


**20.11.41 NMAC
“AUTHORITY-TO-CONSTRUCT”
AIR QUALITY PERMIT 1638-M2
MODIFICATION APPLICATION**

Albuquerque, New Mexico

**PREPARED FOR
SHIVER REDI-MIX, LLC dba
DUKE CITY REDI-MIX**

REVISED APRIL 2026

Application Received April 16, 2026 

Prepared by

Montrose Environmental Solutions, Inc



Introduction

Shiver Redi-Mix, LLC dba Duke City Redi-Mix (Duke City) is applying for a 20.11.41 NMAC Permit Modification for existing Permit 1638-M3, to operate a new portable recycle crushing plant which is proposed to be added to the existing portable concrete batch plant within the county of Bernalillo, state of New Mexico.

The proposed modification introduces a new portable recycle plant that is rated by the manufacturer at 300 tons per hour. However, the throughput will be limited to 250 tons per hour by the type of material processed. The proposed portable recycle crushing plant is a Model QI341HS Prisec Impactor portable plant manufactured by Sandvik and includes a raw and finish recycle storage piles.

Duke City has retained Montrose Environmental Solutions, Inc. (Montrose) to assist with the permit application. The plant is identified as Duke City Redi-Mix Broadway Blvd and is located at 7711 Broadway SE in Albuquerque, NM.

Duke City will limit the hourly and annual recycle crushing production to 250 tons per hour and 200,000 tons per year. Particulate emissions will be controlled by a wet dust suppression system for the screen, crusher, conveyors and stacker conveyor. Disturbed areas and material handling fugitive emissions will be controlled by the application of water, as needed.

A process flow diagram can be seen in Figure A-1. The recycle crushing plant site location and layout can be seen in Figure A-2. A facility location topographical map can be seen in Attachment D.

The preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown for the whole site are as follows:

STARTUP AND SHUTDOWN PROCEDURES

Water Truck

Startup

Check water supply, inspect nozzles and open all associated valves before startup.

Shutdown

Inspect nozzles and close all associated valves after shutdown.

Baghouse

Startup

Visual inspection of: product lines, vent lines and all fittings, including dust shroud, baghouse blower before startup.

Shutdown

Check that all pressurized systems are off.

Water Sprays

Startup

Visual inspection of nozzles, spray direction, water pressure, and all associated valves before startup.

Shutdown

Inspect nozzles and close all associated valves after shutdown.

OPERATIONS PLAN

Water Truck Operation

A water truck to be operated, as needed, at plant site disturbed areas, storage piles, and haul truck traffic areas to prevent excess visible emissions. These activities include; unpaved haul roads, storage piles and active disturbed areas. Water spray application rate will be determined based on the occurrence of visible dust and may vary depending on existing road conditions, traffic, wind, temperature, and precipitation.

Baghouse Operation

The baghouse will be operated at all times when pertinent equipment is operating. A visual inspection of the baghouse exit during operation will be done once per day to make sure no excess visible emissions occur to verify the baghouse is operating correctly.

Water Spray Operation

The water sprays will be during processing of recycle material to verify compliance with applicable opacity standards. A visual inspection of the water sprays nozzles during operation will be done once per day to make sure no excess visible emissions occur to verify the water sprays are operating correctly.

MAINTENANCE PLAN

Water Truck Maintenance

A safety check and equipment check will be conducted daily. Normal vehicle maintenance will be performed regularly or as needed.

Water Spray Maintenance

The water sprays will be inspected daily to verify that the water spray nozzles are functioning correctly without clogs or low water pressure. If the inspection identifies a problem, the issue will be corrected.

If you have any questions regarding this permit application, please call John Betz of Montrose Environmental Solutions, Inc. at (512) 968-2244 or Miles Shiver of Duke City Redi-Mix, LLC at (505) 877-5777.

The contents of this application packet include:

20.11.41 NMAC Pre-Application

20.11.41 NMAC Permit Checklist

20.11.41 NMAC Permit Fee Review

20.11.41 NMAC Permit Application Forms

Attachment A: Figure A-1: Facility Site Concrete Process Flow Diagram

Figure A-2: Facility Site Recycle Process Flow Diagram

Figure A-3: Facility Site Layout

Attachment B: Emission Calculations

Attachment C: Emission Calculations Background Data

Attachment D: Figure E-1: 7.5 Minute USGS Topographic Map

Attachment E: Facility Description

Attachment F: Regulatory Applicability Determinations

Attachment G: Dispersion Modeling Summary and Report

Attachment H: BACT Determination

Attachment I: Zoning Documentation

Attachment J: Public Notice Documentation

Compliance History Form



**City of Albuquerque
Environmental Health Department
Air Quality Program**



Pre-Permit Application Meeting Request Form

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
Air Quality Program
Permitting Division
P.O. Box 1293
Albuquerque, NM 87103

A copy of this form must be included as part of the application package.

Company/Organization:	Shiver Redi-Mix, LLC				
Current Permit #:	1638-M3				
Point of Contact: (phone number and email): Preferred form of contact (check one): <input type="checkbox"/> Phone <input type="checkbox"/> E-mail	Name: Paul Wade Phone: (505) 830-9680 x6 Email: pwade@montrose-env.com				
Preferred meeting dates/times: (provide several dates/times when applicant/consultant are available in the 1-2 weeks after submitting this form)	1 st date/ time(s) Mon-Tues Afternoon	2 nd date/ time(s) Wed-Fri All Day	3 rd date/ time(s)	4 th date/ time(s)	5 th date/ time(s)
Preferred meeting type (Zoom/In Person):	Zoom				
Description of Project:	Significant permit revision to add a 200 tph recycle crushing and screening plant to the permit. Update or remove some of the extraneous language that was submitted in the last permit revision.				



City of Albuquerque Environmental Health Department Air Quality Program



Construction Permit (20.11.41 NMAC) Application Checklist

This checklist must be returned with the application

Any person seeking a new air quality permit, a permit modification, or an emergency permit under 20.11.41 NMAC (Construction Permits) shall do so by filing a written application with the Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque (“City”) and Bernalillo County (“County”), on behalf of the City Environmental Health Department (“Department”).

The Department will rule an application administratively incomplete if it is missing or has incorrect information. The Department may require additional information that is necessary to make a thorough review of an application, including but not limited to technical clarifications, emission calculations, emission factor usage, additional application review fees if any are required by 20.11.2 NMAC, and new or additional air dispersion modeling.

If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The following are the minimum elements that shall be included in the permit application before the Department can determine whether an application is administratively complete and ready for technical review. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant’s duty to supplement and correct the application includes but is not limited to relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department’s review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING PERMIT APPEALS: A person who has applied for or has been issued an air quality permit by the Department shall be an obligatory party to a permit appeal filed pursuant to 20.11.81 NMAC.

NOTICE REGARDING SCOPE OF A PERMIT: The Department’s issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant’s/permittee’s responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

The Applicant shall:

20.11.41.13(A) NMAC – Pre-Application Requirements:

Item	Completed	N/A ¹	Waived ²
(1) Request a pre-application meeting with the Department using the pre-application meeting request form. Include a copy of the request form submitted to the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Attend the pre-application meeting. Date of pre-application meeting: September 16, 2025	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-application meeting agenda and public notice sign checklists included with application?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Not Applicable
2. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

20.11.41.13(B) NMAC – Applicant’s Public Notice Requirements:

Item	Included in Application	N/A ¹	Waived ²
(1) Provide public notice in accordance with the regulation, including by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located. The public notice shall include all information required by Subsection C of 20.11.41.13 NMAC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Contact list of representative(s) of recognized neighborhood associations and recognized coalitions cannot be more than three months old from the application submittal date. • Include memo with contact list provided by Department in application submittal. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Provide notice using the Notice of Intent to Construct form and Applicant Notice Cover Letter. 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) In accordance with the regulation, post and maintain a weather-proof sign provided by the Department in a visible location. The applicant shall keep the sign posted until the Department takes final action on the permit application. Include pictures in application showing location of sign and close-up showing information on sign.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentary proof of all public notice requirements listed above and required by 20.11.41.13(E)(15) included with application?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Not Applicable; For emergency permits, the public notice requirements in 20.11.41.24 NMAC shall apply instead.
2. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

20.11.41.13(D) NMAC

Item	Included in Application
A person who is seeking a construction permit pursuant to 20.11.41 NMAC shall complete a permit application and file one complete original and one duplicate copy with the Department.	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> • A high-quality electronic duplicate copy is required by the Department to speed up review and allow for the Department public notice to be posted online. The electronic copy must be an exact duplicate of the hardcopy original, including pages with signatures such as the application certification page. Note: Do not include financial information, such as a copy of a check, in the electronic PDF. 	<input checked="" type="checkbox"/>
The electronic submittal on thumb drive, unless alternate method is allowed by the Department, must also include modeling files, if applicable, and emission calculations file(s) in Microsoft Excel-compatible format.	<input checked="" type="checkbox"/>

The Permit Application shall include:

20.11.41.13(E) NMAC – Application Contents

Item	Included in Application	N/A ¹	Waived ²
(1) A complete permit application on the most recent form provided by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) The application form includes:			
a. The applicant’s name, street and post office address, and contact information;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The facility owner/ operator’s name, street address and mailing address, if different from the applicant;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The consultant’s name and contact information, if applicable;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. All information requested on the application form is included (<i>i.e.</i> , the form is complete).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) The date the application was submitted to the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Sufficient attachments for the following:			
a. Ambient impact analysis using an atmospheric dispersion model approved by the U.S. Environmental Protection Agency, and the Department to demonstrate compliance with the applicable National Ambient Air Quality Standards (NAAQS). <i>See 20.11.1 NMAC.</i> If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The air dispersion model has been executed pursuant to a protocol that was approved in advance by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Air dispersion modeling approved (or 2 nd denied) protocol date: 12/01/2025	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Basis or source for each emission rate (including manufacturer’s specification sheets, AP-42 section sheets, test data, or corresponding supporting documentation for any other source used).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. All calculations used to estimate potential emission rates and controlled/proposed emissions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design, drawing, test report and factors which affect the normal operation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Fuel data for each existing and/or proposed piece of fuel burning equipment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Stack and exhaust gas parameters for all existing and proposed emission stacks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) An operational and maintenance strategy detailing:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. the steps the applicant will take if a malfunction occurs that may cause emission of a regulated air contaminant to exceed a limit that is included in the permit;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. the nature of emissions during routine startup or shutdown of the source and the source’s air pollution control equipment; and	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. the steps the applicant will take to minimize emissions during routine startup or shutdown.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) A map, such as a 7.5’ topographic quadrangle map published by the U.S. Geological Survey or a map of equivalent or greater scale, detail and precision, including a City or County zone atlas map that shows the proposed location of the source. Show proposed/ existing process equipment locations on aerial photograph requested in item 7.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item	Included in Application	N/A ¹	Waived ²
(7) An aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the Department in writing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(8) A complete description of all sources of regulated air contaminants and	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. a process flow diagram depicting the process equipment unit or units at the facility, both existing and proposed, that are proposed to be involved in routine operations and from which regulated air contaminant emissions are expected to be emitted. Include fugitive emission points as well.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(9) A full description of air pollution control equipment, including all calculations and the basis for all control efficiencies presented, manufacturer's specifications sheets, and site layout and assembly drawings; UTM (universal transverse mercator) coordinates shall be used to identify the location of each emission unit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(10) A description of the equipment or methods proposed by the applicant to be used for emission measurement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(11) The maximum and normal operating time schedules of the source after completion of construction or modification, as applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(12) Any other relevant information as the Department may reasonably require, including without limitation:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Provide an applicability determination for all potentially applicable federal regulations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Applicants shall provide the Zoning Requirement Cover Letter Form, along with documentary proof that the proposed air quality permitted use of the facility's subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation includes: (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the property is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning departments if the property is not subject to City or County zoning jurisdiction. ³ A zone atlas map shall not be sufficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Compliance History Disclosure Form ⁴	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. BACT Analysis, if applicable, for new permit or permit modification applications.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(13) The signature of the applicant, operator, owner or an authorized representative, certifying to the accuracy of all information as represented in the application and attachments, if any.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(14) A check or money order for the appropriate application fee or fees required by 20.11.2 NMAC, Fees. (Online fee payments are now accepted as well. Application must be submitted first, then Department will provide invoice for online payment. Check box on Application Review Fee Checklist form to request invoice.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Not Applicable
2. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.
3. Applicants are not required to submit documentation for the subject property's zoning designation when applying for a relocation of a portable stationary source, or a technical or administrative revision to an existing permit.
4. Required for applications filed pursuant to the following regulations: Construction Permits (20.11.41 NMAC); Operating Permits (20.11.42 NMAC); Nonattainment Areas (20.11.60 NMAC); Prevention of Significant Deterioration (20.11.61 NMAC); and Acid Rain (20.11.62 NMAC); except this Form shall not be required for asbestos notifications under 20.11.20.22 NMAC, and this Form shall only be required for administrative permit revision (20.11.41.28(A) NMAC) and administrative permit amendments (20.11.42.12(E)(1) NMAC) when the action requested is a transfer of ownership. Air Quality Program staff can answer basic questions about the Compliance History Disclosure Form but will not provide specific advice about which boxes to check or whether information must be disclosed. The decision about how to answer a question and whether there is information to disclose is the responsibility of applicants/permittees.



**City of Albuquerque
Environmental Health Department
Air Quality Program**



Permit Application Review Fee Checklist Instructions

All source registration and construction permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modification/revision applications. Most air quality notification (AQN) applications shall be charged an application review fee according to 20.11.39 NMAC. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

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

1. Deliver it in person to the Albuquerque Environmental Health Department, 3rd floor, Room 3023, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM 87102; or
2. Mail it to Albuquerque Environmental Health Department, Air Quality Program, Permitting Division, P.O. Box 1293, Albuquerque, NM 87103; or
3. Online fee payments are now accepted as well. Application must be submitted first, then Department will provide invoice for online payment. Fill out form completely and mark check box below fee amount due on last page to request an invoice to pay the fee online.

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



**City of Albuquerque
Environmental Health Department
Air Quality Program**



Permit Application Review Fee Checklist Effective January 1, 2026 – December 31, 2026

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you have any questions concerning this checklist, please call (505) 768-1972.

I. COMPANY INFORMATION:

Company Name	Shiver Redi-Mix, LLC dba Duke City Redi-Mix		
Company Address	PO Box 9710, Albuquerque, NM 87119		
Facility Name	Duke City Redi-Mix Broadway Plant		
Facility Address	7711 Broadway Blvd SE, Albuquerque, NM 87105		
Contact Person	Miles Shiver IV		
Contact Person Phone Number	(505) 877-5777	Email	mshiver4@dukecityredimix.com
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
If yes, what is the current permit/registration/AQN number for this facility?	Permit # 1638-M3		
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III. For revisions or relocations please see Sections IV or V.

Check All That Apply	Stationary Sources	Review Fee	Program Element
Air Quality Notifications			
<input type="checkbox"/>	AQN New Application	\$720.00	2801
<input type="checkbox"/>	AQN Technical Amendment	\$393.00	2802
<input type="checkbox"/>	AQN Transfer of a Prior Authorization	\$393.00	2803
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
<input type="checkbox"/>	Source Registration required by 20.11.40 NMAC	\$734.00	2401
<input type="checkbox"/>	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$1,467.00	2301
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 1 tpy and less than 5 tpy	\$1,101.00	2302
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 5 tpy and less than 25 tpy	\$2,201.00	2303
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 25 tpy and less than 50 tpy	\$4,402.00	2304
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 50 tpy and less than 75 tpy	\$6,603.00	2305
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 75 tpy and less than 100 tpy	\$8,804.00	2306
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 100 tpy	\$11,005.00	2307
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	

Federal Program Review Fees for each subpart (In addition to the Stationary Source Application Review Fees above)			
<input type="checkbox"/>	40 CFR 60 – “New Source Performance Standards” (NSPS)	\$1,467.00	2308
<input type="checkbox"/>	40 CFR 61 – “National Emission Standards for Hazardous Air Pollutants” (NESHAPs)	\$1,467.00	2309
<input type="checkbox"/>	40 CFR 63 – (NESHAPs) Promulgated Standards	\$1,467.00	2310
<input type="checkbox"/>	20.11.64 – (NESHAPs) Case-by-Case MACT Review (Major HAP sources)	\$14,674.00	2311
<input type="checkbox"/>	20.11.61 NMAC – Prevention of Significant Deterioration (PSD) Permit	\$7,337.00	2312
<input type="checkbox"/>	20.11.60 NMAC – Non-Attainment Area Permit	\$7,337.00	2313
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	

III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II. For revisions or relocations please see Sections IV or V.

Check All That Apply	Modifications	Review Fee	Program Element
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
<input type="checkbox"/>	Proposed modification to an existing Source Registration required by 20.11.40 NMAC	\$734	2401
<input type="checkbox"/>	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$1,467	2321
<input type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 1 tpy and less than 5 tpy	\$1,101.00	2322
<input checked="" type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 5 tpy and less than 25 tpy	\$2,201.00	2323
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 25 tpy and less than 50 tpy	\$4,402.00	2324
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 50 tpy and less than 75 tpy	\$6,603.00	2325
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 75 tpy and less than 100 tpy	\$8,804.00	2326
<input type="checkbox"/>	Proposed Allowable Emission Rate equal to or greater than 100 tpy	\$11,005.00	2327
<input type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
<input type="checkbox"/>	20.11.60 NMAC – Permitting in Non-Attainment Areas	\$7,337.00	2333
<input type="checkbox"/>	20.11.61 NMAC – Prevention of Significant Deterioration	\$7,337.00	2334
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	
Federal Program Review Fees for each subpart (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)			
<input checked="" type="checkbox"/>	40 CFR 60 – “New Source Performance Standards” (NSPS)	\$1,467.00	2328
<input type="checkbox"/>	40 CFR 61 – “National Emission Standards for Hazardous Air Pollutants” (NESHAPs)	\$1,467.00	2329
<input type="checkbox"/>	40 CFR 63 – (NESHAPs) Promulgated Standards	\$1,467.00	2330
<input type="checkbox"/>	20.11.64 – (NESHAPs) Case-by-Case MACT Review (Major HAP sources)	\$14,674.00	2331
<input type="checkbox"/>	20.11.61 NMAC – Prevention of Significant Deterioration (PSD) Permit	\$7,337.00	2332
<input type="checkbox"/>	20.11.60 NMAC – Non-Attainment Area Permit	\$7,337.00	2333
<input type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	

IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:

If the application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.40 or 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
<input type="checkbox"/>	Administrative Revisions	\$250.00	2340
<input type="checkbox"/>	Technical Revisions	\$500.00	2341
<input checked="" type="checkbox"/>	Not Applicable	See Sections II, III or V	

V. PORTABLE STATIONARY SOURCE RELOCATION FEES:

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

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
<input type="checkbox"/>	No New Air Dispersion Modeling Required	\$500.00	2501
<input type="checkbox"/>	New Air Dispersion Modeling Required	\$750.00	2502
<input checked="" type="checkbox"/>	Not Applicable	See Sections II, III or IV	

VI. Please submit payment in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	\$0
Section III Total	\$5135
Section IV Total	\$0
Section V Total	\$0
Total Application Review Fee	\$5135

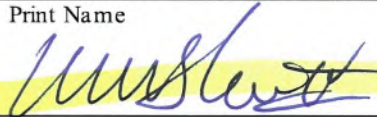
Check here if an invoice is requested so Application Review Fee can be paid online.

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

Signed this 15 day of April, 20 26

Miles Shiver IV
Print Name

CEO/Owner
Print Title


Signature

Definition of Qualified Small Business as defined in 20.11.2 NMAC:

“Qualified small business” means a business that meets all of the following requirements:

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

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



**City of Albuquerque – Environmental Health Department
Air Quality Program**

Please mail this application to **P.O. Box 1293, Albuquerque, NM 87103**
or hand deliver between 8:00 am – 5:00 pm Monday – Friday to:
3rd Floor, Suite 3023 – One Civic Plaza NW, Albuquerque, NM 87102
(505) 768-1972 aqd@cabq.gov



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

Submittal Date: April 15, 2026

Owner/Corporate Information Check here and leave this section blank if information is exactly the same as Facility Information below.

Company Name: Shiver Redi-Mix, LLC dba Duke City Redi-Mix			
Mailing Address: PO Box 9710	City: Albuquerque	State: NM	Zip: 87119
Company Phone: (505) 877-5777	Company Contact: Miles Shiver IV		
Company Contact Title: CEO/Owner	Phone: (505) 877-5777	E-mail: mshiver4@dukecityredimix.com	

Stationary Source (Facility) Information: Provide a plot plan (legal description/drawing of the facility property) with overlay sketch of facility processes, location of emission points, pollutant type, and distances to property boundaries.

Facility Name: Duke City Redi-Mix Broadway Blvd			
Facility Physical Address: 7711 Broadway Blvd SE	City: Albuquerque	State: NM	Zip: 87105
Facility Mailing Address (if different): PO Box 9710	City: Albuquerque	State: NM	Zip: 87119
Facility Contact: Miles Shiver IV	Title: CEO/Owner		
Phone: (505) 877-5777	E-mail: mshiver4@dukecityredimix.com		
Authorized Representative Name ¹ :	Authorized Representative Title:		

Billing Information Check here if same contact and mailing address as corporate Check here if same as facility

Billing Company Name:			
Mailing Address:	City:	State:	Zip:
Billing Contact:	Title:		
Phone:	E-mail:		

Preparer/Consultant(s) Information Check here and leave section blank if no Consultant used or Preparer is same as Facility Contact.

Name: John Betz	Title: Senior Scientist III		
Mailing Address: 9100 2nd St NW Suite 200	City: Albuquerque	State: NM	Zip: 87114-1664
Phone: Jobetz@montrose-env.com	Email: (512) 968-2244		

1. See 20.11.41.13(E)(13) NMAC.

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

General Operation Information (if any question does not pertain to your facility, type N/A on the line or in the box)

Permitting action being requested (please refer to the definitions in 20.11.40 NMAC or 20.11.41 NMAC):				
<input type="checkbox"/> New Permit	<input checked="" type="checkbox"/> Permit Modification Current Permit #: 1638-M3	<input type="checkbox"/> Technical Permit Revision Current Permit #:	<input type="checkbox"/> Administrative Permit Revision Current Permit #:	
<input type="checkbox"/> New Registration Certificate	<input type="checkbox"/> Modification Current Reg. #:	<input type="checkbox"/> Technical Revision Current Reg. #:	<input type="checkbox"/> Administrative Revision Current Reg. #:	
UTM coordinates of facility (Zone 13, NAD 83): 348,400 easting, 3,872,190 northing, Zone 13, NAD 83				
Facility type (<i>i.e.</i> , a description of your facility operations): Concrete Batch Plant				
Standard Industrial Classification (SIC Code #): 3273, 1499		North American Industry Classification System (NAICS Code #): 327320, 212319		
Is this facility currently operating in Bernalillo County? Yes		If YES , list date of original construction: 06/2001 If NO , list date of planned startup:		
Is the facility permanent? Yes		If NO , list dates for requested temporary operation: From Through		
Is the facility a portable stationary source? Yes		If YES , is the facility address listed above the main permitted location for this source? Yes		
Is the application for a physical or operational change, expansion, or reconstruction (<i>e.g.</i> , altering process, or adding, or replacing process or control equipment, etc.) to an existing facility? Yes				
Provide a description of the requested changes: a new portable recycle plant proposed to be added to the concrete batch plant operating under Permit #1638-M3.				
What is the facility's operation? <input checked="" type="checkbox"/> Continuous <input type="checkbox"/> Intermittent <input type="checkbox"/> Batch				
Estimated percent of production/operation:	Jan-Mar: 22%	Apr-Jun: 26%	Jul-Sep: 27%	Oct-Dec: 25%
Requested operating times of facility:	CBP: 24 Recycle Nov-Mar: 9 Recycle Apr-Oct: 10 hours/day	7 days/week	52 weeks/month	12 months/year
Will there be special or seasonal operating times other than shown above? This includes monthly- or seasonally-varying hours. No				
If YES , please explain:				
List raw materials processed: CBP: Aggregate, Sand, Cement, Fly Ash, Water, Additives. Recycle: Waste Concrete				
List saleable item(s) produced: Ready Mix Concrete				

USE INSTRUCTIONS: For the forms on the following pages, please do not alter or delete the existing footnotes or page breaks. If additional footnotes are needed then add them to the end of the existing footnote list for a given table. Only update the rows and cells within tables as necessary for your project. Unused rows can be deleted from tables. If multiple scenarios will be represented then the Uncontrolled and Controlled Emission Tables, and other tables as needed, can be duplicated and adjusted to indicate the different scenarios.

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

Regulated Emission Sources Table

(E.g., Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator-Haul Road-Storage Pile, etc.) Match the Units listed on this Table to the same numbered line if also listed on Emissions Tables & Stack Table.

Unit Number and Description ¹	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date ²	Process Rate or Capacity (Hp, kW, Btu, ft ³ , lbs, tons, yd ³ , etc.) ³	Fuel Type					
Concrete Batch Plant													
1.	CBP Haul Roads	N/A	N/A	N/A	N/A	6/2001	9/2/2020	36.5 TRUCK/HR. 162,051 TRUCK/YEAR.					
2.	Feeder	CON-E-CO	LO-PRO-12HP	CBH146980	TBD	6/2001	9/2/2020	337.5 TONS/HR. 1,500,000 TONS/YR.					
3.	Radial Conveyor					6/2001	9/2/2020	337.5 TONS/HR. 1,500,000 TONS/YR.					
4.	4-Bin Aggregate Feeder					6/2001	9/2/2020	337.5 TONS/HR. 1,500,000 TONS/YR.					
5, 6.	Weight Batcher with Delivery Conveyor					6/2001	9/2/2020	337.5 TONS/HR. 1,500,000 TONS/YR.					
7.	Truck Loading with Central Dust Collector					6/2001	9/2/2020	225 YDS/HR. 1,000,000 YDS/YR.					
8.	Cement/Flyash Batcher with Central Dust Collector					6/2001	9/2/2020	69.9 TONS/HR. 310,500 TONS/YR.					
9.	Cement Silo with Central Dust Collector					6/2001	9/2/2020	Cement 55.0 TONS/HR. 244,500 TONS/YR.					
10.	Cement/Fly Ash Split Silo with Central Dust Collector					6/2001	9/2/2020	Fly Ash 14.9 TONS/HR. 66,000 TONS/YR.					
12.	Storage Piles					N/A	N/A	N/A	N/A	6/2001	9/2/2020	337.5 TONS/HR. 1,500,000 TONS/YR.	
17.	CBP Hot Water Heater					Thermal Eng. Of Arizona	DC-110	HAD-06-2946	2006	11/29/06	9/2/2020	3.8 MMBtu/HR. YR.	Propane/ Natural Gas
20.	Fly Ash Guppy with Central Dust Collector	Industras Gonzalez	N/A	3AHES101 YM3AH095	N/A	April 2007	9/2/2020	1800 cubic feet					
Recycle Plant													

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

Unit Number and Description ¹		Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date ²	Process Rate or Capacity (Hp, kW, Btu, ft ³ , lbs, tons, yd ³ , etc.) ³	Fuel Type
21.	Raw Material	N/A	N/A	N/A	N/A	N/A	N/A	250 TONS/HR. 200,000 TONS/YR.	
22.	Feeder	Sandvik	QI341HS	TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
23.	Conveyor			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
24.	Screen			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
25.	HSI Crusher			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
26.	Recycle Conveyor			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
27.	Conveyor			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
28.	Conveyor			TBD	TBD	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
29.	Stacker to Storge Pile	N/A	N/A	N/A	N/A	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
30.	Finish Storage Pile	N/A	N/A	N/A	N/A	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
31	Truck Loading	N/A	N/A	N/A	N/A	TBD	N/A	250 TONS/HR. 200,000 TONS/YR.	
32.	HSI Engine	Caterpillar	C9.3B	NGH07271	2023	TBD	N/A	381Hp/284kW	ULSD
33.	Recycle Haul Road	N/A	N/A	N/A	N/A	TBD	N/A	11 TRUCK/HR. 8696 TRUCK/YEAR.	

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

- 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.
- To determine whether a unit has been modified, evaluate if changes have been made to the unit that impact emissions or that trigger modification as defined in 20.11.41.7(U) NMAC. If not, put N/A.
- Basis for Equipment Process Rate or Capacity (e.g., Manufacturer's Data, Field Observation/Test, etc.) **Manufacturer's Data**
Submit information for each unit as an attachment.

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

Emissions Control Equipment Table

Control Equipment Units listed on this Table should either match up to the same Unit number as listed on the Regulated Emission Sources, Controlled Emissions and Stack Parameters Tables (if the control equipment is integrated with the emission unit) or should have a distinct Control Equipment Unit Number and that number should then also be listed on the Stack Parameters Table.

Control Equipment Unit Number and Description	Controlling Emissions for Unit Number(s)	Manufacturer	Model # Serial #	Date Installed	Controlled Pollutant(s)	% Control Efficiency ¹	Method Used to Estimate Efficiency	Rated Process Rate or Capacity or Flow
C1 Central Dust Collector (Baghouse)	7, 8, 9, 10, 20	CON-E-CO	PJ-1400D/ CBH14698 0	6/2001	PM10, PM2.5	99.9	Manufacturer's Data	225 yds/hr
C2 Surface Stabilizers (Surfactants) and Watering	1, 33	N/A	N/A	6/2001	PM10, PM2.5	90	AP-42 Figure 13.2.2-1	Unit 1. 36.5 TRUCK/HR. Unit 33. 10.9 TRUCK/HR.
C3 Screen – Wet Dust Suppression	24	N/A	N/A	TBD	PM10, PM2.5	91	AP-42 11.19.2 Emission Factors	250 TONS/HR.
C4 Crusher – Wet Dust Suppression	25	N/A	N/A	TBD	PM10, PM2.5	78	AP-42 11.19.2 Emission Factors	250 TONS/HR.
C5 Conveyor Transfer Points – Wet Dust Suppression	23, 26, 27, 28	N/A	N/A	TBD	PM10, PM2.5	95	AP-42 11.19.2 Emission Factors	250 TONS/HR.
C6 Stacker Conveyor Drop to Pile – Wet Dust Suppression	29	N/A	N/A	TBD	PM10, PM2.5	60	AP-42 11.19.2 Emission Factors	250 TONS/HR.

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

1. Basis for Control Equipment % Efficiency (e.g., Manufacturer's Data, Field Observation/Test, AP-42, etc.). _____
Submit information for each unit as an attachment.

