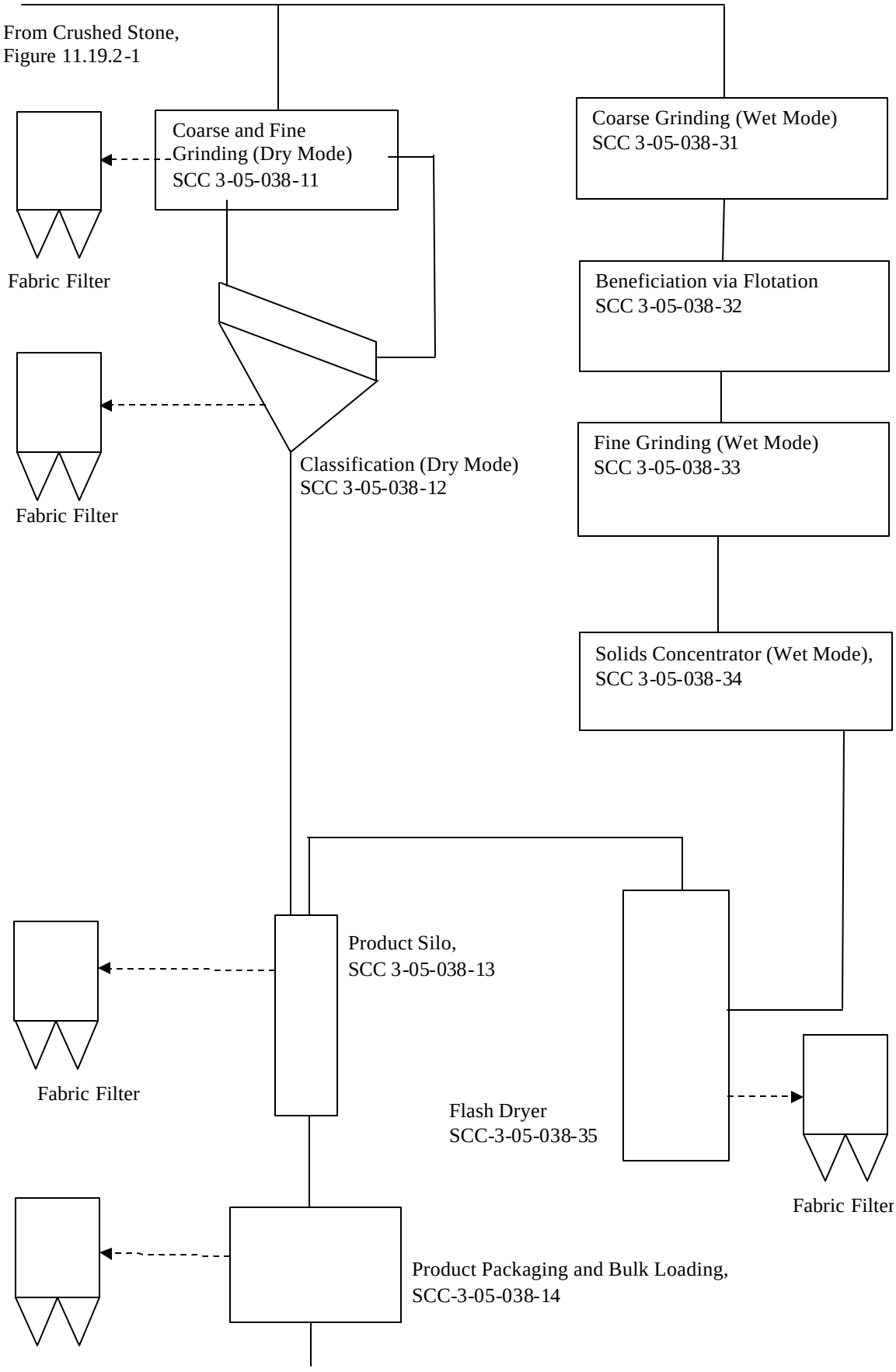


Figure 11.19.2-2 Flowchart for Pulverized Mineral Processing

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

Crushed Stone Processing

Emissions of PM, PM-10, and PM-2.5 occur from a number of operations in stone quarrying and processing. A substantial portion of these emissions consists of heavy particles that may settle out within the plant. As in other operations, crushed stone emission sources may be categorized as either process sources or fugitive dust sources. Process sources include those for which emissions are amenable to capture and subsequent control. Fugitive dust sources generally involve the reentrainment of settled dust by wind or machine movement. Emissions from process sources should be considered fugitive unless the sources are vented to a baghouse or are contained in an enclosure with a forced-air vent or stack. Factors affecting emissions from either source category include the stone size distribution and the surface moisture content of the stone processed, the process throughput rate, the type of equipment and operating practices used, and topographical and climatic factors.

Of graphical and seasonal factors, the primary variables affecting uncontrolled PM emissions are wind and material moisture content. Wind parameters vary with geographical location, season, and weather. It can be expected that the level of emissions from unenclosed sources (principally fugitive dust sources) will be greater during periods of high winds. The material moisture content also varies with geographical location, season, and weather. Therefore, the levels of uncontrolled emissions from both process emission sources and fugitive dust sources generally will be greater in arid regions of the country than in temperate ones and greater during the summer months because of a higher evaporation rate.

The moisture content of the material processed can have a substantial effect on emissions. This effect is evident throughout the processing operations. Surface wetness causes fine particles to agglomerate on or to adhere to the faces of larger stones, with a resulting dust suppression effect. However, as new fine particles are created by crushing and attrition and as the moisture content is reduced by evaporation, this suppressive effect diminishes and may disappear. Plants that use wet suppression systems (spray nozzles) to maintain relatively high material moisture contents can effectively control PM emissions throughout the process. Depending on the geographical and climatic conditions, the moisture content of mined rock can range from nearly zero to several percent. Because moisture content is usually expressed on a basis of overall weight percent, the actual moisture amount per unit area will vary with the size of the rock being handled. On a constant mass-fraction basis, the per-unit area moisture content varies inversely with the diameter of the rock. The suppressive effect of the moisture depends on both the absolute mass water content and the size of the rock product. Typically, wet material contains >1.5 percent water.

A variety of material, equipment, and operating factors can influence emissions from crushing. These factors include (1) stone type, (2) feed size and distribution, (3) moisture content, (4) throughput rate, (5) crusher type, (6) size reduction ratio, and (7) fines content. Insufficient data are available to present a matrix of rock crushing emission factors detailing the above classifications and variables. Available data indicate that PM-10 and PM-2.5 emissions from limestone and granite processing operations are similar. Therefore, the emission factors developed from the emissions data gathered at limestone and granite processing facilities are considered to be representative of typical crushed stone processing operations. Emission factors for filterable PM, PM-10, and PM-2.5 emissions from crushed stone processing operations are presented in Tables 11.19.2-1 (Metric units) and 11.19.2-2 (English units.)

Table 11.19.2-1 (Metric Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (kg/Mg)[a]

Source [b]	Total Particulate Matter [r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0027[d]	E	0.0012[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0006[d]	E	0.00027[p]	C	0.00005[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0195[e]	E	0.0075[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0015[f]	E	0.0006[f]	E	0.000035[q]	E
Screening (SCC 3-05-020-02, 03)	0.0125[c]	E	0.0043[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0011[d]	E	0.00037[m]	C	0.000025[q]	E
Fines Screening (SCC 3-05-020-21	0.15[g]	E	0.036[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0018[g]	E	0.0011[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0015[h]	E	0.00055[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00007[i]	E	2.3×10^{-5}[i]	D	6.5×10^{-6}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		4.0×10^{-5}[j]	E	ND	
Truck Unloading - Fragmented Stone (SCC 3-05-020-31)	ND		8.0×10^{-6}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		5.0×10^{-5}[k]	E	ND	

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

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

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

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

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

o. References 2, 3, 7, 8

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

q. Reference 15

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

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

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)[a]

Source [b]	Total Particulate Matter [r,s]	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND[n]		ND[n]	
Secondary Crushing (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND[n]		ND[n]	
Tertiary Crushing (SCC 3-050030-03)	0.0054[d]	E	0.0024[o]	C	ND[n]	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012[d]	E	0.00054[p]	C	0.00010[q]	E
Fines Crushing (SCC 3-05-020-05)	0.0390[e]	E	0.0150[e]	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030[f]	E	0.0012[f]	E	0.000070[q]	E
Screening (SCC 3-05-020-02, 03)	0.025[c]	E	0.0087[l]	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022[d]	E	0.00074[m]	C	0.000050[q]	E
Fines Screening (SCC 3-05-020-21)	0.30[g]	E	0.072[g]	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036[g]	E	0.0022[g]	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030[h]	E	0.00110[h]	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014[t]	E	4.6×10^{-5}[t]	D	1.3×10^{-5}[q]	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0×10^{-5}[j]	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6×10^{-5}[j]	E	ND	
Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010[k]	E	ND	

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

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

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

e. Reference 4

f. References 4 and 15

g. Reference 4

h. References 5 and 6

i. References 5, 6, and 15

j. Reference 11

k. Reference 12

l. References 1, 3, 7, and 8

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

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

o. References 2, 3, 7, 8

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

q. Reference 15

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

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

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Emission factor estimates for stone quarry blasting operations are not presented because of the sparsity and unreliability of available tests. While a procedure for estimating blasting emissions is presented in Section 11.9, Western Surface Coal Mining, that procedure should not be applied to stone quarries because of dissimilarities in blasting techniques, material blasted, and size of blast areas. Emission factors for fugitive dust sources, including paved and unpaved roads, materials handling and transfer, and wind erosion of storage piles, can be determined using the predictive emission factor equations presented in AP-42 Section 13.2.

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

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

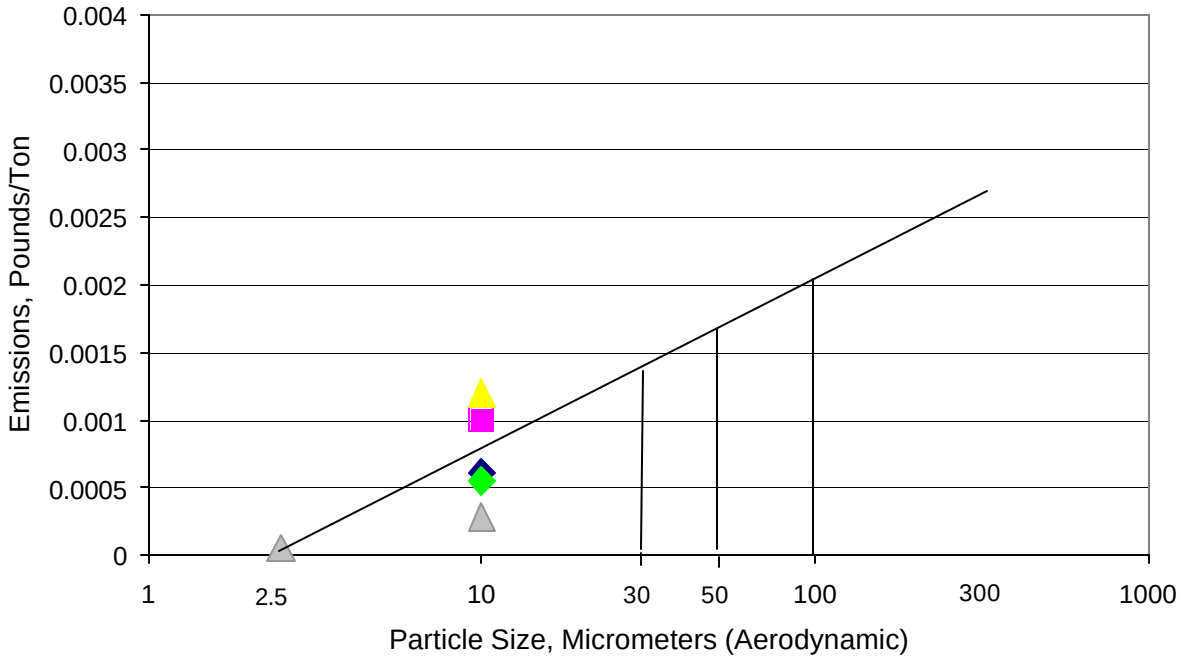


Figure 11-19-3. PM Emission Factor Calculation, Screening (Controlled)

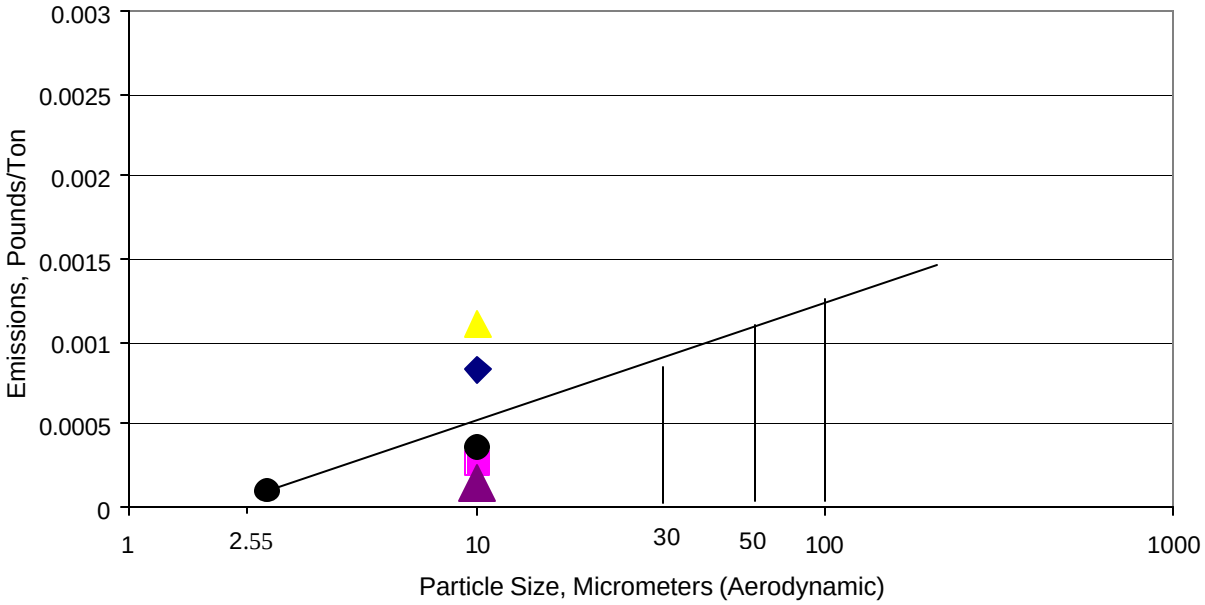


Figure 11.19-4. PM Emission Factor Calculation, Tertiary Crushing (Controlled)

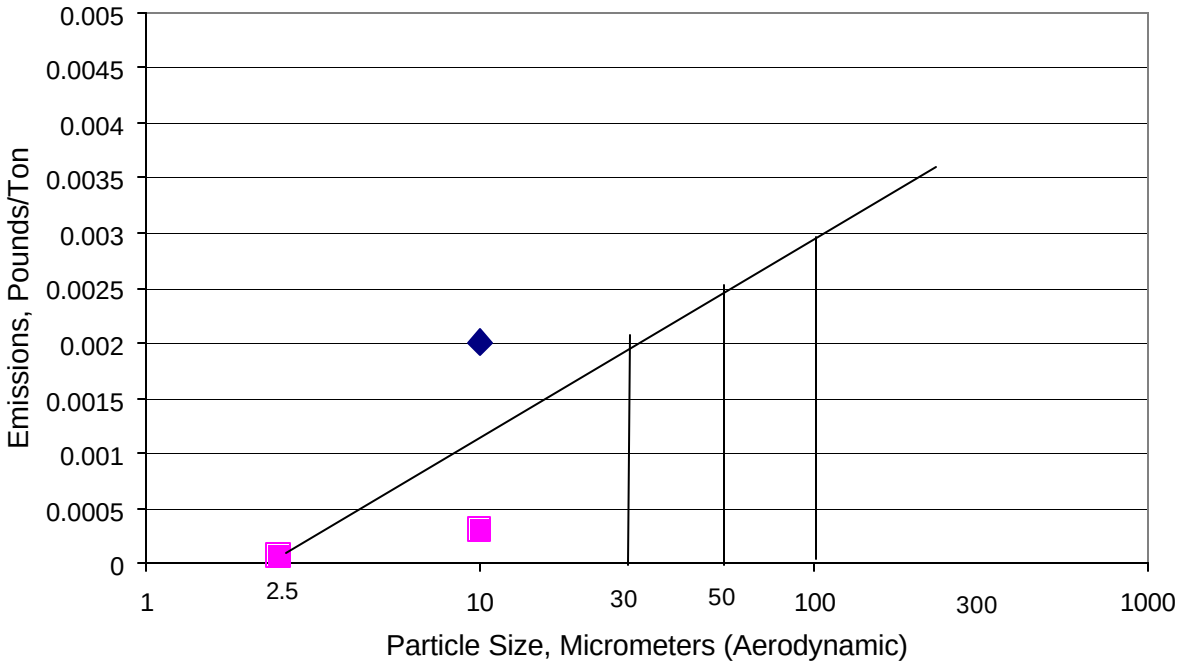


Figure 11-19.5. PM Emission Factor Calculation, Fines Crushing (Controlled)

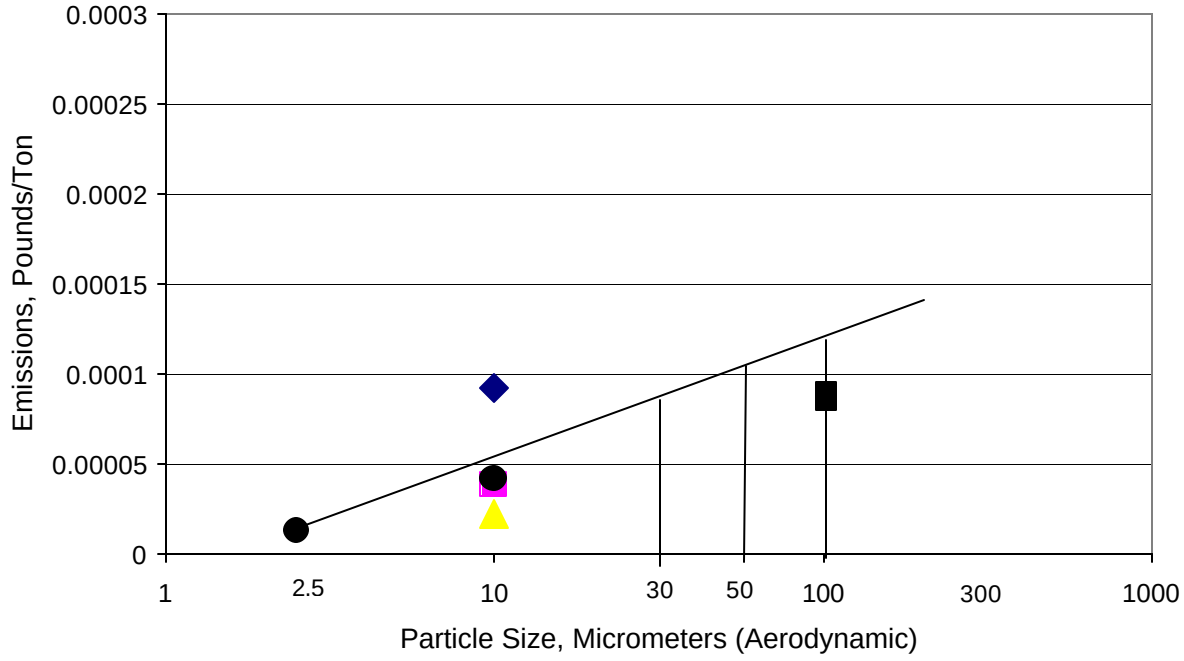


Figure 11.19-6. PM Emission Factor Calculation, Conveyor Transfer Points (Controlled)

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

Screening PM-10

Controlled = 0.00073 Lbs./Ton.

Uncontrolled = 0.00865 Lbs./Ton.