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

Exempted Sources and Exempted Activities Table

See 20.11.41 NMAC for exemptions.

Unit Number and Description	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date ¹	Process Rate or Capacity (Hp, kW, Btu, ft ³ , lbs, tons, yd ³ , etc.) ²	Fuel Type
							/	
							/	
							/	
							/	
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NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

- To determine whether a unit has been modified, evaluate if changes have been made to the unit that impact emissions or that trigger modification as defined in 20.11.41.7(U) NMAC. Also, consider if any changes that were made alter the status from exempt to non-exempt. If not, put N/A.
- Basis for Equipment Process Rate or Capacity (e.g., Manufacturer’s Data, Field Observation/Test, etc.) _____
Submit information for each unit as an attachment.

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

Uncontrolled Emissions Table

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8760 hrs)

Regulated Emission Units listed on this Table should match up to the same numbered line and Unit as listed on the Regulated Emissions and Controlled Tables. List total HAP values per Emission Unit if overall HAP total for the facility is ≥ 1 ton/yr.

Unit Number*	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Method(s) used for Determination of Emissions (AP-42, Material Balance, Field Tests, etc.)				
	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.									1.91	3.54	0.19	0.35			AP-42 13.2 Unpaved Road (12/03)				
2.									0.48	1.06	0.072	0.16			AP-42 13.2.4 (11/06)				
3.									0.37	0.83	0.056	0.12			AP-42 11.19.2 Table 11.19.2-2 "Conveyor Transfer Point"				
4.									0.48	1.06	0.072	0.16			AP-42 13.2.4 (11/06)				
5,6.									0.37	0.83	0.056	0.12			AP-42 11.19.2 Table 11.19.2-2 "Conveyor Transfer Point"				
7.									0.16	0.36	0.16	0.36			CON-E-CO Manufacture Data "Truck Mix" 0.281 lb/cuyd				
8.																			CON-E-CO Manufacture Data "Central Mix" 0.153 lb/cuyd
9.																			CON-E-CO Manufacture Data "Cement Silo" 0.177 lb/cuyd
10,20.																			CON-E-CO Manufacture Data "Fly Ash Silo" 0.115 lb/cuyd
12.									0.62	1.39	0.095	0.21			AP-42 13.2.4 (11/06)				
17.	0.33	1.46	0.14	0.62	0.095	0.42	0.062	0.27	0.018	0.080	0.018	0.080	0.005	0.023	Manufacturer's Data				
21.									0.52	1.15	0.079	0.17			AP-42 Section 13.2.4 "Aggregate Handling" w=8.1 MPH; M=2.0%				
22.									0.52	1.15	0.079	0.17			AP-42 Section 13.2.4 "Aggregate Handling" w=8.1 MPH; M=2.0%				
23.									0.28	0.60	0.081	0.18			AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"				

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

Unit Number*	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Method(s) used for Determination of Emissions (AP-42, Material Balance, Field Tests, etc.)
	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	
24.									2.18	4.76	0.15	0.32			AP-42 Table 11.19.2-2 "Screening Uncontrolled"
25.									0.60	1.31	0.11	0.24			AP-42 Table 11.19.2-2 "Tertiary Crushing Uncontrolled"
26.									0.28	0.60	0.081	0.18			AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
27.									0.28	0.60	0.081	0.18			AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
28.									0.28	0.60	0.081	0.18			AP-42 Table 11.19.2-2 "Conveyor Transfer Point Uncontrolled"
29.									0.52	1.15	0.079	0.17			AP-42 Section 13.2.4 "Aggregate Handling" w=8.1 MPH;M=2.88%
30.									0.52	1.15	0.079	0.17			AP-42 Section 13.2.4 "Aggregate Handling" w=8.1 MPH;M=2.0%
31.									0.52	1.15	0.079	0.17			AP-42 Section 13.2.4 "Aggregate Handling" w=8.1 MPH;M=2.0%
32.	0.25	0.55	2.19	4.80	0.12	0.26	0.0025	0.0055	0.013	0.027	0.013	0.027	0.015	0.034	Manufacturer's Data
33.									22.08	40.41	2.21	4.04			AP-42 13.2 Unpaved Road (12/03)
Totals of Uncontrolled Emissions	0.58	2.01	2.33	5.41	0.21	0.68	0.065	0.28	33.00	63.81	3.92	7.79	0.020	0.057	

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

*A permit is required and this application along with the additional checklist information requested on the Permit Application checklist must be provided if:

- (1) any one of these process units or combination of units, has an uncontrolled emission rate greater than or equal to (≥) 10 lbs/hr or 25 tons/yr for any of the above pollutants, excluding HAPs, based on 8,760 hours of operation; or
- (2) any one of these process units or combination of units, has an uncontrolled emission rate ≥ 2 tons/yr for any single HAP or ≥ 5 tons/yr for any combination of HAPs based on 8,760 hours of operation; or
- (3) any one of these process units or combination of units, has an uncontrolled emission rate ≥ 5 tons/yr for lead (Pb) or any combination of lead and its compounds based on 8,760 hours of operation; or
- (4) any one of the process units or combination of units is subject to an Air Board or federal emission limit or standard.

* If all of these process units, individually and in combination, have an uncontrolled emission rate less than (<) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8,760 hours of operation), but > 1 ton/yr for any of the above pollutants, then a source registration is required. A Registration is required, at minimum, for any amount of HAP emissions. Please complete the remainder of this form.

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

Controlled Emissions Table

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

Regulated Emission Units listed on this Table should match up to the same numbered line and Unit as listed on the Regulated Emissions and Uncontrolled Tables. List total HAP values per Emission Unit if overall HAP total for the facility is ≥ 1 ton/yr.

Unit Number	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Control Method	% Efficiency ¹
	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.									1.91	3.54	0.19	0.35			C2	90
2.									0.48	1.06	0.072	0.16			N/A	N/A
3.									0.37	0.83	0.056	0.12			N/A	N/A
4.									0.48	1.06	0.072	0.16			N/A	N/A
5,6.									0.37	0.83	0.056	0.12			N/A	N/A
7, 8, 9, 10, 20									0.16	0.36	0.16	0.36			C1	99.9
12.									0.62	1.39	0.095	0.21			N/A	N/A
17.	0.33	1.46	0.14	0.62	0.095	0.42	0.062	0.27	0.018	0.080	0.018	0.080	0.005	0.023	N/A	N/A
21.									0.52	0.21	0.079	0.032			N/A	N/A
22.									0.52	0.21	0.079	0.032			N/A	N/A
23.									0.012	0.0046	0.0033	0.0013			C5	95
24.									0.19	0.074	0.013	0.0050			C3	91
25.									0.14	0.054	0.025	0.010			C4	78
26.									0.012	0.0046	0.0033	0.0013			C5	95
27.									0.012	0.0046	0.0033	0.0013			C5	95

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

Unit Number	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Control Method	% Efficiency ¹
	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		
28.									0.012	0.0046	0.0033	0.0013			C5	95
29.									0.31	0.13	0.048	0.019			C6	60
30.									0.52	0.21	0.079	0.032			N/A	N/A
31.									0.52	0.21	0.079	0.032			N/A	N/A
32.	0.25	0.44	2.19	3.83	0.12	0.21	0.0025	0.0044	0.013	0.022	0.013	0.022	0.015	0.027	N/A	N/A
33.									2.21	0.74	0.22	0.074			C2	90
Totals of Controlled Emissions	0.58	1.90	2.33	4.45	0.21	0.62	0.065	0.28	9.41	11.01	1.37	1.84	0.020	0.050		

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

1. Basis for Control Method % Efficiency (e.g., Manufacturer's Data, Field Observation/Test, AP-42, etc.). Manufacturer – Baghouse, AP-42 – Water Sprays, Haul Road – NMED Policy
Submit information for each unit as an attachment.

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

Purchased Hazardous Air Pollutant Table*

Product Categories (Coatings, Solvents, Thinners, etc.)	Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service (CAS) Number of HAP or VHAP from Representative As Purchased Product	HAP or VHAP Concentration of Representative As Purchased Product (pounds/gallon, or %)	Concentration Determination (CPDS, SDS, etc.) ¹	Total Product Purchases For Category		Quantity of Product Recovered & Disposed For Category		Total Product Usage For Category
					lb/yr	gal/yr	(-)	(=)	
1.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
2.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
3.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
4.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
5.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
6.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
7.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
8.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
9.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
TOTALS					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

NOTE: Product purchases, recovery/disposal and usage should be converted to the units listed in this table. If units cannot be converted please contact the Air Quality Program prior to making changes to this table.

1. Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category. CPDS = Certified Product Data Sheet; SDS = Safety Data Sheet

*** A Registration is required, at minimum, for any amount of HAP or VHAP emission.**

Emissions from purchased HAP usage should be accounted for on previous tables as appropriate.

A permit may be required for these emissions if the source meets the requirements of 20.11.41 NMAC.

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

Material and Fuel Storage Table

(E.g., Tanks, barrels, silos, stockpiles, etc.)

Storage Equipment		Product Stored	Capacity (bbls, tons, gals, acres, etc.)	Above or Below Ground	Construction (Welded, riveted) & Color	Installation Date	Loading Rate ¹	Offloading Rate ¹	True Vapor Pressure	Control Method	Seal Type	% Eff. ²
1.	Aggregate Pile Unit 12	Aggregate	1 Acre	Above	N/A	9/2020	213.8 TONS/HR. 950,000 TONS/YR.	213.8 TONS/HR. 950,000 TONS/YR.	Psia	None	N/A	0.0
2.	Sand Pile Unit 12	Washed Sand	0.5 Acre	Above	N/A	9/2020	123.8 TONS/HR. 550,000 TONS/YR.	123.8 TONS/HR. 550,000 TONS/YR.	Psia	None	N/A	0.0
3.	Cement Silo I Unit 9	Cement	735 bbl	Above	N/A	9/2020	25 TONS/HR. Max 244,500 TONS/YR.	Max 55.0 TONS/HR. Max 244,500 TONS/YR.	Psia	Dust Collector	N/A	99.9
4.	Cement Silo II Unit 10	Cement	783 bbl	Above	N/A	9/2020	25 TONS/HR. Max 244,500 TONS/YR.	Max 55.0 TONS/HR. Max 244,500 TONS/YR.	Psia	Dust Collector	N/A	99.9
5.	Fly Ash Silo III Unit 10	Fly Ash	392 bbl	Above	N/A	9/2020	25 TONS/HR. 66,000 TONS/YR.	14.9 TONS/HR. 66,000 TONS/YR.	Psia	Dust Collector	N/A	99.9
6.	Fly Ash Guppy Unit 20	Fly Ash	1800 cubic feet	Above	N/A	9/2020	25 TONS/HR. 66,000 TONS/YR.	14.9 TONS/HR. 66,000 TONS/YR.	Psia	Dust Collector	N/A	99.9
7.	Vehicle Fuel Tank	#2 Diesel	10,000 gallons	Above	Welded/yellow	6/2002	HR. YR.	HR. YR.	>15 Psia	N/A	N/A	N/A
8.	Off Road Tank	#2 Diesel	2,480 gallons	Above	Welded/yellow	6/2002	HR. YR.	HR. YR.	>15 Psia	N/A	N/A	N/A
9.	Propane	Propane	2,200 gallons	Above	Pressurized	11/2006	HR. YR.	HR. YR.	Psia	N/A	N/A	N/A
10.	Recycle Waste Pile Unit 21	Raw Recycle	1 Acre	Above	N/A	TBD	250 TONS/HR. 200,000 TONS/YR.	250 TONS/HR. 200,000 TONS/YR.	Psia	None	N/A	0.0
11.	Recycle Finish Pile Unit 30	Finish Recycle	1 Acre	Above	N/A	TBD	250 TONS/HR. 200,000 TONS/YR.	250 TONS/HR. 200,000 TONS/YR.	Psia	None	N/A	0.0

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

1. Basis for Loading/Offloading Rate (e.g., Manufacturer's Data, Field Observation/Test, etc.). **Permit Limits**
Submit information for each unit as an attachment.
2. Basis for Control Method % Efficiency (e.g., Manufacturer's Data, Field Observation/Test, AP-42, etc.). **Manufacturer – 3, 4, 5, 6**
Submit information for each unit as an attachment.

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

Stack Parameters Table

If any equipment from the Regulated Emission Sources Table is also listed in this Stack Table, use the same numbered line for the emission unit on both tables to show the association between the Process Equipment and its stack.

Unit Number and Description		Pollutant (CO, NOx, PM ₁₀ , etc.)	UTM Easting (m)	UTM Northing (m)	Stack Height (ft)	Stack Exit Temp. (°F)	Stack Velocity (fps)	Stack Flow Rate (acfm)	Stack Inside Diameter (ft)	Stack Type
7, 8, 9, 10, 20.	Central Dust Collector	PM	348574.4	3872199.0	40 feet	Ambient	77.6 ft/sec	8558 acfm	1.53 feet	Horizontal
17.	Concrete Batch Plant Hot Water Heater	PM, CO, NOx, VOC, SO2	348655.0	3872176.0	28 feet	90°F	9.4 ft/sec	996.7 acfm	1.5 feet	Vertical
32.	HSI Engine	PM, CO, NOx, VOC, SO2	348402.0	3872191.0	10 feet	768.4°F	190.92 ft/sec	1562.2 acfm	0.42 feet	Vertical
										Select
										Select

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

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

Certification

NOTICE REGARDING SCOPE OF A PERMIT: The Environmental Health Department's issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant's/permittee's responsibility to obtain all other necessary permits from the appropriate agencies, such as the City of Albuquerque Planning Department or Bernalillo County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City of Albuquerque Planning Department website at <https://www.cabq.gov/planning> and the Bernalillo County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

NOTICE REGARDING ACCURACY OF INFORMATION AND DATA SUBMITTED: Any misrepresentation of a material fact in this application and its attachments is cause for denial of a permit or revocation of part or all of the resulting registration or permit, and revocation of a permit for cause may limit the permittee's ability to obtain any subsequent air quality permit for ten (10) years. Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under the Air Quality Control Act, NMSA 1978 §§ 74-2-1 to 74-2-17, is guilty of a misdemeanor and shall, upon conviction, be punished by a fine of not more than ten thousand dollars (\$10,000) per day per violation or by imprisonment for not more than twelve months, or by both.

I, the undersigned, hereby certify that I have knowledge of the information and data represented and submitted in this application and that the same is true and accurate, including the information and data in any and all attachments, including without limitation associated forms, materials, drawings, specifications, and other data. I also certify that the information represented gives a true and complete portrayal of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I understand that there may be significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. I also understand that the person who has applied for or has been issued an air quality permit by the Department is an obligatory party to a permit appeal filed pursuant to 20.11.81 NMAC. Further, I certify that I am qualified and authorized to file this application, to certify the truth and accuracy of the information herein, and bind the source. Moreover, I covenant and agree to comply with any requests by the Department for additional information necessary for the Department to evaluate or make a final decision regarding the application.

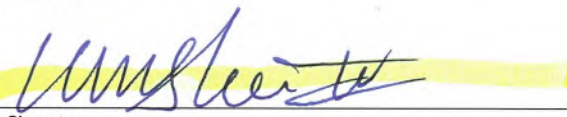
Signed this 15 day of April, 2026

Miles Shiver IV

Print Name

CEO/Owner

Print Title



Signature

Role: Owner Operator

Other Authorized Representative

Attachment A
Facility Plot Plan

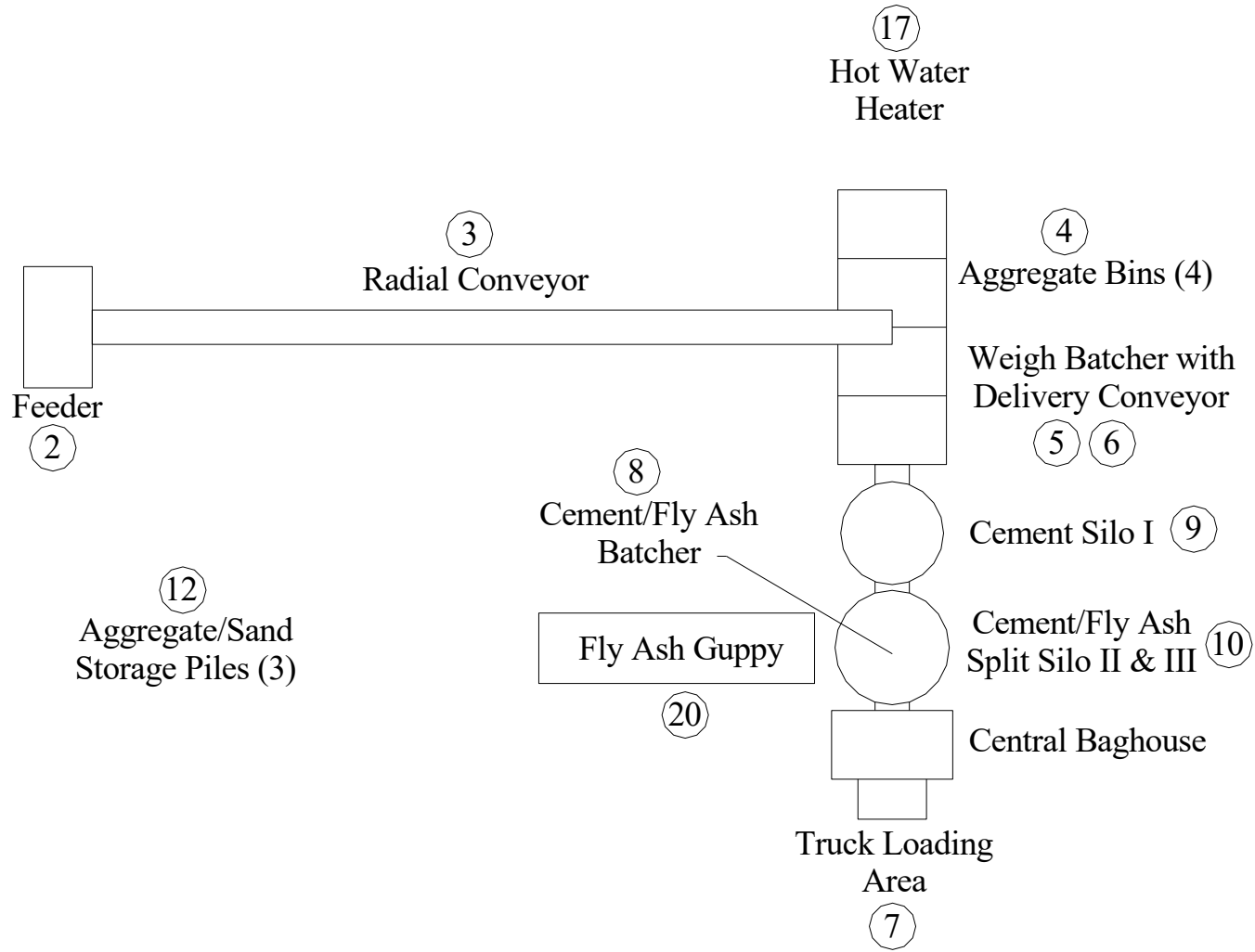


Figure A-1: Duke City's Broadway Blvd Concrete Plant Process Flow Diagram

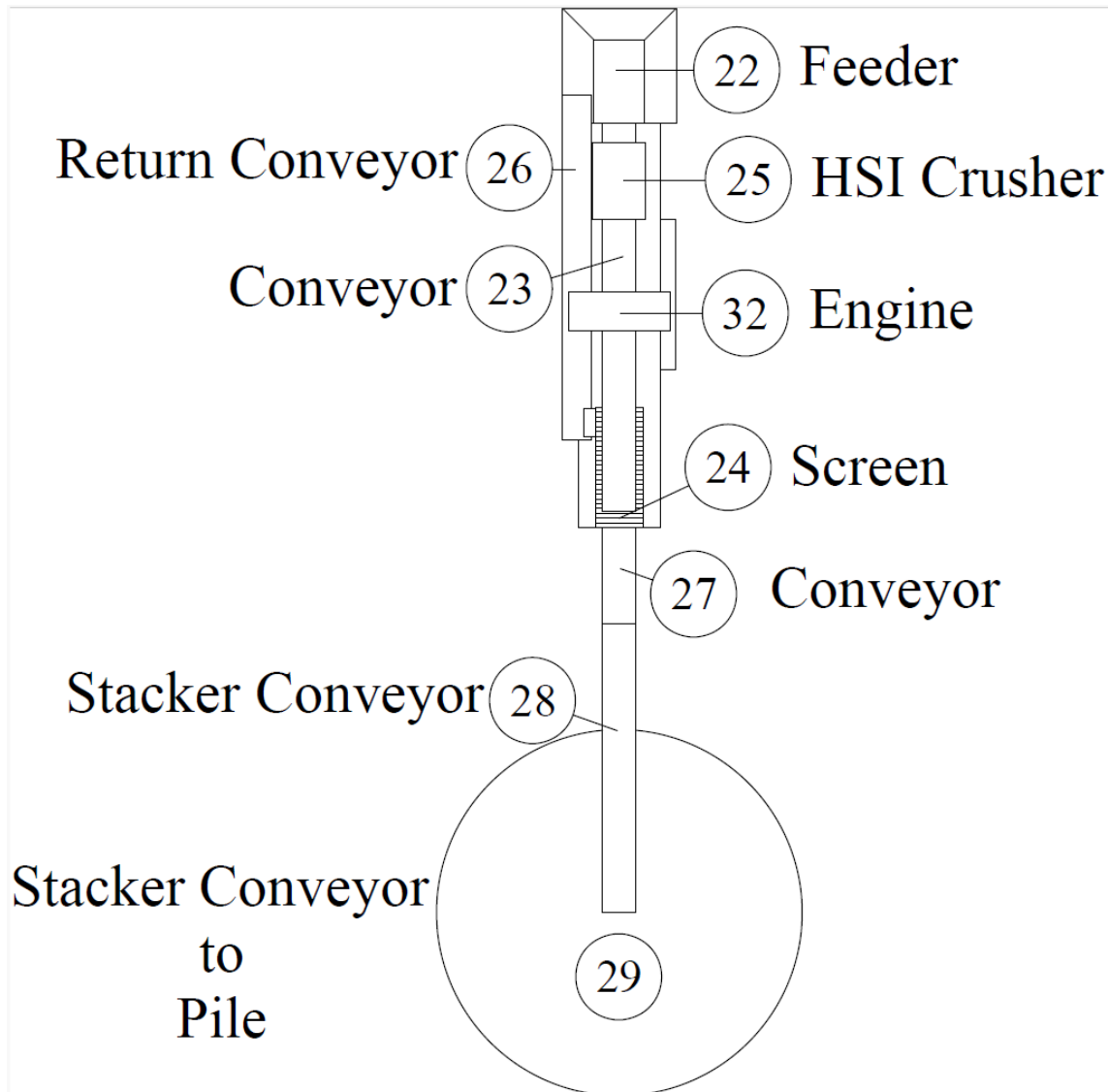


Figure A-2: Duke City's Albuquerque Recycle Plant Process Flow Diagram

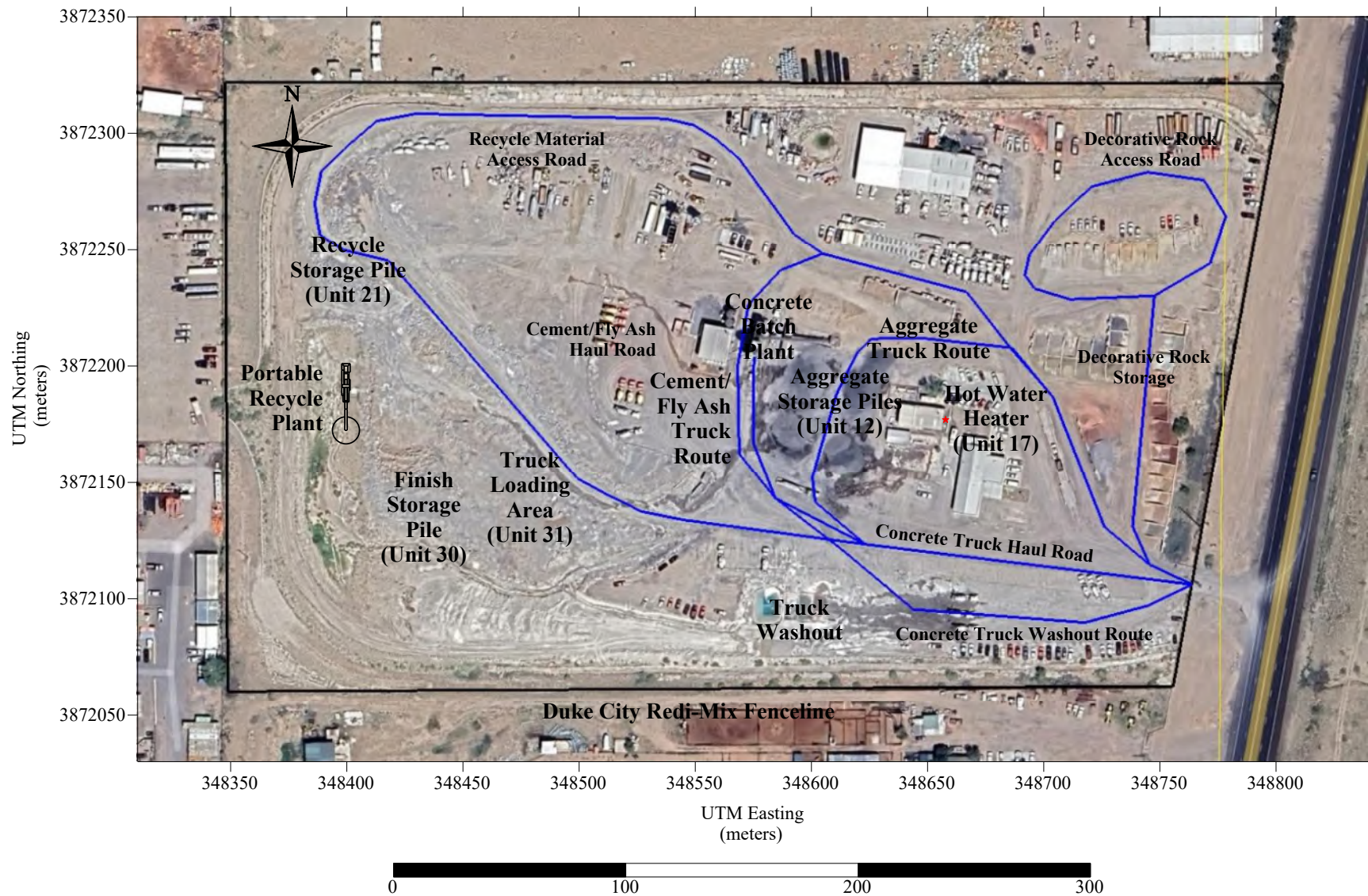


Figure A-3: Duke City’s Albuquerque Concrete and Recycle Plant Site Location

Attachment B
Emissions Calculations

1.0 Pre-Control Particulate Emission Rates

The Concrete Batch Plant is operating under the existing permit limits defined in permit number 1638-M3. There are no pre-controlled material handling emission rates for the concrete batch plant equipment as the primary focus of this revision is on the addition of the recycle plant and haul road adjustments.

1.1 Recycle Plant Estimates for Pre-Control Material Handling (PM2.5, PM10 and PM)

To estimate material handling pre-controlled particulate emission rates for crushing, screening, and conveyor transfer operations, emission factors were obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Aug. 2004, Section 11.19.2, Table 11.19.2-2. To determine missing PM2.5 emission factors the ratio of 0.35/0.053 from PM10/PM2.5 k factors found in AP-42 Section 13.2.4 (11/2006) were used.

To estimate material handling particulate emission rates for aggregate handling operations (aggregate storage piles/stacker drop to storage pile/feeder loading), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (11/2006), where the k (TSP = 0.74, PM10 = 0.35, PM2.5 = 0.053). Wind speed and moisture content used for determining the maximum hourly emission rate is the Albuquerque WS 2001-2011 wind speed of 8.1 MPH and the NMED default moisture content of 2 percent.

Pre-controlled annual emissions for tons per year (tpy) were calculated assuming daylight operation for 4380 hours per year. This limit is based on the natural limitation of daylight hours for the safety of personnel operating the recycle plant.

Aggregate Material Handling – Storage Piles, Stacker drop to Storage Piles, and Feeder Loading

Emission Factor

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

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$E_{PM} \text{ (lbs/ton)} = 0.00443 \text{ lbs/ton}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.00210 \text{ lbs/ton}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.00032 \text{ lbs/ton}$$

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

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

Crushing = Uncontrolled Tertiary Crushing Emission Factor

Screening = Uncontrolled Screening Emission Factor

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM10 Emission Factor (lbs/ton)	PM2.5 Emission Factor (lbs/ton)
Uncontrolled Tertiary Crushing	0.00540	0.00240	0.00044
Uncontrolled Screening	0.02500	0.00870	0.00059
Uncontrolled Conveyor Transfers	0.00300	0.00110	0.00033
Uncontrolled Max Hourly Aggregate Storage Piles, Aggregate Drop to Piles, Feeder Loading	0.00443	0.00210	0.00032

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

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

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

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

Haul Truck Travel (Recycle Haul Road)

Haul truck travel emissions were estimated using AP-42, Section 13.2 (ver.12/03) “Unpaved Roads” emission equation. Haul trucks will be used to deliver waste material and transport newly recycled material.