Efficiency = 91.6%

Tertiary Crushing PM-10

Controlled = 0.00054

Uncontrolled = 0.00243

Efficiency = 77.7%

Fines Crushing PM-10:

Controlled = 0.0012

Uncontrolled = 0.015

Efficiency = 92.0%

Conveyor Transfer Points PM-10

Controlled = 0.000045

Uncontrolled = 0.0011

Efficiency = 95.9%

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

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

Equation 1

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

13.2.2 Unpaved Roads

13.2.2.1 General

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

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

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

13.2.2.2 Emissions Calculation And Correction Parameters[1-6]

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

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

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

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

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

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS[a]

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

[a]References 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

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

as shown in Table 13.2.2-4

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

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

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

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

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

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

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

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

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

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

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

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

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

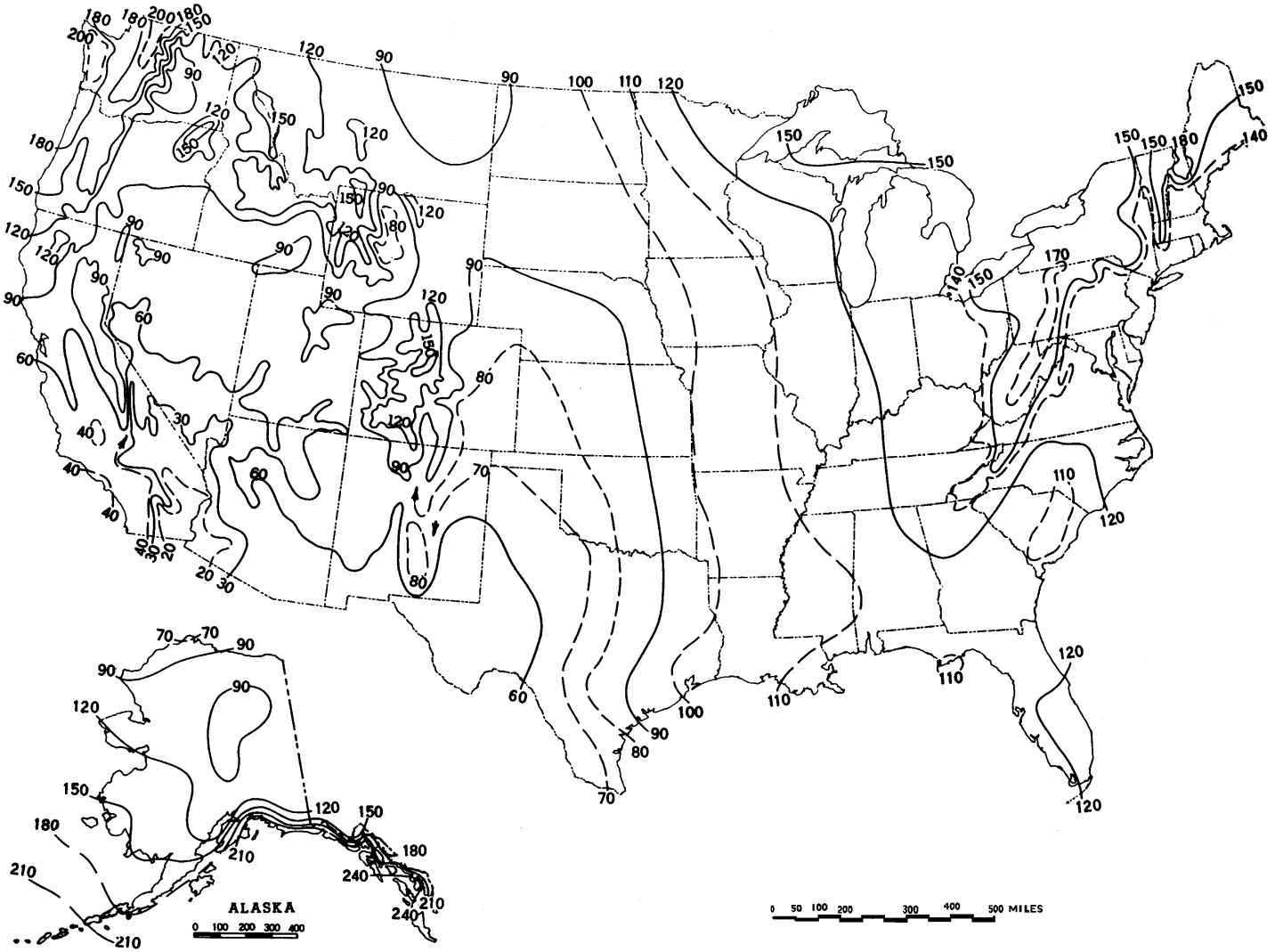


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

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

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

13.2.4.2 Emissions And Correction Parameters

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

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

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

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES[a]

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

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

13.2.4.3 Predictive Emission Factor Equations

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

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

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

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:[11]

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

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

where:

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

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 µm	< 15 µm	< 10 µm	< 5 µm	< 2.5 µm
0.74	0.48	0.35	0.20	0.053[a]

[a] Multiplier for < 2.5 µm taken from Reference 14.

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for

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

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

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

13.2.4.4 Controls[12-13]

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

References For Section 13.2.4

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VOLUME II: CHAPTER 3

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

Final Report

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Prepared by:
Eastern Research Group, Inc.
Post Office Box 2010
Morrisville, North Carolina 27560

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.

NEW MEXICO

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ALAMOGORDO AIRPORT ASOS	KALM	1996-2006	5.1	6.3	7.1	7.9	7.1	6.9	6.1	5.3	5.2	5.2	5.0	5.0	6.0
ALAMOGORDO-HOLLOMAN AFB	KHMN	1996-2006	8.5	9.7	10.6	11.8	10.8	10.6	9.8	9.1	8.8	8.5	8.1	8.3	9.6
ALBUQUERQUE AP ASOS	KABQ	1996-2006	7.0	8.2	9.3	11.1	10.0	10.0	8.7	8.3	8.0	7.9	7.2	6.9	8.5
ALBUQUERQUE-DBLE EAGLE	KAEG	1999-2006	7.1	7.9	9.0	10.6	9.5	8.6	7.0	6.2	7.0	6.5	6.5	6.1	7.7
ARTESIA AIRPORT ASOS	KATS	1997-2006	7.8	9.1	10.1	10.9	10.2	9.9	7.8	6.9	7.6	7.8	7.6	7.4	8.5
CARLSBAD AIRPORT ASOS	KCNM	1996-2006	9.2	9.8	10.9	11.4	10.4	9.9	8.5	7.7	8.2	8.5	8.4	8.8	9.3
CLAYTON MUNI AP ASOS	KCAO	1996-2006	11.9	12.7	13.4	14.6	13.4	13.0	11.7	10.8	11.8	12.1	12.1	12.0	12.4
CLINES CORNERS	KCQC	1998-2006	16.2	16.1	15.7	16.9	14.6	13.5	10.6	10.1	11.8	13.3	15.0	16.0	14.1
CLOVIS AIRPORT AWOS	KCVN	1996-2006	12.3	12.3	13.4	13.8	12.4	11.9	9.7	8.9	9.7	10.9	11.6	12.2	11.6
CLOVIS-CANNON AFB	KCVS	1996-2006	12.5	12.6	13.6	13.8	12.2	12.5	10.7	10.0	10.2	11.3	11.7	12.4	12.0
DEMING AIRPORT ASOS	KDMN	1996-2006	8.7	9.7	10.9	12.0	10.6	10.1	8.9	8.1	8.4	8.2	8.5	8.1	9.3
FARMINGTON AIRPORT ASOS	KFMN	1996-2006	7.3	8.3	9.0	9.8	9.4	9.4	8.7	8.2	8.0	7.8	7.6	7.3	8.4
GALLUP AIRPORT ASOS	KGUP	1996-2006	5.7	6.9	7.8	10.0	9.0	8.8	6.9	6.0	6.5	6.1	5.6	5.3	7.0
GRANTS-MILAN AP ASOS	KGNT	1997-2006	7.8	8.8	9.6	10.9	10.0	9.8	8.1	7.2	7.9	8.4	8.0	7.6	8.7
HOBBS AIRPORT AWOS	KHOB	1996-2006	11.3	11.9	12.6	13.4	12.5	12.3	11.0	10.0	10.2	10.6	10.7	11.1	11.4
LAS CRUCES AIRPORT AWOS	KLRU	2000-2006	6.4	7.5	8.8	10.1	8.7	8.2	6.8	6.0	6.2	6.1	6.4	6.0	7.3
LAS VEGAS AIRPORT ASOS	KLVS	1996-2006	10.9	12.2	12.5	14.3	12.4	11.8	10.0	9.2	10.9	10.8	11.0	10.9	11.4
LOS ALAMOS AP AWOS	KLAM	2005-2006	3.9	5.7	7.5	8.1	7.1	7.3	5.3	4.8	5.7	5.1	4.4	3.2	5.4
RATON AIRPORT ASOS	KRTN	1998-2006	8.9	9.4	10.4	12.2	10.8	10.2	8.4	8.1	8.6	9.0	8.6	8.5	9.4
ROSWELL AIRPORT ASOS	KROW	1996-2006	7.4	8.9	9.9	11.1	10.3	10.2	8.8	7.9	8.3	8.0	7.5	7.3	8.8
RUIDOSO AIRPORT AWOS	KSRR	1996-2006	8.8	9.6	10.0	11.6	10.0	8.4	5.9	5.3	6.4	7.4	7.9	8.7	8.3
SANTA FE AIRPORT ASOS	KSAF	1996-2006	8.9	9.5	9.9	11.2	10.6	10.5	9.2	8.8	8.8	9.1	8.7	8.5	9.5
SILVER CITY AP AWOS	KSVC	1999-2006	8.1	8.7	9.9	10.8	10.2	9.9	8.5	7.2	6.9	7.6	7.9	7.7	8.5
TAOS AIRPORT AWOS	KSKX	1996-2006	5.8	6.5	7.7	9.1	8.6	8.5	7.1	6.6	6.7	6.6	6.0	5.7	7.0
TRUTH OR CONSEQ AP ASOS	KTCS	1996-2006	7.4	8.7	9.9	11.1	10.4	9.8	8.1	7.4	7.7	8.0	7.7	7.3	8.6
TUCUMCARI AIRPORT ASOS	KTCC	1999-2006	10.0	11.2	11.9	13.6	11.9	11.6	9.9	9.3	10.0	10.0	10.4	10.2	10.8

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification		
User Identification:	EMTAsphalt1	
City:	Albuquerque	
State:	New Mexico	
Company:	EMT	
Type of Tank:	Horizontal Tank	
Description:	EMT Asphalt Tank 1	
Tank Dimensions		
Shell Length (ft):		26.00
Diameter (ft):		10.00
Volume (gallons):		15,000.00
Turnovers:		242.80
Net Throughput(gal/yr):		3,642,000.00
Is Tank Heated (y/n):	Y	
Is Tank Underground (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	Aluminum/Specular	
Shell Condition	Good	
Breather Vent Settings		
Vacuum Settings (psig):		0.00
Pressure Settings (psig)		0.00

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

EMTAsphalt1 - Horizontal Tank
Albuquerque, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Asphalt Cement	All	350.00	350.00	350.00	350.00	0.0347	0.0347	0.0347	105.0000			1,000.00	Option 3: A=75350, B=9.00346

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

EMTAsphalt1 - Horizontal Tank
Albuquerque, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	1,300.6594
Vapor Density (lb/cu ft):	0.0004
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9909
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,300.6594
Tank Diameter (ft):	10.0000
Effective Diameter (ft):	18.1992
Vapor Space Outage (ft):	5.0000
Tank Shell Length (ft):	26.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0004
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg. R):	809.6700
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	809.6700
Tank Paint Solar Absorptance (Shell):	0.3900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg R):	809.6700
Daily Min. Liquid Surface Temp. (deg R):	809.6700
Daily Max. Liquid Surface Temp. (deg R):	809.6700
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9909
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0347
Vapor Space Outage (ft):	5.0000
Working Losses (lb):	68.8231
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Annual Net Throughput (gal/yr.):	3,642,000.0000
Annual Turnovers:	242.8000
Turnover Factor:	0.2902
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	68.8231

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

EMTAsphalt1 - Horizontal Tank
Albuquerque, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Asphalt Cement	68.82	0.00	68.82

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification		
User Identification:	EMTAsphalt2	
City:	Albuquerque	
State:	New Mexico	
Company:	EMT	
Type of Tank:	Horizontal Tank	
Description:	EMT Asphalt Tank 2	
Tank Dimensions		
Shell Length (ft):		26.00
Diameter (ft):		10.00
Volume (gallons):		15,000.00
Turnovers:		242.80
Net Throughput(gal/yr):		3,642,000.00
Is Tank Heated (y/n):	Y	
Is Tank Underground (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	Aluminum/Specular	
Shell Condition	Good	
Breather Vent Settings		
Vacuum Settings (psig):		0.00
Pressure Settings (psig)		0.00

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

EMTAsphalt2 - Horizontal Tank
Albuquerque, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Asphalt Cement	All	350.00	350.00	350.00	350.00	0.0347	0.0347	0.0347	105.0000			1,000.00	Option 3: A=75350, B=9.00346

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

EMTAsphalt2 - Horizontal Tank
Albuquerque, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	1,300.6594
Vapor Density (lb/cu ft):	0.0004
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9909
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,300.6594
Tank Diameter (ft):	10.0000
Effective Diameter (ft):	18.1992
Vapor Space Outage (ft):	5.0000
Tank Shell Length (ft):	26.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0004
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg. R):	809.6700
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	809.6700
Tank Paint Solar Absorptance (Shell):	0.3900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg R):	809.6700
Daily Min. Liquid Surface Temp. (deg R):	809.6700
Daily Max. Liquid Surface Temp. (deg R):	809.6700
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9909
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0347
Vapor Space Outage (ft):	5.0000
Working Losses (lb):	68.8231
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Annual Net Throughput (gal/yr.):	3,642,000.0000
Annual Turnovers:	242.8000
Turnover Factor:	0.2902
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	68.8231

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

EMTAsphalt2 - Horizontal Tank
Albuquerque, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Asphalt Cement	68.82	0.00	68.82

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification		
User Identification:	EMTAsphalt3	
City:	Albuquerque	
State:	New Mexico	
Company:	EMT	
Type of Tank:	Horizontal Tank	
Description:	EMT Asphalt Tank 3	
Tank Dimensions		
Shell Length (ft):		26.00
Diameter (ft):		10.00
Volume (gallons):		15,000.00
Turnovers:		242.80
Net Throughput(gal/yr):		3,642,000.00
Is Tank Heated (y/n):	Y	
Is Tank Underground (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	Aluminum/Specular	
Shell Condition	Good	
Breather Vent Settings		
Vacuum Settings (psig):		0.00
Pressure Settings (psig)		0.00

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

EMTAsphalt3 - Horizontal Tank
Albuquerque, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Asphalt Cement	All	350.00	350.00	350.00	350.00	0.0347	0.0347	0.0347	105.0000			1,000.00	Option 3: A=75350, B=9.00346

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

EMTAsphalt3 - Horizontal Tank
Albuquerque, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	1,300.6594
Vapor Density (lb/cu ft):	0.0004
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9909
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,300.6594
Tank Diameter (ft):	10.0000
Effective Diameter (ft):	18.1992
Vapor Space Outage (ft):	5.0000
Tank Shell Length (ft):	26.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0004
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg. R):	809.6700
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	809.6700
Tank Paint Solar Absorptance (Shell):	0.3900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0347
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0347
Daily Avg. Liquid Surface Temp. (deg R):	809.6700
Daily Min. Liquid Surface Temp. (deg R):	809.6700
Daily Max. Liquid Surface Temp. (deg R):	809.6700
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9909
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0347
Vapor Space Outage (ft):	5.0000
Working Losses (lb):	68.8231
Vapor Molecular Weight (lb/lb-mole):	105.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0347
Annual Net Throughput (gal/yr.):	3,642,000.0000
Annual Turnovers:	242.8000
Turnover Factor:	0.2902
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	68.8231

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

EMTAsphalt3 - Horizontal Tank
Albuquerque, New Mexico

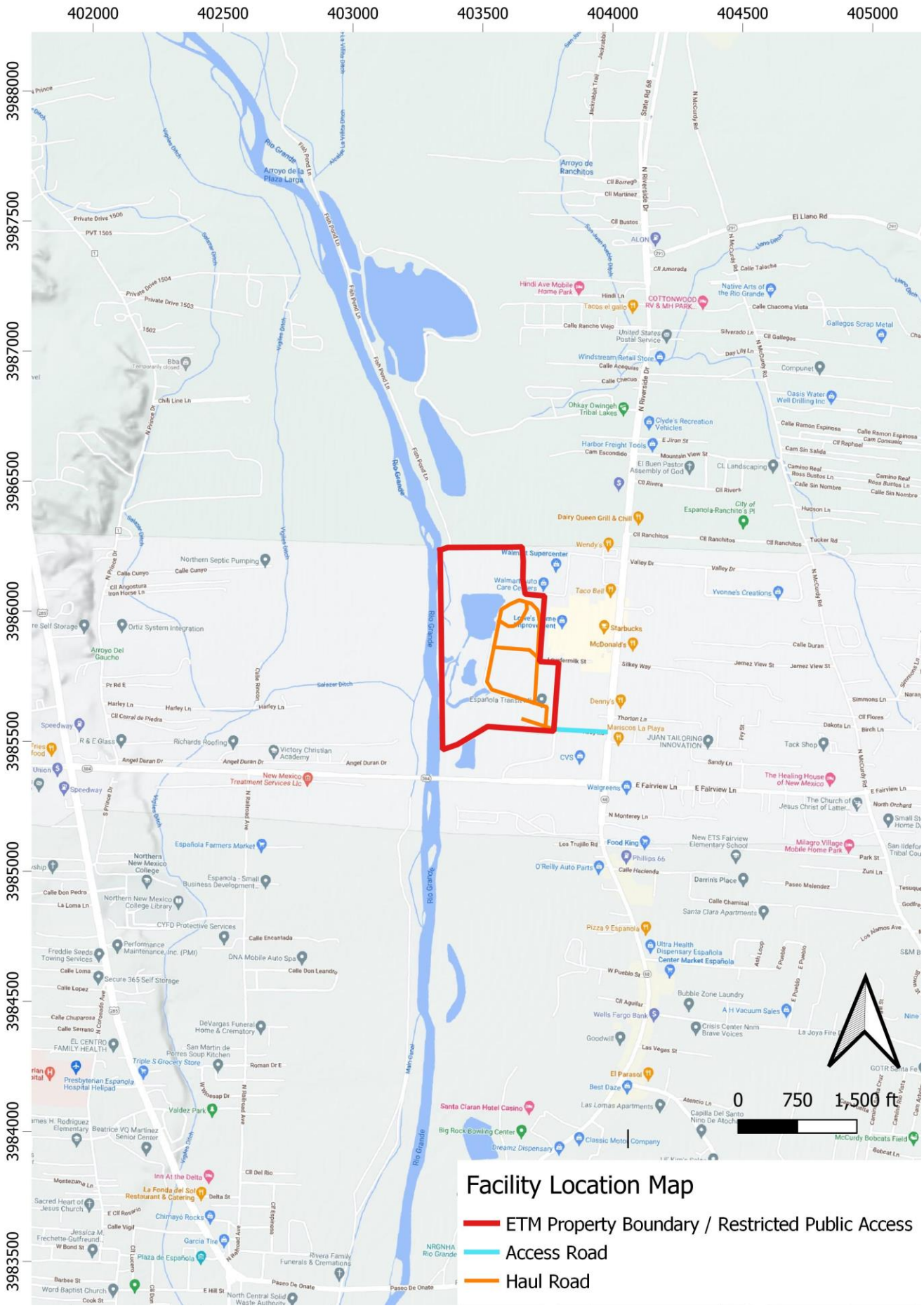
	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Asphalt Cement	68.82	0.00	68.82

Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	


402000
402500
403000
403500
404000
404500
405000
3988000
3987500
3987000
3986500
3986000
3985500
3985000
3984500
3984000
3983500
Facility Location Map
ETM Property Boundary / Restricted Public Access
Access Road
Haul Road
0
750
1,500 ft

Section 9

Proof of Public Notice

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

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

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

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

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

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

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


390000
395000
400000
405000
410000
4000000
3996000
3992000
3988000
3984000
3980000
3976000
3972000
3968000
Facility Location Map
ETM Property Boundary / Restricted Public Access
Google Hybrid
0
1
2 mi
NOSA Restaurant and Inn
West Park Parkway
Los Luceros Historic Site
Los Luceros
La Villita
Dollar General
Chili
Chevron
Alcalde
Guique
Chamita Community Center
Chamita
Delancey Street Foundation
Socorro's
Hernandez
Family Dollar
OHKAY OWINGEH
Ohkay Owingeh
San Jose
Ohkay Hotel Casino
Walmart Supercenter
El Llano
Española Valley High School
Santa Clara Hotel Casino
El Parasol
Southwest Cannabis
Española
Santa Cruz
Cuartelez
La Puebla
Northern Rio Grande Sporting Club
Sombrillo
New Mexico Wildlife Center
SANTA CLARA PUEBLO
Santa Clara Pueblo
Black Mesa Golf Club
El Valle De Arroyo Seco
LifeWater Water Well Services
PUYE CLIFFS WELCOME CENTER
La Mesilla
Black Mesa Kennels
Arroyo Seco Road Start - Santa Fe County
Capilla de la Sagrada Familia
Nambe Dairy - Scenic Viewpoint temporarily closed
Nambé Badlands Trailhead
San Ildefonso Pueblo Senior Center
San Ildefonso Pueblo
El Rancho
SAN ILDEFONSO PUEBLO
Totah Phillips 66
Otowi Bridge
Pojoaque
El Parasol
Poeh Museum & Cultural Center
Pojoaque Valley High School
Nambé
San Francisco De Assisi Church
3A Pohuu U Poe Santa Fe, NM 87506
Cuyamungue
Buffalo Thunder Resort Casino
Gabriel's