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

Where k = constant PM = 4.9

PM10 = 1.5

PM2.5 = 0.15

s = % silt content (Table 13.2.2-1, “Sand and Gravel” 4.8%)

W = mean recycle vehicle weight (26.5 tons per truck)

p = number of days with at least 0.01 in of precip. (Figure 13.2.2-1= 60 days)
(used only for annual emission calculations)

a = Constant PM = 0.7

PM10 = 0.9

PM2.5 = 0.9

b = Constant PM = 0.45

PM10 = 0.45

PM2.5 = 0.45

VMT = Recycle Delivery Vehicle Miles Traveled
(Trip = 0.57962 miles; 6.30027 miles/hr; 27,595.2 miles/yr)

VMT = Recycle Product Vehicle Miles Traveled
(Trip = 0.57962 miles; 6.30027 miles/hr; 27,595.2 miles/yr)

Recycle Delivery Trucks = 10.9 trucks/hr; 47608.7 trucks/yr

Recycle Product Trucks = 10.9 trucks/hr; 47608.7 trucks/yr

Hourly Emission Factor

Delivery Trucks Lbs/VMT = 6.8769 lbs/hr PM; 1.7527 lbs/hr PM10; 0.1753 lbs/hr PM2.5

Product Trucks Lbs/VMT = 6.8769 lbs/hr PM; 1.7527 lbs/hr PM10; 0.1753 lbs/hr PM2.5

Annual Emission Factor

Delivery Trucks Lbs/VMT = 5.7465 lbs/hr PM; 1.4646 lbs/hr PM10; 0.1465 lbs/hr PM2.5

Product Trucks Lbs/VMT = 5.7465 lbs/hr PM; 1.4646 lbs/hr PM10; 0.1465 lbs/hr PM2.5

			PM Uncontrolled	
Max. Truck Emissions Road (Combined)	86.65	lbs/hr	158.57	tons/yr
			PM10 Uncontrolled	
	22.08	lbs/hr	40.41	tons/yr
			PM2.5 Uncontrolled	
	2.21	lbs/hr	4.04	tons/yr

Table B-1 Pre-Controlled Regulated Process Recycle Plant Equipment Emission Rates

Unit #	Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM10 Emission Rate (lbs/hr)	PM10 Emission Rate (tons/yr)	PM2.5 Emission Rate (lbs/hr)	PM2.5 Emission Rate (tons/yr)
Recycle Plant								
21	Raw Material	250 tph	1.11	2.43	0.52	1.15	0.079	0.17
22	Feeder	250 tph	1.11	2.43	0.52	1.15	0.079	0.17
23	Conveyor	250 tph	0.75	1.64	0.28	0.60	0.081	0.18
24	Screen	250 tph	6.25	13.69	2.18	4.76	0.15	0.32
25	HSI Crusher	250 tph	1.35	2.96	0.60	1.31	0.11	0.24
26	Recycle Conveyor	250 tph	0.75	1.64	0.28	0.60	0.081	0.18
27	Conveyor	250 tph	0.75	1.64	0.28	0.60	0.081	0.18
28	Conveyor	250 tph	0.75	1.64	0.28	0.60	0.081	0.18
29	Stacker to Storage Pile	250 tph	1.11	2.43	0.52	1.15	0.079	0.17
30	Finnish Storage Pile	250 tph	1.11	2.43	0.52	1.15	0.079	0.17
31	Truck Loading	250 tph	1.11	2.43	0.52	1.15	0.079	0.17
33	Recycle Haul Road	250 tph	86.65	158.57	22.08	40.41	2.21	4.04
TOTALS			102.80	193.93	28.58	54.64	3.19	6.19

2.0 Controlled Particulate Emission Rates

2.1 Concrete Batch Plant Controlled Emission Calculations ($PM_{2.5}$, PM_{10} and PM)

Typical composition of one cubic yard of concrete produced at the Broadway Blvd Concrete Plant will be:

Concrete Design Mix for One Cubic Yard

Materials	Weight Per Cubic Yard (in lbs)	Weights Per 225 Cubic Yards (in ton)
Cement	489	55.0
Fly Ash	132	14.9
Water	260	29.3
Coarse Aggregate(gravel)	1900	213.8
Fine Aggregate (sand)	1100	123.8
Total	3881	436.6

Hourly raw material throughputs used in material handling emission equations are based on the tons per hour throughput.

Aggregate/Sand = 337.6 tons/hour

Cement = 55.0 tons/hour

Fly Ash = 14.9 tons/hour

To estimate material handling control particulate emission rates for aggregate handling operations (loading storage piles, loading feed hopper, aggregate bin loading), an emission equation was obtained from EPA's Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 13.2.4 (1/1995), where the k is a constant ($PM = 0.74$, $PM_{10} = 0.35$, $PM_{2.5} = 0.053$), wind speed is the Albuquerque 2001 - 2011 wind speed of 8.1 mph, and a moisture content for the aggregate of 1.77% and sand of 4.17% (AP-42 Section 11.12, Table 11.12-2, Footnote b). The weighted average moisture content for sand and aggregate is 2.65% ($(1.77 * 213.75 + 4.17 * 123.75)/337.5$). To estimate particulate emission rates for aggregate handling transfer points (unloading of the feeder, loading the aggregate bin, unloading the aggregate weigh batcher), emission factors were obtained from AP-42 Section 11.19.2, Table 11.19.2-2, "Conveyor Transfer Point Uncontrolled". 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. Additional reductions for annual emissions are found in limiting annual production.

A control efficiency of 90% (Water/Surface Stabilizers) will be used for unpaved truck traffic fugitive dust particulate emissions. Additional reductions for annual emissions are found in limiting annual haul truck traffic.

Maximum rated material throughput is 225 cubic yards per hour. Annual emissions in tons per year (tpy) were calculated assuming operation of 1,000,000 cubic yards per year.

EPA's AP-42, Section 13.2-4 (01/95)

Aggregate Handling Emission Equation

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

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (1.77/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (1.77/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (1.77/2)^{1.4}$$

$$E_{PM} = 0.00526 \text{ lbs/ton}$$

$$E_{PM10} = 0.00249 \text{ lbs/ton}$$

$$E_{PM2.5} = 0.00038 \text{ lbs/ton}$$

Sand Handling Emission Equation

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

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (4.17/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (4.17/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (4.17/2)^{1.4}$$

$$E_{PM} = 0.00158 \text{ lbs/ton}$$

$$E_{PM10} = 0.00075 \text{ lbs/ton}$$

$$E_{PM2.5} = 0.00011 \text{ lbs/ton}$$

Aggregate/Sand Handling Emission Equation

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

$$E_{PM} \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (2.65/2)^{1.4}$$

$$E_{PM10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (2.65/2)^{1.4}$$

$$E_{PM2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (2.65/2)^{1.4}$$

$$E_{PM} = 0.00299 \text{ lbs/ton}$$

$$E_{PM10} = 0.00141 \text{ lbs/ton}$$

$$E_{PM2.5} = 0.00021 \text{ lbs/ton}$$

EPA's AP-42, Section 11.19.2-2 (08/04)

Uncontrolled Conveyor Transfer Emission Factor

$$E_{PM} = 0.0030 \text{ lbs/ton}$$

$$E_{PM10} = 0.00110 \text{ lbs/ton}$$

$$E_{PM2.5} = 0.000167 \text{ lbs/ton}$$

Controlled Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM10 Emission Factor (lbs/ton)	PM2.5 Emission Factor (lbs/ton)
Aggregate Material Handling	0.0053	0.00249	0.00038
Sand Material Handling	0.0016	0.00075	0.00011
Aggregate/Sand Material Handling	0.0030	0.0014	0.00021
Aggregate/Sand Feeder Transfer Point	0.0030	0.00011	0.000167
Aggregate/Sand Weight Batcher Belt Transfer Point	0.0030	0.00011	0.000167

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

$$\text{Emission Rate (lbs/hour)} = \text{Process Rate (tons/hour)} * \text{Controlled Emission Factor (lbs/ton)}$$

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

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

Table B-2: Controlled Material Handling Particulate Emission Rates

Process Unit #	Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM10 Emission Rate (lbs/hr)	PM10 Emission Rate (tons/yr)	PM2.5 Emission Rate (lbs/hr)	PM2.5 Emission Rate (tons/yr)
2	Aggregate/Sand Feeder Loading	337.5 tph, 1,500,000 tpy	1.01	2.24	0.48	1.06	0.07	0.16
3	Radial Conveyor	337.5 tph, 1,500,000 tpy	1.01	2.25	0.37	0.83	0.056	0.12
4	4-Bin Aggregate Feeder	337.5 tph, 1,500,000 tpy	1.01	2.24	0.48	1.06	0.072	0.16
5,6	Aggregate Batcher and Conveyor	337.5 tph, 1,500,000 tpy	1.01	2.25	0.37	0.83	0.056	0.12
12	Aggregate Pile Loading	213.8 tph 950,000 tpy	1.32	2.93	0.62	1.39	0.095	0.21
	Sand Pile Loading	123.8 tph 550,000 tpy						
TOTALS			5.36	11.91	2.32	5.16	0.35	0.78

Controlled Emissions from Dust Collector

Pre-control particulate emission rates for silo/guppy loading, cement/fly ash batcher loading operations, and concrete truck loading, emission equations were obtained from CON-E-CO manufacture data sheet found in Attachment C. For these sources PM=PM10=PM2.5.

Source	Pounds per Cubic Yards	Cubic Yards per Hour
Cement Silo	0.177	225
Fly Ash Silo/Guppy	0.115	225
Cement/Fly Ash Batcher	0.153	225
Truck Loading	0.281	225

Particulate emissions are controlled by a dust collector for truck loading, cement/fly ash batcher, cement silo, cement/fly ash split silo, and fly ash guppy. Manufacturer’s specifications list a particulate control efficiency of 99.9% from the dust collector exhaust.

Table B-3: Controlled Dust Collector Particulate Emissions (PER)

Process Unit #	Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM10 Emission Rate (lbs/hr)	PM10 Emission Rate (tons/yr)	PM2.5 Emission Rate (lbs/hr)	PM2.5 Emission Rate (tons/yr)
7	Truck Loading	225 cuyd	0.063	0.14	0.063	0.14	0.063	0.14
8	Cement/Fly Ash Batcher	225 cuyd	0.034	0.077	0.034	0.077	0.034	0.077
9	Cement Loading	225 cuyd	0.040	0.089	0.040	0.089	0.040	0.089
10, 20	Fly Ash Loading	225 cuyd	0.026	0.058	0.026	0.058	0.026	0.058
TOTALS FROM BAGHOUSE			0.16	0.36	0.16	0.36	0.16	0.36

Haul Truck Travel (Cement, Fly Ash, Aggregate/Sand and Concrete)

Haul truck travel emissions were estimated using AP-42, Section 13.2 (ver.12/03) “Unpaved Roads” emission equation. The haul road around the plant will be unpaved but controlled with millings and watering. Haul trucks will be used to deliver cement, fly ash, aggregate material, and transport concrete product. Unpaved roads will be controlled with surface stabilizers and watering, 90% control efficiency (NMED). Application of surface stabilizers will meet the requirements of the surfactant (surface stabilizer) manufacturer. Below is a permit condition from a January 2024 permit issued by the NMED AQB that relates 90% control to surface stabilizers and watering.

B. Haul Road Control

<p>Requirement: Compliance with the allowable particulate emissions in Table 106.A shall be demonstrated by controlling truck traffic areas and haul roads going in and out of the plant site. The haul roads shall be watered and treated with a surface stabilizing agent to control particulate emissions. This condition demonstrates compliance with the 90% control efficiency used in the permit application and modeling.</p> <p>This control measure shall be used on roads as far as the nearest public road.</p>
<p>Monitoring: The permittee shall monitor the frequency, quantity, and location(s) of the water application, or equivalent control measures.</p>
<p>Recordkeeping: The permittee shall keep daily records of the frequency, quantity, and location(s) of the water application, or equivalent control measures.</p>
<p>Reporting: The permittee shall report in accordance with Section B110.</p>

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

Where k = constant PM = 4.9

PM10 = 1.5

PM2.5 = 0.15

s = % silt content (Table 13.2.2-1, “Sand and Gravel” 4.8%)

W = mean delivery vehicle weight (26.5 tons per truck)

W = mean concrete truck weight (25 tons)

p = number of days with at least 0.01 in of precip. (Figure 13.2.2-1= 60 days)
(used only for annual emission calculations)

a = Constant PM = 0.7

PM10 = 0.9

PM2.5 = 0.9

b = Constant PM = 0.45

PM10 = 0.45

PM2.5 = 0.45

Control Efficiency = 90%

VMT = Cement Vehicle Miles Traveled
(roundtrip = 0.33888 miles/vehicle; 3602.48 miles/yr)

VMT = Fly Ash Vehicle Miles Traveled
(roundtrip = 0.33888 miles/vehicle; 972.45 miles/yr)

VMT = Aggregate Vehicle Miles Traveled
(roundtrip = 0.27497 miles/vehicle; 17933.15 miles/yr)

VMT = Concrete Vehicle Miles Traveled
(roundtrip = 0.31812 miles/vehicle; 26510.19 miles/yr)

Cement Trucks = 2.4 trucks/hr

Fly Ash Trucks = 0.6 trucks/hr

Aggregate Trucks = 14.7 trucks/hr

Concrete Trucks = 18.8 trucks/hr

Hourly Emission Factor

Delivery Trucks Lbs/VMT = 0.68769 lbs/VMT PM; 0.17527 lbs/ VMT PM10; 0.01753 lbs/ VMT PM2.5

Concrete Trucks Lbs/VMT = 0.66989 lbs/ VMT PM; 0.17073 lbs/ VMT PM10; 0.01707 lbs/ VMT PM2.5

Annual Emission Factor

Delivery Trucks Lbs/VMT = 0.57465 lbs/hr PM; 0.14646 lbs/hr PM10; 0.014646 lbs/hr PM2.5

Concrete Trucks Lbs/VMT = 0.55977 lbs/hr PM; 0.14267 lbs/hr PM10; 0.014267 lbs/hr PM2.5

Table B-4: Controlled Vehicle Fugitive Dust Emission Rates

Process Unit Number	Process Unit Description	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM10 Emission Rate (lbs/hr)	PM10 Emission Rate (tons/yr)	PM2.5 Emission Rate (lbs/hr)	PM2.5 Emission Rate (tons/yr)
1	Cement Trucks	0.56	1.04	0.14	0.26	0.014	0.026
	Fly Ash Trucks	0.15	0.28	0.038	0.071	0.0038	0.0071
	Aggregate Trucks	2.77	5.15	0.71	1.31	0.071	0.13
	Concrete Trucks	4.00	7.42	1.02	1.89	0.10	0.19
	Total	7.48	13.89	1.91	3.54	0.19	0.35

2.2 Recycle Plant Controlled Emissions Calculations (PM2.5, PM10 and PM)

No fugitive dust controls or emission reductions are proposed for the aggregate storage piles or loading of the Feeder with the exception of limiting annual production rates.

A “Wet Suppression” system will control emissions of particulate matter during crushing and screening. 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 found in AP-42 Section 11.19.2. The moisture content of the study group without wet suppression systems operating (pre-controlled) 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. No fugitive dust controls are proposed for loading the feeder (22), material handling at the raw material source (21), material handling at the finish storage pile (30) or truck loading (31). Water sprays and moisture carryover will control fugitive dust for Units 23, 24, 25, 26, 27, 28 and 29.

Fugitive dust control for unloading the aggregate feeder (Unit 22) onto conveyor (Unit 23) will be controlled, as needed, with enclosures and/or water sprays at the exit of the feed bin. Fugitive dust control for the transfer conveyors (Units 23, 26, 27 and 28) will be controlled with material moisture content and/or enclosure. It is estimated that these methods will control PM10 to an efficiency of 95.9 percent per AP42 Section 11.19.2, Figure 11.19.2-6. Additional emission reductions include limiting annual production rates.

Fugitive dust control for the plant crusher (Unit 25) will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control PM10 to an efficiency of 77.7 percent for crushing operations per AP42 Section 11.19.2, Figure 11.19.2-4. Additional emission reductions include limiting annual production rates.

Fugitive dust control for the plant screen (Unit 24) will be controlled, as needed, with enclosures and/or water sprays. It is estimated that these methods will control to an efficiency of 91.6 percent for screening operations per AP42 Section 11.19.2, Table 11.19.2-3. Additional emission reductions include limiting annual production rates.

Fugitive dust control for the stacker conveyor transfer to storage pile (Unit 29) will be controlled with material moisture content and/or enclosure. It is estimated that the additional moisture during processing will increase the moisture content from the default of 2% to the high moisture content value found in footnote b of AP-42 Table 11.19.2-2, 2.88%. This will control fugitive emissions to an efficiency of 60 percent. Additional emission reductions include limiting annual production rates.

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

To estimate material handling particulate emission rates for aggregate handling operations (aggregate storage piles/loading feed bins/stacker drop to piles), 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 (11/2006), where the k (PM = 0.74, PM10 = 0.35, PM2.5 = 0.053). Wind speed and moisture content used for determining the maximum hourly emission rate is the Albuquerque WS 2001-2011 wind speed of 8.1 MPH and the NMED default moisture content of 2 percent.

Raw Material Pile, Feeder Loading, Finish Pile, Truck Loading Emission Equation:

Emission Factor

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

$$EPM \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$EPM_{10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$EPM_{2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (2/2)^{1.4}$$

$$EPM \text{ (lbs/ton)} = 0.00443 \text{ lbs/ton;}$$

$$EPM_{10} \text{ (lbs/ton)} = 0.00210 \text{ lbs/ton}$$

$$EPM_{2.5} \text{ (lbs/ton)} = 0.00032 \text{ lbs/ton}$$

Aggregate Storage Pile Loading from Stacker Conveyor Emission Equation:

Emission Factor

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

$$EPM \text{ (lbs/ton)} = 0.74 \times 0.0032 \times (8.1/5)^{1.3} / (2.88/2)^{1.4}$$

$$EPM_{10} \text{ (lbs/ton)} = 0.35 \times 0.0032 \times (8.1/5)^{1.3} / (2.88/2)^{1.4}$$

$$EPM_{2.5} \text{ (lbs/ton)} = 0.053 \times 0.0032 \times (8.1/5)^{1.3} / (2.88/2)^{1.4}$$

$$EPM \text{ (lbs/ton)} = 0.00266 \text{ lbs/ton;}$$

$$EPM_{10} \text{ (lbs/ton)} = 0.00126 \text{ lbs/ton}$$

$$EPM_{2.5} \text{ (lbs/ton)} = 0.00019 \text{ lbs/ton}$$

AP-42 Emission Factors:

Feed Bin Unloading = Controlled Conveyor Transfer Point Emission Factor

Crusher = Controlled Tertiary Crusher Emission Factor

Screen = Controlled Screening Emission Factor

Transfer Conveyor = Controlled Conveyor Transfer Point Emission Factor

Material Handling Emission Factors:

Process Unit	PM Emission Factor (lbs/ton)	PM10 Emission Factor (lbs/ton)	PM2.5 Emission Factor (lbs/ton)
Controlled Crushing	0.00120	0.00054	0.00010
Controlled Screening	0.00220	0.00074	0.000050
Controlled Feeder Unloading and Conveyor Transfers	0.00014	0.000046	0.000013
Aggregate Storage Piles, Feeder Loading, Truck Loading	0.00443	0.00210	0.00032
Stacker Conveyor to Pile	0.00266	0.00126	0.00019

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

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

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

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

Haul Truck Travel (Recycle Haul Road)

Haul truck travel emissions were estimated using AP-42, Section 13.2 (ver.12/03) “Unpaved Roads” emission equation. The recycle haul roads will be unpaved but controlled with surface stabilizers and watering for a 90% control efficiency (NMED). Application of surface stabilizers will meet the requirements of the surfactant (surface stabilizer) manufacturer. Below is a permit condition from a January 2024 permit issued by the NMED AQB that relates 90% control to surface stabilizers and watering.

B. Haul Road Control

Requirement: Compliance with the allowable particulate emissions in Table 106.A shall be demonstrated by controlling truck traffic areas and haul roads going in and out of the plant site. The haul roads shall be watered **and** treated with a surface stabilizing agent to control particulate emissions. This condition demonstrates compliance with the 90% control efficiency used in the permit application and modeling.

This control measure shall be used on roads as far as the nearest public road.

Monitoring: The permittee shall monitor the frequency, quantity, and location(s) of the water application, or equivalent control measures.

Recordkeeping: The permittee shall keep daily records of the frequency, quantity, and location(s) of the water application, or equivalent control measures.

Reporting: The permittee shall report in accordance with Section B110.

Haul trucks will be used to deliver waste material and transport newly recycled material.

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

Where k = constant PM = 4.9

PM10 = 1.5

PM2.5 = 0.15

s = % silt content (Table 13.2.2-1, “Sand and Gravel” 4.8%)

W = mean recycle vehicle weight (26.5 tons per truck)

p = number of days with at least 0.01 in of precip. (Figure 13.2.2-1= 60 days)
(used only for annual emission calculations)

a = Constant PM = 0.7

PM10 = 0.9

PM2.5 = 0.9

b = Constant PM = 0.45

PM10 = 0.45

PM2.5 = 0.45

VMT = Recycle Delivery Vehicle Miles Traveled

(Trip = 0.57962 miles; 6.30027 miles/hr; 5040.2 miles/yr)

VMT = Recycle Product Vehicle Miles Traveled

(Trip = 0.57962 miles; 6.30027 miles/hr; 5040.2 miles/yr)

Control Efficiency = 90%

Recycle Delivery Trucks = 10.9 trucks/hr; 8695.7 trucks/yr

Recycle Product Trucks = 10.9 trucks/hr; 8695.7 trucks/yr

Hourly Emission Factor

Delivery Trucks Lbs/VMT = 0.68769 lbs/hr PM; 0.17527 lbs/hr PM10; 0.01753 lbs/hr PM2.5

Product Trucks Lbs/VMT = 0.68769 lbs/hr PM; 0.17527 lbs/hr PM10; 0.01753 lbs/hr PM2.5

Annual Emission Factor

Delivery Trucks Lbs/VMT = 0.57465 lbs/hr PM; 0.14646 lbs/hr PM10; 0.01465 lbs/hr PM2.5

Product Trucks Lbs/VMT = 0.57465 lbs/hr PM; 0.14646 lbs/hr PM10; 0.01465 lbs/hr PM2.5

				PM Controlled	
Max. Truck Emissions Road (Combined)	8.67	lbs/hr			2.90 tons/yr
				PM10 Controlled	
	2.21	lbs/hr			0.74 tons/yr
				PM2.5 Controlled	
	0.22	lbs/hr			0.074 tons/yr

Table B-5 Controlled Regulated Recycle Plant Equipment Emission Rates

Unit #	Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM10 Emission Rate (lbs/hr)	PM10 Emission Rate (tons/yr)	PM2.5 Emission Rate (lbs/hr)	PM2.5 Emission Rate (tons/yr)
Recycle Plant								
21	Raw Material	250	1.11	0.44	0.52	0.21	0.079	0.032
22	Feeder	250	1.11	0.44	0.52	0.21	0.079	0.032
23	Conveyor	250	0.035	0.014	0.012	0.0046	0.0033	0.0013
24	Screen	250	0.55	0.22	0.19	0.074	0.013	0.0050
25	HSI Crusher	250	0.30	0.12	0.14	0.054	0.025	0.010
26	Recycle Conveyor	250	0.035	0.014	0.012	0.0046	0.0033	0.0013
27	Conveyor	250	0.035	0.014	0.012	0.0046	0.0033	0.0013
28	Conveyor	250	0.035	0.014	0.012	0.0046	0.0033	0.0013
29	Stacker to Storage Pile	250	0.67	0.27	0.31	0.13	0.048	0.019
30	Finish Storage Pile	250	1.11	0.44	0.52	0.21	0.079	0.032
31	Truck Loading	250	1.11	0.44	0.52	0.21	0.079	0.032
33	Recycle Haul Road		8.67	2.90	2.21	0.74	0.22	0.074
TOTALS			14.75	5.33	4.99	1.85	0.64	0.24

3.0 Estimates for Hot Water Boiler and Recycle Plant Engine (NOX, CO, SO2, VOC and PM)

3.1 Hot Water Boiler

The hot water boiler keeps the water warm during cold periods. The hot water boiler is rated at 3.8 MMBtu/hr. The hot water boiler will burn propane with total sulfur content less than 15 gr/100scf and will never burn coal, wood, or any grade of fuel oil. Emission factors for NOX, CO, VOC, and PM were obtained from the burner manufacturer for this boiler firing propane. Emission factors for SO2 were obtained from EPA’s Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition, Section 1.5 (10/96), Table 1.5-1. Based on a boiler Btu rating of 3.8 million and a propane heat rating of 91,500 Btu/gal, the approximately amount of propane burned per hour will be 41.5 gal/hr. Uncontrolled annual emissions were based on 8760 hours per year. Controlled annual emissions were based on 8760 hours per year.

Power Flame Incorporated - Manufacturer’s Emission Factors:

Pollutant	Emission Factor (lbs/10 ⁶ Btu)
Nitrogen Oxides (75 PPM)	0.088
Carbon Monoxides (50 PPM)	0.037
Particulate	0.0048
Hydrocarbons	0.025

$$\text{Emission Rate (lbs/hr)} = \text{Emission Factor (lbs/10}^6 \text{ Btu)} * \text{Boiler Rating (10}^6 \text{ Btu/hr)}$$

AP-42 Section 1.5 Table 1.5-1 Emission Factor:

Pollutant	Emission Factor (lbs/10 ³ gal)
Sulfur Dioxide	0.10S

S = propane sulfur content in grains per 100 scf = 15 gr/100 scf

$$\text{Emission Rate (lbs/hr)} = \text{Emission Factor (lbs/10}^3 \text{ scf)} * S * \text{Fuel Usage (10}^3 \text{ gal/hr)}$$

CO2 emission rates are found in EPA’s “Emission Factors for Greenhouse Gas Inventories” (February 13, 2024).

CO2 = 61.46 kg/MMBtu (GWP = 1)

CH4 = 3.0 g/MMBtu (GWP = 28)

N2O = 0.60 g/MMBtu (GWP = 265)

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

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

Table B-6: Controlled Combustion Emission Rates

Emission Unit Number	Pollutant	Thermal Rating (BTU_{max})	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
17	NO _x	3,800,000	0.33	1.46
	CO	3,800,000	0.14	0.62
	SO ₂	3,800,000	0.062	0.27
	VOC	3,800,000	0.10	0.42
	PM	3,800,000	0.018	0.080

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

Table B-7: Controlled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Thermal Rating (BTU_{max})	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
17	CO ₂	61.41 kg/MMBtu	3,800,000	1	514.88	2255.19
	CH ₄	3.00 g/MMBtu	3,800,000	25	0.63	2.75
	N ₂ O	0.60 g/MMBtu	3,800,000	298	1.50	6.56
	GHG				517.0	2264.5

3.2 Estimates for 381 hp Recycle Plant Diesel-Fired Engine (32) (NOX, CO, SO2, VOC, PM, and CO2)

A 381 horsepower (hp), 284 kilowatt (kW) engine (Unit 32) provides power to the recycle plant. Emission rates for NOx, CO, PM and NMHC are based on EPA Tier 4f emission factors (See Section 7). Sulfur dioxide (SO2) emissions are estimated based on sulfur content of diesel fuel, not to exceed 15 ppm fuel content and a fuel usage rate of 18.5 gal/hr. CO2 emission rates are found in EPA’s “Emission Factors for Greenhouse Gas Inventories” (See Section 7). Uncontrolled annual emissions in tons per year (tpy) were calculated assuming daylight operation of 4380 hours per year. Controlled annual emissions in tons per year (tpy) were calculated assuming proposed operation of 3499 hours per year.

EPA Tier 4f:

Pollutant	EPA Tier 4f Emission Factor (grams/kW-hr)
Nitrogen Oxide (NOx)	0.40
Carbon Monoxides (CO)	3.50
Particulate (PM)	0.02
Hydrocarbons (VOC)	0.19

$$\text{Emission Rate (lbs/hr)} = \text{Engine Rating (kW-hr)} * \text{Emission Factor (grams/kW)} / 453.6 \text{ grams/lb}$$

Sulfur dioxide emission rate was calculated using the fuel consumption rate for this engine of 18.5 gallons per hour, a fuel density of 7.0 pounds per gallon, a fuel sulfur content of 15 PPM, and a sulfur to sulfur dioxide conversion factor of two (2). The following equation calculates the emission rate for sulfur dioxide (SO2).

$$\text{Emission Rate (lbs/hr)} = \text{Fuel (gal/hr)} * \text{Density lbs/gal} * \% \text{ Sulfur Content} * \text{Factor}$$

$$\text{Emission Rate (lbs/hr)} = \frac{18.5 \text{ gallons}}{\text{hr}} \times \frac{7.0 \text{ lbs}}{\text{gallon}} \times \frac{0.000015 \text{ lbs Sulfur}}{\text{lbs of fuel}} \times \frac{2 \text{ lbs Sulfur Dioxide}}{1 \text{ lb Sulfur}}$$

$$\text{Emission Rate (lbs/hr)} = 0.0039 \text{ lbs/hr}$$

CO2 emission rates are found in EPA’s “Emission Factors for Greenhouse Gas Inventories” (February 13, 2024).

$$\text{CO}_2 = 10.21 \text{ kg/gal (GWP = 1)}$$

$$\text{CH}_4 = 0.41 \text{ g/gal (GWP = 25)}$$

$$\text{N}_2\text{O} = 0.08 \text{ g/gal (GWP = 298)}$$

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

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

Table B-8: Pre-controlled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (hp/kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
32	NO _x	381/284	0.25	0.55
	CO	381/284	2.19	4.80
	SO ₂	381/284	0.0039	0.0085
	VOC	381/284	0.12	0.26
	PM	381/284	0.013	0.027

Table B-9: Controlled Combustion Emission Rates

Process Unit Number	Pollutant	Engine Rating (hp/kW)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
32	NO _x	381/284	0.25	0.44
	CO	381/284	2.19	3.83
	SO ₂	381/284	0.0039	0.0068
	VOC	381/284	0.12	0.21
	PM	381/284	0.013	0.022

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

Table B-10: Uncontrolled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
32	CO2	10.21 kg/gal	18.5	1	416.42	911.96
	CH4	0.41 g/gal	18.5	25	0.42	0.92
	N2O	0.08 g/gal	18.5	298	0.97	2.13
	GHG				417.8	915.0

Table B-11: Controlled GHG Combustion Emission Rates

Process Unit Number	Pollutant	Emission Factor	Gallons/Hour	GWP (lbs/hr)	GHG Emission Rate (lbs/hr)	GHG Emission Rate (tons/yr)
32	CO2	10.21 kg/gal	18.5	1	416.42	728.53
	CH4	0.41 g/gal	18.5	25	0.42	0.73
	N2O	0.08 g/gal	18.5	298	0.97	1.70
	GHG				417.8	731.0

Table B-12: Pre-Controlled Emission Totals

ID #	Source Description	NOx		CO		SO2		VOC		PM		PM10		PM2.5	
		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
1	Haul Road									7.48	13.89	1.91	3.54	0.19	0.35
2	Feeder									1.01	2.24	0.48	1.06	0.07	0.16
3	Conveyor									1.01	2.25	0.37	0.83	0.056	0.12
4	Aggregate Bin									1.01	2.24	0.48	1.06	0.072	0.16
5,6	Aggregate Weigh Batcher and Conveyor									1.01	2.25	0.37	0.83	0.056	0.12
7, 8, 9, 10, 20	Central Dust Collector									0.16	0.36	0.16	0.36	0.16	0.36
12	Storage Piles									1.32	2.93	0.62	1.39	0.095	0.21
17	Concrete Batch Plant Heater	0.33	1.46	0.14	0.62	0.062	0.27	0.095	0.42	0.018	0.080	0.018	0.080	0.018	0.080
21	Raw Material									1.11	2.43	0.52	1.15	0.079	0.17
22	Feeder									1.11	2.43	0.52	1.15	0.079	0.17
23	Conveyor									0.75	1.64	0.28	0.60	0.081	0.18
24	Screen									6.25	13.69	2.18	4.76	0.15	0.32
25	HSI Crusher									1.35	2.96	0.60	1.31	0.11	0.24
26	Recycle Conveyor									0.75	1.64	0.28	0.60	0.081	0.18
27	Conveyor									0.75	1.64	0.28	0.60	0.081	0.18
28	Conveyor									0.75	1.64	0.28	0.60	0.081	0.18
29	Stacker to Storage Pile									1.11	2.43	0.52	1.15	0.079	0.17
30	Finish Storage Pile									1.11	2.43	0.52	1.15	0.079	0.17
31	Truck Loading									1.11	2.43	0.52	1.15	0.079	0.17
32	HSI Engine	0.25	0.55	2.19	4.80	0.0025	0.0055	0.12	0.26	0.013	0.027	0.013	0.027	0.013	0.027
33	Recycle Haul Road									86.65	158.57	22.08	40.41	2.21	4.04
	Total	0.58	2.01	2.33	5.41	0.065	0.28	0.21	0.68	115.83	220.20	33.00	63.81	3.92	7.79

Table B-13: Requested Allowable Emission Totals

ID #	Source Description	NOx		CO		SO2		VOC		PM		PM10		PM2.5	
		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
1	Haul Road									7.48	13.89	1.91	3.54	0.19	0.35
2	Feeder									1.01	2.24	0.48	1.06	0.072	0.16
3	Conveyor									1.01	2.25	0.37	0.83	0.056	0.12
4	Aggregate Bin									1.01	2.24	0.48	1.06	0.072	0.16
5,6	Aggregate Weigh Batcher and Conveyor									1.01	2.25	0.37	0.83	0.056	0.12
7,8,9,10,20	Central Dust Collector									0.16	0.36	0.16	0.36	0.16	0.36
12	Storage Piles									1.32	2.93	0.62	1.39	0.095	0.21
17	Concrete Batch Plant Heater	0.33	1.46	0.14	0.62	0.062	0.27	0.095	0.42	0.018	0.080	0.018	0.080	0.018	0.080
21	Raw Material									1.11	0.44	0.52	0.21	0.079	0.032
22	Feeder									1.11	0.44	0.52	0.21	0.079	0.032
23	Conveyor									0.035	0.014	0.012	0.0046	0.0033	0.0013
24	Screen									0.55	0.22	0.19	0.074	0.013	0.0050
25	HSI Crusher									0.30	0.12	0.14	0.054	0.025	0.010
26	Recycle Conveyor									0.035	0.014	0.012	0.0046	0.0033	0.0013
27	Conveyor									0.035	0.014	0.012	0.0046	0.0033	0.0013
28	Conveyor									0.035	0.014	0.012	0.0046	0.0033	0.0013
29	Stacker to Storage Pile									0.67	0.27	0.31	0.13	0.048	0.019
30	Finish Storage Pile									1.11	0.44	0.52	0.21	0.079	0.032
31	Truck Loading									1.11	0.44	0.52	0.21	0.079	0.032
32	HSI Engine	0.25	0.44	2.19	3.83	0.0025	0.0044	0.12	0.21	0.013	0.022	0.013	0.022	0.013	0.022
33	Recycle Haul Road									8.67	2.90	2.21	0.74	0.22	0.074
	Total	0.58	1.90	2.33	4.45	0.065	0.28	0.21	0.62	27.79	31.60	9.41	11.01	1.37	1.84

Attachment C
Emissions Calculations Background

11.12 Concrete Batching

11.12.1 Process Description¹⁻⁵

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

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

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

11.12.2 Emissions and Controls⁶⁻⁸

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

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

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

ND = No data

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

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

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

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

^e Emission factors were developed by using the Aggregate and Sand Transfer Emission Factors in conjunction with the ratio of aggregate and sand used in an average yard³ of concrete. The unit for these emission factors is lb of pollutant per ton of aggregate and sand.

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

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

The particulate matter emissions from truck mix and central mix loading operations are calculated in accordance with the values in Tables 11.12-1 or 11.12-2 or by Equation 11.12-1¹⁴ when site specific data are available.

$$E = k (0.0032) \left[\frac{U^a}{M^b} \right] + c \quad \text{Equation 11.12-1}$$

- E = Emission factor in lbs./ton of cement and cement supplement
- k = Particle size multiplier (dimensionless)
- U = Wind speed at the material drop point, miles per hour (mph)
- M = Minimum moisture (% by weight) of cement and cement supplement
- a, b = Exponents
- c = Constant

The parameters for Equation 11.12-1 are summarized in Tables 11.12-3 and 11.12-4.

Table 11.12-3. Equation Parameters for Truck Mix Operations

Condition	Parameter Category	k	a	b	c
Controlled ¹	Total PM	0.8	1.75	0.3	0.013
	PM ₁₀	0.32	1.75	0.3	0.0052
	PM _{10-2.5}	0.288	1.75	0.3	0.00468
	PM _{2.5}	0.048	1.75	0.3	0.00078
Uncontrolled ¹	Total PM	0.995			
	PM ₁₀	0.278			
	PM _{10-2.5}	0.228			
	PM _{2.5}	0.050			

Table 11.12-4. Equation Parameters for Central Mix Operations

Condition	Parameter Category	k	a	b	c
Controlled ¹	Total PM	0.19	0.95	0.9	0.0010
	PM ₁₀	0.13	0.45	0.9	0.0010
	PM _{10-2.5}	0.12	0.45	0.9	0.0009
	PM _{2.5}	0.03	0.45	0.9	0.0002
Uncontrolled ¹	Total PM	5.90	0.6	1.3	0.120
	PM ₁₀	1.92	0.4	1.3	0.040
	PM _{10-2.5}	1.71	0.4	1.3	0.036
	PM _{2.5}	0.38	0.4	1.3	0

1. Emission factors expressed in lbs/tons of cement and cement supplement

To convert from units of lbs/ton to units of kilograms per mega gram, the emissions calculated by Equation 11.12-1 should be divided by 2.0.

Particulate emission factors per yard of concrete for an average batch formulation at a typical facility are given in Tables 11.12-5 and 11.12-6. For truck mix loading and central mix loading, the

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 material²⁵. 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 MOBILE6.2²⁴. 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 Parameters¹⁻⁶

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

^aReferences 1,5-15.

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

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

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

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

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

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

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

M = surface material moisture content (%)

S = mean vehicle speed (mph)

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

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

$$1 \text{ lb/VMT} = 281.9 \text{ g/VKT}$$

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

13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

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

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

13.2.4.2 Emissions And Correction Parameters

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

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

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

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

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

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

(1)

where:

E = emission factor

k = particle size multiplier (dimensionless)

U = mean wind speed, meters per second (m/s) (miles per hour [mph])

M = material moisture content (%)

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

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

^a Multiplier for < 2.5 μm taken from Reference 14.

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

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

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



11.19.2 Crushed Stone Processing and Pulverized Mineral Processing

11.19.2.1 Process Description^{24, 25}

Crushed Stone Processing

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

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

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

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

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

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

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

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

Pulverized Mineral Processing

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

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

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

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	NDⁿ	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012^d	E	0.00054ⁿ	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 ^l	E	0.0012 ^l	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)	0.00014ⁱ	E	4.6 x 10^{-5j}	D	1.3 x 10^{-5q}	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0 x 10 ^{-5j}	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6 x 10 ^{-5j}	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.

Power Flame Incorporated



Typical Flue Product Emissions Data for Power Flame Burners

	Natural Gas	# 2 Fuel Oil
Carbon Monoxide - CO	.037 lb CO per 10 ⁶ BTU input (50 PPM)	.037 lb per 10 ⁶ Btu (50 PPM)
Sulfur Dioxide - SO ₂	(1.05) x (% Sulphur by weight in fuel) = lb SO ₂ per 10 ⁶	
Particulate Matter	.0048 lb PM per 10 ⁶ BTU input	.0143 lb PM per 10 ⁶
Hydrocarbons	.025 lb HC's per 10 ⁶ BTU input	.038 lb HC's per 10 ⁶
CO ₂	9 % to 10%	10% to 11%
Nitrogen Oxides - NO_x		
Standard C, J Burners	.088 lb NO _x per 10 ⁶ BTU input (75 PPM)	.159 lb NO _x per 10 ⁶ (120) PPM
LNIAC burner	.029 lb NO _x per 10 ⁶ BTU input (25 PPM)	.12 lb NO _x per 10 ⁶ (90) PPM
CM burner	.070 lb NO _x per 10 ⁶ BTU input (60 PPM)	.146 lb NO _x per 10 ⁶ (110) PPM
IFGR LNIC NO _x Burners	.029 lb NO _x per 10 ⁶ BTU input (25 PPM)	.126 lb NO _x per 10 ⁶ (110) PPM
LNICM burner	.029 lb NO _x per 10 ⁶ BTU input (25) PPM	.12 lb NO _x per 10 ⁶ (90) PPM
NPM Premix burner	.029 lb NO _x per 10 ⁶ BTU input (25) PPM	N/A N/A
Nova Plus Burner	.010 lb NO _x per 10 ⁶ BTU input (8) PPM	N/A N/A

(1) NO_x emissions at 3.0 % O₂ will vary based on the percent of fuel bound nitrogen and boiler cor

These emission rates are general estimates and do not constitute guarantees by Power Flame Inc.
 In instances where guarantees are required, please consult the factory with the specific application

Nonroad Compression-Ignition Engines: Exhaust Emission Standards

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

Continued

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

Notes on following page.



An Oshkosh Corporation Company

SPECIFICATIONS FOR MODEL PJ-1400D DUST COLLECTION SYSTEM

MODEL CON-E-CO-PJ-1400D

NUMBER OF BAGS	96
NOMINAL BAG DIAMETER	6"
NOMINAL BAG LENGTH	120"
TOTAL FILTRATION AREA	1427 SQ. FT.
MIN. DESIGN EFFICIENCY OF DUST COLLECTOR	99.9%
AIR TO CLOTH RATIO	6.0 ACFM / SQ. FT.
FILTRATION VELOCITY	6.0 FT. / MIN
BLOWER HP	20 HP
STATIC PRESSURE DROP	6" (INCHES OF WATER)
AIR CAPACITY	8,560 C.F.M.
DISCHARGE AREA	1.84 SQ. FT.
DISCHARGE VELOCITY	77.5 FT. / SEC.
DIRECTION OF AIR DISCHARGE	HORIZONTAL
DISCHARGE SHAPE	13 1/4"x 20" RECTANGLE
OUTLET MOISTURE CONTENT	IDEALLY ZERO
CLEANING MECHANISM	PULSE JET
FREQUENCY OF CLEANING	VARIABLE
NORMAL OPERATING TEMP & PRESSURE	AMBIENT

BAG SPECIFICATIONS

BAG DIAMETER	5.93"
BAG LENGTH	121"
CONSTRUCTION	SEAMED
FIBER	POLYESTER FELT
FINISH	SINGED
WEIGHT	16 OZ / SQ. YD.
PERMEABILITY (.5" WATER)	20-30 CFM
FIBER SIZE	2.5 DENIER AVERAGE

TYPICAL MIXER SHROUD SPECIFICATION

SHROUD SIZE	6'-0" - 8'-0"
CURTAIN LENGTH	8'-0"
CAPTURE VELOCITY (with mixer truck in loading position)	182 FT/MIN
DUCT SIZE	(2) - 14" DIA
DUCT VELOCITY	3740 FT/MIN

INTO BAGS

CEMENT SILO

LB / HR	.177 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

INTO BAGS

FLYASH SILO

LB / HR	.115 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

INTO BAGS

CENTRAL MIX

LB / HR	.153 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

TRUCK MIX

LB / HR	.281 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

OUT OF BAGS

FOR ALL OUT OF BAGS VALUES, MULTIPLY THE INTO BAGS VALUES BY .001.



SOLID PRODUCTS. SOLID PERFORMANCE.

237 N. 13TH ST - PO Box 430 - Blair, NE 68008

Phone: 800-656-2651 Fax: 402-426-4181 Service/Parts Fax: (402)-533-9292

E-MAIL: parts@con-e-co.com WEBSITE: www.con-e-co.com



Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC [Request Portal](#)

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)	
Serial Number (Engine)	NGH07271
Sales Model	C9.3B
Regulatory Build Date	02-NOV-2023
As Shipped Data	
Engine Arrangement Number	5062314
Certification Arrangement	3611820
Test Spec Number	5526639
Regulatory Status	EPA / ARB / EU / R120 / MLIT / S. Korea Tier 5
Labeled Model Year	2023
EPA Family Code	PCPXL09.3NTE
EPA Emissions Level	EPA TIER 4f
EU Emissions Level	EU STAGE V
EU Type Approval	e24*2016/1628*2022/992EV6/D*0014
UN R120 Type Approval	120R-000006
As-Shipped Flash File	6364128
CORR FL Power at RPM	381 HP (284.0 KW)2200 RPM
Advertised Power	375 HP 2,200RPM
Total Displacement	9.3 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.

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PERFORMANCE DATA [NGH07271]

OCTOBER 23, 2025

(NGH07271)-ENGINE (CZS310402A)-CEM (PET253741M)-PETU

For Help Desk Phone Numbers [Click here](#)

Perf No: EM2776

Change Level: 02

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 [Heat Rejection](#)
 [Sound](#)
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 [Altitude Derate](#)
 [Cross Reference](#)
 [Perf Param Ref](#)

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SALES MODEL:	C9.3B	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	2,200
MACHINE SALES MODEL:		PEAK TORQUE SPEED (RPM):	1,400
ENGINE POWER (BHP):	375	TORQUE RISE (%):	41
PEAK TORQUE (FT-LB):	1,269.3	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	B-RATING	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTB4088/0.84 - A/R
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2017
INJECTOR TYPE:	CR	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,150.9
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	8,461		

INDUSTRY	SUB INDUSTRY	APPLICATION
INDUSTRIAL	GENERAL INDUSTRIAL	INDUSTRIAL
INDUSTRIAL	CONSTRUCTION	INDUSTRIAL
INDUSTRIAL	MATERIAL HANDLING	INDUSTRIAL
INDUSTRIAL	AGRICULTURE	INDUSTRIAL
INDUSTRIAL	MINING	INDUSTRIAL
INDUSTRIAL	INDUSTRIAL POWER UNIT	INDUSTRIAL
OIL AND GAS	WELL SERVICING	INDUSTRIAL
OIL AND GAS	LAND PRODUCTION	INDUSTRIAL
INDUSTRIAL	FORESTRY	INDUSTRIAL

General Performance Data [Top](#)

Note(s)

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

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
2,200	375	896	239	0.350	0.344	18.5	18.2
2,100	375	939	250	0.343	0.337	18.2	17.8
2,000	375	986	262	0.335	0.329	17.7	17.4
1,900	375	1,038	276	0.329	0.322	17.4	17.1
1,800	375	1,096	292	0.325	0.318	17.2	16.9

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
1,700	368	1,138	303	0.321	0.315	16.7	16.3
1,600	360	1,182	315	0.318	0.312	16.1	15.8
1,500	350	1,224	326	0.315	0.309	15.5	15.2
1,400	338	1,269	338	0.314	0.308	15.0	14.7
1,300	299	1,207	321	0.313	0.307	13.2	12.9
1,200	261	1,144	305	0.314	0.309	11.6	11.4
1,100	227	1,082	288	0.314	0.308	10.0	9.8
1,000	189	993	264	0.320	0.314	8.5	8.4
900	155	904	241	0.327	0.321	7.1	7.0
800	124	816	217	0.345	0.339	6.0	5.9
700	90.9	682	182	0.349	0.343	4.5	4.4
600	62.8	550	146	0.356	0.349	3.1	3.1

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,200	375	59.6	123.2	1,086.0	96.8	768.4	64	391.6
2,100	375	61.1	123.4	1,076.3	92.3	764.7	65	386.0
2,000	375	61.9	122.7	1,069.6	87.4	764.1	66	380.3
1,900	375	62.5	122.8	1,072.1	82.3	771.2	66	376.9
1,800	375	63.1	122.4	1,084.4	77.4	786.5	66	375.6
1,700	368	61.9	122.1	1,093.1	70.7	801.4	65	371.1
1,600	360	60.6	123.0	1,105.9	64.0	821.6	63	365.4
1,500	350	58.6	122.5	1,124.6	56.9	848.6	61	359.9
1,400	338	56.3	123.2	1,154.8	50.5	888.0	58	356.3
1,300	299	48.6	119.2	1,151.6	40.1	915.0	50	333.3
1,200	261	41.5	121.1	1,158.8	31.3	946.3	43	308.8
1,100	227	33.9	118.1	1,151.3	23.8	967.6	35	278.7
1,000	189	25.9	120.9	1,148.5	17.0	997.3	26	242.2
900	155	19.9	111.5	1,130.4	12.6	1,007.7	20	213.6
800	124	14.9	120.6	1,130.7	8.8	1,025.2	15	184.5
700	90.9	9.6	106.9	1,053.5	5.7	971.8	10	153.9
600	62.8	6.0	109.9	932.0	3.7	871.7	6	129.6

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,200	375	912.2	1,562.2	3,974.0	4,105.5	625.5	576.5
2,100	375	889.8	1,537.6	3,864.5	3,993.2	617.4	568.9
2,000	375	861.8	1,510.7	3,728.6	3,854.6	606.9	558.8
1,900	375	827.8	1,481.7	3,569.7	3,693.0	591.9	544.0
1,800	375	795.3	1,461.6	3,419.0	3,540.9	576.7	529.0
1,700	368	748.0	1,417.9	3,205.4	3,323.5	552.8	505.9
1,600	360	701.4	1,379.9	2,992.8	3,107.4	529.5	483.3
1,500	350	646.7	1,325.7	2,749.2	2,859.2	498.2	453.1
1,400	338	589.4	1,270.2	2,497.8	2,604.0	463.4	419.5
1,300	299	501.8	1,139.1	2,118.1	2,211.7	407.4	367.6
1,200	261	421.4	1,006.7	1,772.2	1,854.4	352.1	316.3
1,100	227	347.9	865.6	1,458.8	1,529.9	298.2	266.7
1,000	189	274.4	714.7	1,148.5	1,208.9	241.2	214.1
900	155	220.9	588.7	923.6	974.2	197.3	174.4
800	124	174.2	477.1	727.8	770.6	158.0	138.6
700	90.9	134.9	358.2	563.7	595.4	123.0	108.4
600	62.8	107.2	264.5	448.0	470.3	97.7	87.2

RATED SPEED NOMINAL DATA: 2200 RPM

ENGINE POWER	BHP	375	282	188	93.9	37.5
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	68	17	6	5	17
TOTAL CO	G/HR	23	23	17	12	11
TOTAL HC	G/HR	4	8	8	8	12
TOTAL CO2	KG/HR	215	150	100	65	40
PART MATTER	G/HR	1.0	0.7	0.6	0.5	0.3
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	76.5	24.2	14.1	19.4	86.1
TOTAL CO	(CORR 5% O2) MG/NM3	24.0	34.5	37.4	40.7	54.6
TOTAL HC	(CORR 5% O2) MG/NM3	3.7	9.7	15.2	24.0	50.9
PART MATTER	(CORR 5% O2) MG/NM3	0.9	1.1	1.2	1.5	1.6
TOTAL NOX (AS NO2)	(CORR 15% O2) MG/NM3	28.4	9.0	5.2	7.2	31.9
TOTAL CO	(CORR 15% O2) MG/NM3	8.9	12.8	13.9	15.1	20.3
TOTAL HC	(CORR 15% O2) MG/NM3	1.4	3.6	5.6	8.9	18.9
PART MATTER	(CORR 15% O2) MG/NM3	0.3	0.4	0.5	0.5	0.6
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	37	12	7	9	42
TOTAL CO	(CORR 5% O2) PPM	19	28	30	33	44
TOTAL HC	(CORR 5% O2) PPM	7	18	28	45	95
TOTAL NOX (AS NO2)	(CORR 15% O2) PPM	14	4	3	4	16
TOTAL CO	(CORR 15% O2) PPM	7	10	11	12	16
TOTAL HC	(CORR 15% O2) PPM	3	7	11	17	35
TOTAL NOX (AS NO2)	G/HP-HR	0.18	0.06	0.03	0.05	0.46
TOTAL CO	G/HP-HR	0.06	0.08	0.09	0.13	0.28
TOTAL HC	G/HP-HR	0.01	0.03	0.04	0.08	0.31
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.01	0.01
TOTAL NOX (AS NO2)	G/KW-HR	0.24	0.08	0.05	0.07	0.62
TOTAL CO	G/KW-HR	0.08	0.11	0.12	0.17	0.38
TOTAL HC	G/KW-HR	0.01	0.04	0.06	0.11	0.41
PART MATTER	G/KW-HR	0.00	0.00	0.00	0.01	0.01
TOTAL NOX (AS NO2)	LB/HR	0.15	0.04	0.01	0.01	0.04
TOTAL CO	LB/HR	0.05	0.05	0.04	0.03	0.02
TOTAL HC	LB/HR	0.01	0.02	0.02	0.02	0.03
TOTAL CO2	LB/HR	475	331	221	143	89
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	10.1	12.4	14.1	15.5	16.9

SECONDARY SPEED NOMINAL DATA: 1800 RPM

ENGINE POWER	BHP	375	282	188	93.9	37.5
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	29	10	4	4	8
TOTAL CO	G/HR	24	19	15	11	7
TOTAL HC	G/HR	2	3	3	3	5
TOTAL CO2	KG/HR	179	133	92	53	31
PART MATTER	G/HR	0.6	0.6	0.6	0.3	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	35.3	16.9	11.6	17.7	51.1
TOTAL CO	(CORR 5% O2) MG/NM3	29.9	31.5	36.2	45.2	47.3
TOTAL HC	(CORR 5% O2) MG/NM3	2.6	4.4	6.0	10.7	26.6
PART MATTER	(CORR 5% O2) MG/NM3	0.6	0.9	1.2	1.1	0.1
TOTAL NOX (AS NO2)	(CORR 15% O2) MG/NM3	13.1	6.3	4.3	6.6	19.0
TOTAL CO	(CORR 15% O2) MG/NM3	11.1	11.7	13.4	16.8	17.5
TOTAL HC	(CORR 15% O2) MG/NM3	1.0	1.6	2.2	4.0	9.9
PART MATTER	(CORR 15% O2) MG/NM3	0.2	0.3	0.4	0.4	0.0
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	17	8	6	9	25
TOTAL CO	(CORR 5% O2) PPM	24	25	29	36	38
TOTAL HC	(CORR 5% O2) PPM	5	8	11	20	50
TOTAL NOX (AS NO2)	(CORR 15% O2) PPM	6	3	2	3	9
TOTAL CO	(CORR 15% O2) PPM	9	9	11	13	14
TOTAL HC	(CORR 15% O2) PPM	2	3	4	7	18
TOTAL NOX (AS NO2)	G/HP-HR	0.08	0.04	0.02	0.04	0.21
TOTAL CO	G/HP-HR	0.06	0.07	0.08	0.12	0.18
TOTAL HC	G/HP-HR	0.01	0.01	0.01	0.03	0.13
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	G/KW-HR	0.10	0.05	0.03	0.05	0.29
TOTAL CO	G/KW-HR	0.08	0.09	0.11	0.16	0.24
TOTAL HC	G/KW-HR	0.01	0.01	0.02	0.04	0.17
PART MATTER	G/KW-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/HR	0.06	0.02	0.01	0.01	0.02
TOTAL CO	LB/HR	0.05	0.04	0.03	0.02	0.02
TOTAL HC	LB/HR	0.00	0.01	0.01	0.01	0.01
TOTAL CO2	LB/HR	396	294	204	117	68
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	10.3	11.4	12.7	14.6	16.4

Regulatory Information [Top](#)

EPA TIER 4 FINAL

2014 - ----

EPA TIER 4 FINAL**2014 - ----**

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

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

EU STAGE V**2019 - ----**

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

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	NON-ROAD	STAGE V	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.015

JAPAN MLIT TIER 4F**2016 - ----**

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

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
JAPAN	JAPAN MLIT	NON-ROAD	TIER 4F	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

SOUTH KOREA MOE TIER 4F**2015 - ----**

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

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
SOUTH KOREA	SOUTH KOREA MOE	NON-ROAD	TIER 4F	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.025

UN R120**2018 - ----**

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF INTERNAL COMBUSTION ENGINES TO BE INSTALLED IN AGRICULTURAL AND FORESTRY TRACTORS AND IN NON-ROAD MOBILE MACHINERY, WITH REGARD TO THE MEASUREMENT OF THE NET POWER, NET TORQUE AND SPECIFIC FUEL CONSUMPTION.

Altitude Derate Data [Top](#)

STANDARD

QI341HS PRISEC™ IMPACTOR PIONEERING SOLUTIONS FOR YOU

TECHNICAL SPECIFICATION

Built utilizing Sandvik's market leading Prisec™ technology, the QI341HS is the most versatile, compact mobile impactor in the market today. Capable of operating in primary and secondary applications, it has been designed with productivity, mobility, minimal environmental impact and user friendliness at its core.

The QI341HS is available with an optional hanging screen system, which will allow customers an even greater return on investment through the facility to produce accurately sized products for immediate use.

KEY BENEFITS

- The Sandvik Prisec™ impactor is the most flexible impactor currently available on the market designed to meet tight end product specifications.
- The machine is fitted with a pre-screen to ensure maximum scalping capability in order to prevent any undersize material passing through the impactor, thereby maximising throughput and reducing wear costs. This also allows a specified sized product to be produced from the natural fines conveyor.
- The QI341HS is fitted with an underpan feeder which drastically reduces any spillage issues generally associated with impact crushers. The underpan feeder eliminates the need for skirt rubbers that are normally situated in the severe impact zone of a feed boot.
- The underpan feeder also protects the conveyor belt from high velocity material from the rotor. This material is contained on the wear resistant underpan feeder liners and gently delivered onto the conveyor belt.
- Two hydraulically adjustable apron curtains can be positioned to facilitate the machine's operation as a Primary impactor, however they can also be repositioned to operate as a Secondary impactor to produce much smaller end products.
- All of the above combined with the variable engine speed which gives a tip speed range of 30 m/s to 37 m/s resulting in a wide range product gradations being achievable.
- Capable of operating in the most hostile environments with a 50°C ambient temperature capability without any oil changes.
- Jacking legs for increased stability and ease of maintenance.
- Overband magnet.