Municipalities, Counties, Indian Tribes within 10 Miles

- City of Espanola
  Jordan Yutzy
  City Manager
  City of Española
  405 N. Paseo de Oñate
  Española, NM 87532

- Rio Arriba County
  Linda Padilla
  County Clerk
  149 State Rd. 162
  Tierra Amarilla, NM 87575

- Santa Fe County
  Katharine Clark
  County Clerk
  100 Catron Street
  Santa Fe, New Mexico 87501

- Ohkay Owingeh
  Governor Joseph P. Aguino
  P.O. Box 1099
  San Juan Pueblo, NM 87566
  Phone: (505) 852-4400

- Pueblo of Pojoaque
  Governor Jenelle Roybal
  Pueblo of Pojoaque
  78 Cities of Gold Road
  Santa Fe, NM 87506
  Phone: (505) 455-4500

- Pueblo of San Ildefonso
  Governor Christopher Moquino
  02 Tunyo Po
  Santa Fe, NM 87506
  Phone: (505) 455-2273

- Pueblo of Santa Clara
  Governor J. Michael Chavarria
  P.O. Box 580
  Espanola, NM 87532
  Phone: (505) 753-7330

- Pueblo of Nambe
  Governor Nathaniel Porter
  15A NP102 West
  Santa Fe, NM 87506
  Phone: (505) 455-2036

Neighbor List Within 100 Feet

- Walmart Stores East Limited Partnership (9)
  PO Box 8050
  Attn: MS 0555
  Bentonville, AR 72712-8050

- El Llano Development Company (10)
  1302 North Riverside Drive
  Espanola, NM 87532

- Martinez Property Holding, Inc. (11)
  4611 Rio Grande Lane NW
  Albuquerque, NM 87107

- Agree Western LLC (12)
  PO Box 460389
  Dep 125
  Houston, TX 77056

- North Bridge Plaza, LLC (13)
  1302 North Riverside Drive
  Espanola, NM 87532

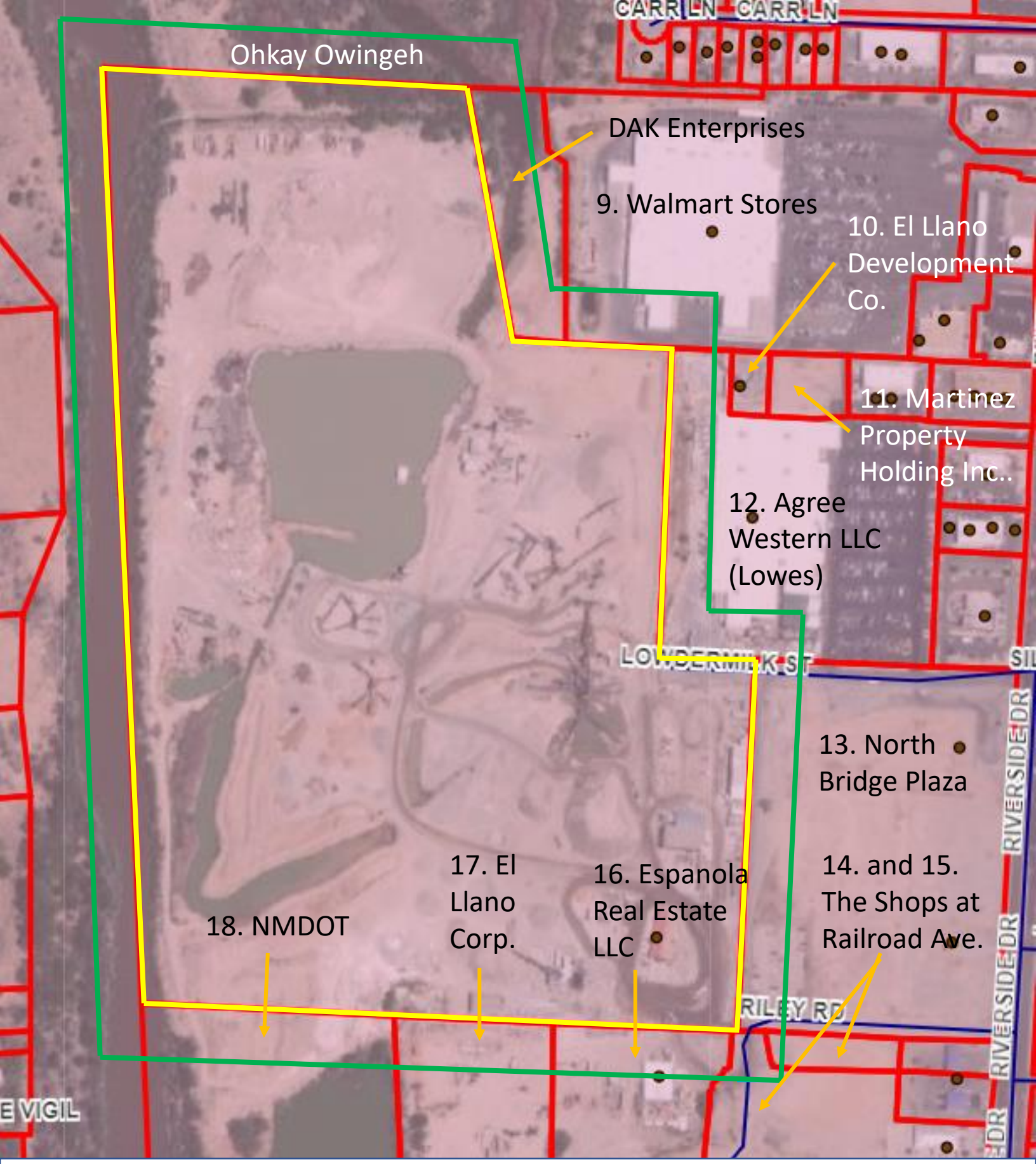
- The Shops @ Railroad Ave., LLC (14, 15)
  1302 North Riverside Drive
  Espanola, NM 87532

- Espanola Merc Real Estate LLC (16)
  1302 North Riverside Drive
  Espanola, NM 87532

- El Llano Corp (17)
  1302 North Riverside Drive
  Espanola, NM 87532

- New Mexico State Highway Department (18)
  PO Box 1149
  Santa Fe, NM 87503

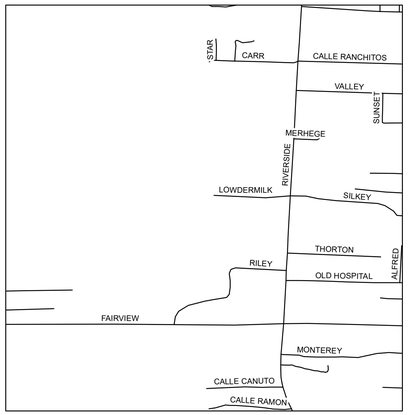
- Dak Partnership, LLC
  1302 North Riverside Drive
  Espanola, NM 87532



Espanola Transit Mix, LLC (ETM) Asphalt Plant #6
Properties Within 100 feet of the Facility Boundary

ETM Property Boundary

100 ft. buffer



RIO ARRIBA COUNTY ASSESSOR'S OFFICE
LEVI VALDEZ JR., ASSESSOR
MAPPING/GIS DEPARTMENT
1122 INDUSTRIAL PARK ROAD
ESPANOLA, NEW MEXICO 87532
(505) 753-7019

DISCLAIMER

NOTE:
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ADDRESSING INFORMATION SHOWN HEREIN IS PROVIDED BY RIO ARRIBA COUNTY PLANNING AND ZONING DEPARTMENT OR THE CITY OF ESPANOLA PLANNING AND ZONING OR TH PUEBLO OF OHKAY OWINGEH. FOR FURTHER INFORMATION, PLEASE CONTACT THE APPROPRIATE ENTITY.


OAK
North Bridge
Plaza, LLC

9

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address 1610 N RIVERSIDE DR

City ESPANOLA

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-185-488

Legal Summary S: 35 T: 21N R: 08E 14.74 AC.
FAIRVIEW NW1/4
BK/PG 161/592-593,197/619-621,429/652-653,484/616-619.
PLAT P-1202/5941.

Account Number R021633

Owners

WALMART STORES EAST LIMITED PARTNERSHIP

Owner Name WALMART STORES EAST LIMITED PARTNERSHIP

Owner Address PO BOX 8050
ATTN: MS 0555
BENTONVILLE, AR 72712-8050

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$6,671,516		$14.12	$6,671,516
Land 1	$435,600		$10.00	
Land 2	$1,106,070		$80,500.00	
Commercial	$4,576,413			
Extra Feature 1	$13,200		$1,200.00	
Extra Feature 2	$3,920		$980.00	
Extra Feature 3	$536,313		$1.25	

Value Info

Actual Value (2021) $7,522,942

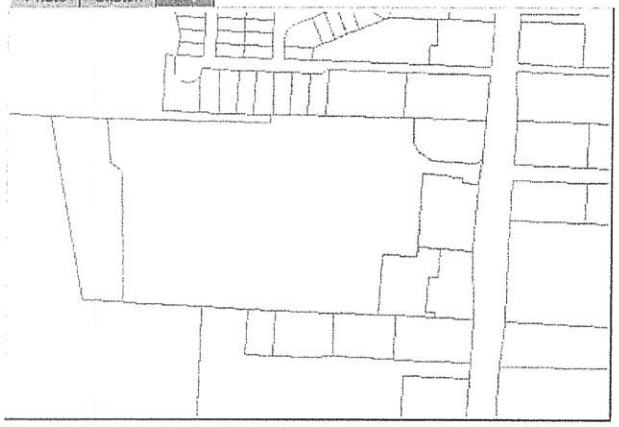
Primary Taxable $2,507,648

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres	SQFT	Units
1201	$1,106,070	$368,690	13.740		
1205	$435,600	$145,200	1.000		
2201	$553,433	$184,478		429050.000	15.000
2202	$5,427,839	$1,809,280		154024.000	

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	MARKED PHOTOS AS CONFIDENTIAL PLS	08/17/2021
	AFTER GOING OVER ACCOUNT CORRECTED GRADE ON BUILDING SINCE IT WAS REMODELED IN 2017 AND ALSO CORRECTED YEAR BUILT TO 2002 PLS	09/16/2019
	CORRECTED TAX DISTRICTS ON EXTRA FEATURES PLS	08/15/2019
	FIELD VERIFIED ON 1-24-19 ADDED PICKUP SERVICE SO PARKING PLACES GOT RESTRIPED AND SIGNS ADDED PLS	01/25/2019

Tax Summary

Tax Year	Taxes
*2023	$94,738.96
2022	$94,738.96

* Estimated

10

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-176-449

Legal Summary S: 35 T: 21N R: 08E 0.33 AC.
"RADIO CELL TOWER"
TRACT B-3A
FAIRVIEW NW1/4
BK/PG
164/191,318/629-631,483/198,537/2256,537/2488,538/5769,539/389,539/390,
PLAT D-1/140, U-1/031, V-1/193, W-1/092

Account Number R021652

Owners

EL LLANO DEVELOPMENT COMPANY, LLC

Owner Name EL LLANO DEVELOPMENT COMPANY, LLC.

Owner Address 1302 NORTH RIVERSIDE DRIVE
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$143,740		$10.00	$143,740
Land	$143,740		$10.00	

Value Info

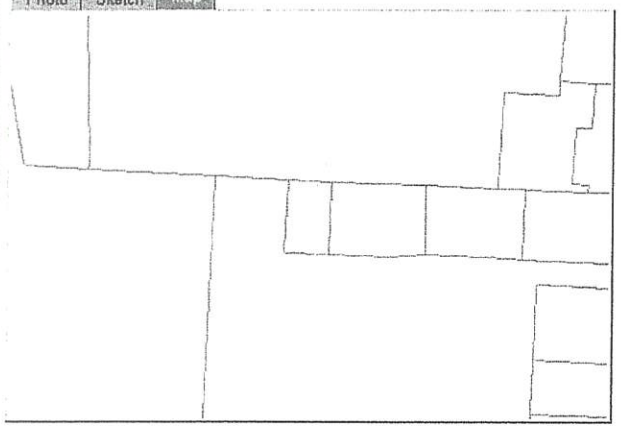
Actual Value (2022)	$143,740
Primary Taxable	$47,913

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres
1205	$143,740	$47,913	0.330

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	UPDATED ADDRESS AS PER EMAIL REQUEST-ALU	01/06/2022
	FIELD VERIFIED ON 9-9-21 CORRECTED LAND CODE AND ADDED PHOTO TO ACCOUNT PLS	09/13/2021
	ADJUSTED ACREAGE PER SURVEY U-1/031, FROM 1.84AC TO 1.738 AC -DG	07/03/2014
	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/08/2014
	REMOVED TRACT B-3B PER WARRANTY DEED FILED IN BK 539 PG 4975, ALSO CHANGED PARCEL NUMBER 1-047-121-198-449 TO 1-047-121-176-449, AND ADJUSTED ACREAGE FROM 1.738 AC TO	

Tax Summary

	Tax Year	Taxes
	*2023	$1,810.16
	2022	$1,810.16

* Estimated

11

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR - 55_IN_NR

Parcel Number 1-047-121-193-449

Legal Summary S: 35 T: 21N R: 08E 0.70 AC.
TRACT B-3B-1
ESPANOLA W1/2
BK/PG 539/4975,
PLAT W-1/092, X-1/086, A-2/116,

Account Number R046496

Owners

MARTINEZ PROPERTY HOLDING, INC

Owner Name MARTINEZ PROPERTY HOLDING, INC

Owner Address 4611 RIO GRANDE LANE NW
ALBUQUERQUE, NM 87107

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$218,030		$10.01	$218,030
Land 1	$217,800		$10.00	
Land 2	$230		$1,150.00	

Value Info

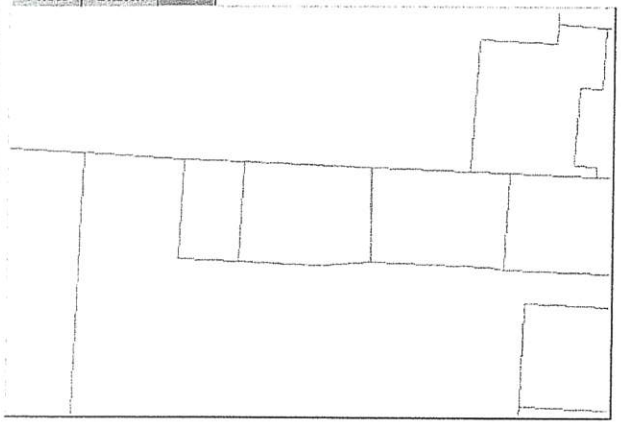
Actual Value (2022)	$218,030
Primary Taxable	$72,677

Tax Area: 55_IN_NR Mill Levy: 36.780000

Type	Actual	Assessed	Acres
1201	$217,800	$72,600	0.500
1204	$230	$77	

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Private)	6-2-21 AFTER GOING OVER ACCOUNT AND TALKING TO LAND OWNER GAVE HIM .20 ACRES OF WASTE LAND DUE TO UTILITY EASEMENTS GOING THROUGH PROPERTY PLS	06/02/2021
	CREATED NEW ACCT FOR TAX YEAR 2020, AS PER REFERENCED TRACT B-3B-1, AS PER LOT SPLIT / BOUNDARY SURVEY FILED IN A-2/116. SENT AMENDED 2020 NOTICE OF VALUE. -DESIREE	09/14/2020

Tax Summary

Tax Year	Taxes
*2023	$2,673.08
2022	$2,673.08

* Estimated

12

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-187-412

Legal Summary Tract: A-1A Tract: A-1A S: 35 T: 21N R: 08E 10.34 AC. ESPANOLA W1/2
BK/PG 483/196,537/2257,537/2259,542/2822,542/2823,544/6095,
PLAT C-1/143, D-1/140, U-1/019, Z-1/099,

Account Number R038346

Owners

AGREE WESTERN LLC

Owner Name AGREE WESTERN LLC
In Care Of Name RYAN LLC
Owner Address PO BOX 460389
DEPT 125
HOUSTON, TX 77056

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$6,049,057		$32.42	$6,049,057
Land 1	$435,600		$10.00	
Land 2	$857,132		$91,770.02	
Extra Feature 1	$89,760		$32.00	
Extra Feature 2	$240,000		$1.71	
Extra Feature 3	$7,200			
Extra Feature 4	$3,920			

Value Info

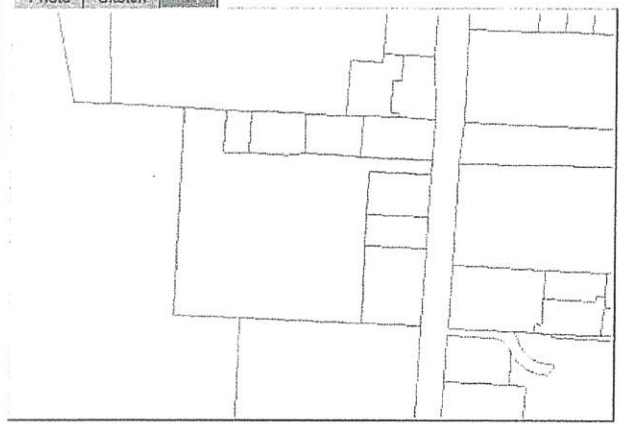
Actual Value (2022)	$6,338,595
Primary Taxable	$2,112,866

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres	SQFT
1201	$857,132	$285,711	9.340	
1205	$435,600	$145,200	1.000	
2201	$340,880	$113,627		143005.000
2202	$4,704,983	$1,568,328		

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	LORENA MIRKOVIC FROM RYAN LLC CALLED AND UPDATED THE ADDRESS FROM 70 E. LONG LAKE ROAD BLOOMFIELD HILLS, MI 48304 TO PO BOX 460389 DEPT.125 HOUSTON, TX 77056. I ALSO ADDED A PHONE NUMBER AND AN EMAIL ADDRESS. S.A.P	12/07/2021
	UPDATED NEW OWNERSHIP DBV	11/29/2021
	ADJUSTED GRADE ON BUILDING AND ADJUSTMENT ON LAND DUE TO PARKING LOT BEING IN BAD SHAPE GRADE ON BUILDING WAS CHANGED AFTER REFERENCING M&S MANUAL PLS	06/02/2021

Tax Summary

Tax Year	Taxes
*2023	$79,824.08
2022	$79,824.08

* Estimated

13

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address 1300 N RIVERSIDE DR

City ESPANOLA

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-200-340

Legal Summary S: 35 T: 21N R: 08E 13.80 AC.
TRACT B
ESPANOLA W1/2
BK/PG
123-A/204,138/147,195/520-531,483/195,496/131-134,500/261,532/1488,541/596
PLAT C-1/143, D-1/140, Z-1/097.

Account Number R021036

Owners

~~COOK & SCARBOURGH PARTNERSHIP~~

Owner Name ~~COOK & SCARBOURGH PARTNERSHIP~~ North Bridge Plaza, LLC

Owner Address 1302 NORTH RIVERSIDE DRIVE
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$1,015,600		$21.71	$1,015,600
Land 1	$435,600		$10.00	
Land 2	$576,000		$45,000.00	
Extra Feature	$4,000		$1.25	

Value Info

Actual Value (2021)	$1,413,156
Primary Taxable	$471,051

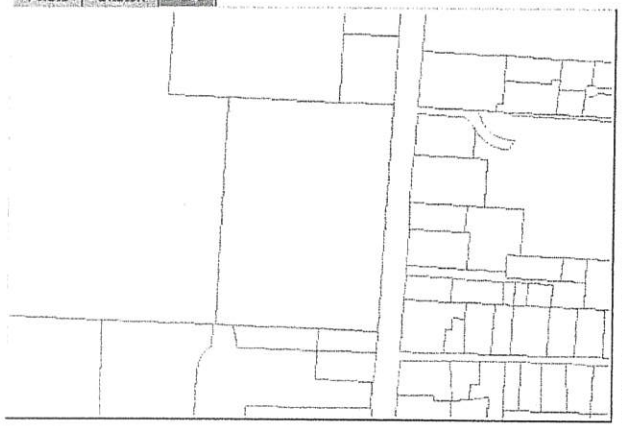
Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres	SQFT
1201	$915,015	$305,005	12.800	
1205	$452,788	$150,929	1.000	3200.000
2202	$43,231	$14,410		

Tax Area: 55_IN_R_U_RGWS Mill Levy: 27.460000

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	UPDATED ADDRESS AS PER EMAIL REQUEST-ALU	01/10/2022
	FIELD VERIFIED ON 9-10-21 VACANT LAND TOOK CONVERSION OVERRIDES OFF CORRECTED LAND CODE AND ADDED PHOTOS PLS	09/14/2021
	FOR 2020, ADJUSTED ACREAGE 14.01AC TO 13.80AC., REFERENCED TRACT B, AS PER ALTA/NSPS BOUNDARY SURVEY FILED IN Z-1/097. -DESIREE	07/18/2019
	I ATTACHED THE PROTEST SIGNED AFFIRMING THE WITHDRAWL OF THE PROTEST. TO THE DOCUMENTS UNDER THE 2016 PROTEST. S.A.P	12/01/2016

Tax Summary

Tax Year	Taxes
*2023	$17,789.00
2022	$17,789.00

* Estimated

14

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-212-286

Legal Summary S: 35 T: 21N R: 08E 0.60 AC
FAIRVIEW NW1/4
BK/PG 120-A/773,309/340,537/3746.