KEY SPECIFICATIONS	QI341 HS
Hopper	
Width	1800 mm / 5' 11"
Length	3660 mm / 12' 0"
Capacity (heaped)	3.6 m ³ / 4.7 yd ³
Primary feeder	
Wear resistant lined feeder	910 mm x 2330 mm / 3' x 7' 8"
Hydraulic drive variable speed	550 rpm to 1000 rpm
Twin eccentric shaft	Oil lubrication
Amplitude	Nominal 10 mm / ¾"
Pre screen	
Type	2 Bearing, high amplitude screen 2 screening decks
Top deck	1520 mm x 980 mm / 5' 0" x 3' 2 ½"
Bottom deck mesh	1020 mm x 980 mm / 3' 4" x 3' 2 ½"
Amplitude	10 mm / ¾"
Speed	990 rpm
Punch plate	40 mm / 1 ½"
Underscreen mesh	20 mm / ¾"
Impactor	
Sandvik CI411 Prisec™ Impactor	
Feed opening	992 mm x 670 mm / 39" x 26 ½"
Hydraulic inlet opening	992 mm x 830 mm / 39" x 32 ½"
4 Bar rotor	1005 mm / 39 ½"
Rotor speed (variable)	573 - 707 rpm
Tip speed (variable)	30 - 37 m/s / 98 - 121 ft/s
2 aprons	Hydraulic assist
Rotor width	950 mm / 37 ½"
Main conveyor	
Belt width	1000 mm / 39 ½"
Belt length (endless)	18940 mm / 62' 2"
Discharge height	3762 mm / 12' 4"
Hydraulic drive	630 cc / 38.5 cu inch
Underpan feeder	
Type	Spring mounted stepped vibrating feeder
Width	830 mm / 32 ½"
Length	2040 mm / 6' 8"
Hydraulic drive	2 x 30 cc / 2 x 1.93 cu inch
Feeder liner	Wear resistant steel
Amplitude	9 mm / ¾"
Speed	960 rpm
Screen box	
Type	2 Bearing, single deck screen box
Top deck	4000 x 1525 mm / 13' x 5'
Fines conveyor	
Belt width	1200 mm / 47 ¼"
Discharge height	3460 mm / 11' 4"
Belt length	12800 mm / 42' 0"
Drive	Hyd
Motor CC	800 cc / 48.8 cu inch

OPTIONS

Hopper extensions for rear loading
Wear resistant hopper liner plates back and sides
Pre screen grizzly spacing option 20 - 50 mm, 35 - 55 mm
Pre screen top deck punch plate 60, 80, 100 mm
Mesh underscreen 30, 40, 50 mm
Central auto lube (crusher bearings only)
Central auto lube HS (HS conveyors excluding screen bearings)
Water pump (hydraulic)
Arctic package - 20°C (-4°F) (32 grade hyd oil & engine oil)
Arctic package -30°C (-22°F) (arctic hyd oil, engine oil, webasto coolant heater)
Fines conveyor level sensor (stockpile monitor)

KEY SPECIFICATIONS	QI341 HS
Transfer conveyor(s)	
Belt width	500 mm / 19 ¾"
Belt length	5000 mm / 16' 5"
Drive	Hyd
Motor CC	315 cc / 19.2 cu inch
Recirculating conveyor	
Belt width	500 mm (CH) / 19 ¾"
Discharge height	4580 mm / 15'
Belt length	18,050 mm / 59' 3"
Drive	Hyd
Motor CC	500 cc / 30.5 cu inch
Weight	1125 kg / 2480 lbs
Power pack	
Engine	Stage 3A / Tier 3 CAT C9 Acert Stage 3B / Tier 4i CAT C9.3 Acert Stage 4 / Tier 4 Final CAT C9.3 Acert
Engine power	261 kW / 350 hp
Diesel tank size	660 litres / 174 USG
Hydraulic tank size	660 litres / 174 USG
Tracks	
Length (centres)	3800 mm / 12' 6"
Width (shoe)	400 mm / 15 ¾"
Drive	Hydraulic motors / Gearbox
Control	Radio / Umbilical
Magnet	
Model	Eriez CP20/80-SC2
Weight	800 kg / 1764 lbs
Belt width	750 mm / 29 ½"
Type	Self cleaning suspended
Natural fines conveyor (option)	
Belt width	650 mm / 25 ½"
Belt length (endless)	9720 mm / 31' 11"
Discharge height	2630 mm / 8' 8"
Hydraulic drive	400 cc / 24.4 cu inch
HS operating dimensions	
Length HS	17.76 m / 58' 3"
Width HS	3.41 m / 11' 2"
Width HS (including NF conveyor)	5.52 m / 18' 1"
Operation height HS	4.58 m / 15'
HS transport dimensions	
Length HS	17.02 m / 55' 9"
Width	3.0 m / 9' 10"
Height HS	3.52 m / 11' 6"
Weight HS	44,978 kg / 99,160 lbs
Performance	
Max feed size	600 mm / 23 ½"
Capacity (up to)	300 tph / 330 stph
Travel speed	1.1 km/h / 0.68 mph
Max incline / Side to side	9° / 10°

Note. All weights and dimensions are for standard units only

Lighting mast and cabinet lights
Remote diesel pump (electric)
Pull stop cords on the main conveyor and natural fines
Pull stop cords on the recirc and fines conveyor
Engine filter kit 250 hours (air and oil filters for 3A engines only)
Plant and engine filter kit 500 hours
Intelligent line multi-machine communication
Natural fines conveyor
Radio remote control
Heavy duty twin pole magnet
No overband magnet



NEW MEXICO

STATION	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
ALBUQUERQUE INTL SUNPORT AP (KABQ)	2001-2011	7.0	7.7	8.8	10.4	9.7	9.2	8.1	7.7	7.5	7.3	7.1	6.7	8.1
CARLSBAD-CAVERN CITY AP (KCNM)	2001-2011	8.7	9.7	10.6	11.4	10.1	9.7	7.9	7.2	7.6	8.1	8.3	8.4	9.0
CLAYTON MUNICIPAL AIRPARK AP (KCAO)	2001-2011	11.8	12.3	13.0	14.5	13.4	12.8	11.5	11.1	11.7	12.0	12.4	11.9	12.4
CLINES CORNERS (KCQC)	2001-2011	15.9	15.9	15.7	16.7	14.3	13.0	10.0	10.1	11.2	13.4	14.8	16.3	14.0
DEMING MUNICIPAL AIRPORT (KDMN)	2001-2011	8.1	9.0	9.8	11.0	10.0	9.3	7.9	7.1	7.4	7.4	7.6	7.7	8.5
FARMINGTON-FOUR CORNERS AP (KFMN)	2001-2011	6.6	7.6	8.6	9.8	9.0	8.7	8.1	7.5	7.4	7.3	7.2	7.0	7.9
GALLUP MUNICIPAL AIRPORT (KGUP)	2001-2011	5.1	6.6	8.1	10.5	9.2	8.6	6.6	5.9	6.1	6.1	5.8	5.5	7.0
GRANTS-MILAN MUNI AIRPORT (KGNT)	2001-2011	7.6	8.3	9.2	10.6	9.6	9.0	7.7	6.9	7.4	7.7	7.9	7.5	8.3
LAS VEGAS MUNICIPAL ARPT (KLVS)	2001-2011	10.2	11.6	12.0	14.0	12.5	11.6	9.2	9.1	10.0	10.3	10.7	10.6	11.0
RATON MUNI/CREWS FIELD APT (KRTN)	2001-2011	8.1	9.0	9.9	11.9	10.9	10.0	8.0	7.8	8.2	8.7	8.4	8.1	9.1
ROSWELL INTERNATIONAL AP (KROW)	2001-2011	7.2	8.5	9.5	10.6	9.9	10.0	8.3	7.5	7.7	7.6	7.4	7.0	8.4
SANTA FE MUNICIPAL AIRPORT (KSAF)	2001-2011	8.7	8.7	9.4	10.6	10.3	9.6	8.4	8.1	8.1	8.3	8.3	8.3	8.9
TRUTH OR CONSEQUENCES AP (KTCS)	2001-2011	7.1	8.4	9.6	10.6	10.0	9.2	7.4	7.1	7.0	7.6	7.5	6.9	8.2
TUCUMCARI MUNICIPAL ARPT (KTCC)	2001-2011	9.7	10.4	11.4	13.1	11.8	11.6	9.5	9.2	9.7	9.9	10.3	10.1	10.6

Attachment D
USGS Topographic Maps

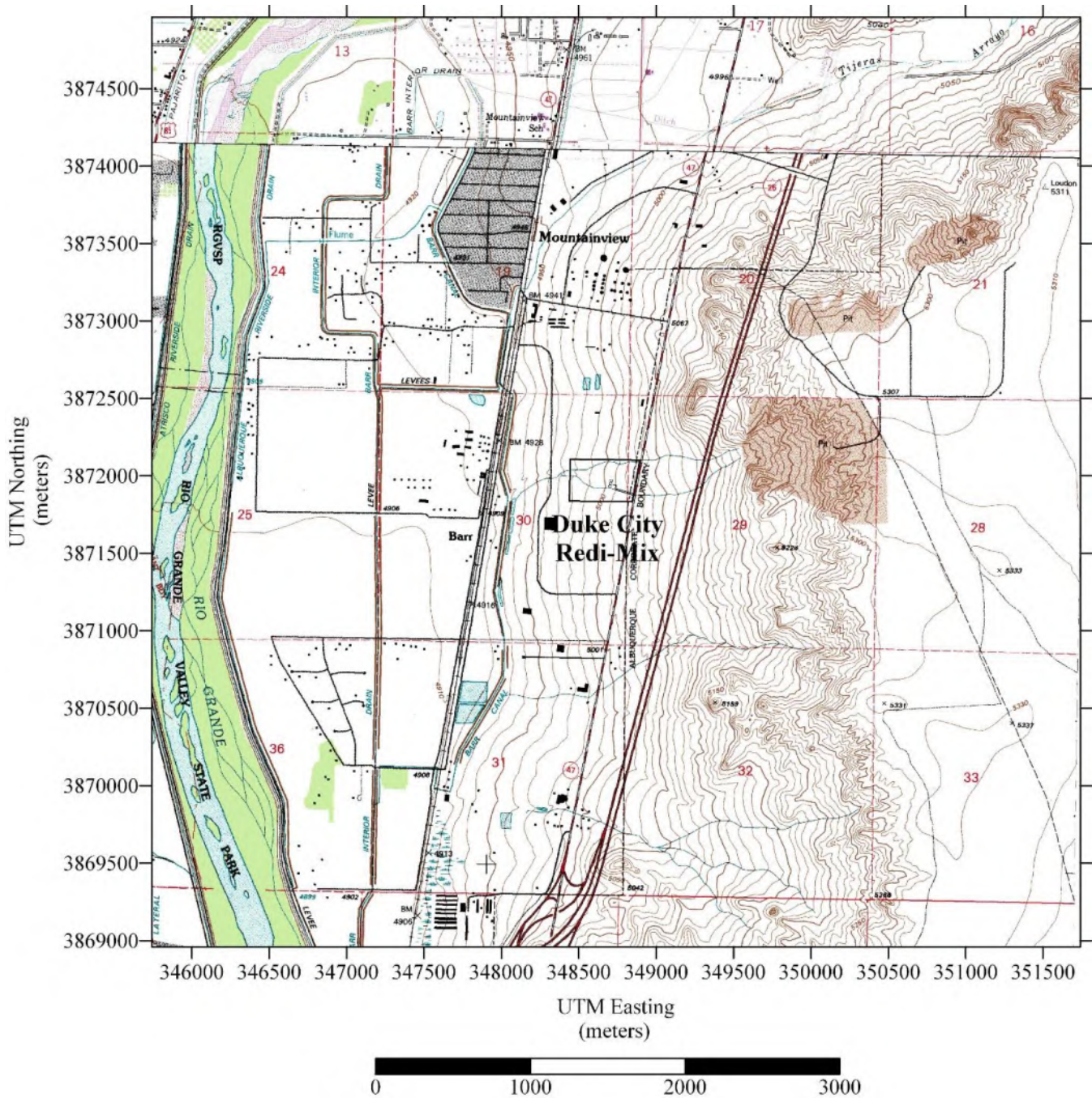


Figure D-1: 7 1/2 Minute Topo Map Showing Site Location
Albuquerque East 7 1/2 Minute Quadrant
NAD 83

Attachment E
Facility Process Description

Process Flow Description

Concrete Batch Plant

The Duke City's Broadway Blvd Concrete Plant is a Model Lo-Pro 12HP portable plant manufactured by CON-E-CO and includes; aggregate/sand storage piles, an aggregate/sand feeder and radial conveyor, 4-bin aggregate bin, weight batcher with delivery conveyor, cement silo, cement/fly ash split silo, 12 yard truck loading, cement/fly ash batcher, central baghouse, fly ash guppy, 3.8 MMBtu/hr hot water, and concrete additive.

Raw aggregate rock and washed sand will be delivered and stored on site. A front-end loader will take material from the storage piles (Unit 12) and load the aggregate feeder (Unit 2). From the aggregate feeder the material will be transferred by radial conveyor (Unit 3) to a 4-bin aggregate bin (Unit 4). When needed, measured quantities of sand and aggregate will be dropped into the weight batcher (Unit 5). The measured materials will be transferred to the 12-yard truck loading (Unit 7) by a delivery conveyor (Unit 6), where the aggregate material is combined with cement, fly ash, additives, and water.

Fugitive dust will be controlled by several methods. Dust created during aggregate handling will be kept to a minimum by adding water to the aggregate piles, as needed. The central baghouse will control fugitive dust emissions from truck loading (Unit 7), loading the cement silo (Unit 9), loading the fly ash silo/guppy (Unit 10 and 20), and loading the cement and fly ash batcher (Unit 8). Surface stabilizers and watering (90% control) will be used to minimize fugitive dust on the unpaved truck traffic areas (Unit 1) leading in and out of the facility. Process flow diagram is presented as Figure A-1 in Attachment A.

Recycle Plant

The new proposed Duke City's Albuquerque Recycle Plant is a QI341HS PRISEC IMPACTOR portable crushing plant manufactured by Sandvik and includes; a Raw Material (to be recycled concrete) Pile, Finish Storage Pile and a 375 Hp/284 kW CAT C9.3B engine.

Raw material to be recycled is delivered and stored on site. A front-end loader will take the material from the storage pile (Unit 21) and load the feeder (Unit 22). From the feeder, material will be transferred into the crusher (Unit 25). Once through the crusher, material will be transferred by conveyor (Unit 23) to the screen (Unit 24) where sized material will continue through on conveyor (Unit 27), onto a stacker conveyor (Unit 28), and dropped onto the storage pile (Unit 29). Oversized material is taken from the screen, back to the feeder via conveyor (Unit

26). Material ready for storage is taken to the finish storage pile (Unit 30). Finished material will be loaded into trucks (Unit 31) and taken to offsite locations.

Fugitive dust will be controlled by several methods. Dust created during material handling will be kept to a minimum by adding water to the material piles, as needed. Water sprays will be used at the crusher and screen to minimize fugitive emissions from the crusher, screen, conveyor transfer points, and loading onto storage pile. Surface stabilizers and watering (90% control) will be used to minimize fugitive dust on the unpaved truck traffic areas (Unit 33) leading in and out of the facility. Process flow diagram is presented as Figure A-2 in Attachment A.

Attachment F
Regulatory Applicability Determinations

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

Albuquerque/Bernalillo County Regulations

20.11.1 NMAC– General Provisions: Applicable to Duke City

Requirement: Compliance with ambient air quality standards.

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

20.11.2 NMAC– Permit Fees: Applicable to Duke City

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

Compliance: Duke City will pay all required permit revision application fees applicable to their facility.

20.11.5 NMAC– Visible Air Contaminants: Applicable to Duke City

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

Compliance: Duke City will perform any required opacity observations for the concrete plant hot water heater using Method 9 and/or Method 22 with certified opacity observers, as applicable.

20.11.8 NMAC– Ambient Air Quality Standards: Applicable to Duke City

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

Compliance: Duke City’s Broadway Blvd Concrete Plant demonstrated compliance by performing and submitting dispersion modeling analysis for applicable pollutants per Albuquerque/ Bernalillo County and New Mexico State Environmental Department’s modeling guidelines.

20.11.41 NMAC– Authority to Construct: Applicable to Duke City

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

Compliance: Duke City Redi-Mix, LLC. is applying for a modified 20.11.41 NMAC permit with this application.

20.11.49 NMAC– Excess Emissions: Applicable to Duke City

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

Compliance: Duke City will report all excess emissions following 20.11.49 NMAC guidelines.

20.11.63 NMAC– New Source Performance Standards: Applicable to Duke City

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

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

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

The plant engine is portable but will be located more than 12 months at the initial site. Under these conditions the engine is a stationary source, so it will meet the applicable requirements under Subpart IIII.

20.11.64 NMAC– Emission Standards for Hazardous Air Pollutants for Stationary Sources: Applicable to Duke City

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

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

20.11.66 NMAC– Process Equipment: Applicable to Duke City

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

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

20.11.67 NMAC–Equipment, Emissions, Limitations: Not Applicable to Duke City

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

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

20.11.72 NMAC – Health, Environment and Equity Impacts: Applicable to Duke City

Requirement: To establish additional permitting requirements for new or modified stationary sources of air pollution that are located, or proposed to be located, in or within a one-mile radius of an overburdened area. The department shall require BACT for new or modified stationary sources throughout Bernalillo County that emit hazardous air pollutants (HAPs).

Compliance: See Attachment H.

20.11.90 NMAC– Administration, Enforcement, Inspection: Applicable to Duke City

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

Compliance: It is expected that specific recordkeeping and data submission requirements will be specified in the 20.11.41 NMAC permit issued to Duke City. It is expected the 20.11.41 NMAC permit issued to Duke City will contain specific methods for determining compliance with each specific emission limitation. Duke City’s Broadway Blvd Concrete Plant will report any periods of excess emissions as required by specific 20.11.90 NMAC provisions.

Federal Regulations

40 CFR 50 – National Ambient Air Quality Standards: Applicable to Duke City

Requirement: Compliance with federal ambient air quality standards.

Compliance: Duke City’s Concrete Batch Plant demonstrated compliance by performing and submitting dispersion modeling analysis for applicable pollutants per Albuquerque/ Bernalillo County and New Mexico State Environmental Department’s modeling guidelines in the original and revised permit applications. For this revision the department has waived modeling analysis due to the size of the additional units’ emissions.

40 CFR 60 Dc – NSPS Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: Not Applicable to Duke City

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

Compliance: The hot water boiler is rated at 3.8 million BTU per hour, which is below the limits of this subpart making this boiler not applicable for Subpart Dc.

40 CFR 60 OOO – NSPS Standards of Performance for Aggregate Facilities: Applicable to Duke City

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

Compliance: Duke City’s 250 tons/hr portable recycle plant will perform any required opacity observations using Method 9 and/or Method 22 with certified opacity observers, as applicable.

40 CFR 60 IIII – NSPS Standards of Performance for Stationary Compression Ignition

Internal Combustion Engine: Applicable to Duke City

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

Compliance: The plant engine is portable but will be located more than 12 months at the initial site. Under these conditions the engine is a stationary source, so it will meet the applicable requirements under Subpart IIII.

40 CFR 63 ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: Applicable to Duke City

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

Compliance: The plant engine is portable but will be located more than 12 months at the initial site. Under these conditions the engine is a stationary source, so it will meet the applicable requirements under Subpart ZZZZ. Since the engine is applicable under 40 CFR 60 IIII, applicable with Subpart IIII is applicable to Subpart ZZZZ.

Attachment G
Dispersion Modeling Summary

**DISPERSION MODEL REPORT
FOR DUKE CITY REDI-MIX
PERMIT #1638-M3 REVISION**

Albuquerque, New Mexico

**PREPARED FOR
SHIVER REDI-MIX, LLC**

Revised April 15, 2026

Prepared by

Montrose Environmental Solutions, Inc.



CONTENTS

	PAGE
TABLE OF CONTENTS	
1.0 INTRODUCTION	1
2.0 DISPERSION MODELING PROTOCOL	5
2.1 DISPERSION MODEL SELECTION	7
2.2 BUILDING WAKE EFFECTS	7
2.3 METEOROLOGICAL DATA	7
2.4 RECEPTORS AND TOPOGRAPHY	8
2.5 MODELED EMISSION SOURCES INPUTS	8
2.5.1 Duke City Redi-Mix Road Vehicle Traffic Model Inputs.....	12
2.5.2 Duke City Redi-Mix Material Handling Volume Source Model Inputs	12
2.5.3 Duke City Redi-Mix Point Source Model Inputs	12
2.6 PARTICLE SIZE DISTRIBUTION	17
2.7 PM _{2.5} SECONDARY EMISSIONS MODELING	19
2.8 NO ₂ MODELING – MULTI-TIERED SCREENING APPROACH	20
2.9 AMBIENT MODELING BACKGROUND	21
3.0 MODEL SUMMARY.....	22
3.1 SIGNIFICANT IMPACT LEVEL (SILs) MODELING ANALYSIS.....	26
3.2 CUMULATIVE IMPACT ANALYSIS (CIA) MODEL RESULTS	27
3.2.1 NO ₂ Cumulative Impact Analysis Modeling Results.....	27
3.2.2 PM _{2.5} Direct and Secondary Formation CIA Modeling Results.....	30
3.2.3 PM ₁₀ Cumulative Impact Analysis Modeling Results.....	34
3.2.4 SO ₂ 1-Hour Cumulative Impact Analysis Modeling Results	37

	PAGE
FIGURE 1: Duke City Redi-Mix Portable Recycling Plant and CBP Site Overview	3
FIGURE 2: Duke City Redi-Mix Portable Recycling Plant Layout.....	4
FIGURE 3: Aerial Map Showing the Location of the NO ₂ Highest Model Results	29
FIGURE 4: Aerial Map Showing the Location of the PM _{2.5} Highest Model Results	33
FIGURE 5: Aerial Map Showing the Location of the PM ₁₀ Highest 24-Hour Model Results	36
FIGURE 6: Aerial Map Showing the Location of the SO ₂ Highest 1-Hour Model Results	38

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

TABLES	PAGE
TABLE 1 National and New Mexico Ambient Air Quality Standards	6
TABLE 2 Standards for Which Modeling Is Not Required by NMED AQB	6
TABLE 3 Portable Recycle Plant Daily Hours of Operation (MST)	9
TABLE 4 CBP Daily Hours of Operation (MST) (Hot Water Heater Model Hours).....	10
TABLE 5 Duke City Redi-Mix Concrete Plant Particulate Model Scenario Time Segments	11
TABLE 6 Summary of Particulate Model Inputs for Point Sources at Portable Recycle Plant	13
TABLE 7 Summary of Combust Model Inputs for Point Sources at Portable Recycle Plant.....	13
TABLE 8 Summary of Model Inputs for Volume Sources at Portable Recycle Plant.....	13
TABLE 9 Summary of Particulate Model Inputs for Point Sources at Duke City CBP	14
TABLE 10 Summary of Combust Model Inputs for Point Sources at Duke City CBP	14
TABLE 11 Summary of Model Inputs for Volume Sources at Duke City CBP	15
TABLE 12 Model Inputs for Volume Sources for Additional Activities at Duke City Redi-Mix...16	
TABLE 13 Vehicle Fugitive Dust Depletion Parameters.....	17
TABLE 14 Combustion Depletion Parameters.....	18
TABLE 15 Aggregate Handling Fugitive Source Depletion Parameters	18
TABLE 16 Central Baghouse Source Deposition Parameters.....	18
TABLE 17 Sagebrush Sales Deposition Parameters	18
TABLE 18 Summary of Selected ISR	20
TABLE 19 Portable Recycle Plant Daily Hours of Operation (MST)	23
TABLE 20 CBP Daily Hours of Operation (MST) (Hot Water Heater Model Hours).....	24
TABLE 21 Duke City Redi-Mix Concrete Plant Particulate Model Scenario Time Segments	25
TABLE 22 Summary of Air Dispersion Modeling Results below SILs	26
TABLE 23 Summary of CIA Modeling Results Including Background.....	27
TABLE 24 NO ₂ CIA MODEL RESULTS	28
TABLE 25 PM _{2.5} CIA MODEL RESULTS FOR EACH SCENARIO	31
TABLE 26 PM _{2.5} CIA MODEL RESULTS	32
TABLE 27 PM ₁₀ CIA MODEL RESULTS FOR EACH SCENARIO	34
TABLE 28 PM ₁₀ CIA MODEL RESULTS.....	35
TABLE 29 SO ₂ CIA MODEL RESULTS.....	37

1.0 INTRODUCTION

This dispersion modeling analysis was conducted by Montrose Environmental Solutions, Inc. (Montrose) on behalf of Shiver Redi-Mix, LLC dba Duke City Redi-Mix to evaluate ambient air quality impacts for a new portable recycle plant proposed to be added to the concrete batch plant operating under Permit #1638-M3. The new portable recycle plant (Sandvik Model QI341HS with CAT C9.3B 375 HP Tier 4f engine) will be located at Duke City Redi-Mix facility at 7711 Broadway SE in Albuquerque, NM. The new portable recycle plant will be used to recycle waste concrete accumulated at the site. The UTM coordinates of the new portable recycle plant will be 348,400 easting, 3,872,190 northing, zone 13, NAD 83. The objective of this evaluation is to determine whether ambient air concentrations from the addition of the recycle crusher plant in operation with the concrete batch plant for nitrogen dioxide, carbon monoxide, sulfur dioxide, and particulate matter; both 10 microns or less (PM₁₀) and 2.5 microns or less (PM_{2.5}); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQs) found in 40 CFR part 50 and the Bernalillo County/City of Albuquerque Air Quality Program (AQP) air quality regulation 20.11.8 NMAC.

The dispersion modeling was conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), *Version 24142*. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD was used to estimate pollutant ambient air concentrations from the addition of the portable recycling plant emission sources to the Duke City Redi-Mix facility. Montrose employs the general modeling procedures outlined in “Permit Modeling Guidelines, Albuquerque Environmental Health Department”, revised May 2024, “New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines”, revised 07/1/2025, and the most up to date EPA’s *Guideline on Air Quality Models*.

Aggregate material handling equipment, stockpiles, and haul roads were input into the model as volume sources. Sources with stack releases were input into the model as point sources.

The additional portable recycle plant was modeled with the current concrete batch plant based on the equipment issued in the 2019 Permit #1638-M3 modification. The concrete batch plant coordinates for existing emission sources were updated to reflect actual installed locations. The Duke City Redi-Mix work site is restricted from the public access with existing fences and gates at the Duke City Redi-Mix site.

Stockpiles of waste concrete are presently located on the Duke City Redi-Mix site. Duke City Redi-Mix will recycle this waste concrete into usable material and store the processed concrete

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

onsite. The stockpiles of waste concrete at the site will not require full time operation of the recycle plant, but intermittence operations.

The recycle road for delivery of raw material and removal of processed material will be controlled with surface stabilizers and watering to meet the NMED AQB 90% control efficiency. Application of surface stabilizers will meet the requirements of the surfactant (surface stabilizer) manufacturer. Below is a permit condition from a January 2024 permit issued by the NMED AQB that relates 90% control to surface stabilizers and watering.

B. Haul Road Control

<p>Requirement: Compliance with the allowable particulate emissions in Table 106.A shall be demonstrated by controlling truck traffic areas and haul roads going in and out of the plant site. The haul roads shall be watered and treated with a surface stabilizing agent to control particulate emissions. This condition demonstrates compliance with the 90% control efficiency used in the permit application and modeling.</p>

<p>This control measure shall be used on roads as far as the nearest public road.</p>

<p>Monitoring: The permittee shall monitor the frequency, quantity, and location(s) of the water application, or equivalent control measures.</p>
--

<p>Recordkeeping: The permittee shall keep daily records of the frequency, quantity, and location(s) of the water application, or equivalent control measures.</p>

<p>Reporting: The permittee shall report in accordance with Section B110.</p>
--

As part of this permit revision, Duke City Redi-Mix will limit the throughput of the portable recycle plant to 250 tons per hour (tph) and an annual throughput limit of 200,000 tons per year. Hours of operation for the portable recycle plant will be restricted to 8 AM to 5 PM during the months of November through March and 7 AM to 5 PM during the months of April through October. Haul road traffic bringing in and removing recycled material will be limited to the hours of 5 AM to 5 PM daily. No change in production operation is requested for the current Duke City Redi-Mix concrete batch plant.

Additional neighboring sources identified by the city were included in this model analysis.

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

Figure 1 below shows the location of the site overview.

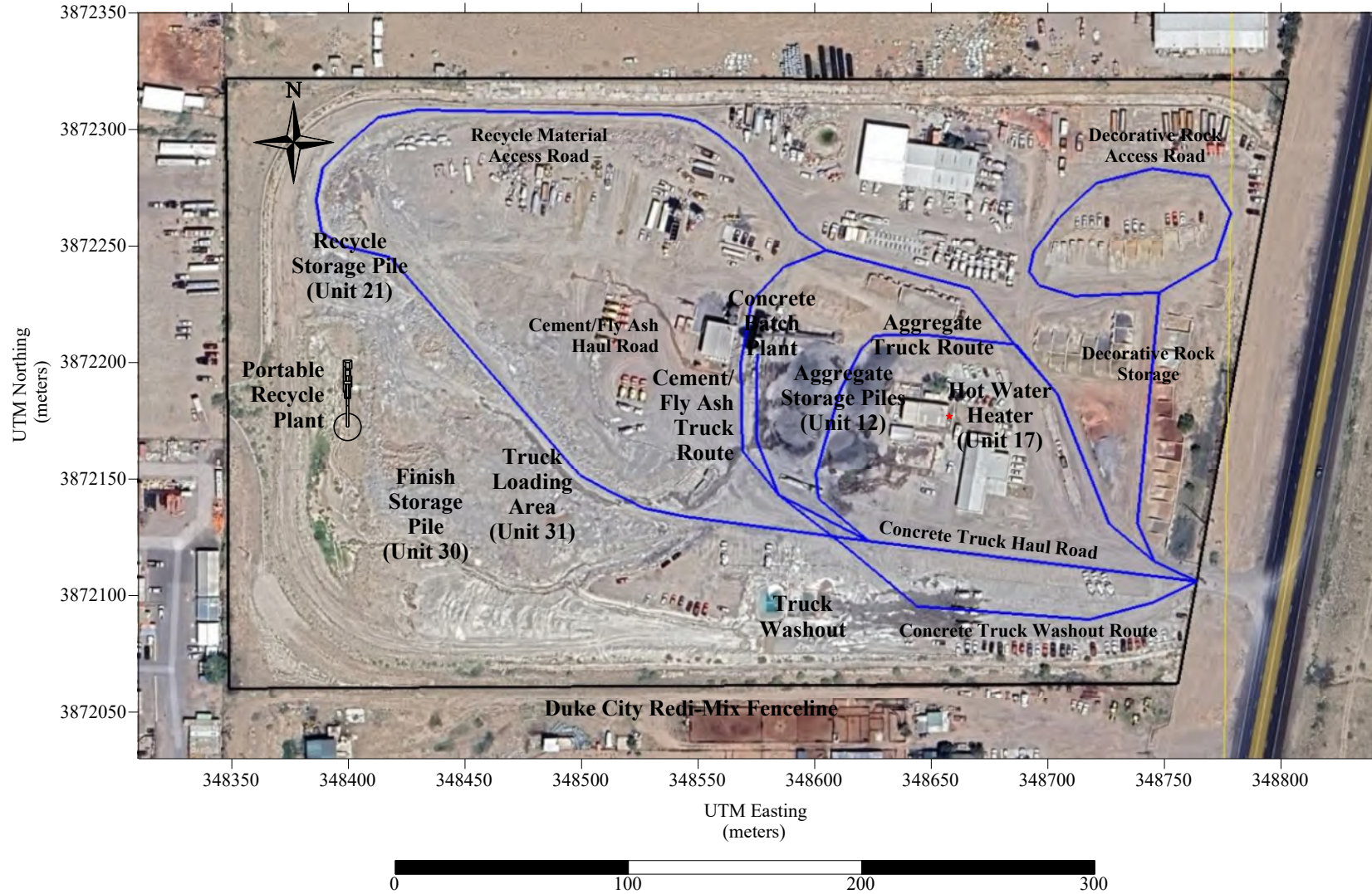


Figure 1: Duke City Redi-Mix's Portable Recycle Plant and CBP Site Overview

Figure 2 below shows the layout of the plant.

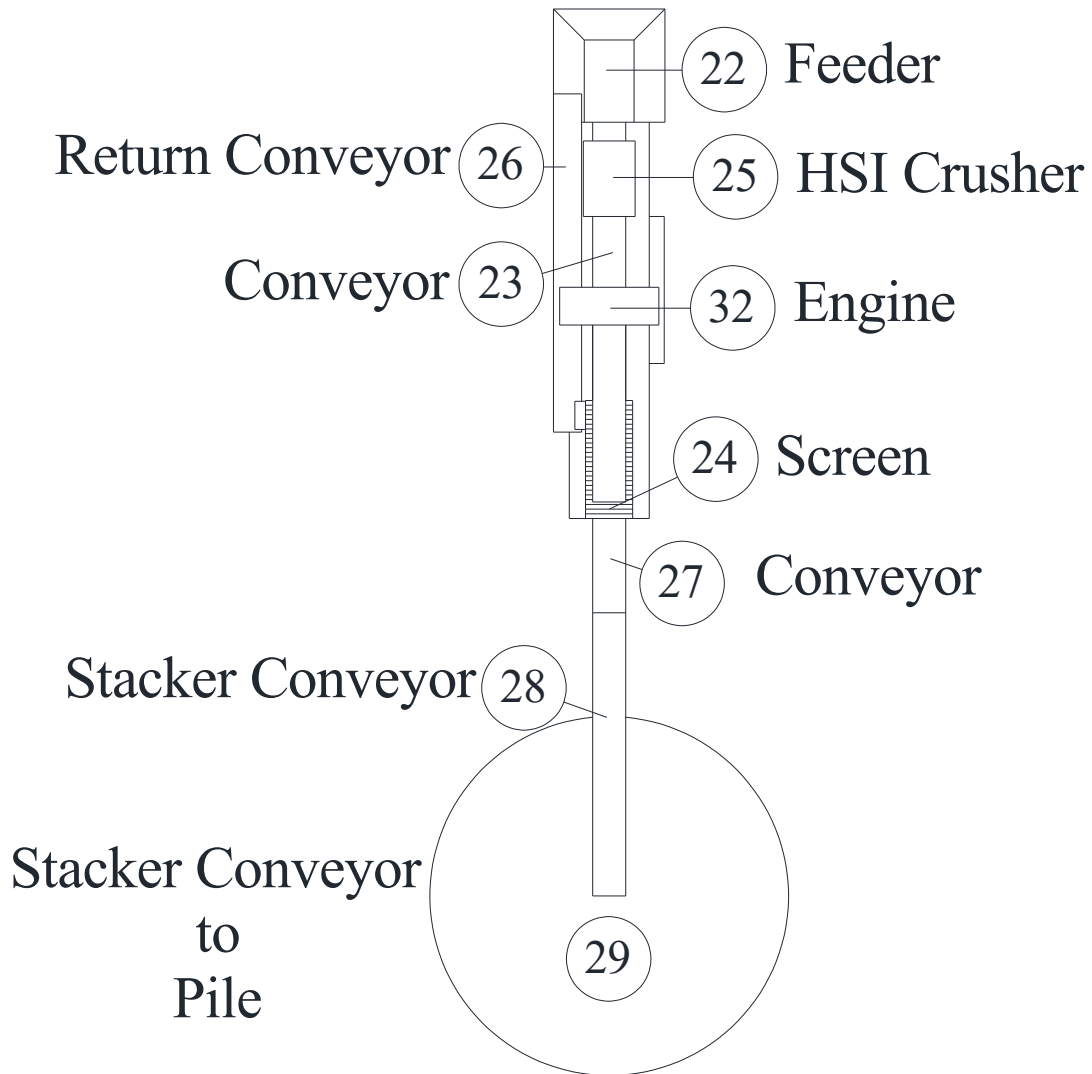


Figure 2: Duke City Redi-Mix Recycle Plant Layout

2.0 DISPERSION MODELING PROTOCOL

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

The dispersion modeling analysis was performed to estimate concentrations resulting from the operation of the Duke City Redi-Mix facility using the maximum hourly emission rates while all emission sources are operating. The modeling determined maximum off-site concentrations for nitrogen dioxide, (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate matter with aerodynamic diameter less than 10 micrometers (PM₁₀) and particulate matter with aerodynamic diameter less than 2.5 micrometers (PM_{2.5}), for comparison with modeling significance levels, and national/New Mexico ambient air quality standards (AAQS). The modeling followed the guidance and protocols outlined in the “Permit Modeling Guidelines, Albuquerque Environmental Health Department” (Revised 10/10/2019), New Mexico Air Quality Bureau “Air Dispersion Modeling Guidelines” (Revised June 2024) and the most up to date EPA’s *Guideline on Air Quality Models*.

Initial modeling was performed with all Duke City Redi-Mix CBP sources, decorative rock sales sources, and all new sources involved with the new recycle plant to determine pollutant and averaging periods that exceeds pollutant SILs. This includes all truck traffic routes involved with the CBP, Decorative rock sales and the new recycle plant. If initial modeling for any pollutant and averaging period exceeds SILs, then cumulative modeling was performed for those pollutants and averaging periods for all receptors that exceeds the SILs and included background ambient concentrations. Table 1 lists the SILs, NAAQS and NMAAQS for each pollutant averaging period. Table 2 lists ambient air quality standards for which modeling is not required by NMED AQB, when an approved surrogate standard is modeled

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

Pollutant	Avg. Period	Sig. Lev. ($\mu\text{g}/\text{m}^3$)	Class I Sig. Lev. ($\mu\text{g}/\text{m}^3$)	NAAQS	NMAAQS	PSD Increment Class I	PSD Increment Class II
CO	8-hour	500		9,000 ppb ⁽¹⁾	8,700 ppb ⁽²⁾		
	1-hour	2,000		35,000 ppb ⁽¹⁾	13,100 ppb ⁽²⁾		
NO ₂	annual	1.0	0.1	53 ppb ⁽³⁾	50 ppb ⁽²⁾	2.5 $\mu\text{g}/\text{m}^3$	25 $\mu\text{g}/\text{m}^3$
	24-hour	5.0			100 ppb ⁽²⁾		
	1-hour	7.52		100 ppb ⁽⁴⁾			
PM _{2.5}	annual	0.13	0.05	9 $\mu\text{g}/\text{m}^3$ ⁽⁵⁾		1 $\mu\text{g}/\text{m}^3$	4 $\mu\text{g}/\text{m}^3$
	24-hour	1.2	0.27	35 $\mu\text{g}/\text{m}^3$ ⁽⁶⁾		2 $\mu\text{g}/\text{m}^3$	9 $\mu\text{g}/\text{m}^3$
PM ₁₀	annual	1.0	0.2			4 $\mu\text{g}/\text{m}^3$	17 $\mu\text{g}/\text{m}^3$
	24-hour	5.0	0.3	150 $\mu\text{g}/\text{m}^3$ ⁽⁷⁾		8 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$
SO ₂	annual	1.0	0.1		20 ppb ⁽²⁾	2 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$
	24-hour	5.0	0.2		100 ppb ⁽²⁾	5 $\mu\text{g}/\text{m}^3$	91 $\mu\text{g}/\text{m}^3$
	3-hour	25.0	1.0	500 ppb ⁽¹⁾		25 $\mu\text{g}/\text{m}^3$	512 $\mu\text{g}/\text{m}^3$
	1-hour	7.8		75 ppb ⁽⁸⁾			

Standards converted from ppb to $\mu\text{g}/\text{m}^3$ use a reference temperature of 25° C and a reference pressure of 760 millimeters of mercury.

(1) Not to be exceeded more than once each year.

(2) Not to be exceeded.

(3) Annual mean.

(4) 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

(5) Annual mean, averaged over 3 years.

(6) 98th percentile, averaged over 3 years.

(7) Not to be exceeded more than once per year on average over 3 years.

(8) 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

TABLE 2: Standards for Which Modeling Is Not Required by NMED AQB

Standard not Modeled	Surrogate that Demonstrates Compliance
CO 8-hour NAAQS	CO 8-hour NMAAQS
CO 1-hour NAAQS	CO 1-hour NMAAQS
NO ₂ annual NAAQS	NO ₂ annual NMAAQS
NO ₂ 24-hour NMAAQS	NO ₂ 1-hour NAAQS
O ₃ 8-hour	Regional modeling
SO ₂ annual NMAAQS	SO ₂ 1-hour NAAQS
SO ₂ 24-hour NMAAQS	SO ₂ 1-hour NAAQS
SO ₂ 3-hour NAAQS	SO ₂ 1-hour NAAQS

2.1 DISPERSION MODEL SELECTION

The dispersion modeling was conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), *Version 24142*. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD was used to estimate pollutant ambient air concentrations of NO₂, CO, SO₂, PM₁₀, and PM_{2.5} from the Duke City Redi-Mix facility emission sources.

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

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

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

2.2 BUILDING WAKE EFFECTS

Duke City Redi-Mix has several buildings and tanks that could influence point sources at the site. Building and tank downwash was included in the model analysis.

2.3 METEOROLOGICAL DATA

The meteorological data input file used in this dispersion modeling analysis is Albuquerque met data covering years 2014 through 2018 (*AERMET version 23132* dated 06/11/2025) available from the AEHD AQP.

2.4 RECEPTORS AND TOPOGRAPHY

Modeling was completed using as many receptor locations to ensure that the maximum estimated impacts are identified. Initial radius of impact modeling was performed with receptors within 5 kilometers of the model boundary. Because of the nature of the emissions from the site, the maximum concentrations were on or near the site fenceline.

The refined receptor grid included receptors located at 50 meters apart from the fenceline out to 500 meters, 100 meters apart from 500 meters out to 1000 meters, 250 meters apart from 1000 meters out to 3000 meters, and 500 meters apart from 3000 meters out to 5000 meters. Fenceline receptor spacing was 25 meters.

All model receptors were preprocessed using the AERMAP software (*Version 24142*) associated with AERMOD. The AERMAP software establishes a base elevation and a height scale for each receptor location. The height scale is a measure of the receptor's location and base elevation and its relation to the terrain feature that has the greatest influence in dispersion for that receptor. AERMAP was processed using U.S. Geological Survey (USGS) national elevation data (NED). Output from AERMAP was used as input to the AERMOD runstream file for each model run. The AERMAP domain was large enough to encompass the 10 percent slope factor required for calculating the controlling hill height.

2.5 MODELED EMISSION SOURCES INPUTS

The requested operating hours for the recycle plant is 10 hours per day from 7 AM to 5 PM for the months of April through October, and 9 hours per day from 8 AM to 5 PM for months November through March. Based on these modeling hours the maximum annual production rate would be 874,750 tons (3499 hours/year * 250 tons/hour). Requested permit conditions will limit the annual throughput to 200,000 tons. For PM_{2.5} annual modeling, an hourly factor was input in the model for the recycle plant of 0.23 (200,000 tons/yr / 874,750 tons/yr). The requested operating hours for the facilities concrete recycling is seen in Table 3. Within those hours the plant will limit daily throughput to 2,500 tons per day for the months of April through October and 2,250 tons per day for the months of November through March. For the Duke City Redi-Mix combustion emission source, this was modeled for all proposed operating hours found in Table 3. Using the results of the significant impact particulate modeling, cumulative modeling included Duke City Redi-Mix Recycle Plant sources, Duke City Redi-Mix CBP sources, activities involved with truck traffic delivery and sale of decorative rocks, truck removal of Duke City Redi-Mix stored recycled material removal by haul truck, any identified neighboring sources, and an applicable ambient background.

Duke City Redi-Mix modeled emission rates were determined for material processing using AP-42 Section 11.19.2. Duke City Redi-Mix modeled emission rates were determined for material

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

handling (storage piles loading and unloading, feeder loading, stacker drop to piles, and truck loading) using AP-42 Section 13.2.4. Duke City Redi-Mix modeled emission rates were determined for unpaved road haul truck traffic using AP-42 Section 13.2.2. Duke City Redi-Mix modeled emission rates were determined for the recycle plant engine using Tier 4f emission factors for NO_x, CO, VOC, and PM, and sulfur mass balance for SO₂ based on maximum fuel usage and diesel with a sulfur content of 15 PPM.

TABLE 3: Portable Recycle Plant Daily Hours of Operation (MST)

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

For the recycle truck deliveries, they will be permitted to deliver or remove recycled material from 5 AM to 5 PM daily or 12 hours per day. While conservative, the hourly emissions for each hour of truck traffic was equal to processing 250 tph at the recycle plant. This is equivalent to hauling 3000 tons of material per day, even though the portable recycle plant can only process a maximum of 2500 tons per day. For PM_{2.5} annual modeling, an hourly factor was input in the model of 0.23, the same as the portable recycle plant material processing.

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

Concrete Batch Plant

The permitted operating time for the facilities concrete production is 24 hours per day, 7 days per week at 225 cubic yards per hour. The permitted operating time for the facilities concrete production is 24 hours per day as seen in Table 4. Within those hours the plant will limit daily throughput to 3,150 cubic yards per day or an equivalent to operate at maximum hourly throughput of 225 cubic yards per hour for 14 hours. For the Duke City Redi-Mix hot water heater emission source, this was modeled for all proposed operating hours found in Table 4. For particulate modeling, the 14-hour blocks vary starting from 12 AM, then shifting on 2-hour intervals for 12 separate model runs as summarized on Table 5.

TABLE 4: CBP Daily Hours of Operation (MST) (Hot Water Heater Model Hours)

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

TABLE 5: Duke City Redi-Mix Concrete Plant Particulate Model Scenario Time Segments

Model Scenario	January - December Time Segments 14-Hour Blocks
1	12 AM to 2 PM
2	2 AM to 4 PM
3	4 AM to 6 PM
4	6 AM to 8 PM
5	8 AM to 10 PM
6	10 AM to 12 AM
7	12 PM to 2 AM
8	2 PM to 4 AM
9	4 PM to 6 AM
10	6 PM to 8 AM
11	8 PM to 10 AM
12	10 PM to 12 PM

Based on these modeling hours the maximum annual production rate would be 1,149,750 cubic yards per year (14 hour/day * 225 cubic yard/hour * 365 days/year). Permit #1638-M3 limits annual production to 1,000,000 cubic yards/year. For PM_{2.5} annual modeling, an hourly factor was input in the model of 0.87 (1,000,000 cubic yards/yr / 1,149,750 cubic yards/yr).

For the decorative rock sales, the operating hours were daylight hours only.

2.5.1 Duke City Redi-Mix Road Vehicle Traffic Model Inputs

Duke City Redi-Mix haul truck traffic was modeled as a line of volume sources. The NMED AQB’s approved procedure for Modeling Haul Roads, large trucks, was followed to develop modeling input parameters for haul roads found in NMED Air Quality Bureau’s model guidelines Table 42. Volume source characterization followed the steps described in the NMED Air Quality Bureau’s Guidelines. Some adjustments from the previous site modeling for the haul roads have been performed based on as-built recent aerial views.

All portable recycle plant and CBP truck routes will be controlled with surface stabilizers and watering to minimize any fugitive dust.

2.5.2 Duke City Redi-Mix Material Handling Volume Source Model Inputs

Particulate emissions from material handling and processing from concrete loading to feeder, crusher, screen, transfers points, and storage piles were modeled as volume sources. Material handling and processing followed the procedure found in NMED Air Quality Bureau’s model guidelines Table 41. Storage piles model inputs were based on a pile radius of 50 feet for plant storage piles (SYINIT), dust plume height of 16 feet (SZINIT), and release height of 8 feet.

2.5.3 Duke City Redi-Mix Point Source Model Inputs

Emissions from the facility combustion source were modeled as a point source. Model input parameters are based on information provided by Duke City Redi-Mix and manufacturer on release heights, release diameters, release velocity or flow rates, and exhaust temperatures. For horizontal or raincap releases, the AERMOD version for horizontal and raincap releases was used with actual release parameters. Of the three point sources, the CBP baghouse is a horizontal release, the hot water heater is a vertical release and the recycle plant engine is a vertical release.

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

Tables 6 through 8 summarize the model input for the Duke City Redi-Mix Portable Recycle Plant.

TABLE 6: Summary of Particulate Model Inputs for Point Sources at the Duke City Redi-Mix Portable Recycle Plant

Source Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Recycle Plant Engine (Unit 32)	32	3.0480	682.2611	58.1920	0.1270	0.01252	0.01252

TABLE 7: Summary of Combustion Model Inputs for Point Sources at the Duke City Redi-Mix Portable Recycle Plant

Source Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	NOx Emission Rate (lbs/hr)	CO Emission Rate (lbs/hr)	SO2 Emission Rate (lbs/hr)
Recycle Plant Engine (Unit 32)	32	3.0480	682.2611	58.1920	0.1270	0.25044	2.19136	0.00252

TABLE 8: Summary of Model Inputs for Volume Sources at the Duke City Redi-Mix Portable Recycle Plant

Source Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Raw Material (Unit 21)	21	2.4384	3.5442	2.2683	0.52424	0.07938
Feeder (Unit 22)	22	6.0000	1.1600	2.3300	0.52424	0.07938
Conveyor (Unit 23)	23	2.0000	0.4700	0.9300	0.01150	0.00325
Screen (Unit 24)	24	4.0000	1.1600	2.3300	0.18500	0.01250
HSI Crusher (Unit 25)	25	6.0000	1.1600	2.3300	0.13500	0.02500
Recycle Conveyor (Unit 26)	26	2.0000	0.4700	0.9300	0.01150	0.00325
Conveyor (Unit 27)	27	2.0000	0.4700	0.9300	0.01150	0.00325
Conveyor (Unit 28)	28	2.0000	0.4700	0.9300	0.01150	0.00325

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

Source Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Stacker to Storage Pile (Unit 29)	29	4.0000	0.4700	0.9300	0.31464	0.04765
Finish Storage Pile (Unit 30)	30	2.4384	3.5442	2.2683	0.52424	0.07938
Truck Loading (Unit 31)	31	6.0000	1.1600	2.3300	0.52424	0.07938
Recycle Material Unpaved Haul Road (Unit 33) Volume 1 – 67 (each)	REC_0001-67	3.4000	6.0500	3.1600	0.03296	0.00330

Tables 9 through 11 summarize the model input for the Duke City Redi-Mix CBP.

TABLE 9: Summary of Particulate Model Inputs for Point Sources at the Duke City Redi-Mix CBP

Source Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Concrete Plant Central Baghouse (Unit 7,8,9,10,20)	TMBH	12.1920	0.0000	23.6518	0.4663	0.16335	0.16335
Concrete Batch Plant Heater (Unit 17)	17	8.5344	305.3722	2.8651	0.4572	0.01824	0.01824

TABLE 10: Summary of Combustion Model Inputs for Point Sources at the Duke City Redi-Mix CBP

Source Description	Model ID	Stack Height (m)	Stack Temp. (K)	Exit Vel. (m/s)	Stack Dia. (m)	NOx Emission Rate (lbs/hr)	CO Emission Rate (lbs/hr)	SO2 Emission Rate (lbs/hr)
Concrete Batch Plant Heater (Unit 17)	17	8.5344	305.3722	2.8651	0.4572	0.33440	0.14060	0.06230

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

TABLE 11: Summary of Model Inputs for Volume Sources at the Duke City Redi-Mix CBP

Source Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Feed Hopper Loading (Unit 2)	2	6.0000	1.1600	2.3300	0.47726	0.07227
Feed Hopper Unloading to Conveyor (Unit 3)	3	2.0000	0.4700	0.9300	0.37125	0.05622
Aggregate Bin Loading (Unit 4)	4	4.0000	1.1600	2.3300	0.47726	0.07227
Aggregate Weigh Batcher and Conveyor (Unit 5,6)	5_6	2.0000	1.1600	2.3300	0.37125	0.05622
Storage Piles (Sand) (Unit 12)	12_1	2.4384	3.5442	2.2683	0.12492	0.01892
Storage Piles (Aggregate) (Unit 12)	12_2	2.4384	3.5442	2.2683	0.12492	0.01892
Storage Piles (Aggregate) (Unit 12)	12_3	2.4384	3.5442	2.2683	0.12492	0.01892
Storage Piles (Aggregate) (Unit 12)	12_4	2.4384	3.5442	2.2683	0.12492	0.01892
Storage Piles (Aggregate) (Unit 12)	12_5	2.4384	3.5442	2.2683	0.12492	0.01892
Aggregate Truck Route Volume 1-29 (Unit 1) (each)	AGG_0001-29	3.4000	6.0500	3.1600	0.02439	0.00244
Cement and Fly Ash Truck Route Volume 1-37 (Unit 1) (each)	CEM_0001-37	3.4000	6.0500	3.1600	0.00488	0.00049
Concrete Truck Route Volume 1-35 (Unit 1) (each)	CON_0001-35	3.4000	6.0500	3.1600	0.02910	0.00291

Table 12 summarizes the model input for the additional activities. Decorative rock sales include one delivery truck per hour and one customer truck per hour (23 tons/hr), along with unloading and loading of decorative rock. Material handling particulate emission rates were calculated using the most recent approved emission factors found in AP-42 Section 13.2.4. Decorative rock truck travel on unpaved roads, with a control efficiency of 60% (Watering), were calculated using the most recent approved emission factors found in AP-42 Section 13.2.2.

TABLE 12: Summary of Model Inputs for Volume Sources for Additional Activities at Duke City Redi-Mix

Source Description	Model ID	Release Height (meter)	Horizontal Dimension (meters)	Vertical Dimension (meters)	PM10 Emission Rate (lbs/hr)	PM2.5 Emission Rate (lbs/hr)
Decorative Rock Bin Loading	DRL	2.4384	2.1265	2.2683	0.04823	0.00730
Decorative Rock Truck Loading	DRTL	6.0000	1.1600	2.3300	0.04823	0.00730
Decorative Rock Truck Route Volume 1 – 34 (each)	DEC_0001-34	3.4000	6.0500	3.1600	0.01303	0.00130

2.6 PARTICLE SIZE DISTRIBUTION

PM₁₀ emissions may be modeled using plume deposition. Plume deposition simulates the effect of gravity as particles “fall-out” from the plume to the ground as the plume travels downwind. Therefore, the farther the plume travels from the emission point to the receptor, the greater the effect of plume deposition and the greater the decrease in modeled impacts or concentrations. Particle size distribution, particle mass fraction, and particle density are required inputs to the model to perform this function.

Particle size distribution for fugitive road dust on unpaved roads; material handling fugitive emissions; and combustion used the particle size distribution found in the NMED Modeling Section approved values.

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

$$d = ((d_1^3 + d_1^2d_2 + d_1d_2^2 + d_2^3) / 4)^{1/3}$$

- Where:
- d = mass-mean particle diameter
 - d₁ = low end of particle size category range
 - d₂ = high end of particle size category range

Representative average particle densities were obtained from NMED accepted values found in Table 27.

Material	Density (g/cm ³)	Reference
Road Dust	2.5	NMED Value
Cement (Combined Unit 7,8,9,10,11,13,20)	2.85	NMED Value
Combustion (Engines and Hot Water Heater)	1.5	NMED Value
Fugitive Dust (Material Handling)	2.5	NMED Value
Wood Dust (Neighbor)	0.56	NMED Value

The size distribution for PM₁₀ emission sources are presented in Tables 13-16.

TABLE 13: Road Vehicle Fugitive Dust Deposition Parameters

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

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

TABLE 14: Combustion Source Deposition Parameters

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

Based on NMED Model Guideline – June 2024 (Combustion)

TABLE 15: Material Handling (Fugitive) Dust Source Deposition Parameters

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

Based on NMED Model Guideline – June 2024 (Coal Handling)

TABLE 16: Concrete Batch Plant Central Baghouse Source Deposition Parameters

Particle Size Category (µm)	Mass Mean Particle Diameter (µm)	Mass Weighted Size Distribution (%)	Density (g/cm ³)
PM10			
0-2.5	1.50	26.0	2.85
2.5 - 4	3.00	25.0	2.85
4 - 10	6.00	48.0	2.85

Based on NMED Model Guideline – June 2024 (Cement Handling)

TABLE 17: Sagebrush Sales Source Deposition Parameters

Particle Size Category (µm)	Mass Mean Particle Diameter (µm)	Mass Weighted Size Distribution (%)	Density (g/cm ³)
PM10			
0-2.5	1.50	100.0	0.56

Based on NMED Model Guideline – June 2024 (Wood Dust)

2.7 PM_{2.5} SECONDARY EMISSIONS MODELING

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

- Sulfates formed from SO₂ emissions from power plants and industrial facilities;
- Nitrates formed from NO_x emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas (ROG or VOC) emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

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

- NO_x – 1.9 tons per year (below SER)
- SO₂ – 0.28 tons per year (below SER)
- Volatile Organic Compounds (VOC) – 0.62 tons per year (below SER)
- Particulate Matter with an aerodynamic diameter of 2.5 micron or less (PM_{2.5}) – 1.49 tons per year (below SER).

Since all precursor pollutants are below significant emission rate (SER), no PM_{2.5} secondary emission was included in this analysis.

2.8 NO₂ MODELING – MULTI-TIERED SCREENING APPROACH

The AERMOD model predicts ground-level concentrations of any generic pollutant without chemical transformations. Thus, the modeled NO_x emission rate will give ground-level modeled concentrations of NO_x. NAAQS values are presented as NO₂.

EPA has a three-tier approach to modeling NO₂ concentrations.

- Tier I – total conversion, or all NO_x = NO₂
- Tier II – Ambient Ratio Method 2 (ARM2)
- Tier III – case-by-case detailed screening methods, such as OLM and Plume Volume Molar Ratio Method (PVMRM) and NO₂/NO_x in-stack ratio

Initial modeling was performed using both Tier I and Tier II methodologies. If these modeling iterations demonstrate that less conservative methods for determining 1-hour and annual NO₂ compliance would be needed for this project, then ambient impact of 1-hour and annual NO_x predicted by the model will use Tier III – OLM or PVMRM.

For OLM or PVMRM, three inputs can be selected in the model, the ISR, the NO₂/NO_x equilibrium ratio for the ambient air, and the ambient ozone concentration. The ISR will be determined for each source or group of sources. The NO₂/NO_x equilibrium ratio will be the EPA default of 0.90. Ozone input will be from monitored ozone data collected from an approved monitoring station.

The in-stack ratio (ISR) values for Tier 3 NO₂ modeling that are generally accepted by the AQP are listed below in Table 18.

TABLE 18: Summary of Selected ISR

Source Description	Selected ISR
Plant Generator/Engine (RICE)	0.15
Natural gas/propane-fired boilers/heaters	0.20
Other sources onsite	0.50
Other sources onsite 1-3 km from fence	0.20
Other sources onsite < 1 km from fence	0.30

Model Ozone Data

For PVMRM, modeling of the project-generated 1-hour NO₂ concentrations requires use of ambient monitored O₃ concentrations. Background ambient O₃ concentrations for the project area during the 2014-2018 meteorological data years have been obtained from the Del Norte (Years 2014 - 2018) monitoring station. This data set is recommended by the AEHD AQP Modeling Section.

2.9 AMBIENT MODELING BACKGROUND

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

The ambient background concentrations are listed in the Air Quality Bureau Guidelines for NO₂, CO, SO₂, PM₁₀, and PM_{2.5}. For NO₂, CO, SO₂, PM₁₀, and PM_{2.5}, Duke City Redi-Mix is proposing using the January 3, 2025 background concentrations from the AEHD AQP.

	PM_{2.5} (µg/m³)	PM₁₀ (µg/m³)	NO₂ (µg/m³)	CO (µg/m³)	SO₂ (µg/m³)
1 Hour			83.1	1870	13.1
8 Hour				1336	
24 Hour	14.3	22.3			
Annual	5.4		18.0		0.0

3.0 MODEL SUMMARY

This dispersion modeling analysis was conducted by Montrose Environmental Solutions, Inc. (Montrose) on behalf of Shiver Redi-Mix, LLC dba Duke City Redi-Mix to evaluate ambient air quality impacts for a new portable recycle plant proposed to be added to the concrete batch plant operating under Permit #1638-M3. The new portable recycle plant (Sandvik Model QI341HS with CAT C9.3B 375 HP Tier 4f engine) will be located at Duke City Redi-Mix facility at 7711 Broadway SE in Albuquerque, NM. The new portable recycle plant will be used to recycle waste concrete accumulated at the site. The UTM coordinates of the new portable recycle plant will be 348,400 easting, 3,872,190 northing, zone 13, NAD 83. The objective of this evaluation was to determine whether ambient air concentrations from the addition of the recycle crusher plant in operation with the concrete batch plant for nitrogen dioxide, carbon monoxide, sulfur dioxide, and particulate matter; both 10 microns or less (PM₁₀) and 2.5 microns or less (PM_{2.5}); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQs) found in 40 CFR part 50 and the Bernalillo County/City of Albuquerque Air Quality Program (AQP) air quality regulation 20.11.8 NMAC.

The dispersion modeling was conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), *Version 24142*. This model is recommended by EPA for determining Class II impacts within 50 km of the source being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD was used to estimate pollutant ambient air concentrations from the addition of the portable recycling plant emission sources to the Duke City Redi-Mix facility. Montrose employs the general modeling procedures outlined in “Permit Modeling Guidelines, Albuquerque Environmental Health Department”, revised May 2024, “New Mexico Air Pollution Control Bureau, Dispersion Modeling Guidelines”, revised 07/1/2025, and the most up to date EPA’s *Guideline on Air Quality Models*.

The additional portable recycle plant was modeled with the current concrete batch plant based on the equipment issued in the 2019 Permit #1638-M3 modification. The concrete batch plant coordinates for existing emission sources were updated to reflect actual installed locations. The Duke City Redi-Mix work site is restricted from the public access with existing fences and gates at the Duke City Redi-Mix site.

Stockpiles of waste concrete are presently located on the Duke City Redi-Mix site. Duke City Redi-Mix will recycle this waste concrete into usable material and store the processed concrete onsite. The stockpiles of waste concrete at the site will not require full time operation of the recycle plant, but intermittence operations.

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

As part of this permit revision, Duke City Redi-Mix will limit the throughput of the portable recycle plant to 250 tons per hour (tph) and an annual throughput limit of 200,000 tons per year. Hours of operation for the portable recycle plant will be restricted to 8 AM to 5 PM during the months of November through March and 7 AM to 5 PM during the months of April through October. Haul road traffic bringing in and removing recycled material will be limited to the hours of 5 AM to 5 PM daily. No change in production operation is requested for the current Duke City Redi-mix concrete batch plant.

TABLE 19: Portable Recycle Plant Daily Hours of Operation (MST)

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

For the recycle truck deliveries, they will be permitted to deliver or remove recycled material from 5 AM to 5 PM daily or 12 hours per day. While conservative, the hourly emissions for each hour of truck traffic will be equal to processing 250 tph at the recycle plant. This is equivalent to hauling 3000 tons of material per day, even though the portable recycle plant can only process a

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

maximum of 2500 tons per day. For PM_{2.5} annual modeling, an hourly factor was input in the model of 0.23, the same as the portable recycle plant material processing.

Concrete Batch Plant

The permitted operating time for the facilities concrete production is 24 hours per day, 7 days per week at 225 cubic yards per hour. The permitted operating time for the facilities concrete production is 24 hours per day as seen in Table 20. Within those hours the plant will limit daily throughput to 3,150 cubic yards per day or an equivalent to operate at maximum hourly throughput of 225 cubic yards per hour for 14 hours. For the Duke City Redi-Mix hot water heater emission source, this was modeled for all proposed operating hours found in Table 4. For particulate modeling, the 14-hour blocks vary starting from 12 AM, then shifting on 2-hour intervals for 12 separate model runs as summarized on Table 21.

TABLE 20: CBP Daily Hours of Operation (MST) (Hot Water Heater Model Hours)

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

TABLE 21: Duke City Redi-Mix Concrete Plant Particulate Model Scenario Time Segments

Model Scenario	January - December Time Segments 14-Hour Blocks
1	12 AM to 2 PM
2	2 AM to 4 PM
3	4 AM to 6 PM
4	6 AM to 8 PM
5	8 AM to 10 PM
6	10 AM to 12 AM
7	12 PM to 2 AM
8	2 PM to 4 AM
9	4 PM to 6 AM
10	6 PM to 8 AM
11	8 PM to 10 AM
12	10 PM to 12 PM

Based on these modeling hours the maximum annual production rate would be 1,149,750 cubic yards per year (14 hour/day * 225 cubic yard/hour * 365 days/year). Permit #1638-M3 limits annual production to 1,000,000 cubic yards/year. For PM_{2.5} annual modeling, an hourly factor was input in the model of 0.87 (1,000,000 cubic yards/yr / 1,149,750 cubic yards/yr).