Account Number R021600

Owners

THE SHOPS @ RAILROAD AVE, LLC

Owner Name THE SHOPS @ RAILROAD AVE, LLC

Owner Address 1302 N. RIVERSIDE DR.
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$56,100		$93,500.00	$56,100
Land	$56,100		$93,500.00	

Value Info

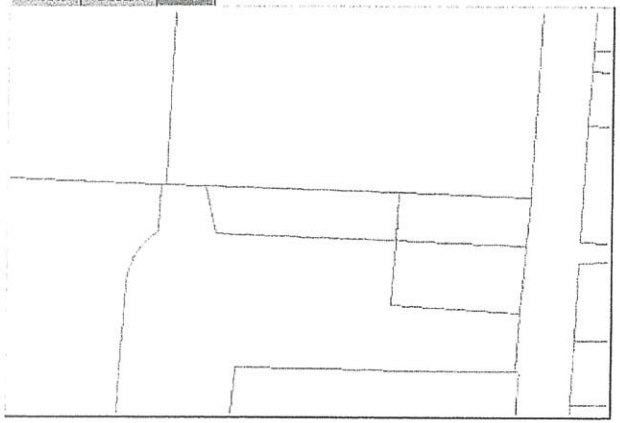
Actual Value (2022)	$63,140
Primary Taxable	$21,047

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres
1205	$63,140	$21,047	0.600

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	CHANGED MAILING ADDRESS AS PER OWNERS REQUEST, SEE DOCUMENTS -DESIREE	01/24/2020
	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/08/2014

Tax Summary

	Tax Year	Taxes
	*2023	$795.16
	2022	$795.16

* Estimated

15 same as 14 - only do 1 notice

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address 1206 RIVERSIDE DR

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-204-268

Legal Summary S: 35 T: 21N R: 08E 3.103 TOTAL AC.,
PARCELS, 3, 7, 8
ESPANOLA NW1/4,
BK/PG 195/28,195/33-35,535/5748,535/5749,539/2246,542/2979,
PLAT D-15/744,
. IMPROVEMENT BEING ASSESSED ON R021615

Account Number R045296

Owners

THE SHOPS AT RAILROAD AVENUE LLC

Owner Name THE SHOPS AT RAILROAD AVENUE LLC

Owner Address 1302 N. RIVERSIDE DRIVE
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$152,047		$49,000.00	$152,047
Land	$152,047		$49,000.00	

Value Info

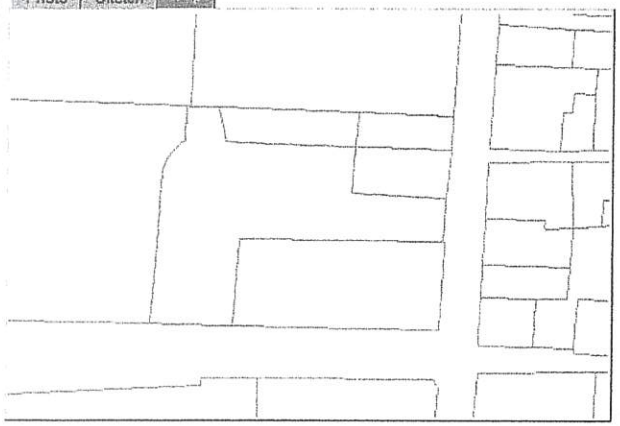
Actual Value (2022)	$166,145
Primary Taxable	$55,382

Tax Area: 55_IN_NR_U_RGWS **Mill Levy:** 37.780000

Type	Actual	Assessed	Acres
1205	$166,145	$55,382	3.103

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	CHANGED MAILING ADDRESS AS PER OWNERS REQUEST. SEE DOCUMENTS -DESIREE	01/24/2020
	CHANGED PARCEL FROM 1-047-121-230-262 TO 1-047-121-204-268 TO MATCH ASSESSMENT MAP -DG	09/16/2014
	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/21/2014
	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/08/2014

Tax Summary

Tax Year	Taxes
*2023	$2,092.32
2022	$2,092.32

* Estimated

16

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-138-268

Legal Summary S: 35 T: 21N R: 08E 2.65 AC.
FAIRVIEW W1/2
BK/PG 537/1364,541/5757,542/545,542/1280,542/1281,
PLAT D-015/744,
FRITO LAY STORAGE

Account Number R021621

Owners

ESPANOLA MERC REAL ESTATE LLC

Owner Name ESPANOLA MERC REAL ESTATE LLC

Owner Address 1302 N. RIVERSIDE DR
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$187,377		$70,708.30	$187,377
Land	$121,002		$45,661.13	
Commercial	$66,375			

Value Info

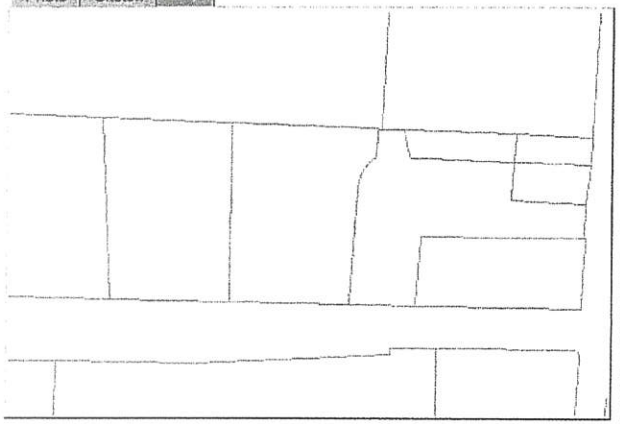
Actual Value (2022)	$210,895
Primary Taxable	$70,298

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres
1205	$136,189	$45,396	2.650
2202	$74,706	$24,902	

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	CHANGED MAILING ADDRESS AS PER OWNERS REQUEST. SEE DOCUMENTS -DESIREE	01/24/2020
	I UPDATED RECEPTION NUMBER AND ADDED WD TO THE LEGAL NEXT TO BOOK AND PAGE. I ALSO HAD TO UPDATE LOCATION TO ESPANOLA ON SALES DATA. S.A.P	10/05/2016

Tax Summary

	Tax Year	Taxes
	*2023	$2,655.84
	2022	$2,655.84

* Estimated

17

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-108-268

Legal Summary S: 35 T: 21N R: 08E 4.76 AC
FAIRVIEW W1/2
BK/PG 127/758,163/679-680,203-A/57-58,323/824-825,
PLAT D-015/744,

Account Number R021646

Owners

EL LLANO CORP

Owner Name EL LLANO CORP

Owner Address 1302 NORTH RIVERSIDE DRIVE
ESPANOLA, NM 87532

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$104,718		$21,999.58	$104,718
Land	$104,718		$21,999.58	

Value Info

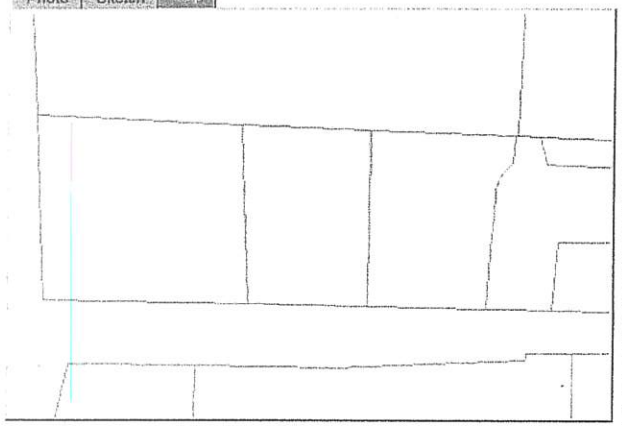
Actual Value (2022)	$117,862
Primary Taxable	$39,287

Tax Area: 55_IN_NR_U_RGWS Mill Levy: 37.780000

Type	Actual	Assessed	Acres
1201	$117,862	$39,287	4.760

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2016
(Private)	UPDATED ADDRESS AS PER EMAIL REQUEST-ALU	01/06/2022
	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/08/2014

Tax Summary

Tax Year	Taxes
*2023	$1,484.28
2022	$1,484.28

* Estimated

18

Summary | Account | Owners | Models | Documents | Sales | Value | Tax | GIS | Comparables

As of Jan 1, 2023

Location

Situs Address

City

Tax Area 55_IN_NR_U_RGWS - 55_IN_NR_U_RGWS

Parcel Number 1-047-121-056-268

Legal Summary S: 35 T: 21N R: 08E 7.52 AC. FAIRVIEW NW1/4

Account Number R021647

Owners

~~STATE HWY. DEPT.~~

Owner Name ~~STATE HWY. DEPT.~~ New Mexico Dept of Transportation District 5

Owner Address PO BOX 1149
SANTA FE, NM 87503

Model Summary

	Cost	Override	Cost/sqft	Reconciled Value
Account Value	$350,799		$46,648.80	$350,799
Land	$350,799		$46,648.80	

Value Info

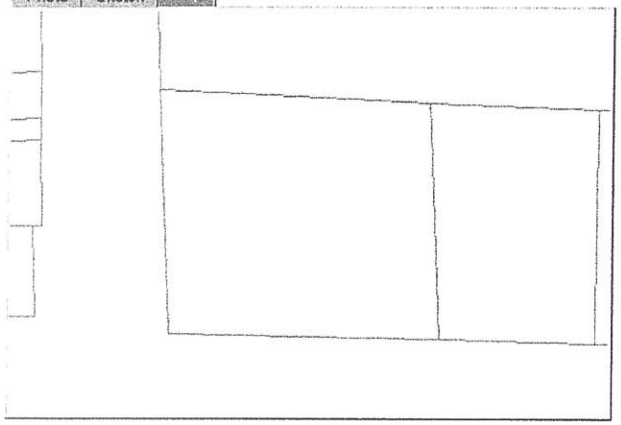
Actual Value (2022)	$350,799
Primary Taxable	$116,933
Exempt	($116,933)
Adjusted Taxable Total	$0

Tax Area: 55_IN_NR Mill Levy: 36.780000

Type	Actual	Assessed	Acres
9278	$350,799	$116,933	7.520

Photo/Sketch/Map

Photo | Sketch | Map



Remarks

Account Remarks

(Public)	THE UPPER RIO GRANDE WATERSHED DISTRICT (URGWSD) WAS FIRST CREATED BY REFERENDUM OF MEMBER LANDOWNERS IN 1962. A MILL LEVY HAS BEEN IMPLEMENTED FOR THESE LANDS THAT FALL WITHIN THE URGWS DISTRICT, PER NEW MEXICO STATUTES ANNOTATED (NMSA): 73-20.	03/10/2015
(Private)	IMPORTED SCANNED IMAGES ONLY NO VALUES CHANGED TM	01/08/2014

Tax Summary

Tax Year	Taxes
*2023	$0.00
2022	$0.00

* Estimated

December 8, 2022

ADDRESS HERE

To whom it may concern:

Espanola Transit Mix, LLC (ETM) announces its application to the New Mexico Environment Department for an air quality permit for the construction of its hot mix asphalt facility. The date of application submittal to the Air Quality Bureau was November 22, 2022. This revised public notice has been issued to update the total emissions from the hot mix asphalt facility.

The exact location for the proposed facility known as, HMA Plant #6, will be at 1302 North Riverside Drive Espanola, NM 87532 at latitude 36° deg, 00 min, 50 sec and longitude -106° deg, 04 min, 7.5 sec. The approximate location of this facility is 0.4 miles northwest of the intersection of Fairview Lane and North Riverside Drive in Rio Arriba County.

The proposed construction under regulation 20.2.72.200.A.(1) NMAC, consists of a 230 ton per hour (TPH) hot mix asphalt drum mix plant. Construction of the new plant would replace the older less efficient existing asphalt plant presently located at the ETM site.

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

Pollutant:	Pounds per hour	Tons per year
PM_{10}	12.1	19.9
$PM_{2.5}$	6.27	11.3
Sulfur Dioxide (SO_2)	0.79	1.45
Nitrogen Oxides (NO_x)	6.26	12.1
Carbon Monoxide (CO)	30.8	56.8
Volatile Organic Compounds (VOC)	11.4	21.0
Total sum of all Hazardous Air Pollutants (HAPs)	1.24	2.28
Toxic Air Pollutant (TAP)	2.83	5.2
Green House Gas Emissions as Total CO_2e	n/a	<75,000 tpy CO2e

The maximum operating schedule for the months of December – February is 7 AM to 5 PM. The maximum operating schedule for the rest of the year is any hours out of a 24-hour calendar day with a restriction of 2,300 tons per day production, and 7 days a week, for a maximum annual operating hour total of 3650 hours per year.

The owner and/or operator of the Facility is:

Espanola Transit Mix, LLC
1302 North Riverside Drive
Espanola, NM 87532

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-372-8373.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Sincerely

Matt Lane
Espanola Transit Mix, LLC

AIR QUALITY MAILING LIST & ADDRESSES

Dak Partnership, LLC
1302 N. Riverside Drive
Espanola, NM 87532

Walmart Stores East Limited Partnership
PO Box 8050
Bentonville, AR 72712-8050
Attn: MS 0555

El Llano Development Company, LLC
1302 N. Riverside Drive
Espanola, NM 87532

Martinez Property Holding, INC.
4611 Rio Grande Lane NW
Albuquerque NM, 87107

Agree Western, LLC
In Care of Ryan LLC
PO Box 460389
Houston, TX 77056
Attn: Dept. 125

North Bridge Plaza, LLC
1302 N. Riverside Drive
Espanola, NM 87532

The Shops at Railroad Ave., LLC
1302 N. Riverside Drive
Espanola, NM 87532

Espanola Merc. Real Estate, LLC
1302 N. Riverside Drive
Espanola, NM 87532

El Llano Corp.
1302 N. Riverside Drive
Espanola, NM 87532

New Mexico Department of Transportation
District 5
PO Box 1149
Santa Fe, NM 87503

City of Espanola
Jordan Yutzy
City Manager
405 N. Paseo de Oñate
Española, NM 87532

Rio Arriba County
Linda Padilla
County Clerk
149 State Rd. 162
Tierra Amarilla, NM 87575

Santa Fe County
Katharine Clark
County Clerk
100 Catron Street
Santa Fe, New Mexico 87501

Ohkay Owingeh
Governor Joseph P. Aguino
P.O. Box 1099
San Juan Pueblo, NM 87566
Phone: (505) 852-4400

Pueblo of Pojoaque
Governor Jenelle Roybal
Pueblo of Pojoaque
78 Cities of Gold Road
Santa Fe, NM 87506
Phone: (505) 455-4500

Pueblo of San Ildefonso
Governor Christopher Moquino
02 Tunyo Po
Santa Fe, NM 87506
Phone: (505) 455-2273

Pueblo of Santa Clara
Governor J. Michael Chavarria
P.O. Box 580
Espanola, NM 87532
Phone: (505) 753-7330

Pueblo of Nambe
Governor Nathaniel Porter
15A NP102 West
Santa Fe, NM 87506
Phone: (505) 455-2036

7022 0410 0001 0178 3202

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60
Total Postage and Fees $4.60

0732 01
ESPANOLA NM 87532 MAIN POST OFFICE DEC - 8 2022
Postmark Here
12/08/2022

Sent To: WalMart Stores East Limited Partnership
Attn: MS 0555
Street and Apt. No., or PO Box No.: PO Box 8050
City, State, ZIP+4®: Bentonville, AR 72712-8050

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

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Espanola NM 87532

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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60
Total Postage and Fees $4.60

0732 01
ESPANOLA NM 87532 MAIN POST OFFICE DEC - 8 2022
Postmark Here
12/08/2022

Sent To: Dak Partnership, LLC
Street and Apt. No., or PO Box No.: 1302 N. Riverside Drive
City, State, ZIP+4®: Espanola, NM 87532

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

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- Return Receipt (electronic) $0.00
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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60
Total Postage and Fees $4.60

0732 01
ESPANOLA NM 87532 MAIN POST OFFICE DEC - 8 2022
Postmark Here
12/08/2022

Sent To: Governor Michael Chavarria
Pueblo of Santa Clara
Street and Apt. No., or PO Box No.: PO Box 580
City, State, ZIP+4®: Espanola, NM 87532

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

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Santa Fe, NM 87506

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- Return Receipt (hardcopy) $0.00
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60
Total Postage and Fees $4.60

0732 01
ESPANOLA NM 87532 MAIN POST OFFICE DEC - 8 2022
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Sent To: Governor Nataniel Porter
Pueblo of Nambe
Street and Apt. No., or PO Box No.: 15A NP 102 West
City, State, ZIP+4®: Santa Fe, NM 87506

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- Adult Signature Restricted Delivery $

Postage $0.60
Total Postage and Fees $4.60

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Sent To: Governor Jenelle Roybal
Pueblo of Pojoaque
Street and Apt. No., or PO Box No.: 78 Cities of Gold Road
City, State, ZIP+4®: Santa Fe, NM 87506

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- Adult Signature Required $0.00
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Postage $0.60
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Sent To: Governor Christopher Moquino
Pueblo of San Ildefonso
Street and Apt. No., or PO Box No.: 02 Tunyo Po
City, State, ZIP+4®: Santa Fe , NM 87506

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DEC - 8 2022 POST OFFICE TIERRA AMARILLA NM 87575

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12/08/2022

Sent To: County Clerk Linda Padilla
Rio Arriba County
Street and Apt. No., or PO Box No.: 1149 State Rd 162 PO Box No.
City, State, ZIP+4®: Tierra Amarilla, NM 87575

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

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- Adult Signature Required $0.00
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Postage $0.60

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12/08/2022

Sent To: City Manager Jordan Yutzy
City of Espanola
Street and Apt. No., or PO Box No.: 405 N. Paseo De Onate
City, State, ZIP+4®: Espanola, NM 87532

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

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Ohkay Owingeh, NM 87566

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Postage $0.60

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12/08/2022

Sent To: Governor Joseph P. Aguino
Ohkay Owingeh
Street and Apt. No., or PO Box No.: PO Box 1099
City, State, ZIP+4®: Ohkay Owingeh, NM 87566

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

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Santa Fe, NM 87501

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Postage $0.60

Total Postage and Fees $4.60

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SANTA FE NM 87501 DEC - 8 2022

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12/08/2022

Sent To: County Clerk Katharine Clark
Santa Fe County
Street and Apt. No., or PO Box No.: 100 Catron Street
City, State, ZIP+4®: Santa Fe, NM 87501

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Postage $0.60

Total Postage and Fees $4.60

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Sent To: El Llano Development Company, LLC
1302 N. Riverside Drive
Street and Apt. No., or PO Box No.
Espanola, NM 87532
City, State, ZIP+4®:

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

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Albuquerque, NM 87107

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- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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ESPANOLA NM 87532 MAIN POST OFFICE DEC - 8 2022

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12/08/2022

Sent To: Martinez Property Holding, INC.
4611 Rio Grande Lane NW
Street and Apt. No., or PO Box No.
Albuquerque, NM 87107
City, State, ZIP+4®:

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

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7022 0410 0001 0178 3233

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Houston, TX 77056

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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DEC - 8 2022
12/08/2022

Sent To: Agree Western, LLC
c/o Care of Ryan LLC
Attn: Dept. 125
Street and Apt. No., or PO Box No.: PO Box 460389
City, State, ZIP+4®: Houston, TX 77056

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

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Espanola, NM 87532

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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Sent To: North Bridge Plaza, LLC
Street and Apt. No., or PO Box No.: 1302 N. Riverside Drive
City, State, ZIP+4®: Espanola, NM 87532

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

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- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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DEC - 8 2022
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Sent To: The Shops at Railroad Ave., LLC
Street and Apt. No., or PO Box No.: 1302 N. Riverside Drive
City, State, ZIP+4®: Espanola, NM 87532

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

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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MAIN POST OFFICE ESPANOLA NM 87532
DEC - 8 2022
12/08/2022

Sent To: Espanola Merc. Real Estate, LLC
Street and Apt. No., or PO Box No.: 1302 N. Riverside Drive
City, State, ZIP+4®: Espanola, NM 87532

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

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Santa Fe, NM 87503

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

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MAIN POST OFFICE ESPANOLA NM 87532
DEC - 8 2022
12/08/2022

Sent To: New Mexico Department of Transportation
District 5
Street and Apt. No., or PO Box No.: PO Box 1149
City, State, ZIP+4®: Santa Fe, NM 87503

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- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $

Postage $0.60

Total Postage and Fees $4.60

0732
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Postmark Here
MAIN POST OFFICE ESPANOLA NM 87532
DEC - 8 2022
12/08/2022

Sent To: El Llano Corp.
Street and Apt. No., or PO Box No.: 1302 N. Riverside Drive
City, State, ZIP+4®: Espanola, NM 87532

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

General Posting of Notices – Certification

I, Stephanie Salazar, the undersigned, certify that on **December 8, 2022,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **City of Espanola, County of Rio Arriba**, State of New Mexico on the following dates:

1. Facility entrance December 8, 2022
2. City Hall December 8, 2022
3. Lucero Center December 8, 2022
4. Fairview Post Office December 8, 2022

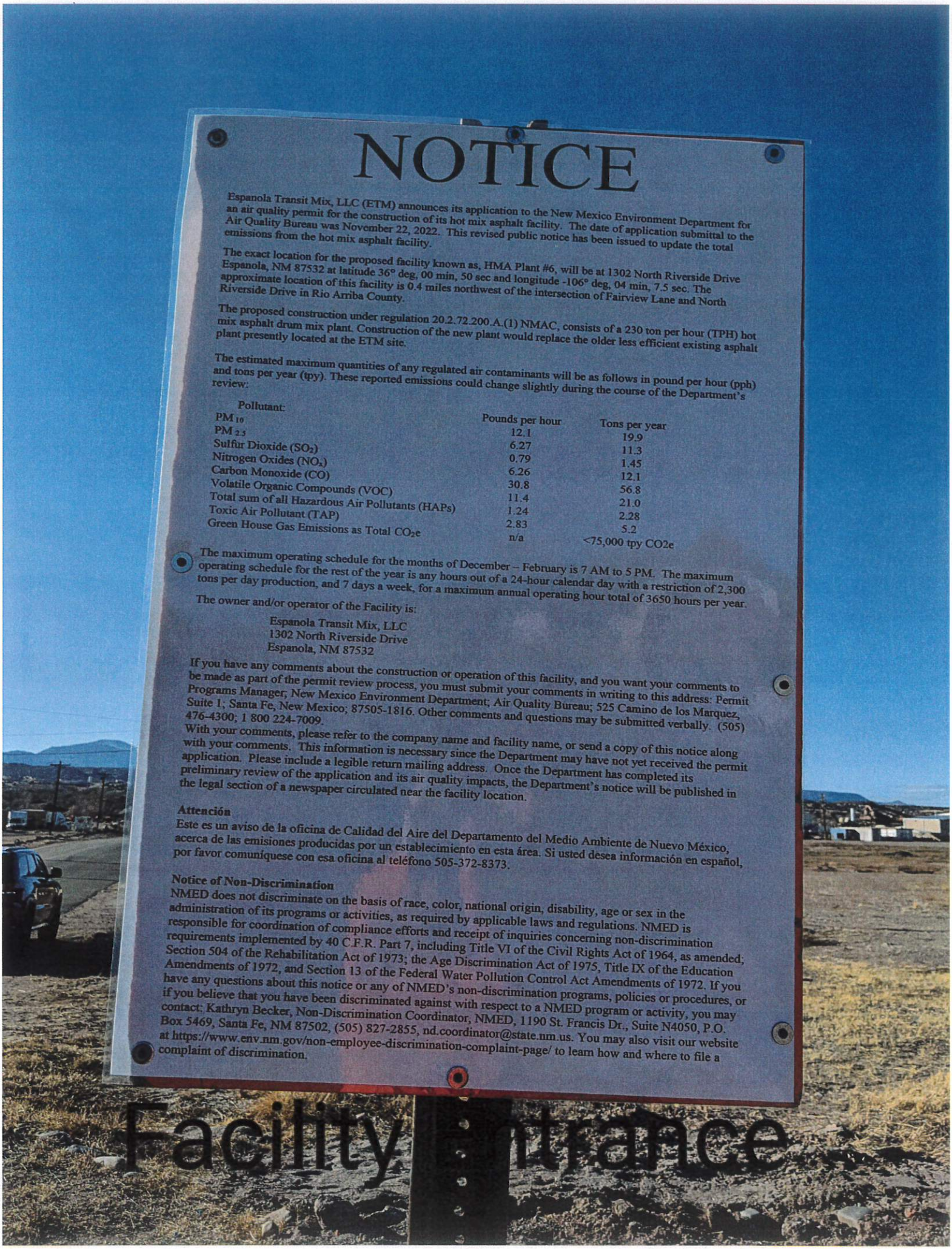
Signed this 8th day of December 2022,

Signature

December 8, 2022
Date

Stephanie Salazar
Printed Name

Staff Accountant
Title {APPLICANT OR RELATIONSHIP TO APPLICANT


NOTICE
Espanola Transit Mix, LLC (ETM) announces its application to the New Mexico Environment Department for an air quality permit for the construction of its hot mix asphalt facility. The date of application submittal to the Air Quality Bureau was November 22, 2022. This revised public notice has been issued to update the total emissions from the hot mix asphalt facility.
The exact location for the proposed facility known as, HMA Plant #6, will be at 1302 North Riverside Drive Espanola, NM 87532 at latitude 36° deg, 00 min, 50 sec and longitude -106° deg, 04 min, 7.5 sec. The approximate location of this facility is 0.4 miles northwest of the intersection of Fairview Lane and North Riverside Drive in Rio Arriba County.
The proposed construction under regulation 20.2.72.200.A.(1) NMAC, consists of a 230 ton per hour (TPH) hot mix asphalt drum mix plant. Construction of the new plant would replace the older less efficient existing asphalt plant presently located at the ETM site.
The estimated maximum quantities of any regulated air contaminants will be as follows in pound per hour (pph) and tons per year (tpy). These reported emissions could change slightly during the course of the Department's review:
Pollutant: Pounds per hour Tons per year
PM 10 12.1 19.9
PM 2.5 6.27 11.3
Sulfur Dioxide (SO_2) 0.79 1.45
Nitrogen Oxides (NO_x) 6.26 12.1
Carbon Monoxide (CO) 30.8 56.8
Volatile Organic Compounds (VOC) 11.4 21.0
Total sum of all Hazardous Air Pollutants (HAPs) 1.24 2.28
Toxic Air Pollutant (TAP) 2.83 5.2
Green House Gas Emissions as Total CO_2e n/a <75,000 tpy CO2e
The maximum operating schedule for the months of December – February is 7 AM to 5 PM. The maximum operating schedule for the rest of the year is any hours out of a 24-hour calendar day with a restriction of 2,300 tons per day production, and 7 days a week, for a maximum annual operating hour total of 3650 hours per year.
The owner and/or operator of the Facility is:
Espanola Transit Mix, LLC
1302 North Riverside Drive
Espanola, NM 87532
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Facility Entrance


NOTICE


¡COMIENZE SU CARRERA!
¡Su carrera puede comenzar con el Programa de Entrenamiento Vocacional de TANF!
Consiga las destrezas y certificaciones necesarias para hacer el trabajo y ser exitoso dentro de la fuerza laboral de hoy en día.
Los programas de entrenamiento elegibles incluyen...
...¡y mucho más!
Póngase en contacto con su Especialista de Desarrollo Profesional (Career Development Specialist, CDS) para más información, o visite su oficina local de New Mexico Works.
LAUNCH YOUR CAREER!
Your career can take off with the TANF Vocational Training Program!
Get the necessary skills and certifications needed to do the job and be successful in today's workforce.
Eligible training programs include...
...and more!
Contact your Career Development Specialist (CDS) for more information, or visit your New Mexico Works office.
DO YOU NEED YOUR HIGH SCHOOL EQUIVALENCY?
Welcome to Española
Come to NORTHERN New Mexico College HEP to get your HIGH SCHOOL EQUIVALENCY.
CLASSES ARE ONLY 6 WEEKS LONG.
APPLY NOW! CALL (505) 747-2195!
kyCenter
HOPE
The Sky Center can help.
New Mexico Vaccine Distribution Plan
The New Mexico Department of Heath Distribution
Vaccines Will Be Available to New Mexicans in the Following Sequence
New Mexicans are encouraged to register for vaccination at https://cvaccine.nmhealth.org
NMDOH will notify registrants when vaccine is available.
For those without internet access please call
1-855-600-3453
Press 0 for Vaccine questions, then option 4 for tech support
PUBLIC NOTICE
Notice of Public Meetings
LiUNA! LOCAL 16
Feel the Power
Are you, or someone you know looking for work?
¡Estamos aquí para ayudar
LO QUE OFRECEMOS
NOTICE
POLICE
The Mayor of the City of Española
Announces
The Business Christmas Lighting Contest
First Prize - $300 utility bill credit
Second Prize - $200 utility bill credit
BINGO
City Hall


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Sulfur Dioxide (SO_2)	0.79	1.45
Nitrogen Oxides (NO_x)	6.26	12.1
Carbon Monoxide (CO)	30.8	56.8
Volatile Organic Compounds (VOC)	11.4	21.0
Total sum of all Hazardous Air Pollutants (HAPs)	1.24	2.28
Toxic Air Pollutant (TAP)	2.83	5.2
Green House Gas Emissions as Total CO_2e	n/a	<75,000 tpy CO2e

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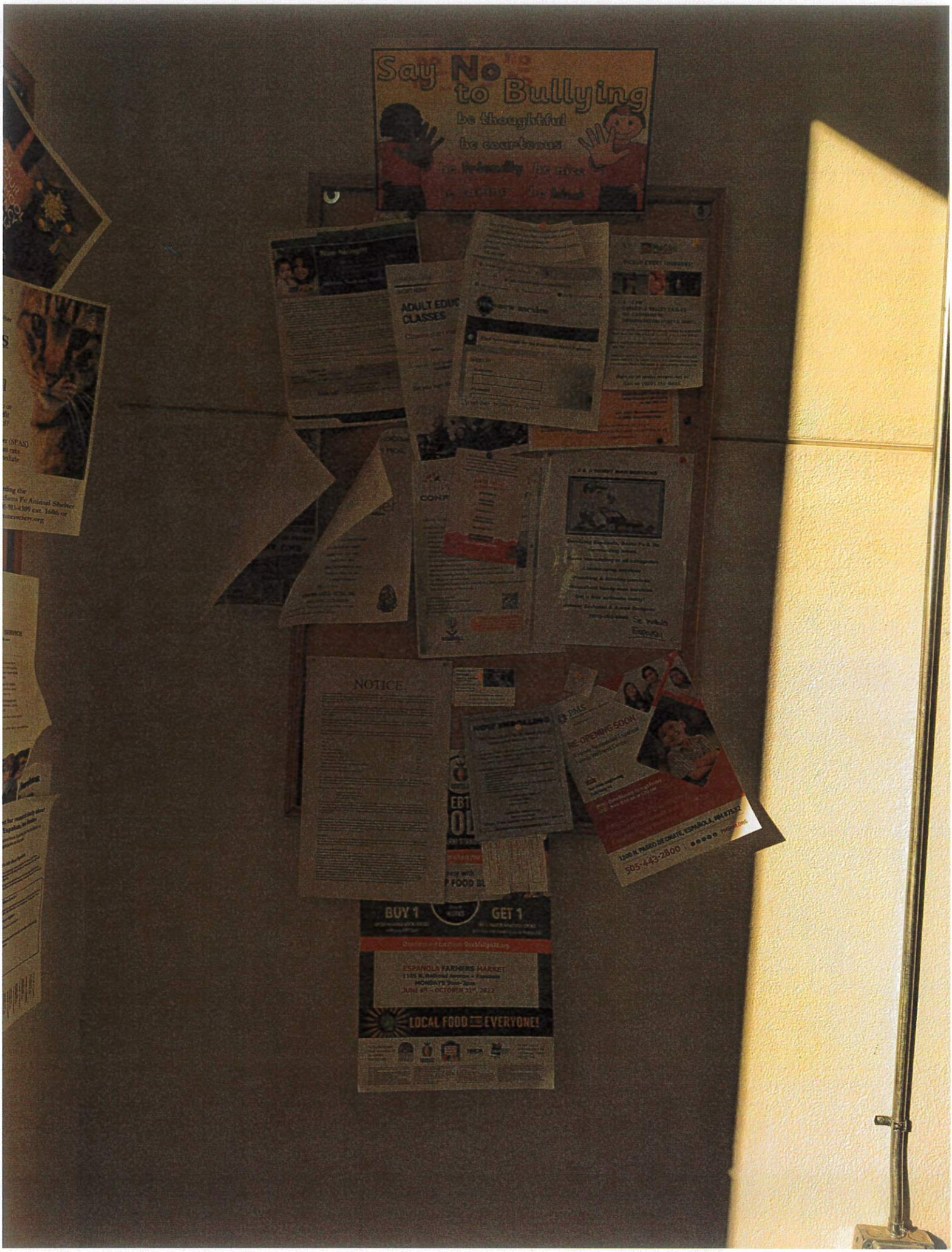
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Lucero Center


Say No to Bullying
be thoughtful
be courteous
ADULT EDUC CLASSES
NOTICE
BUY 1
GET 1
ESPAÑOLA FARMERS MARKET
LOCAL FOOD = EVERYONE!

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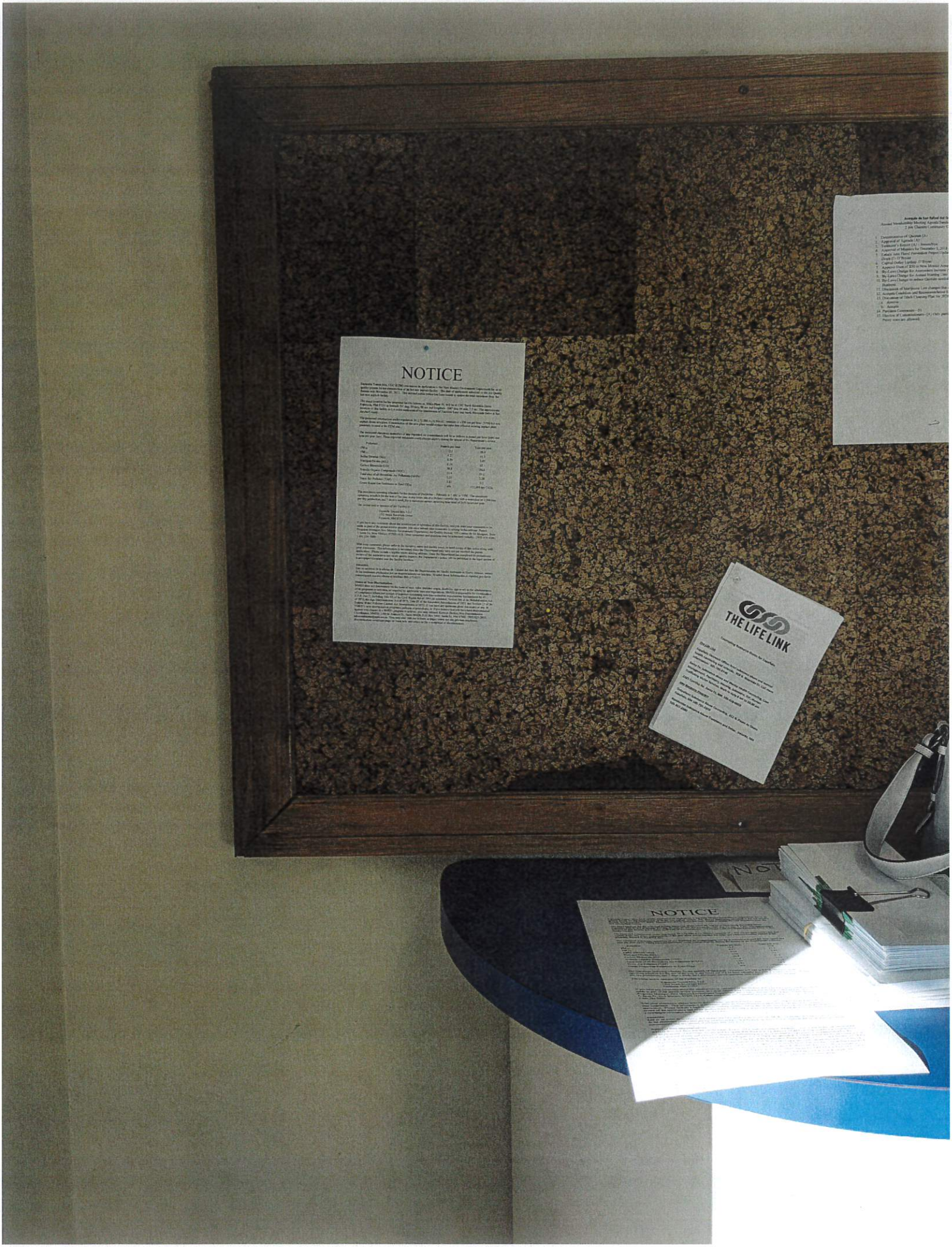
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Fairview Post Office


NOTICE
THE LIFE LINK
NOTICE

Employment

Jobs

NORTHERN NEW MEXICO QUALITY CARE

is hiring for two health care provider positions in ALCALDE and WHITE ROCK. Duties include assisting individuals with daily routine and ALDs.

Please contact our office at 505-927-4946

The Rio Grande SUN needs a detail oriented, dependable person to be a part of our team.

Primary responsibilities include:

- Answering phones and either handling the request or getting the caller to the correct person;
- Taking classified ads via phone, email and in person and entering them into our system;
- Printing and sorting mailing labels, postal reports and updating circulation software;
- Train in pagination, sending pages for print, balancing daily cash with receipts at the end of the day and making deposits;
- Proof obituaries

The position requires that you learn two different softwares, both native to the newspaper industry. We will train you in those softwares.

Position is part-time, pay raises are contingent on training progress and performance. Great work environment, and co-workers.

Work schedule:

Monday, Tuesday & Friday 8am - 5pm

Mail resume to
Mayra Aldaz
P.O. Box 790, Española, NM 87532

or e-mail to: rgsunads@cybermesa.com
or drop off at: 123 N. Railroad Ave.

No phone calls please.



RIO GRANDE SUN



Do you enjoy interacting with people? Then WE have a job for you!

The Rio Grande SUN is hiring for a sales person.

The ideal candidate will possess the following: Honesty, great organization, time management skills, professional attire/appearance, outgoing personality, strong work ethic, reliable transportation, attention to detail.

The Rio Grande SUN offers a competitive pay structure, paid vacation, benefits and a great work environment.

Drop off your resume at: 123 North Railroad Ave.
or send to:
Rio Grande SUN, P.O. Box 790, Española, NM 87532
or to rgsunads@cybermesa.com

No phone calls please.

RIO GRANDE SUN

The Rio Grande SUN office will be **CLOSED** Monday, December 26th

we will have an

Legal Notices

It's Your Right to Know



Read the Legal Notices Weekly

ADVERTISEMENT FOR BIDS
SEBASTIAN MARTIN - BLACK MESA WATERSHED DAM SITE #18 SEDIMENT REMOVAL
UPPER RIO GRANDE WATERSHED DISTRICT

The Upper Rio Grande Watershed District (Owner) requests electronic bids until 2:00 p.m. on December 16, 2022 at their office located at 19283 US Highway 84/285, Suite 112 in Hernandez, NM for a unit price contract for construction of the Sebastian Martin - Black Mesa Watershed (SMBM) Dam Site #18 Sediment Removal project in Alcalde, NM.

The project involves the excavation and removal of accumulated sediment from the upstream side of the SMBM Dam Site #18 in Alcalde, New Mexico, and the associated disposal of this sediment on an undeveloped parcel of land owned by Rio Arriba County adjacent to the Alcalde Elementary School.

Complete electronic sets of the bidding documents may be obtained from the Construction Journal at www.constructionjournal.com, or by contacting Sierra Engineering Solutions, the Engineer of Record, at (505) 670-5385. Bidders are expected to inspect the site of the work and to inform themselves regarding all local conditions.

Working time for this Contract is sixty (60) calendar days. Time will be counted from the date of Notice to Proceed.

The Owner reserves the right to accept or reject any or all Proposals or Bids, to waive technicalities, to make any investigation deemed necessary of a Bidder's ability to perform the work covered by the Specifications, and to accept what in the judgement of the Owner is the best bid.