For the decorative rock sales, the operating hours is daylight hours only

Additional neighboring sources identified and provided by the city inputted in this model analysis include:

- BlackRock HMA #1694-M3-1TR – NO₂, CO, SO₂
- Phillips 66 #0422-M2-12TR – NO₂, CO, SO₂
- NuStar #0500-M4 – NO₂, CO, SO₂
- Sagebrush Sales #0555 – PM_{2.5}/PM₁₀
- AAI HMA #3291-M2-1TR – NO₂, CO, SO₂

3.1 SIGNIFICANT IMPACT LEVEL (SILs) MODELING ANALYSIS

Significant impact level AERMOD dispersion modeling was completed for NO₂, CO, SO₂, PM₁₀, and PM_{2.5}. All SIL models were run in terrain mode with proposed recycle plant, Duke City CBP, and decorative rock sales emission sources only. Table 22 lists the results of the modeling for pollutants and averaging periods that falls below the applicable SILs.

TABLE 22: Summary of Air Dispersion Modeling Results below SILs

Parameter	Maximum Modeled Concentration (µg/m³)	Significant Impact Level (µg/m³)	% of SIL
CO 1 Hr.	155.3	2000	7.8
CO 8 Hr.	64.1	500	12.8
SO ₂ Annual	0.30	1	30.0

For CO 1-hour and 8-hour averaging periods, and SO₂ annual averaging period, the model results show impacts below the SILs. No cumulative impact analysis modeling was performed for CO 1-hour, 8-hour averaging periods or SO₂ Annual averaging period.

3.2 CUMULATIVE IMPACT ANALYSIS (CIA) MODEL RESULTS

The model results using the maximum operation at Duke City CBP, significant neighboring sources, and approved ambient background are summarized below in Table 23. Dispersion modeling analysis followed the modeling protocol outline in Section 2 of this report.

TABLE 23: Summary of CIA Modeling Results Including Background

Parameter	Maximum Modeled Concentration (µg/m ³)	Significant Impact Level (µg/m ³)	Maximum Modeled Concentration With Background (µg/m ³)	Lowest Applicable Standard (µg/m ³)	% of Standard
NO ₂ 1 Hr. 8 th highest 1-hour daily maximum	36.7	7.52	119.6	188	63.6
NO ₂ Annual	1.7	1	19.7	94	21.0
PM _{2.5} 24 Hr. High 8 th High	11.4	1.2	25.7	35	73.4
PM _{2.5} Annual	2.9	0.2	8.3	9	92.2
PM ₁₀ 24 Hr. High 6 th High	101.7	5	124.0	150	82.7
SO ₂ 1 Hr. 4 th highest 1-hour daily maximum	11.7	7.8	24.8	196.4	12.6

Note: Background concentrations are found in Section 2.9 of the modeling protocol. Dispersion modeling inputs and settings are presented in Section 2.

3.2.1 NO₂ Cumulative Impact Analysis Modeling Results

NO₂ CIA modeling was performed with terrain elevations and building downwash for Duke City CBP. NO_x emission rates represented the maximum hourly rate for the proposed recycle plant engine, Duke City CBP hot water heater, significant neighboring sources, and for all Duke City Site initial modeling receptors that were above the NO₂ SILs.

Table 24 shows the NO₂ 8th highest 1-hour daily maximum and annual model results and highest impact locations for receptors above the SILs.

TABLE 24: NO₂ CIA MODEL RESULTS

	Modeled Concentration (µg/m³)	Modeled Concentration With Background (µg/m³)	Location UTM's E/N	
NO ₂ 1 Hr. 8 th highest 1-hour daily maximum	36.5	119.6	348650.0	3872050.0
NO ₂ Annual	1.7	19.7	348634.1	3872056.0

For NO₂ 1-hour modeling and annual averaging periods, the Tier II ARM2 approach found in Section 2.8 of this report was used for the analysis.

Dispersion modeling meteorology for this analysis included 5 years of data, 2014 – 2018 Albuquerque Meteorological data, was obtained from the AEHD AQP.

Albuquerque 2025 background concentrations, 1-hour and annual NO₂ background concentrations found in Section 2.9 of this report, were added to the modeled results and compared to the lowest applicable ambient standard.

Model results show the annual concentrations, where the proposed recycle plant engine and Duke City CBP sources makes a significant contribution, occurred along the southern Duke City Site restricted boundary. For the NO₂ 1-hour model, where proposed recycle plant engine and Duke City CBP sources makes a significant contribution, occurred just south of the southern Duke City Site restricted boundary.

Figure 3 shows an aerial map of the NO₂ 8th highest 1-hour daily maximum concentration, and highest annual concentration locations including background where proposed recycle plant engine and Duke City CBP sources contribute above the NO₂ SILs.

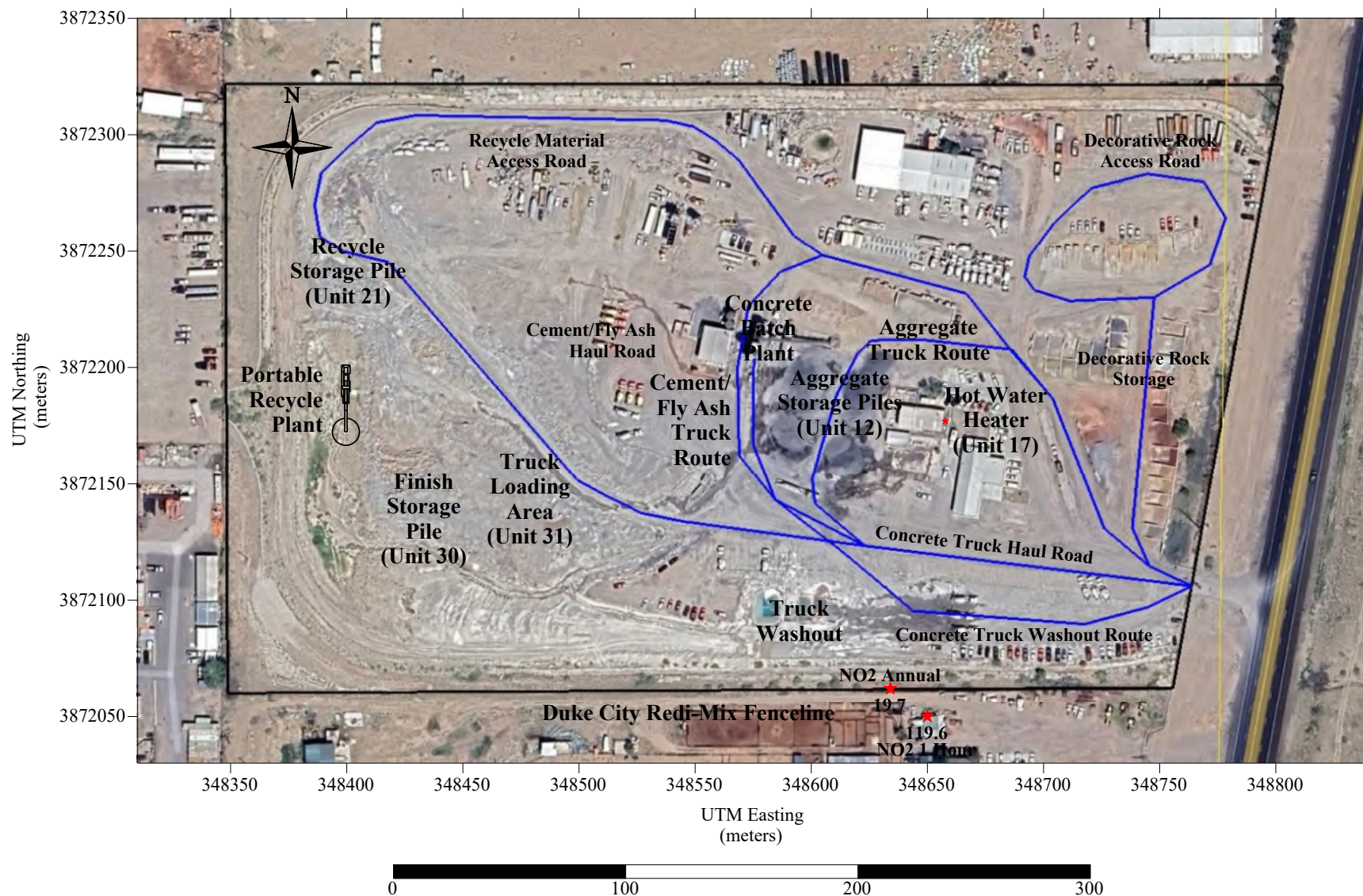


Figure 3: Aerial Map Showing the Location of the NO₂ Highest Concentration Model Result (µg/m³)

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

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

- Sulfates formed from SO₂ emissions from power plants and industrial facilities;
- Nitrates formed from NO_x emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas (ROG or VOC) emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

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

- NO_x – 1.9 tons per year (below SER)
- SO₂ – 0.28 tons per year (below SER)
- Volatile Organic Compounds (VOC) – 0.62 tons per year (below SER)
- Particulate Matter with an aerodynamic diameter of 2.5 micron or less (PM_{2.5}) – 1.49 tons per year (below SER).

Since all precursor pollutants are below significant emission rate (SER), no PM_{2.5} secondary emission were included in this analysis

CIA direct “primary” PM_{2.5} modeling was performed with terrain and meteorology which included 5 years of data, 2014 – 2018 Albuquerque Meteorological data, obtained from the AEHD AQP. Modeling was performed for both 24 hour and annual averaging periods with maximum PM_{2.5} hourly emission rate for proposed recycle plant sources, Duke City CBP sources, additional Duke City activities, selected neighbors, and all Duke City Site initial modeling receptors that were above the PM_{2.5} SILs. PM_{2.5} emission rates represented the maximum hourly rate for all emission sources. Albuquerque 2025 24-hour and annual PM_{2.5} background concentrations was added to the modeled results and compared to the lowest applicable ambient standard. The 24-hour and annual background concentrations that were used for PM_{2.5} averaging periods are found in Section

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

2.9 of this report. Based on the results of the SIL modeling, the five highest SIL scenario models were rerun for CIA modeling, as seen in Table 25 below.

Results showed that direct “primary” PM_{2.5} 24 hour averaging period from proposed recycle plant and Duke City CBP sources, where proposed recycle plant and Duke City CBP sources makes a significant contribution, are located on the northern Duke City Site boundary. Results showed that direct “primary” PM_{2.5} annual averaging period from proposed recycle plant and Duke City CBP sources, where proposed recycle plant and Duke City CBP sources makes a significant contribution, are located on the southern Duke City Site boundary. The result from direct “primary” PM_{2.5} emissions dispersion modeling, plus a representative PM_{2.5} background concentrations from Section 2.9 of this report, which includes monitored direct and secondary PM_{2.5} concentrations, were used to show compliance with national PM_{2.5} annual and 24-hour average AAQS. Table 25 below presents the results of all 12 model scenario results. The scenario with the highest modeled concentrations is highlighted below.

TABLE 25: PM_{2.5} CIA MODEL RESULTS FOR EACH SCENARIO

Model Scenario	SIL 24 Hour Average 1 st High (µg/m ³)	CIA 24 Hour Average Highest 8 th High with Background (µg/m ³)	SIL Annual Average High (µg/m ³)	CIA Annual Average High with Background (µg/m ³)
1	17.03		3.01	
2	16.04		2.71	
3	15.21		2.43	
4	13.73		2.31	
5	13.04		2.38	
6	14.41		2.62	
7	14.83		2.93	
8	18.17	24.11	3.32	7.65
9	21.72	25.54	3.68	8.00
10	22.47	25.71	3.80	8.28
11	20.60	25.42	3.59	8.22
12	20.09	24.85	3.32	8.03

Table 26 shows the PM_{2.5} 8th highest 24-hour daily maximum and annual model results and locations.

TABLE 26: PM_{2.5} CIA MODEL RESULTS

	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Modeled Concentration With Background ($\mu\text{g}/\text{m}^3$)	Location UTMs E/N	
24 Hour Average Highest 8th High	11.41	25.71	348530.8	3872326.3
Annual Average	2.88	8.28	348586.9	3872056.2

Figure 4 summarize the results of the modeling analysis.

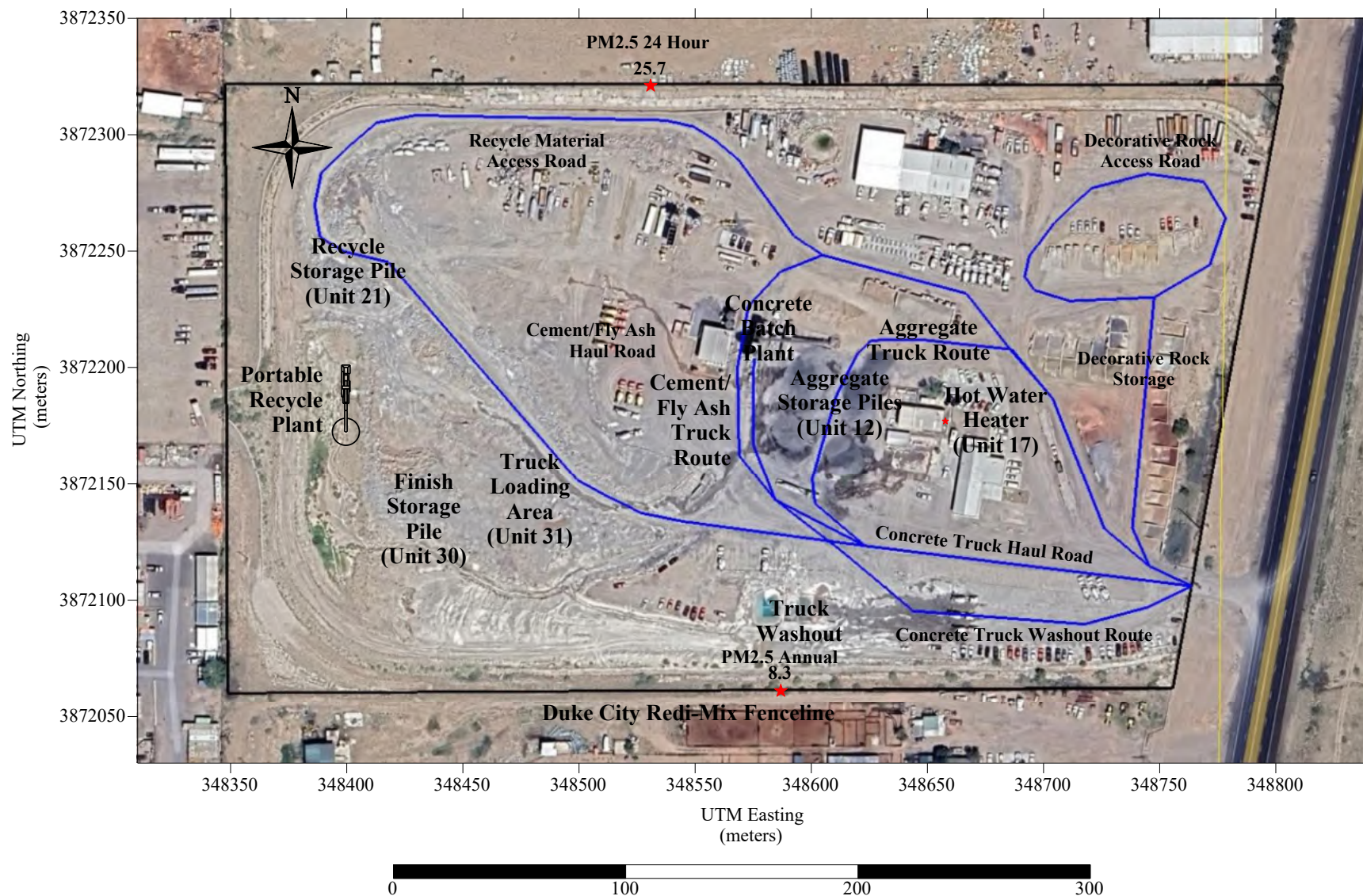


Figure 4: Aerial Map Showing the Location of the PM_{2.5} Highest Model Results (µg/m³)

3.2.3 PM₁₀ Cumulative Impact Analysis Modeling Results

CIA PM₁₀ modeling was performed with terrain and meteorology which included 5 years of data, 2014 – 2018 Albuquerque Meteorological data, obtained from the AEHD AQP. Modeling was performed for 24-hour averaging period with maximum PM₁₀ hourly emission rate for the proposed recycle plant sources, Duke City CBP sources, applicable neighboring sources, and all Duke City Site initial modeling receptors that were above the PM₁₀ SILs. Albuquerque 2025 representative 24-hour PM₁₀ background concentrations was added to the modeled results and compared to the lowest applicable ambient standard. The 24-hour background concentrations that were used for PM₁₀ averaging period are found in Section 2.9 of this report. Based on the results of the SIL modeling, the five highest SIL scenario models were rerun for CIA modeling, as seen in Table 26 below.

Results showed that PM₁₀, where the proposed recycle plant sources and Duke City CBP sources makes a significant contribution, is located on the northern Duke City Site boundary.

The result from PM₁₀ emissions dispersion modeling, plus a representative PM₁₀ background concentrations from Section 2.9 of this report, were used to show compliance with national PM₁₀ 24-hour average AAQS. Table 27 below presents the results of all 12 model scenario results. The scenario with the highest modeled concentrations is highlighted below.

TABLE 27: PM₁₀ CIA MODEL RESULTS FOR EACH SCENARIO

Model Scenario	SIL 24 Hour Average 1st High (µg/m³)	CIA 24 Hour Average 6th High with Background (µg/m³)
1	120.10	
2	113.48	
3	104.25	
4	92.07	
5	93.03	
6	102.54	
7	102.54	
8	126.99	113.26
9	152.34	119.87
10	157.17	124.03
11	143.73	121.01
12	139.36	120.95

Table 28 shows the PM₁₀ 6th highest 24-hour daily maximum model result and location.

TABLE 28: PM₁₀ CIA MODEL RESULTS

	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Modeled Concentration With Background ($\mu\text{g}/\text{m}^3$)	Location UTMs E/N	
24 Hour Average Highest 6th High	101.73	124.03	348555.7	3872325.9

Figure 5 summarize the results of the modeling analysis.

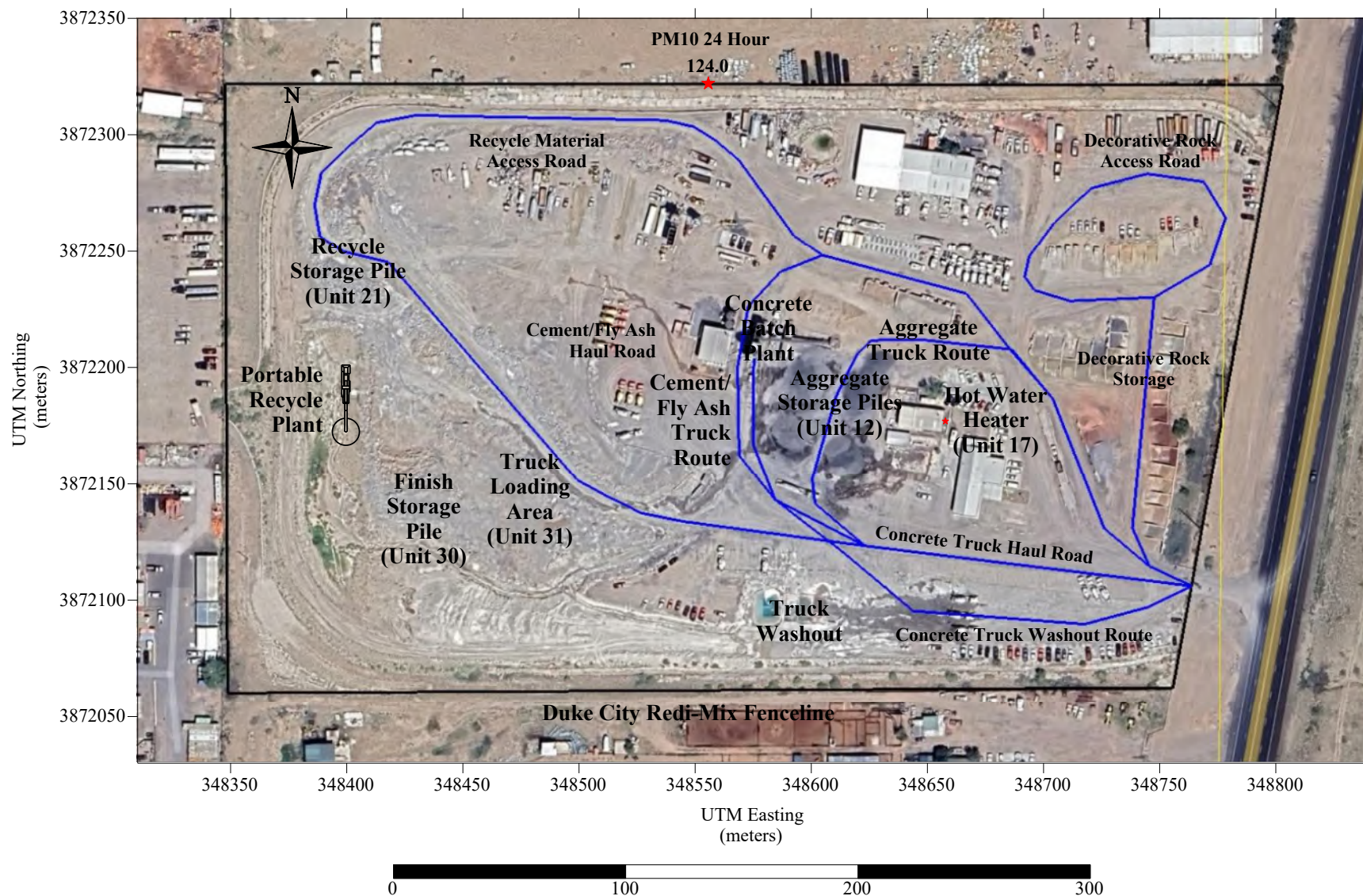


Figure 5: Aerial Map Showing the Location of the PM₁₀ Highest 24 Hour Model Results (µg/m³)

3.2.4 SO₂ 1-Hour Cumulative Impact Analysis Modeling Results

SO₂ 1-Hour CIA modeling was performed with terrain elevations and building downwash for Duke City Site. SO₂ emission rates represented the maximum hourly rate for the proposed recycle plant engines and Duke City CBP hot water heater for all the proposed recycle plant and Duke City Site initial modeling receptors that were above the SO₂ 1-Hour SILs.

Table 29 shows the SO₂ 4th highest 1-hour daily maximum model result and highest concentration location.

TABLE 29: SO₂ CIA MODEL RESULTS

	Modeled Concentration (µg/m³)	Modeled Concentration With Background (µg/m³)	Location UTM's E/N	
1 Hour Average Highest 4th High	11.7	24.85	348610.5	3872056.1

Dispersion modeling meteorology for this analysis included 5 years of data, 2014 – 2018 Albuquerque Meteorological data, was obtained from the AEHD AQP.

Albuquerque city-wide 1-hour SO₂ background concentrations found in Section 2.9 of this report were added to the 1-hour modeled results and compared to the lowest applicable ambient standard.

Maximum 1-hour concentration, where the proposed recycle plant and Duke City CBP sources makes a significant contribution, occurred along the southern Duke City Site restricted boundary.

Figure 6 shows an aerial map of the SO₂ 4th highest 1 hour daily maximum concentration location including background where the proposed recycle plant and Duke City CBP sources contribute above the SO₂ SILs.

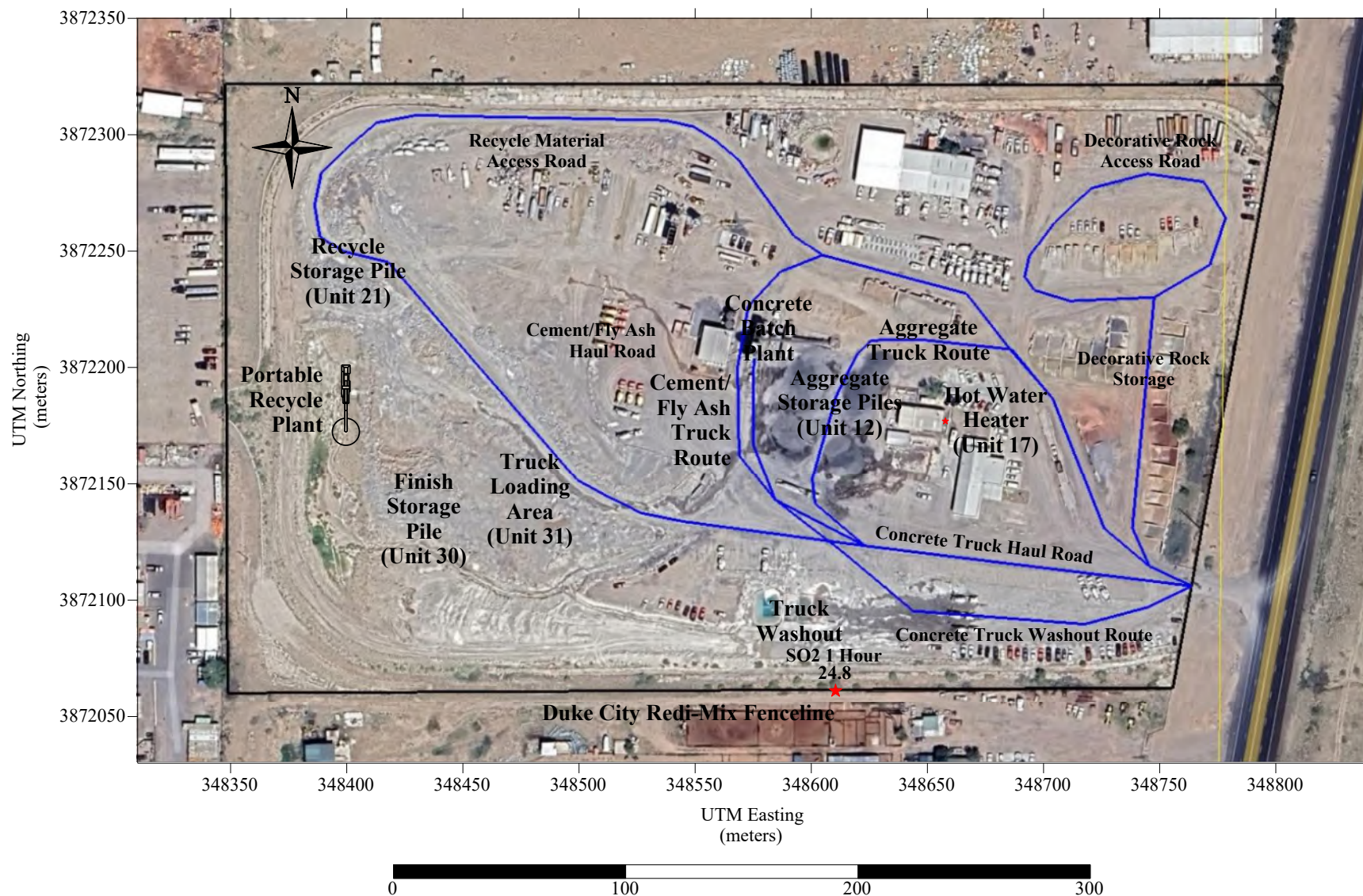


Figure 6: Aerial Map Showing the Location of the SO₂ Highest 1-Hour Model Results (µg/m³)

Shiver Redi-Mix, LLC – Duke City Concrete Batch Plant – Dispersion Model Report

Modeling File List

Model File Name	Description
SHIVERROICOMBUST	Duke City Recycle Plant and CBP Combustion SIL modeling
SHIVERPMROIS1-12	Duke City Recycle Plant and CBP PM10 and PM2.5 24 hour Averaging Period SIL modeling, operating scenarios 1 - 12
SHIVERNO2_Annual_CIA	Duke City Recycle Plant and CBP CIA NO2 ARM2 annual averaging period, includes identified neighboring sources
SHIVERNO2_1HR_CIA	Duke City Recycle Plant and CBP CIA NO2 ARM2 1-hour averaging period, includes identified neighboring sources
SHIVERSO2_1Hr_CIA	Duke City Recycle Plant and CBP CIA SO2 1-hour averaging period, includes identified neighboring sources
SHIVERPM10 S1-12 CIA	Duke City Recycle Plant and CBP CIA PM10 24 Hour Averaging Period CIA modeling, operating scenarios 1 – 12, Includes additional activities, decorative rock at Duke City CBP site operating daylight hours.
SHIVERPM25 S1-12 24 Hour CIA	Duke City Recycle Plant and CBP CIA PM25 24 Hour Averaging Period CIA modeling, operating scenarios 1 – 12, Includes additional activities, decorative rock at Duke City CBP site operating daylight hours.
SHIVERPM25 S1-12 Annual CIA	Duke City Recycle Plant and CBP CIA PM2.5 Annual Period CIA modeling, operating scenarios 1 – 12, Includes additional activities, decorative rock at Duke City CBP site operating daylight hours.

Attachment H
BACT Determination

Pursuant to 20.11.72.8 of the Health, Environment and Equity Impacts rule (20.11.72 NMAC), the CABQ EHD AQP department shall require “Best Available Control Technology” (BACT) for new or modified stationary sources throughout Bernalillo County that emit any one, or combination of, the following fifteen hazardous air pollutants (HAPs): acetaldehyde, acrolein, benzene, 1,3-butadiene, carbon tetrachloride, ethyl benzene, ethylene oxide, formaldehyde, hydrochloric acid, methyl bromide, methylene chloride, naphthalene, toluene, vinyl chloride, and xylenes. Per NMAC 20.11.61.7.M, the definition of BACT is:

“Best Available Control Technology” (BACT) means an emissions limitation ... based on the maximum degree of reduction for each regulated [New Source Review] NSR pollutant which would be emitted from any proposed major stationary source or major modification, which the director on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant

Based on the list of HAPs emission, as determined by AP-42 Table 1.4-3 for natural gas combustion and AP-42 Table 3.3-2 for diesel combustion, the HAPs pollutants emitted from the site are acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, toluene and xylenes.

The following table summarizes the maximum HAPs emission rates from the site. Two regulated HAP sources are located at the site, Unit 17 the hot water heater and Unit 32 the recycle plant diesel-fired engine.