(Published On: December 8th & 15th, 2022)

STATE OF NEW MEXICO
COUNTY OF RIO ARRIBA
FIRST JUDICIAL DISTRICT
Case No. D-117-PB-2022-00055
IN THE MATTER OF THE ESTATE OF BENITO EUGENE MONTOYA, Deceased.
NOTICE OF HEARING ON PETITION IN FORMAL APPOINTMENT PROCEEDINGS TO ALL UNKNOWN PERSONS AND TO ALL KNOWN PERSONS WHOSE ADDRESSES ARE UNKNOWN WHO HAVE ANY INTEREST IN THE ESTATE OF BENITO EUGENE MONTOYA, DECEASED, OR IN ANY MATTERS BEING LITIGATED OR DETERMINED HEREIN:

Notice is hereby given that a hearing on the Petition of Carol Montoya for

NOTICE OF MEETING

The Velarde MDWCA will be having its regular bi-monthly meeting on December 14, 2022 at 6:00pm at the Velarde Community Center. Agendas will be available 72 hours before.

(Published On: December 8th & 15th, 2022)

PUBLIC NOTICE

La Mesilla Community Ditch Annual Parciantes Meeting. Friday, December 16, 2022 La Mesilla Volunteer Fire Station 7pm - 9pm.

(Published On: December 8th & 15th, 2022)

File Number: SP-01974-13
Applicants: Pedro Torrez, Pedro Andrew Torrez and Rose Elydia Torrez Living Trust
County(s): Rio Arriba

NOTICE is hereby given that on October 13, 2022, Pedro Torrez (trustee), of the Pedro Andrew Torrez and Rose Elydia Torrez Living Trust, 3 Road 5803 / Farmington, NM 87401, filed with the STATE ENGINEER Application No. SP-01974-13 for Permit to Change Place of Use of Surface water of the Rio Chama Tributary of the Rio Chama Stream System within the State of New Mexico.

Rio Arriba is the County affected by the diversion and in which the water has been or will be put to beneficial use. This notice is ordered to be published in the Española Rio Grande Sun. The applicant seeks to retire a 2-acre portion of subfile CHCV-003-0008(B) from irrigation and move the associated consumptive use of 2.1 acre-feet per annum (afa) for the purpose of irrigation on 2 acres predominantly located within subfile CHCV-003-0034(A), which was adjudicated no right in 2007. This right to irrigate from M-B Ditch has a priority date of 1931. The Points of Diversion, located where x = 358,284 and y = 4,085,641; and SP-01974-POD2, located where x = 360,170 and y = 4,087,436, all meters in UTM Zone 13 North, will remain unchanged. The move-from and move-to places of use are on lands owned by the applicant.

To view the application and supporting documentation contact the State Engineer District 6 Office at (505) 827-6120 to arrange a date and time for an appointment. The District 6 Office is located in suite 102 of the Bataan Memorial Building at 407 Galisteo Street, Santa Fe, NM.

Any person, firm or corporation or other entity asserting standing to file objections or protests shall do so in writing (objection must be legible, signed, and include the writer's complete name, phone number, email address, and mailing address). If the protest does not include the complete name, phone number, email address, and mailing address, it may be deemed invalid and not accepted for filing unless Protestant provides with the protest an affidavit stating that it does not have one of the above-listed elements/requirements (phone number, mailing address, email address, etc.). The objection to the approval of the application must be based on: (1) Detriment: if detriment, you must specifically identify your water rights; and/or (2) Public Welfare/Conservation of Water: if public welfare or conservation of water within the state of New

NOTICE OF AIR QUALITY PERMIT APPLICATION

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(Published On: December 15th, 2022)

PUBLIC NOTICE

Enduring Resources, LLC has an approved permit to drill the NE Lybrook Com SWD 1 as a saltwater disposal well, API 30-039-31378. The well site is located 2,335' FSL and 2,559' FEL Sec. 13, T. 23 N., R. 7 W., Rio Arriba County. This is 1 mile east-southeast of Lybrook, NM. An application for saltwater injection will be filed with the NMOCD. Disposal will be in the Entrada sandstone (Pool 96436) from 7,460' to 7,665'. Maximum injection pressure will be 1,492 psi. Maximum disposal rate will be 20,000 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 S. St. Francis Drive, Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting Ms. Khem Suthiwan, Enduring Resources, LLC, 200 Energy Ct., Farmington, NM 87401. Phone number is 505-636-9746.

(Published On: December 15, 2022)

REQUEST FOR PROPOSALS
PROPOSAL NO. 2022-02
PROFESSIONAL AND TECHNICAL SERVICES FOR SANTA CRUZ IRRIGATION DISTRICT

The Santa Cruz Irrigation District is accepting competitive proposals from all interested and qualified firms for professional and technical services to perform Watershed Group Development and Watershed Restoration Planning pursuant to a WaterSMART grant that was awarded to SCID by the U.S. Bureau of Reclamation.

Request for proposal packets may be obtained from SCID by requesting a packet from Loretta Lopez at (505) 753-2195 or scidkmll@windstream.net.

Responsive proposals shall be submitted electronically to Loretta's e-mail address with the subject line "RE: RFP 2022-02".

Proposals must be received electronically on or before Monday, December 26, 2022 at 4:00 P.M. Late proposals shall be rejected.

SCID reserves the right to reject any or all propos-

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at: 123 North Railroad Ave.
send to:
Box 790, Española, NM 87532
ls@cybermesa.com
calls please.

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WATERSHED DISTRICT

The Upper Rio Grande Watershed District (Owner) requests electronic bids until 2:00 p.m. on December 16, 2022 at their office located at 19283 US Highway 84/285, Suite 112 in Hernandez, NM for a unit price contract for construction of the Sebastian Martin - Black Mesa Watershed (SMBM) Dam Site #18 Sediment Removal project in Alcalde, NM.

The project involves the excavation and removal of accumulated sediment from the upstream side of the SMBM Dam Site #18 in Alcalde, New Mexico, and the associated disposal of this sediment on an undeveloped parcel of land owned by Rio Arriba County adjacent to the Alcalde Elementary School.

Complete electronic sets of the bidding documents may be obtained from the Construction Journal at www.constructionjournal.com, or by contacting Sierra Engineering Solutions, the Engineer of Record, at (505) 670-5385.

Bidders are expected to inspect the site of the work and to inform themselves regarding all local conditions.

Working time for this Contract is sixty (60) calendar days. Time will be counted from the date of Notice to Proceed.

The Owner reserves the right to accept or reject any or all Proposals or Bids, to waive technicalities, to make any investigation deemed necessary of a Bidder's ability to perform the work covered by the Specifications, and to accept what in the judgement of the Owner is the best bid.

(Published On: December 8th & 15th, 2022)

STATE OF NEW MEXICO
COUNTY OF RIO ARRIBA
FIRST JUDICIAL DISTRICT
Case No. D-117-PB-2022-00055
IN THE MATTER OF THE ESTATE OF BENITO EUGENE MONTOYA, Deceased.
NOTICE OF HEARING ON PETITION IN FORMAL APPOINTMENT PROCEEDINGS
TO ALL UNKNOWN PERSONS AND TO ALL KNOWN PERSONS WHOSE ADDRESSES ARE UNKNOWN WHO HAVE ANY INTEREST IN THE ESTATE OF BENITO EUGENE MONTOYA, DECEASED, OR IN ANY MATTERS BEING LITIGATED OR DETERMINED HEREIN:

Notice is hereby given that a hearing on the Petition of Carol Montoya for the formal adjudication of the intestacy of Benito Eugene Montoya and for the formal appointment of Petitioner as Personal Representative of Benito Eugene Montoya will be held on January 27, 2023, at 8:00 a.m. before the Hon. Jason Lidyard, District Judge,

Remote hearing, 15 minutes is allotted for the Hearing.

To appear by video: meet.google.com/bjm-kjbo-xfy

To appear by phone: 1-651-504-5687, PIN: 492 868 159#

CATRON, CATRON & GLASSMAN, P.A.
Attorneys for Petitioner
Post Office Box 788
Santa Fe, New Mexico 87504
(505) 982-1947
B y /s/_____
Julia D. Catron
(Published On: December 15th, 22nd, & 29th, 2022)

Pedro Torrez (trustee), of the Pedro Andrew Torrez and Rose Elydia Torrez Living Trust, 3 Road 5803 / Farmington, NM 87401, filed with the STATE ENGINEER Application No. SP-01974-13 for Permit to Change Place of Use of Surface water of the Rio Chama Tributary of the Rio Chama Stream System within the State of New Mexico.

Rio Arriba is the County affected by the diversion and in which the water has been or will be put to beneficial use. This notice is ordered to be published in the Española Rio Grande Sun. The applicant seeks to retire a 2-acre portion of subfile CHCV-003-0008(B) from irrigation and move the associated consumptive use of 2.1 acre-feet per annum (afa) for the purpose of irrigation on 2 acres predominantly located within subfile CHCV-003-0034(A), which was adjudicated no right in 2007. This right to irrigate from M-B Ditch has a priority date of 1931. The Points of Diversion, located where x = 358,284 and y = 4,085,641; and SP-01974-POD2, located where x = 360,170 and y = 4,087,436, all meters in UTM Zone 13 North, will remain unchanged. The move-from and move-to places of use are on lands owned by the applicant.

To view the application and supporting documentation contact the State Engineer District 6 Office at (505) 827-6120 to arrange a date and time for an appointment. The District 6 Office is located in suite 102 of the Bataan Memorial Building at 407 Galisteo Street, Santa Fe, NM.

Any person, firm or corporation or other entity asserting standing to file objections or protests shall do so in writing (objection must be legible, signed, and include the writer's complete name, phone number, email address, and mailing address). If the protest does not include the complete name, phone number, email address, and mailing address, it may be deemed invalid and not accepted for filing unless Protestant provides with the protest an affidavit stating that it does not have one of the above-listed elements/requirements (phone number, mailing address, email address, etc.). The objection to the approval of the application must be based on: (1) Detriment: if detriment, you must specifically identify your water rights; and/or (2) Public Welfare/Conservation of Water: if public welfare or conservation of water within the state of New Mexico, you shall be required to provide evidence showing how you will be substantially and specifically affected. The written protest must be filed, in triplicate, at the District 6 Office or by mail at PO Box 25102, Santa Fe, NM 87504-5102, on or before Friday, January 27, 2023. Facsimiles (faxes) will be accepted as a valid protest if the hard copy is hand-delivered or mailed and postmarked within 24-hours of the facsimile. Mailing postmark will be used to validate the 24-hour period. Protests can be faxed to the Office of the State Engineer, (505) 827-6682. If no valid protest or objection is filed, the State Engineer will evaluate the application in accordance with the provisions of Chapter 72 NMSA 1978.

(Published On: December 8th, 15th, & 22nd, 2022)

The proposed construction under regulation 20.2.72.200.A.(1) NMAC, consists of a 230 ton per hour (TPH) hot mix asphalt drum mix plant. Construction of the new plant would replace the older less efficient existing asphalt plant presently located at the ETM site.

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

Pollutant: Pounds per hour Tons per year
PM 10 12.1 19.9
PM 2.5 6.27 11.3
Sulfur Dioxide (SO2) 0.79 1.45
Nitrogen Oxides (NOx) 6.26 12.1
Carbon Monoxide (CO) 30.8 56.8
Volatile Organic Compounds (VOC) 11.4 21.0
Total sum of all Hazardous Air Pollutants (HAPs) 1.24 2.28
Toxic Air Pollutant (TAP) 2.83 5.2
Green House Gas Emissions as Total CO2e n/a <75,000 tpy CO2e

The maximum operating schedule for the months of December – February is 7 AM to 5 PM. The maximum operating schedule for the rest of the year is any hours out of a 24-hour calendar day with a restriction of 2,300 tons per day production, and 7 days a week, for a maximum annual operating hour total of 3650 hours per year.

The owner and/or operator of the Facility is:
Espanola Transit Mix, LLC
1302 North Riverside Drive
Espanola, NM 87532

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-372-8373.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

(Published On: December 15th, 2022)

PUBLIC NOTICE

Enduring Resources, LLC has an approved permit to drill the NE Lybrook Com SWD 1 as a saltwater disposal well, API 30-039-31378. The well site is located 2,335' FSL and 2,559' FEL Sec. 13, T. 23 N., R. 7 W., Rio Arriba County. This is 1 mile east-southeast of Lybrook, NM. An application for saltwater injection will be filed with the NMOCD. Disposal will be in the Entrada sandstone (Pool 96436) from 7,460' to 7,665'. Maximum injection pressure will be 1,492 psi. Maximum disposal rate will be 20,000 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 S. St. Francis Drive, Santa Fe, NM 87505 within 15 days. Additional information can be obtained by contacting Ms. Khem Suthiwan, Enduring Resources, LLC, 200 Energy Ct., Farmington, NM 87401. Phone number is 505-636-9746.

(Published On: December 15, 2022)

REQUEST FOR PROPOSALS
PROPOSAL NO. 2022-02
PROFESSIONAL AND TECHNICAL SERVICES
FOR SANTA CRUZ IRRIGATION DISTRICT

The Santa Cruz Irrigation District is accepting competitive proposals from all interested and qualified firms for professional and technical services to perform Watershed Group Development and Watershed Restoration Planning pursuant to a WaterSMART grant that was awarded to SCID by the U.S. Bureau of Reclamation.

Request for proposal packets may be obtained from SCID by requesting a packet from Loretta Lopez at (505) 753-2195 o r scidkmll@windstream.net .

Responsive proposals shall be submitted electronically to Loretta's e-mail address with the subject line "RE: RFP 2022-02".

Proposals must be received electronically on or before Monday, December 26, 2022 at 4:00 P.M. Late proposals shall be rejected.

SCID reserves the right to reject any or all proposals, to waive technicalities, and to accept the proposal it deems to be in the best interest of SCID.

/S/ Kenneth Salazar
Kenneth Salazar
Chairman, SCID
(Published On: December 15th, 2022)

PUBLIC NOTICE

To the Heirs and Assigns of W.H. Rogers and Frances H. Rogers whose last known address was Dallas, TX; to the Heirs and Assigns of E. Kenneth Murchison whose last known address is Jewett, TX; and to the Heirs and Assigns of D.E. Kervin, whose last address is unknown: Enduring Resources, LLC has an approved permit to drill the NE Lybrook Com SWD 1 as a saltwater disposal well, API 30-039-31378. The well site is located 2,335' FSL and 2,559' FEL Sec. 13, T. 23

NOTICE is hereby given that on August 31, 2022, Enduring Resources, LLC, 6300 South Syracuse Way, Suite 525, Centennial, CO 80111, filed with the STATE ENGINEER application number SJ-4551 for a Permit to Appropriate Groundwater, 193.4 acre-feet per annum, within the San Juan Underground Water Basin of the State of New Mexico.

Rio Arriba is the county affected by the diversion and in which the water will be put to beneficial use. This notice is ordered to be published in the following newspaper: the Rio Grande Sun.

The applicant intends to appropriate 193.4 acre-feet of water per annum for industrial, commercial and oilfield use by the applicant. The water will be used on land owned by various surface owners located in Township 27 North, Range 7 West; T27N, R6W; T26N, R7W; and T26N, R6W, N.M.P.M., of Rio Arriba County. The proposed well from which the water will come will be approximately 2400 feet deep with 7 inch casing. It will be located at Latitude 36.531526° North and Longitude 107.494676° West on land owned by the applicant in the South 1/2 of the Northwest 1/4 of Section 32, Township 27 North, Range 6 West, N.M.P.M., in Rio Arriba County, near the intersection of Rio Arriba County Roads 533 and 501.

To view the application and supporting documentation contact the State Engineer District V Office at 100 A Gossett Drive, Aztec, NM 87410, to arrange a date and time for an appointment.

Any person, firm or corporation or other entity asserting standing to file objections or protests shall do so in writing (objection must be legible, signed, and include the writer's complete name, phone number, email address, and mailing address). If the protest does not include the complete name, phone number, email address, and mailing address, it may be deemed invalid and not accepted for filing unless Protestant provides with the protest an affidavit stating that it does not have one of the above-listed elements/requirements (phone number, mailing address, email address, etc.). The objection to the approval of the application must be based on: (1) Impairment; if impairment, you must specifically identify your water rights; and/or (2) Public Welfare/Conservation of Water; if public welfare or conservation of water within the state of New Mexico, you shall be required to provide evidence showing how you will be substantially and specifically affected. The written protest must be filed, in triplicate, with the State Engineer, 100 A Gossett Drive, Aztec, NM 87410, on or before February 10, 2023. Facsimiles (faxes) will be accepted as a valid protest if the hard copy is hand-delivered or mailed and postmarked within 24-hours of the facsimile. Mailing postmark will be used to validate the 24-hour period. Protests can be faxed to the Office of the State Engineer at 505-334-1536. If no valid protest or objection is filed, the State Engineer will evaluate the application in accordance with the provisions of Chapter 72 NMSA 1978.

(Published On: December 8th, 15th, & 22nd, 2022)

By: /s/ EDITH SUAREZ-MUNOZ
Deputy Court Clerk
Submitted by: /s/ Juan Liberato Cruz Romero
Petitioner, Pro Se
(Published On: December 15th & 22nd, 2022)

GET INFORMED OF WHAT IS HAPPENING IN YOUR COMMUNITY

TO PLACE AN AD email info to rgsunclass@cybermesa.com or call 753-2126

NNMC Students Attend Prestigious Puerto Rico Co

Hope Lopez also awarded second place at the New Mexico Alliance for Minority Participation

ESPAÑOLA, NM – Two recent experiences expanded the horizons of Northern New Mexico College student Hope Lopez. The first was winning second place for her research poster presentation at the New Mexico Alliance for Minority Participation (NMAMP). The second was attending the 2022 Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Chapter Officer Leader October Retreat (COLOR) at the 2022 SACNAS National Diversity in STEM (NDiSTEM) Conference.

NNMC alumni Jonathan Madrid also attended NDiSTEM, presenting undergraduate research he had done with Dr. Rhiannon West, assistant professor of biology at Northern, and NNMC Associate Professor in Chemistry Dr. Brenda Linnell was one of the Mentoring Judges in the Chemistry division.

Lopez has an Associate of Science in Chemistry from Northern and is currently working toward her Bachelor of Science in Biology. One of the things she likes about Northern is the research opportunities available to her, including summer internships at University of Texas, El Paso, and New Mexico IDeA Networks of Biomedical Research Excellence (INBRE) Summer Experience.

"I'm really happy with the experience I've been getting with research," Lopez said. "Overall, I really enjoyed my mentors and I've learned a lot. And it's nice to have scientific conversations with people who really get it, because then I feel like I've really understood a lot of the material that I've taken in from my classes."

Since NMAMP was the first conference Lopez had ever attended, receiving second place in the poster competition for her research titled "Genotyping the Major Histocompatibility Complex of a sympatric flock of pupfish (Cyprinodon spp.)" was especially exciting for her.

"I really wanted to place, and I manifested it. I told myself, you'll place, you'll do good, but I didn't expect it to be reality," Lopez said. "I'm very proud of myself. I've accomplished a goal that I set for myself that I didn't really believe in that much, but I think that because I did it that I know that I'm capable of doing more."



(Photo courtesy Northern New Mexico College)
Northern New Mexico College student Hope Lopez won second place for her research poster presentation at the New Mexico Alliance for Minority Participation (NMAMP) leading her to attend the 2022 Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Chapter Officer Leader in October in Puerto Rico.

Lopez hopes to eventually publish the research she has been doing with Dr. Rhiannon West, and as an intern at Los Alamos National Laboratory, which looks at how the immune system correlates with the behavior of the pupfish.

Lopez' first fell in love with chemistry in high school. The instructors she found at NNMC, especially Dr. Brenda Linnell, helped that passion grow.

"I loved the way she taught the concepts," Lopez said. "I'm very lucky that Northern has given me the opportunity to enjoy things, because I know if I went to a bigger university, I probably wouldn't have enjoyed the classes or the way that they taught as much."

NNMC does not offer a bachelor's degree in chemistry, so Lopez switched to biology to continue her education at Northern. At the COLOR conference graduate school and career expo she learned about career options that would let her incorporate chemistry and biology. Exploring different universities and speaking with PhD and graduate school students helped her clarify what direction she wants to pursue after graduation.

"Talking to other students inspired me, to know that they love what they study. Talking to people who are in the PhD programs was the most helpful for me because they had similar paths," Lopez said. "Everyone's just like you. Everyone's into science. Everybody is doing research. We all have so much in common that it's very easy to have a conversation with people. I made a lot of really good friends I know I'm going to have for a really long time."

After those conversations, Lopez is leaning toward forgoing graduate school and applying directly to PhD programs or perhaps pursuing a postdoc research fellowship.

"I think that the conference really did help me find a path," Lopez said. "It also gave me a sense of clarity. I feel like I'm on the right path and that I do really want to use my degree. I just need to figure out what I want to concentrate on, because with biology or chemistry there are so many different fields that I could go into, and I haven't really had too much experience outside of one."

The students she met at the Leadership Retreat, many who were presidents and vice presidents of their SACNAS chapter, were also inspiring.

"They really enjoy what they do, and they're trying to be better leaders for other students. It shows that they really care about their universities, because not only are they studying for their PhD, but on the side they have all these clubs and extracurriculars," Lopez said. "It was inspiring to know that. It made me want to put myself more out there, because I see people my own age or older really being involved in their universities."

One surprising outcome of the SACNAS conference was how the support and encouragement of the other students expanded Lopez' aspirations.

"I think I'm actually going to apply to Yale or somewhere that I would never have thought myself to be," Lopez said. "I think I have the potential. And other students from these bigger universities telling me that 'you're capable of it' gives me a motivation. I'm kind of excited now for what the future holds."

About Northern:

Northern New Mexico College has served the rural communities of Northern New Mexico for over a century. Since opening in 1909 as the Spanish American Normal School in El Rito, NM, the College has provided affordable access to quality academic programs that meet the changing educational, economic and cultural needs of the region.

Northern is an open-admissions institution offering the most affordable bachelor's programs in the Southwest. Now one of the state's four regional comprehensive institutions, with its

NOTICE OF AIR QUALITY PERMIT

Espanola Transit Mix, LLC (ETM) announces its application to the Environment Department for an air quality permit for the constr asphalt facility. The date of application submittal to the Air Qual 22, 2022. This revised public notice has been issued to update th hot mix asphalt facility.

The exact location for the proposed facility known as, HMA Plan Riverside Drive Espanola, NM 87532 at latitude 36° deg, 00 min, -106° deg, 04 min, 7.5 sec. The approximate location of this facili the intersection of Fairview Lane and North Riverside Drive in R

The proposed construction under regulation 20.2.72.200.A.(1) N ton per hour (TPH) hot mix asphalt drum mix plant. Constructio replace the older less efficient existing asphalt plant presently loc

The estimated maximum quantities of any regulated air contamin in pound per hour (pph) and tons per year (tpy). These reported slightly during the course of the Department's review:

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PM_{10}	12.1
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Carbon Monoxide (CO)	30.8
Volatile Organic Compounds (VOC)	11.4
Total sum of all Hazardous Air Pollutants (HAPs)	1.24
Toxic Air Pollutant (TAP)	2.83
Green House Gas Emissions as Total CO_2e	n/a

The maximum operating schedule for the months of December - PM. The maximum operating schedule for the rest of the year is hour calendar day with a restriction of 2,300 tons per day product for a maximum annual operating hour total of 3650 hours per ye

The owner and/or operator of the Facility is:

Espanola Transit Mix, LLC
1302 North Riverside Drive
Espanola, NM 87532

If you have any comments about the construction or operation of your comments to be made as part of the permit review process, y comments in writing to this address: Permit Programs Manager; N Department; Air Quality Bureau; 525 Camino de los Marquez, S Mexico; 87505-1816. Other comments and questions may be sub 476-4300; 1 800 224-7009.

With your comments, please refer to the company name and facil copy of this notice along with your comments. This information i Department may have not yet received the permit application. Pl return mailing address. Once the Department has completed its application and its air quality impacts, the Department's notice wil section of a newspaper circulated near the facility location.

Are You Hiring?



(Photo courtesy Northern New Mexico College)
Northern New Mexico College student Hope Lopez won second place for her research poster presentation at the New Mexico Alliance for Minority Participation (NMAMP) leading her to attend the 2022 Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) Chapter Officer Leader in October in Puerto Rico.

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"They really enjoy what they do, and they're trying to be better leaders for other students. It shows that they

dents from these bigger universities telling me that *four regional comprehensive institutions, with its* *https://nnmc.edu/.*

NOTICE OF AIR QUALITY PERMIT APPLICATION

Espanola Transit Mix, LLC (ETM) announces its application to the New Mexico Environment Department for an air quality permit for the construction of its hot mix asphalt facility. The date of application submittal to the Air Quality Bureau was November 22, 2022. This revised public notice has been issued to update the total emissions from the hot mix asphalt facility.

The exact location for the proposed facility known as, HMA Plant #6, will be at 1302 North Riverside Drive Espanola, NM 87532 at latitude 36° deg, 00 min, 50 sec and longitude -106° deg, 04 min, 7.5 sec. The approximate location of this facility is 0.4 miles northwest of the intersection of Fairview Lane and North Riverside Drive in Rio Arriba County.

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Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

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505-753-2126
mail your ad to:
ss@cybermesa.com
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NEWS FROM THE HEART OF THE PUEBLO COUNTRY

the potential. And other students from these bigger universities telling me that

west. Now one of the state's four regional comprehensive institutions, with its

grams. Learn more at https://nnmc.edu/.

NOTICE OF AIR QUALITY PERMIT APPLICATION

Espanola Transit Mix, LLC (ETM) announces its application to the New Mexico Environment Department for an air quality permit for the construction of its hot mix asphalt facility. The date of application submittal to the Air Quality Bureau was November 22, 2022. This revised public notice has been issued to update the total emissions from the hot mix asphalt facility.

The exact location for the proposed facility known as, HMA Plant #6, will be at 1302 North Riverside Drive Espanola, NM 87532 at latitude 36° deg, 00 min, 50 sec and longitude -106° deg, 04 min, 7.5 sec. The approximate location of this facility is 0.4 miles northwest of the intersection of Fairview Lane and North Riverside Drive in Rio Arriba County.

The proposed construction under regulation 20.2.72.200.A.(1) NMAC, consists of a 230 ton per hour (TPH) hot mix asphalt drum mix plant. Construction of the new plant would replace the older less efficient existing asphalt plant presently located at the ETM site.

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

Pollutant:	Pounds per hour	Tons per year
PM_{10}	12.1	19.9
$PM_{2.5}$	6.27	11.3
Sulfur Dioxide (SO_2)	0.79	1.45
Nitrogen Oxides (NO_x)	6.26	12.1
Carbon Monoxide (CO)	30.8	56.8
Volatile Organic Compounds (VOC)	11.4	21.0
Total sum of all Hazardous Air Pollutants (HAPs)	1.24	2.28
Toxic Air Pollutant (TAP)	2.83	5.2
Green House Gas Emissions as Total CO_2e	n/a	<75,000 tpy CO2e

The maximum operating schedule for the months of December - February is 7 AM to 5 PM. The maximum operating schedule for the rest of the year is any hours out of a 24-hour calendar day with a restriction of 2,300 tons per day production, and 7 days a week, for a maximum annual operating hour total of 3650 hours per year.

The owner and/or operator of the Facility is:

Espanola Transit Mix, LLC
1302 North Riverside Drive
Espanola, NM 87532

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-372-8373.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

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PROOF
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Submittal of Public Service Announcement – Certification

I, Stephanie Salazar, the undersigned, certify that on **October 19, 2022**, submitted a public service announcement to **KDCE 950 AM** that serves the City of **Espanola**, **Rio Arriba** County, New Mexico, in which the source is or is proposed to be located and that **KDCE 950 AM RESPONDED THAT IT WOULD AIR THE ANNOUNCEMENT.**

Signed this 19th day of October 2022,



Signature

October 19, 2022
Date

Stephanie Salazar
Printed Name

Staff Accountant
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

KDCE/KYBR TIME PLACEMENT ORDER

KYBR
RADIO OSO
92.9 FM

■ New Order ☐ Change Order ☐ Cancel Order (Displayed Below)

☐ Change Date Only ☐ Change Ad Placement ☐ Change $ Amount

☐ + Addition Commercial ☐ - Subtract Commercial

KDCE
"QUE DICE"
950 AM

Today's Date: 10/19/22 Salesperson: Rudy S.

Start Date: ______ End Date: ______

Advertiser: Española Transit Mix

Agency: 1310 N. Riverside Dr.

Billing Address: Española, NM. 87532

505-303-4941

City: ______ State: ______ Zip: ______

Contact Person: Stephanie Salazar

Telephone: ssalazar@espmerc.com

Co-Op: ☐ Yes ■ No

Product: ______ Product Code: ______

Package/Program/Sponsorship: ______

Spot Prices Printed: ☐ Yes ■ No

Agency Commissionable: ☐ Yes ■ No

■ Announcement
☐ Sponsorship
☐ Promotional Ann.
☐ Prog. Sponsorship

Contract #: ______
Account #: ______
Priority #: ______
Cart #: ______

■ Local
☐ Regional
☐ National

☐ Remit Invoice
■ Cash In Advance

☐ Political

Billing Cycle:
■ Standard Broadcast
☐ Calendar
☐ End of Flight
☐ Weekly Invoice
☐ Special Cycle
Describe:

☐ Direct (Net)
☐ Agency

■ Cash
☐ Trade
☐ Non-Commercial (PSA)

National Rep Office: ______
National Rep: ______

- 2 Week Station Confirmed Written Notice Required for Cancellation
- Requested Times Based on Station Availability

Notes to Traffic & Accounting: 3-60sec. spots (BTA) = 66.00 + 5.89 tax

Dates to Run	# Wks	Com Len	Day Part	← →	M	TU	W	TH	F	SA	SU	= #com X per Wk	Rate	$/Wk	$Total
													22.00		
															66.00
															100.00 Prod. fee
															166.00
															14.83 tax

Total ______ $ ______ + tax

180.83

JAN	FEB	MAR	APRIL	MAY	JUNE
JULY	AUG	SEPT	OCT	NOV	DEC

Advertiser Approval: ______ Print Name: ______ Date: ______

Sales Rep: Rudy S. Date: ______ Station Approval: ______ Date: ______

KDCE RADIO 950-AM
"RADIO QUE DICE"
403 WEST PUEBLO DRIVE
ESPANOLA,NM 87532
Phone:505-753-2201 or 505-982-4444
Fax:505-753-8685

Invoice# KDCE027422102090034968

Invoice dated: 10/20/2022
Calendar Broadcast Period: 10/1/2022 - 10/31/2022
Account# 274 Salesperson: RUDY SISNEROS

ESPANOLA TRANSIT MIX
ACCOUNTS PAYABLE
1310 N. RIVERSIDE DR.
ESPANOLA, NM 87532

Balance Forward:		$0.00
Order#31617 (75737) 3 @ $22.00 [10/21/2022-10/21/2022] (#1200031617)	$66.00	
Total Spot Sales This Month:	$66.00	
Order#31618 (75738) $100.00 Production Fee /EPA Announcement	$100.00	
Total Recurrent Sales This Month:	$100.00	
Order Invoice Details:		
Order Invoice # 1200031617 KDCE RADIO 950-AM	$66.00	
Gross Sales This Month:	$166.00	
Sales Tax:	$14.84	
Net Sales This Month:		$180.84
Payments Applied This Month:		
10/20/2022 $180.83 KDCE		
Payments Received This Month:		
10/20/2022 Check # 3970-1973/EPA Announcement 2022	$180.83	
Total Payments This Month:		$180.83
Total Adjustments This Month:		$0.00
Total Finance Charge This Month:		$0.00
Current Net Balance (Pay this amount):		

BANKCARD SALES SLIP 2 PT. 6684G FORM SD-59082

DO NOT WRITE ABOVE THIS LINE

4154-1793-5269-3970
V-461
EXPIRATION 5/24 DATE CHECKED

Espanola Transit Mix
1310 N. Riverside Dr.
Española, nm 87532

SIGN HERE
X Phone Authorized

The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such card.

PLEASE DO NOT WRITE ABOVE THIS LINE

QTY.	CLASS	DESCRIPTION	PRICE	AMOUNT
(3)		Spots @	22.00	66.00
		Production Fee		100.04
		EPA Announcement		

DATE 10/20/22	AUTHORIZATION 04116G	SUB TOTAL	166.00
REFERENCE NO.	SERVER 5	TAX	14.83
ID-FOLIO / CHECK NO. / LIC. NO. STATE	REG./DEPT CLERK	TIP / MISC.	
5281973		TOTAL	$180.83

SALES SLIP ORIGINAL

Section 10

Written Description of the Routine Operations of the Facility

---

A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

Espanola Transit Mix, LLC (ETM) is applying for a new 20.2.72 NMAC air quality permit for a 230 ton per hour (TPH) hot mix asphalt plant (HMA Plant #6).

TABLE 10-1: Material Throughputs for Each Plant

Plant	Tons Per Hour	Tons Per Day	Tons Per Year
Plant #6 HMA	230	2,300	839,500

HMA Plant #6

The 230 tph hot mix asphalt plant will include aggregate storage piles, a 4-bin cold aggregate feeder, two (2) scalping screens, RAP feeder, RAP single deck screen, RAP dual-drum roll breaker, drum dryer/mixer with baghouse, incline conveyor, two (2) asphalt silos, asphalt heater, six (6) transfer conveyors, and two (2) asphalt cement storage tanks. The plant will be powered by commercial line power. Processed asphalt will be transported from the HMA plant off-site for use at construction locations.

Cold aggregate or RAP from the aggregate and RAP storage piles (Units 13a and 13b) is transferred to the feed bin or RAP feed bin (Units 6a and 8). From the aggregate feed bin, the material is transferred to a conveyor (Unit 3a) and moved to the scalping screen (Unit 6b) where oversized aggregate is removed. From the scalping screen, material is transferred to a conveyor (Unit 3b) and moved to and transferred onto the drum sling conveyor (Unit 3c), where the aggregate sent to the drum dryer/mixer (Unit 1). Material from the RAP feed bin is transferred onto a conveyor (Unit 3d) and moved to the RAP Crusher (Unit 9). Material from the RAP Crusher is conveyed (Unit 3e) to the RAP Screen (Unit 11). Material from the RAP Screen is either returned to the RAP loading bin (Unit 8) (for oversized to return to the RAP crusher) or conveyed (Unit 3f) and (Unit 3g) and added to the dryer/mixer. Mixer material within the dryer/mixer is dried and asphalt cement, from one of three asphalt cement tanks (Unit 7) and Evotherm, is added to the dryer/mixer. From the drum dryer/mixer, asphalt is sent by incline conveyor (Unit 12) (slat conveyor) to the asphalt storage silo (Unit 11), where the asphalt is then loaded into asphalt trucks (Unit 4) for delivery. A process flow diagram is presented as Figure 4-1.

A baghouse (Unit 2) is used to control particulate emissions for the drum dryer/mixer during asphalt production. Asphalt fines collected at the baghouse is returned to the drum/mixer via a closed loop system. Unloading of the 4-bin cold aggregate feeder or RAP feeder will be controlled by enclosures and/or water sprays, as needed, to minimize visible emissions. This additional moisture will control visible emissions at down stream material handling sources. If excessive visible emissions are observed the water sprays will be turned on and if needed additional water sprays will be installed. Haul road traffic will be controlled with base course and watering per the NMED's policy. The HMA plant will limit production throughput to 2,300 tons per day (operating at maximum production of 230 tons per hour for 10 hours per day), for 7 days per week, 52 weeks per year, or a maximum of 7486 hours per year. The proposed operating schedule includes required hours of a 24 hour calendar day during spring through fall. Operations during the winter months will be limited to between the hours of 7:00 am to 5:00 pm. The hours of operation are presented in Table 3-1.

Section 11
Source Determination

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

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

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

A. Identify the emission sources evaluated in this section (list and describe)**:** New HMA Plant, Aggregate Plant - Permit No. 1147 (Provides aggregate to HMA, but less than 50% of the aggregate material processed for aggregate plant), Concrete Batch Plant – Permit No. 3003, Aggregate Wet Screening Plant – No. Permit 2749, Aggregate Wet Screening Plant - Permit No 2879

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

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

☐ **Yes** **X No**

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

X Yes ☐ **No**

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

X Yes ☐ **No**

C. Make a determination:

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

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

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is a "synthetic minor" source

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

a. **NOx: 12.1 TPY**
b. **CO: 56.4 TPY**
c. **VOC: 18.6 TPY**
d. **SOx: 1.45 TPY**
e. **PM: 49.2 TPY**
f. **PM10: 19.8 TPY**
g. **PM2.5: 11.2 TPY**
h. **Lead: 0.00027 TPY**
i. **GHG: 15326 TPY**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

No, this facility is not a major source. The facility consists of aggregate processing plants and HMA plants. Aggregate processing falls under 2-digit SIC Code Group 14 and HMA plants falls under 2-digit SIC Code Group 29. While aggregate material from aggregate processing plants is used in the HMA plant, since they are operating under different SIC Codes and less than 50% of the aggregate processed is used in the HMA, they are separate facilities for major source determination. Additionally, the combined emissions from the facility of any PSD pollutant is less than 100 tons per year.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:
For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

Table for STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This facility is subject to 20.2.7 NMAC.
20.2.11 NMAC	Asphalt Process Equipment	Yes	1, 2	This source is subject to 20.2.11.108 NMAC and 20.2.11.109 NMAC.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	5	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation. The facility stationary combustion equipment is subject to a 20 percent opacity limit.
20.2.70 NMAC	Operating Permits	No	Facility	This facility is not a Title V Operating Permit source. The facility consists of aggregate processing plants and HMA plants. Aggregate processing falls under 2-digit SIC Code Group 14 and HMA plants falls under 2-digit SIC Code Group 29. While aggregate material from aggregate processing plants is used in the HMA plant, since they are operating under different SIC Codes they are separate facilities for major source determination.
20.2.71 NMAC	Operating Permit Fees	No	Facility	This facility is not a Title V Operating Permit source.
20.2.72 NMAC	Construction Permits	Yes	Facility	Potential emission rate (PER) for the facility is greater than 10 pph or greater than 25 tpy for any pollutant subject to a state or federal ambient air quality standard.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	**NOI:** 20.2.73.200 NMAC applies (requiring a NOI application) **Emissions Inventory Reporting:** 20.2.73.300 NMAC applies.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	This facility is not a PSD major source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This facility is subject to 20.2.72 NMAC and is in turn subject to 20.2.75 NMAC.
20.2.77 NMAC	New Source Performance	Yes	Units subject to 40 CFR 60	This is a stationary source, which is subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	No	Units Subject to 40 CFR 61	This facility doesn't emit hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This facility is located in an Attainment Area.
20.2.80 NMAC	Stack Heights	Yes	2, 5	The objective of this Part is to establish requirements for the evaluation of stack heights and other dispersion techniques in permitting decisions. The Department shall give no credit for reductions in emissions due to the length of a source's stack height that exceeds good engineering practice or due to any other dispersion technique. The facility will meet all requirements of good engineering practices.

Table for Applicable FEDERAL REGULATIONS:

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This is a 20.2.72 NMAC permit application.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Units subject to 40 CFR 60	Subpart I in 40 CFR 60 applies.
NSPS 40 CFR60.40, Subpart I	Subpart I, Performance Standards for **Hot Mix Asphalt Facilities**	Yes	1, 2	The affected facility, that commences construction or modification after June 11, 1973, to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No		This facility does not have storage vessels with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	Units Subject to 40 CFR 61	Applies if any other Subpart in 40 CFR 61 applies.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☐ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

Operational Plan to Mitigate Emissions and **Plan of Work Practices**

Startup
Prior to the production of asphalt, the drum mixer dust collector will be operational and functioning correctly per 20.2.11.108.A, 20.2.11.109, and applicable permit conditions.

Prior to the production of asphalt, feeder bin exit enclosures or other control measures will be functioning correctly to control fugitive emissions to an opacity limit of 20 percent per EPA Reference Method 9.

Prior to the production of asphalt, water sprays, or other control measures, for the crusher and scalping screens will be functioning correctly and used as needed, to control fugitive emissions to an opacity limit of 20 percent per EPA Reference Method 9.

Prior to unloading of the drum mixer dust collector baghouse fines, dust control measures will be functioning correctly to control fugitive emissions to an opacity limit of 20 percent per EPA Reference Method 9.

Upon visual inspection, unpaved haul roads will be controlled with water and basecourse, to minimize fugitive dust as required under applicable permit conditions.

Shutdown
All required control equipment will operate until all asphalt production ceases.

Maintenance
The feeder bin exit enclosures, asphalt drum mixer, drum mixer dust collector, equipment water sprays will be maintained to prevent excess emissions during startup or shutdown. This facility will not have excess emissions during any maintenance procedures.

Malfunction
Upon malfunction where excess particulate emissions are observed from the feeder bin exit enclosures, asphalt drum mixer, drum mixer dust collector, crusher, screens, and baghouse loadout enclosure, all asphalt production will cease until repairs to control equipment are made.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

No Alternative Operating Scenarios are Proposed for this Application.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

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

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

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

☐ No modeling is required.

Universal Application 4

Air Dispersion Modeling Report

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

16-A: Identification

1	Name of facility:	230 ton per hour Almix hot drum mix asphalt plant
2	Name of company:	Espanola Transit Mix, LLC
3	Current Permit number:	New Permit
4	Name of applicant's modeler:	Paul Wade, Montrose Environmental Solutions, Inc.
5	Phone number of modeler:	(505) 830-9680 ext 6
6	E-mail of modeler:	pwade@montrose-env.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes☐	No☒
2	Why is the modeling being done?	New Facility	
3	Describe the permit changes relevant to the modeling.		
	Modeling is for a new 230 tons per hour HMA plant at the Espanola site. Presently, a HMA exists on the site operating under Permit 0719, but ETM will operate only one HMA plant in any 24 hour day. This scenario will be a permit condition with a sunset clause. Operation of the existing HMA will allow the new HMA to be tested and fine-tuned without interruption to customers.		
4	What geodetic datum was used in the modeling?	NAD83	
5	How long will the facility be at this location?	Permanent	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒

7	Identify the Air Quality Control Region (AQCR) in which the facility is located	157	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	None	
	SO2	None	
	PM10	None	
	PM2.5	None	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Pecos Wilderness Area – 19.7 km Bandelier Wilderness Area – 31.7		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
11	Describe any special modeling requirements, such as streamline permit requirements.		
	None		

16-C: Modeling History of Facility

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

1	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
	CO	Permit 3003-M1	12/22/2005	For Espanola Facility Site
	NO_2	Permit 3003-M1	12/22/2005	For Espanola Facility Site
	SO_2	Permit 3003-M1	12/22/2005	For Espanola Facility Site
	H_2S	None		
	PM2.5	None		
	PM10	Permit 3003-M1	12/22/2005	For Espanola Facility Site
	Lead	None		
	Ozone (PSD only)	None		
	NM Toxic Air Pollutants (20.2.72.402 NMAC)	None		

16-D: Modeling performed for this application

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

1	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	CO	☒	☐	☐	☐	☐
	NO_2	☒	☒	☐	☐	☐

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

16-E: New Mexico toxic air pollutants modeling

1 List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.

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

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
Asphalt Fumes	2.80	0.333	7.0676	5	0.56

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes☐	No☒
	Volume sources will be treated as flat terrain sources.		

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	01/14/2022

2 If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.

AQB Source ID	Description of Corrections
	PM10 and PM2.5 GCP emission sources were set to 71.25 tpy and 17.875 tpy, respectively. GCP2 and GCP3 hours of operation were limited to daylight hours only. For 26296@1, DTT Sand & Gravel Inc - Crushing & Screening Plant No1 GCP2-3541, I located it to the correct coordinates and reduced the SYINT from 430 to 100.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	4

2	How many above ground storage tanks are present at the facility?	0		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☒	No☐
	While downwash was used, no impacts to point sources with determined by analysis with running Prime.			
4	Building comments	Buildings included office and warehouse on-site and Walmart and Lowes stores next to site.		

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.					
	Fencing and Gates					
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?				Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?				Yes☒	No☐
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.					
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
	Fine	Cartesian	50	Fenceline	500 m	
	Fine	Cartesian	100	500 m	1 km	
	Course	Cartesian	250	1 km	3 km	
	Course	Cartesian	500	3 km	5 km	
	Very Course	Cartesian	1000	5 km	10 km	
5	Describe receptor spacing along the fence line.					
	50 meters					
6	Describe the PSD Class I area receptors.					
	None					

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☒	No☐
	The site is located within Espanola. Located nearby are several merchant stores, parks, and residences. No hospitals and schools are located within ½ mile.		
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	No☒

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
	Various hours of operation are identified in the tables below. Presently, the Espanola facility has an HMA plant operating under Permit 0719. With this new HMA Permit to the site, only one HMA plant will be operated during any 24 hour period (12 AM to 12 AM).		
2	Which scenario produces the highest concentrations? Why?		
	Scenarios 12 and 11 produce the highest concentrations of PM10 and PM2.5. These hours include late evening and early morning hours where low wind speed and inversions occur.		
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes☒	No☐
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:		

5

Model Hours for HMA and Concrete Batch Plant

	Winter	Spring	Summer	Fall
12:00 AM	0	1	1	1
1:00 AM	0	1	1	1
2:00 AM	0	1	1	1
3:00 AM	0	1	1	1
4:00 AM	0	1	1	1
5:00 AM	0	1	1	1
6:00 AM	0	1	1	1
7:00 AM	1	1	1	1
8:00 AM	1	1	1	1
9:00 AM	1	1	1	1
10:00 AM	1	1	1	1
11:00 AM	1	1	1	1
12:00 PM	1	1	1	1
1:00 PM	1	1	1	1
2:00 PM	1	1	1	1

3:00 PM	1	1	1	1
4:00 PM	1	1	1	1
5:00 PM	0	1	1	1
6:00 PM	0	1	1	1
7:00 PM	0	1	1	1
8:00 PM	0	1	1	1
9:00 PM	0	1	1	1
10:00 PM	0	1	1	1
11:00 PM	0	1	1	1
Total	12	24	24	24

Aggregate and Wet Screen Plants Hours of Operation (MST)

	Winter	Spring	Summer	Fall
12:00 AM	0	0	0	0
1:00 AM	0	0	0	0
2:00 AM	0	0	0	0
3:00 AM	0	0	0	0
4:00 AM	0	0	0	0
5:00 AM	0	0	0	0
6:00 AM	0	0	1	0
7:00 AM	0	1	1	1
8:00 AM	1	1	1	1
9:00 AM	1	1	1	1
10:00 AM	1	1	1	1
11:00 AM	1	1	1	1
12:00 PM	1	1	1	1
1:00 PM	1	1	1	1
2:00 PM	1	1	1	1
3:00 PM	1	1	1	1
4:00 PM	1	1	1	1
5:00 PM	0	1	1	1
6:00 PM	0	0	0	0
7:00 PM	0	0	0	0
8:00 PM	0	0	0	0
9:00 PM	0	0	0	0
10:00 PM	0	0	0	0
11:00 PM	0	0	0	0
Total	9	11	12	11

The model hours for the Concrete Batch Plant and Relocated HMA #1349.

Modeled Hours of Operation for HMA and Concrete Plants Per Scenario

Model Scenario	Winter	Spring	Summer	Fall
1	7 AM to 5 PM	12 AM to 10 PM	12 AM to 10 PM	12 AM to 10 PM
2	7 AM to 5 PM	2 AM to 12 PM	2 AM to 12 PM	2 AM to 12 PM
3	7 AM to 5 PM	4 AM to 2 PM	4 AM to 2 PM	4 AM to 2 PM
4	7 AM to 5 PM	6 AM to 4 PM	6 AM to 4 PM	6 AM to 4 PM
5	7 AM to 5 PM	8 AM to 6 PM	8 AM to 6 PM	8 AM to 6 PM
6	7 AM to 5 PM	10 AM to 8 PM	10 AM to 8 PM	10 AM to 8 PM
7	7 AM to 5 PM	12 PM to 10 AM	12 PM to 10 AM	12 PM to 10 AM
8	7 AM to 5 PM	2 PM to 12 AM	2 PM to 12 AM	2 PM to 12 AM
9	7 AM to 5 PM	4 PM to 2 AM	4 PM to 2 AM	4 PM to 2 AM
10	7 AM to 5 PM	6 PM to 4 AM	6 PM to 4 AM	6 PM to 4 AM
11	7 AM to 5 PM	8 PM to 6 AM	8 PM to 6 AM	8 PM to 6 AM
12	7 AM to 5 PM	10 PM to 8 AM	10 PM to 8 AM	10 PM to 8 AM

The model hours for the Aggregate Plant Permit #1147.

Modeled Hours of Operation for Aggregate Plant Permit #1147 Per Scenario

Model Scenario	Winter	Spring	Summer	Fall
1-6	8 AM to 4:30 PM	7 AM to 3:30 PM	6 AM to 2:30 PM	7 AM to 3:30 PM
7-12	8:30 AM to 5 PM	9:30 AM to 5 PM	9:30 AM to 5 PM	9:30 AM to 5 PM

The model hours for the Aggregate Plant Permits #2749 and #2879.

Modeled Hours of Operation for Aggregate Plant Permit #2749 and #2879 Per Scenario

Model Scenario	Winter	Spring	Summer	Fall
1-6	8 AM to 4 PM	7 AM to 3 PM	6 AM to 2 PM	7 AM to 3 PM
7-12	9 AM to 5 PM	10 AM to 5 PM	10 AM to 5 PM	10 AM to 5 PM

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☐	No☒

16-L: NO_2 Modeling

Which types of NO_2 modeling were used?
Check all that apply.

1	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM

	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	ARM2 method was used for both ROI and Cumulative modeling	
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒ No☐
4	Describe the design value used for each averaging period modeled.	
	1-hour: 98th percentile as calculated by AERMOD Annual: Highest Annual Average of Three Years	

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10
	☒	None
2	Describe the particle size distributions used. Include the source of information.	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒ No☐
4	Was secondary PM modeled for PM2.5?	Yes☒ No☐

5 If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-hour}}$
55.2	2.8	0.000095	0.0019

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

$PM_{2.5}$ annual = ((55.2/130260) + (2.8/53898)) x 0.2 µg/m^3 = **0.000095µg/m^3**

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

$PM_{2.5}$ 24 hour = ((55.2/42498) + (2.8/9753)) x 1.2 µg/m^3 = **0.0019 µg/m^3**

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.

	While the HMA is a portable source, it will locate as a permanent location.
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.

16-O: PSD Increment and Source IDs

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

Unit Number in UA-2		Unit Number in Modeling Files
Almix HMA Permit 1349		
1	1349_STK	HMA Baghouse Stack Unit 1,2
3a	1349_T1	HMA Bin Unloading Unit 3a
3b	1349_T2	HMA Scalping Screen Unloading Unit 3b
3c	1349_T3	HMA Conveyor to Sling Conveyor Unit 3c
3d	1349_T4	HMA RAP Bin Unloading Unit 3d
3e	1349_T5	HMA RAP Screen Recycle Unloading Unit 3e
3f	1349_T6	HMA RAP Screen Unloading Unit 3f
3g	1349_T7	HMA RAP Transfer Point Unit 3g
4	1349_SILOU	HMA Asphalt Silo Unloading Unit 4
5	1349_HEAT	HMA Asphalt Cement Heater Unit 5
6a	1349_BIN	HMA Bin Loading Bin Unit 6a
6b	1349_SCR	HMA Scalping Screen Unit 6b
7	1349_TANK	Asphalt Cement Storage Tank Unit 7
8	1349_RBIN	HMA RAP Bin Loading Unit 8
9	1349_RAPC	HMA RAP Crusher Unit 9
10	1349_RAPS	HMA RAP Screen Unit 10
12	1349_SILO	HMA Drum Mixer Unloading Unit 12
13a	1349_P1	HMA Storage Pile Handling 1
	1349_P2	HMA Storage Pile Handling 2
	1349_P3	HMA Storage Pile Handling 3
	1349_P4	HMA Storage Pile Handling 4
13b	1349_RAPP	HMA RAP Storage Pile Handling
14	ASP_0001-0156	HMA Haul Road Paved Asphalt
15	ASP_0075-0156	Yard Emissions
Concrete Batch Plant permit 3003		
1	CBP1	CBP Aggregate Feeder Unit 1
2	CBP2	CBP Aggregate Feeder Conveyor Unit 2
3	CBP3	CBP Aggregate Bins and Weigh Hopper Unit 3
4	CBP4	CBP Cement and Supplement Weigh Hopper Unit 4

5	CBP5	CBP Cement Silo Baghouse Unit 5
6	CBP6	CBP Supplement Silo Baghouse Unit 6
7	CBP7	CBP Cement Truck Loading Unit 7
8	CBPPILE1	CBP Storage Pile 1 Unit 8
8	CBPPILE2	CBP Storage Pile 2 Unit 8
8	CBPPILE3	CBP Storage Pile 3 Unit 8
9	CBP_0001-0012	CBP Haul Road Unit 9
Aggregate Wet Screening Plant Permit 2749		
	2749_RAW	Permit 2749 Raw Storage Pile
1	2749_1a	Permit 2749 Feeder Unit 1
1	2749_1b	Permit 2749 Jaw Crusher Unit 1
2	2749_2	Permit 2749 Cone Crusher Unit 2
3	2749_3	Permit 2749 Screen CR7203 Unit 3
4	2749_4	Permit 2749 Screen CR6203 Unit 4
5	2749_5	Permit 2749 Screen Unit 5
6	2749_6	Permit 2749 Conveyor Unit 6
7	2749_7	Permit 2749 Conveyor Unit 7
8	2749_8	Permit 2749 Conveyor Unit 8
16	2749_16	Permit 2749 Stacker Conveyor Unit 16
Aggregate Plant Permit 1147		
Raw Material	1147_RAW	Permit 1147 Raw Material Storage Pile
1	1147_1A	Permit 1147 Feeder Main Unit 1
1	1147_1B	Permit 1147 Feeder VSI Circuit Unit 1
1	1147_1C	Permit 1147 Jaw Crusher Unit 1
2	1147_2	Permit 1147 Cone Crusher Unit 2
3	1147_3	Permit 1147 Cone Crusher Unit 3
4	1147_4	Permit 1147 Cone Crusher Unit 4
5	1147_5	Permit 1147 Impact Crusher Unit 5
6	1147_6	Permit 1147 Screen Unit 6
7	1147_7	Permit 1147 Screen Unit 7
8	1147_8	Permit 1147 Screen Unit 8
9	1147_9	Permit 1147 Conveyor Unit 9
10	1147_10	Permit 1147 Conveyor Unit 10
11	1147_11	Permit 1147 Conveyor Unit 11
12	1147_12	Permit 1147 Conveyor Unit 12
13	1147_13	Permit 1147 Conveyor Unit 13
14	1147_14	Permit 1147 Conveyor Unit 14
15	1147_15	Permit 1147 Conveyor Unit 15
16	1147_16	Permit 1147 Conveyor Unit 16
17	1147_17	Permit 1147 Conveyor Unit 17
18	1147_18	Permit 1147 Conveyor Unit 18

19	1147_19	Permit 1147 Conveyor Unit 19
20	1147_20	Permit 1147 Conveyor Unit 20
21	1147_21	Permit 1147 Conveyor Unit 21
22	1147_22	Permit 1147 Conveyor Unit 22
23	1147_23	Permit 1147 Conveyor Unit 23
24	1147_24	Permit 1147 Conveyor Unit 24
25	1147_25	Permit 1147 Conveyor Unit 25
26	1147_26	Permit 1147 Conveyor Unit 26
27	1147_27	Permit 1147 Conveyor Unit 27
Finish Piles	1147_FP1	Permit 1147 Stacker Loading 1
	1147_FP2	Permit 1147 Stacker Loading 2
	1147_FP3	Permit 1147 Stacker Loading 3
	1147_FP4	Permit 1147 Stacker Loading 4
	1147_FP5	Permit 1147 Stacker Loading 5
	1147_FP6	Permit 1147 Stacker Loading 6
	1147_FP7	Permit 1147 Stacker Loading 7
	1147_TL	Permit 1147 Truck Load Base Course
28	1147_28	Permit 1147 Engine/Generator Unit 28
29	1147_29	Permit 1147 Engine/Generator Unit 29
Aggregate Wet Screening Plant Permit 2879		
Raw Material	2879_RAW	Permit 2879 Raw Material Storage Pile
1	2879_1	Permit 2879 Wet Screen Unit 1
2	2879_2	Permit 2879 Conveyor Unit 2
8	2879_8	Permit 2879 Engine/Generator Unit 8
9	2879_9	Permit 2879 Feeder Unit 9
Haul Road	HR1_0001-0125	Aggregate Haul Road In
Haul Road	HR2_0001-0094	Aggregate Haul Road Out

	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☐	No☒

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

Permit ID	Model ID	Source Description	Permit Emission Rate PM10 Lb/Hr	Permit Emission Rate PM2.5 Lb/Hr	Modeled Emission Rate PM10 Lb/Hr	Modeled Emission Rate PM2.5 Lb/Hr
13a	1349_P1-P4	Cold Aggregate Storage Piles (4)	0.42359	0.06414	0.35009	0.05301
6a	1349_BIN	Cold Aggregate Feed Bin (5) Loading	0.42359	0.06414	0.35009	0.05301

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

4 Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
NA				

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).		
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☐	No☒

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	NA			

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	NMED Defaults for crusher, screen and transfer points. Storage Piles sigma-Y = 4.25 (60 feet), sigma-Z 2.2677 (16 feet)		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	Same		
4	Describe any open pits.		
	None		
5	Describe emission units included in each open pit.		
	None		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☐

	CO: Del Norte High School (350010023)			
	NO_2: Bloomfield (350450009)			
	PM2.5: N/A			
	PM10: Santa Fe (350490020)			
	SO_2: Bloomfield(350450009)			
	Other:			
	Comments:	PM2.5 (350490021) average background from Santa Fe Airport 2018 – 2020; 98th 24 hour – 9.2 ug/m3, Annual Average – 3.7 ug/m3		
2	Were background concentrations refined to monthly or hourly values? If so describe below.		Yes☐	No☒

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used. Santa Fe Year 2017 - 2021	Yes☒	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		

16-T: Terrain

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

16-U: Modeling Files

Describe the modeling files:

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
Espanola Combust ROI	NOx, CO, SO2	ROI
Espanola PM ROI S1-12	PM10 and PM2.5	ROI
Espanola NO2 1hr ARM	NO2	Cumulative
Espanola NO2 Annual ARM	NO2	Cumulative
Espanola SO2 1hr	SO2	Cumulative
Espanola AF 1hr	Asphalt Fumes	Cumulative
Espanola PM10 S1, S2, S3, S8, S9, S10, S11, S12	PM10 24 hour	Cumulative

	Espanola PM2.5 S1, S2, S3, S8, S9, S10, S11, S12	PM2.5 24 hour and Annual	Cumulative
	Note: PM10 and PM2.5 cumulative modeling was done for the scenario that bracketed the highest in the PM ROI modeling.		

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	No☒
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☐
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☒	No☐
	PM2.5 Secondary calculated		

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☐	No☒
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
NOx – 1hr	166.5	166.6	---	---	166.6	188.03	88.6	403768.45	3985966.55	1709.06
NOx - Annual	16.4	16.9	---	---	16.9	94.02	18.0	403768.45	3985966.55	1709.06
CO – 1hr	505	---	---	---	---	SIL – 2000	25.3	403700.3	3986097.5	1709.68
CO – 8hr	157	---	---	---	---	SIL – 500	31.4	403800.0	3986050.0	1710.16
SO_2 – 1hr	15.1	15.1	---	---	15.1	196.4	7.7	403768.45	3985966.55	1709.06
$PM_{2.5}$ – 24hr	17.44	17.79	0.0019	9.2	27.0	35	77.1	403700.3	3986097.5	1709.68
$PM_{2.5}$ – Annual	5.68	5.87	0.000095	3.7	9.6	12	79.8	403700.3	3986097.5	1709.68
PM_{10} – 24hr	126.4	127.0	---	19.0	146.0	150	97.3	403700.3	3986097.5	1709.68
Asphalt Fumes – 8Hr	17.1	---	---	---	17.1	50	34.2	403700.3	3986097.5	1709.68

16-X: Summary/conclusions

	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	Dispersion modeling was performed for this new HMA plant permit application. All facility pollutants with ambient air quality standards were modeled to show compliance with those standards. All results of this modeling showed the facility would comply with applicable state and federal ambient air quality standards.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

New NSR facility

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No additional relevant information is required for this facility.

Section 22: Certification

Company Name: Espanola Transit Mix, LLC

I, Katharine Fishman, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 17th day of October, 2022, upon my oath or affirmation, before a notary of the State of

New Mexico.

*Signature

10/17/2022
Date

Katharine Fishman
Printed Name

Manager
Title

Scribed and sworn before me on this 17th day of October, 2022.

My authorization as a notary of the State of New Mexico expires on the

1st day of June, 2025.

Notary's Signature

10/17/2022
Date

Rebecca M. Martinez
Notary's Printed Name

STATE OF NEW MEXICO
NOTARY PUBLIC
REBECCA M. MARTINEZ
Commission Number 1101494
My Commission Expires June 01, 2025

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

Espanola Transit Mix, LLC 88923

VENDOR NO: 14148 NAME: NEW MEXICO ENVIRONMENT DEPT. CHECK DATE: 10/12/2022

REFERENCE	INVOICE DATE	GROSS AMOUNT	DISCOUNT TAKEN	NET AMOUNT PAID
10122022 APP FEE	10/12/2022	500.00	0.00	500.00
TOTAL >		500.00	0.00	500.00

THIS CHECK IS VOID WITHOUT A GREEN & BLUE BORDER AND BACKGROUND PLUS A KNIGHT & FINGERPRINT WATERMARK ON THE BACK - HOLD AT ANGLE TO VIEW

Espanola Transit Mix, LLC
1302 N. Riverside Drive
Espanola, NM 87532
(505) 753-2176

Century Bank
322 N. Riverside Drive
Espanola, NM 87532

88923

DATE: 10/12/2022

VOID VOID VOID VOID VOID VOID VOID VOID

PAY ONLY 5 0 0 00 CENTS

$500.00

PAY Five Hundred and 00/100 Dollars****
****

TO THE ORDER OF
NEW MEXICO ENVIRONMENT DEPT.
AIR QUALITY BUREAU
525 CAMINO DE LOS MARQUEZ, SUITE 1
SANTA FE, NEW MEXICO 87505-1816

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