HAPS	CAS #	Unit 17		Unit 32		Total	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
1,3-Butadiene	106-99-0			9.26E-05	1.62E-04	9.26E-05	1.62E-04
Acetalehyde	75-07-0			1.82E-03	3.18E-03	1.82E-03	3.18E-03
Acrolein	107-02-8			2.19E-04	3.83E-04	2.19E-04	3.83E-04
Benzene	71-43-2	5.89E-06	2.58E-05	2.21E-03	3.87E-03	2.22E-03	3.89E-03
Formaldehyde	50-00-0	2.10E-04	9.21E-04	2.79E-03	4.89E-03	3.00E-03	5.81E-03
Naphthalene	91-20-3	1.71E-06	7.49E-06	2.01E-04	3.51E-04	2.03E-04	3.59E-04
Toluene	108-88-3	9.53E-06	4.18E-05	9.69E-04	1.69E-03	9.78E-04	1.74E-03
Xylene	1330-20-7			6.75E-04	1.18E-03	6.75E-04	1.18E-03

These HAPs are associated with VOC emissions, so controlling VOC emissions will reduce these HAPs. The following discussion presents the Best Available Control Technology (BACT) for the new recycle crushing and screening plant, and existing concrete batch plant.

Recycle Plant

Regulated pollutants from the recycle plant consist of fugitive particulate emission during processing of the recycle material through a crushing and screening plant, road dust from hauling of material to and from the plant, truck unloading and loading of recycled material, and

combustion emission (NO₂, CO, VOC, SO₂, and PM) from the diesel-fired engine that powers the crushing and screening plant.

Diesel-Fired Engine

The best control technologies to reduce VOCs from diesel generators are:

- Good Combustion Practices and Design; Regular maintenance
- Compliance with 40 CFR 60 Subpart IIII; EPA certified engine
- Compliance with 40 CFR 63 Subpart ZZZZ; Clean Diesel Fuel

The proposed engine is an EPA Tier 4 final certified engine with inherent technology that reduces NO_x, CO, and VOC emissions, thus reducing VOC related HAPs emissions.

To be in compliance with 40 CFR 60 Subpart IIII, the design of the engine is to ensure complete combustion of the fuel which reduces unburned hydrocarbons that contribute to VOC emissions.

To be in compliance with 40 CFR 63 Subpart ZZZZ, good combustion practices include routine maintenance per the engine manufacturer's schedule and the use of Ultra-low sulfur diesel (ULSD) fuel. The use of ULSD will reduce both SO₂ and particulate emissions and the use of fuel filters will further reduce particulate emissions.

For the diesel-fired engine (Unit 32), an EPA Tier 4 final certified engine is BACT.

Crushing and Screening Plant

The crushing and screening plant will use a wet suppression control technology to control the generation of fugitive dust during material processing. This system is designed to control visible emission from the processing equipment to levels below the opacity requirement found in 40 CFR 60 Subpart OOO.

For the material processing at the crushing and screening plant, a wet suppression control technology to control the generation of fugitive dust during material processing is BACT.

Storage Piles and Truck Loading and Unloading

Good management practices will be used at storage piles and truck unloading and loading by sufficiently watering the storage piles to prevent fugitive dust emissions from leaving the property. For storage piles and truck unloading and loading, good management practices is considered BACT.

Haul Truck Traffic on Unpaved Roads

For this site, haul roads need to be unpaved because of the type of facility. Paving the road would not be feasible because the paved surface would continually be loaded with dust. For this type of facility, the best available control would be surface stabilizing applications (surfactants) and frequent watering. Per the NMED policy this would achieve a control efficiency of 90%. For haul roads, surface stabilizing applications (surfactants) and frequent watering is considered BACT.

Concrete Batch Plant

Regulated pollutants from the concrete batch plant consist of fugitive particulate emission during aggregate and sand material handling, production of concrete, road dust from haul trucks to and from the plant, and combustion emission (NO₂, CO, VOC, SO₂, and PM) from the hot water heater.

Hot Water Heater

The hot water heater combusts natural gas. BACT is Good Combustion Practices. Shiver Redi-Mix will provide regular maintenance on the burners to deliver complete combustion of natural gas that reduces NO_x, CO, VOC, SO₂, and PM emissions, thus reducing VOC related HAPs emissions.

For the hot water heater (Unit 17), good combustion practices and maintenance is BACT.

Concrete Production

To produce concrete, cement and fly ash is delivered to the site and stored in silos or trailer guppies. The cement and fly ash is then sent to a weigh batcher for precise weighing for the concrete mix, then delivered to a concrete mixer truck where the aggregate, sand, cement, and fly ash is mixed with water to produce concrete.

For the silos, cement/fly ash batcher, and concrete truck loading fugitive dust generated during this process, particulate fugitive dust is captured by a central dust collection system (baghouse). According to the manufacturer, the filters in the baghouse will provide at least 99.9% control of particulate emissions. The baghouse with filters that capture 99.9% of the particulate emissions is BACT.

Material Handling for Aggregate and Sand

Good management practices will be used for loading aggregate and sand into the feeders, overhead bins, and aggregate/sand weigh batcher by sufficiently watering of the storage piles to prevent fugitive dust emissions from leaving the property. For loading aggregate and sand into the feeders, overhead bins, and aggregate/sand weigh batcher, good management practices is considered BACT.

Storage Piles and Aggregate/Sand Truck Unloading

Good management practices will be used at storage piles and truck unloading loading by sufficiently watering the storage piles to prevent fugitive dust emissions from leaving the property. For storage piles and truck unloading, good management practices is considered BACT.

Haul Truck Traffic on Unpaved Roads

For this site, haul roads need to be unpaved because of the type of facility. Paving the road would not be feasible because the paved surface would continually be loaded with dust. For this type of facility, the best available control would be surface stabilizing applications (surfactants) and frequent watering. Per the NMED policy this would achieve a control efficiency of 90%. For haul roads, surface stabilizing applications (surfactants) and frequent watering is considered BACT.

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

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-19-095;

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

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2023	PCPXL09.3NTF	9.3	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS		TYPICAL EQUIPMENT APPLICATION		
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Diesel Oxidation Catalyst, Engine Control Module, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst		Loader, Tractor, Compressor, Excavator, Commercial Equipment		

The engine models and codes are attached.

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

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	--	--	--	0.01	--	--	--	
		CERT	0.04	0.19	--	0.2	0.01	--	--	--

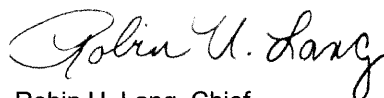
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

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

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

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed on this 12th day of September 2022.



Robin U. Lang, Chief
 Emissions Certification and Compliance Division

Model	Code	Trim	Config	Displacement	Displacement - Units	Peak Power - Units	Peak Power - Fuel Units	Peak Power - Fueling	Peak Power - Speed (rpm)	Peak Power - Fueling	Peak Power - Fuel Units	Peak Torque - Units	Peak Torque - Fuel Units	Peak Torque - Fueling	Peak Torque - Speed (rpm)	Peak Torque - Fuel Units	Peak Torque - Fueling	Peak Torque - Speed (rpm)	Peak Torque - Fuel Units	OBD	GHG	Special	Notes
C9.3B	Cert Test 1	NA	I6	9.28	Liters	456	horsepower	160	2000	1536	lb/hr	1536	lb/hr	160	2000	1400	135	1400	135	N/A	N/A	N/A	N/A
C9.3B	Cert Test 2	NA	I6	9.28	Liters	408	horsepower	137	2000	NA	lb/hr	NA	lb/hr	137	2000	NA	NA	NA	NA	N/A	N/A	N/A	N/A
C9.3B	01	NA	I6	9.28	Liters	335	horsepower	121	2200	1130	lb/hr	1130	lb/hr	121	2200	1400	97	1400	97	N/A	N/A	N/A	N/A
1706J	1A	NA	I6	9.28	Liters	335	horsepower	121	2200	1130	lb/hr	1130	lb/hr	121	2200	1400	97	1400	97	N/A	N/A	N/A	N/A
C9.3B	02	NA	I6	9.28	Liters	375	horsepower	134	2200	1265	lb/hr	1265	lb/hr	134	2200	1400	108	1400	108	N/A	N/A	N/A	N/A
1706J	2A	NA	I6	9.28	Liters	375	horsepower	134	2200	1265	lb/hr	1265	lb/hr	134	2200	1400	108	1400	108	N/A	N/A	N/A	N/A
C9.3B	03	NA	I6	9.28	Liters	416	horsepower	150	2200	1401	lb/hr	1401	lb/hr	150	2200	1400	121	1400	121	N/A	N/A	N/A	N/A
1706J	3A	NA	I6	9.28	Liters	416	horsepower	150	2200	1401	lb/hr	1401	lb/hr	150	2200	1400	121	1400	121	N/A	N/A	N/A	N/A
C9.3B	04	NA	I6	9.28	Liters	456	horsepower	160	2000	1536	lb/hr	1536	lb/hr	160	2000	1400	135	1400	135	N/A	N/A	N/A	N/A
1706J	4A	NA	I6	9.28	Liters	456	horsepower	160	2000	1536	lb/hr	1536	lb/hr	160	2000	1400	135	1400	135	N/A	N/A	N/A	N/A
C9.3B	05	NA	I6	9.28	Liters	314	horsepower	104	1800	1154	lb/hr	1154	lb/hr	104	1800	1300	93	1300	93	N/A	N/A	N/A	N/A
C9.3B	06	NA	I6	9.28	Liters	221	horsepower	84	2200	1100	lb/hr	1100	lb/hr	84	2200	1200	83	1200	83	N/A	N/A	N/A	N/A
C9.3B	07	NA	I6	9.28	Liters	274	horsepower	95	2200	1263	lb/hr	1263	lb/hr	95	2200	1100	86	1100	86	N/A	N/A	N/A	N/A
C9.3B	08	NA	I6	9.28	Liters	314	horsepower	106	1800	1154	lb/hr	1154	lb/hr	106	1800	1300	95	1300	95	N/A	N/A	N/A	N/A
C9.3B	09	NA	I6	9.28	Liters	408	horsepower	137	1500	NA	lb/hr	NA	lb/hr	137	1500	NA	NA	NA	NA	N/A	N/A	N/A	N/A
1706J	9A	NA	I6	9.28	Liters	408	horsepower	137	1500	NA	lb/hr	NA	lb/hr	137	1500	NA	NA	NA	NA	N/A	N/A	N/A	N/A
C9.3B	10	NA	I6	9.28	Liters	456	horsepower	157	1800	NA	lb/hr	NA	lb/hr	157	1800	NA	NA	NA	NA	N/A	N/A	N/A	N/A
1706J	10A	NA	I6	9.28	Liters	456	horsepower	157	1800	NA	lb/hr	NA	lb/hr	157	1800	NA	NA	NA	NA	N/A	N/A	N/A	N/A
C9.3B	11	NA	I6	9.28	Liters	343	horsepower	114	1500	NA	lb/hr	NA	lb/hr	114	1500	NA	NA	NA	NA	N/A	N/A	N/A	N/A
C9.3B	11A	NA	I6	9.28	Liters	343	horsepower	114	1500	NA	lb/hr	NA	lb/hr	114	1500	NA	NA	NA	NA	N/A	N/A	N/A	N/A
C9.3B	12	NA	I6	9.28	Liters	314	horsepower	106	1800	1154	lb/hr	1154	lb/hr	106	1800	1300	95	1300	95	N/A	N/A	N/A	N/A
C9.3B	13	NA	I6	9.28	Liters	416	horsepower	150	2200	1401	lb/hr	1401	lb/hr	150	2200	1400	121	1400	121	N/A	N/A	N/A	N/A
1706J	13A	NA	I6	9.28	Liters	416	horsepower	150	2200	1401	lb/hr	1401	lb/hr	150	2200	1400	121	1400	121	N/A	N/A	N/A	N/A
C9.3B	14	NA	I6	9.28	Liters	416	horsepower	150	2200	1401	lb/hr	1401	lb/hr	150	2200	1400	121	1400	121	N/A	N/A	N/A	N/A
C9.3B	15	NA	I6	9.28	Liters	294	horsepower	105	2200	1314	lb/hr	1314	lb/hr	105	2200	1200	99	1200	99	N/A	N/A	N/A	N/A
C9.3B	15A	NA	I6	9.28	Liters	294	horsepower	105	2200	1314	lb/hr	1314	lb/hr	105	2200	1200	99	1200	99	N/A	N/A	N/A	N/A
C9.3B	16	NA	I6	9.28	Liters	296	horsepower	106	2200	1375	lb/hr	1375	lb/hr	106	2200	1200	104	1200	104	N/A	N/A	N/A	N/A
C9.3B	16A	NA	I6	9.28	Liters	296	horsepower	106	2200	1375	lb/hr	1375	lb/hr	106	2200	1200	104	1200	104	N/A	N/A	N/A	N/A
C9.3B	17	NA	I6	9.28	Liters	347	horsepower	118	1900	1171	lb/hr	1171	lb/hr	118	1900	1400	102	1400	102	N/A	N/A	N/A	N/A
C9.3B	18	NA	I6	9.28	Liters	294	horsepower	105	2200	1314	lb/hr	1314	lb/hr	105	2200	1200	99	1200	99	N/A	N/A	N/A	N/A
C9.3B	19	NA	I6	9.28	Liters	296	horsepower	106	2200	1375	lb/hr	1375	lb/hr	106	2200	1200	104	1200	104	N/A	N/A	N/A	N/A
C9.3B	20	NA	I6	9.28	Liters	414	horsepower	139	1800	1396	lb/hr	1396	lb/hr	139	1800	1400	121	1400	121	N/A	N/A	N/A	N/A
C9.3B	21	NA	I6	9.28	Liters	414	horsepower	139	1800	1396	lb/hr	1396	lb/hr	139	1800	1400	121	1400	121	N/A	N/A	N/A	N/A
C9.3B	22	NA	I6	9.28	Liters	294	horsepower	105	2200	1314	lb/hr	1314	lb/hr	105	2200	1200	99	1200	99	N/A	N/A	N/A	N/A

Power Flame Incorporated



Typical Flue Product Emissions Data for Power Flame Burners

	Natural Gas	# 2 Fuel Oil
Carbon Monoxide - CO	.037 lb CO 10 ⁶ BTU input (50 PPM)	.037 lb per 10 ⁶ Btu (50 PPM)
Sulfur Dioxide - SO ₂	(1.05) x (% Sulphur by weight in fuel) = lb SO ₂ per 10 ⁶	
Particulate Matter	.0048 lb PM per 10 ⁶ BTU input	.0143 lb PM per 10 ⁶
Hydrocarbons	.025 lb HC's per 10 ⁶ BTU input	.038 lb HC's per 10 ⁶
CO ₂	9 % to 10%	10% to 11%
Nitrogen Oxides - NO_x		
Standard C, J Burners	.088 lb NO _x per 10 ⁶ BTU input (75 PPM)	.159 lb NO _x per 10 ⁶ Btu (120) PPM
LNIAC burner	.029 lb NO _x per 10 ⁶ BTU input (25 PPM)	.12 lb NO _x per 10 ⁶ Btu (90) PPM
CM burner	.070 lb NO _x per 10 ⁶ BTU input (60 PPM)	.146 lb NO _x per 10 ⁶ Btu (110) PPM
IFGR LNIC NO _x Burners	.029 lb NO _x per 10 ⁶ BTU input (25 PPM)	.126 lb NO _x per 10 ⁶ Btu (110) PPM
LNICM burner	.029 lb NO _x per 10 ⁶ BTU input (25) PPM	.12 lb NO _x per 10 ⁶ Btu (90) PPM
NPM Premix burner	.029 lb NO _x per 10 ⁶ BTU input (25) PPM	N/A
Nova Plus Burner	.010 lb NO _x per 10 ⁶ BTU input (9) PPM	N/A

(1) NO_x emissions at 3.0 % O₂ will vary based on the percent of fuel bound nitrogen and boiler cor

These emission rates are general estimates and do not constitute guarantees by Power Flame Inc.
 In instances where guarantees are required, please consult the factory with the specific application



An Oshkosh Corporation Company

SPECIFICATIONS FOR MODEL PJ-1400D DUST COLLECTION SYSTEM

MODEL CON-E-CO-PJ-1400D

NUMBER OF BAGS	96
NOMINAL BAG DIAMETER	6"
NOMINAL BAG LENGTH	120"
TOTAL FILTRATION AREA	1427 SQ. FT.
MIN. DESIGN EFFICIENCY OF DUST COLLECTOR	99.9%
AIR TO CLOTH RATIO	6.0 ACFM / SQ. FT.
FILTRATION VELOCITY	6.0 FT. / MIN
BLOWER HP	20 HP
STATIC PRESSURE DROP	6" (INCHES OF WATER)
AIR CAPACITY	8,560 C.F.M.
DISCHARGE AREA	1.84 SQ. FT.
DISCHARGE VELOCITY	77.5 FT. / SEC.
DIRECTION OF AIR DISCHARGE	HORIZONTAL
DISCHARGE SHAPE	13 1/4" x 20" RECTANGLE
OUTLET MOISTURE CONTENT	IDEALLY ZERO
CLEANING MECHANISM	PULSE JET
FREQUENCY OF CLEANING	VARIABLE
NORMAL OPERATING TEMP & PRESSURE	AMBIENT

BAG SPECIFICATIONS

BAG DIAMETER	5.93"
BAG LENGTH	121"
CONSTRUCTION	SEAMED
FIBER	POLYESTER FELT
FINISH	SINGED
WEIGHT	16 OZ / SQ. YD.
PERMEABILITY (.5" WATER)	20-30 CFM
FIBER SIZE	2.5 DENIER AVERAGE

TYPICAL MIXER SHROUD SPECIFICATION

SHROUD SIZE	6'-0" - 8'-0"
CURTAIN LENGTH	8'-0"
CAPTURE VELOCITY (with mixer truck in loading position)	182 FT/MIN
DUCT SIZE	(2) - 14" DIA
DUCT VELOCITY	3740 FT/MIN

INTO BAGS

CEMENT SILO

LB / HR	.177 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

INTO BAGS

FLYASH SILO

LB / HR	.115 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

INTO BAGS

CENTRAL MIX

LB / HR	.153 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

TRUCK MIX

LB / HR	.281 LB/YD ³ * ___ YD ³ /HR
GR / FT ³	.014 GR HR/LB FT ³ * ___ LB/HR

OUT OF BAGS

FOR ALL OUT OF BAGS VALUES, MULTIPLY THE INTO BAGS VALUES BY .001.



SOLID PRODUCTS. SOLID PERFORMANCE.

237 N. 13TH ST - PO Box 430 - Blair, NE 68008

Phone: 800-656-2651 Fax: 402-426-4181 Service/Parts Fax: (402)-533-9292

E-MAIL: parts@con-e-co.com WEBSITE: www.con-e-co.com

Attachment I
Zoning Documentation



City of Albuquerque Environmental Health Department Air Quality Program



Construction Permit (20.11.41 NMAC) Zoning Requirement Cover Letter

This Cover Letter Must Be Returned With The Application Along With All Required Attachments

The Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque (“City”) and Bernalillo County (“County”), on behalf of the City Environmental Health Department (“Department”).

Any person seeking a new air quality permit or a permit modification under 20.11.41 NMAC (Construction Permits) shall provide documentary proof that the proposed air quality permitted use of the facility’s subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation may include (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the applicant is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning departments if the applicant is not subject to City or County zoning jurisdiction. A zone atlas map shall not be sufficient. At this time, applicants are not required to submit documentation for the subject property’s zoning designation when applying for a relocation of a portable stationary source, or a technical or administrative revision to an existing permit.

The Department will rule an application administratively incomplete if it is missing or has incorrect information. If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The Department may require additional information that is necessary to make a thorough review of an application. At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant’s duty to supplement and correct the application includes, but is not limited to, relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department’s review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING SCOPE OF A PERMIT: The Department’s issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant’s/permittee’s responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

Corporate and Facility Information: This information shall match the information in the permit application.

Air Quality Permit Applicant Company Name: Shiver Redi-Mix, LLC dba Duke City Redi-Mix			
Facility Name: Duke City Redi-Mix Broadway Blvd			
Facility Physical Address: 7711 Broadway Blvd SE	City: Albuquerque	State: NM	Zip: 87105
Facility Legal Description: TR B-4-A PLAT OF TRACTS B-4-A & B-4-B DUKE CITY REDI-MIXLLC BEING TRACT B-4 LANDS OF NOREMBERG & AGATAGANCONT 28.4300 AC			

General Operation Information: This information shall match the information in the permit application.

Permitting action being requested (please refer to the definitions in 20.11.41 NMAC):

- New Permit Permit Modification, Current Permit #: **1638-M3**

Attachment Information: The location information provided to the City Planning Department or County Department of Planning and Development Services, as applicable, and reflected in the zoning certification or verifications, as applicable, shall be the same as the Facility location information provided to the Department in the air quality construction permit application.

<input checked="" type="checkbox"/> Zoning Certification Provided by: County Planning <i>This is a use-specific certification.</i> City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/	<input type="checkbox"/> City Zoning Verification <input checked="" type="checkbox"/> County Zoning Verification City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/
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Planning & Development Services Department

415 Silver Ave. SW, 2nd Floor
Albuquerque, New Mexico 87102
Office: (505) 314-0350
www.bernco.gov



February 13, 2026

SHIVER REDI-MIX, LLC
PO BOX 9710
ABQ, NM 87119

Re: 7711Broadway Blvd SE– the “property” – ZNP2026-0015

To Whom It May Concern:

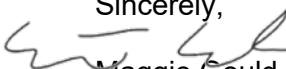
This letter shall certify that according to the official map on file with this office as of this date, the referenced property, LOT B-4-A, DUKE CITY REDI-MIX LLC, ALBUQUERQUE NEW MEXICO, contains approximately 28.36 acres and is zoned M-1, Light Manufacturing zone. For your convenience, I have included the Zone Atlas Page showing your property.

The purpose of this zone is primarily for light manufacturing, light fabricating, warehousing, and wholesale distribution with off-street loading and off-street parking for employees, and with access to arterial highways or railroads. See Section 16 of the Bernalillo County Comprehensive Zoning Code for the full list of allowed uses and standards.

This certification statement only references the applicability of the Zoning Ordinance as it applies to the aforementioned property in the specified zone. This letter is not a business license and cannot be construed as approval for construction.

Do not hesitate to contact me if you have questions concerning this matter at 314-0499 or at mgould@bernco.gov.

Sincerely,


Maggie Gould
Zoning Administrator

Enclosures: Zone Atlas Page: S-13-Z

Cc: pwade@montrose-env.com

County Commissioners

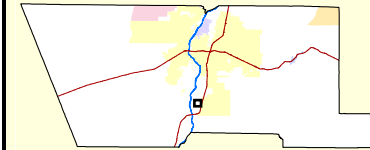
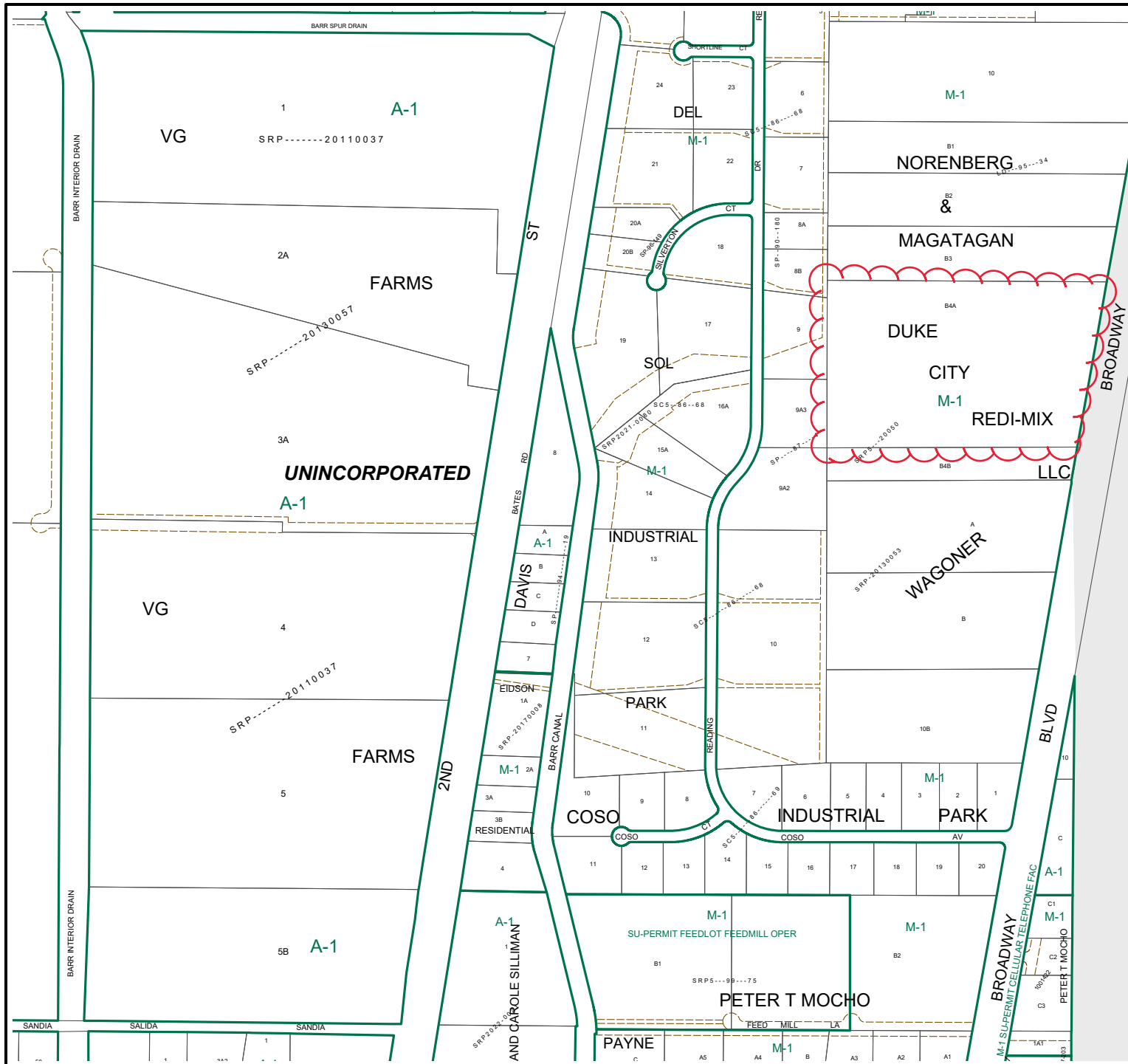
Adriann Barboa, Chair, District 3 • Frank A. Baca, Vice-Chair, District 2
Barbara Baca, District 1 • Walt Benson, District 4 • Eric C. Olivas, District 5

Elected Officials

Damian R. Lara, Assessor • Linda Stover, Clerk • Cristy J. Carbón-Gaul, Probate Judge
John D. Allen, Sheriff • Nancy M. Bearce, Treasurer

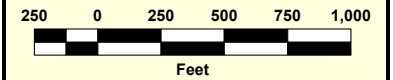
County Manager

Cindy Chavez



LEGAL DESCRIPTION
 T9N
 R3E
 SEC 30

UNIFORM PROPERTY CODE
 1-013-050



Map amended through Fall 2025



PLANNING & DEVELOPMENT SERVICES
 GIS TECHNOLOGY SECTION

This information is for reference only. Bernalillo County assumes no liability for errors associated with the use of these data. Users are solely responsible for confirming data accuracy when necessary. Source data from Bernalillo County and the City of Albuquerque. For current information visit <https://www.bernco.gov/planning/download-zone-atlas.aspx>

S-13-Z

Attachment J
Public Notice Documentation



Timothy M. Keller,
Mayor

Public Participation

List of Neighborhood Associations and Neighborhood Coalitions MEMORANDUM

To: Paul Wade
From: Michael McKinstry, Environmental Health-Air Quality Permitting Manager
Subject: Determination of Neighborhood Associations and Coalitions
within 0.5 mile of 7711 Broadway SE, Bernalillo County, NM.
Date: November 12, 2025

DETERMINATION:

On November 12, 2025, I used the City of Albuquerque Zoning Advanced Map Viewer (<http://coagisweb.cabq.gov/>) to verify which City of Albuquerque Neighborhood Associations (NA), Homeowner Associations (HOA) and Neighborhood Coalitions (NC) are located within 0.5 mile of 7711 Broadway SE in Bernalillo County, NM.

I then used the City of Albuquerque Office (COA) of Neighborhood Coordination's Monthly Master NA List dated November 2025 and the Bernalillo County (BC) Monthly Neighborhood Association November 2025 Excel file to determine the contact information for each NA and NC located within 0.5 mile of 7711 Broadway SE in Bernalillo County, NM.

The table below contains the contact information, which will be used in the City of Albuquerque Environmental Health Department's public notice. Duplicates have been deleted.

COA/BC Association or Coalition	Name	Email or Mailing Address*
District 6 Coalition	M. Ryan Kious Patricia Willson	m.ryankious@gmail.com info@willsonstudio.com
South Valley Coalition of NA's	Marcia Fernandez Pete Eschman	mbfernandez1@gmail.com eschman@unm.edu

****If email address is not listed, provide public notice via certified mail and include a copy of each mail receipt with the application submittal.***



Re: NOI for Shiver Redi-Mix LLC - Duke City Redi-Mix Broadway Plant Permit 1638-M3 Revision Public Notice

From Paul Wade <pwade@montrose-env.com>

Date Wed 4/15/2026 11:40 AM

To m.ryankious@gmail.com <m.ryankious@gmail.com>; info@willsonstudio.com <info@willsonstudio.com>; mbfernandez1@gmail.com <mbfernandez1@gmail.com>; eschman@unm.edu <eschman@unm.edu>

Cc Miles Shiver <mshiver4@dukecityredimix.com>; Kristi Ingro <kingro@dukecityredimix.com>; John Betz <jobetz@montrose-env.com>

 2 attachments (330 KB)

Shiver_Notice_of_Intent_CoverLetter_4_14_26.pdf; Shiver Notice of Intent 4_15_2026.pdf;

To whom it may concern

The attached are revised public notice NOI is for the significant revision of Permit 1638-M3 to add a waste concrete recycle plant to the Duke City Redi-Mix Broadway Plant site. This notice is a requirement of 20.11.41.13.B(1) NMAC.

Thank You

Paul Wade

Senior Associate Engineer

Montrose Environmental Solutions, Inc.

Albuquerque, NM | US Mountain Time

Office: +1-505-830-9680 x6 | Mobile:

pwade@montrose-env.com | www.montrose-env.com

Office Location:

9100 2nd Street NW, Suite 200

Albuquerque, NM 87114-1664

From: Paul Wade

Sent: Wednesday, January 14, 2026 11:39 AM

To: m.ryankious@gmail.com <m.ryankious@gmail.com>; info@willsonstudio.com <info@willsonstudio.com>; mbfernandez1@gmail.com <mbfernandez1@gmail.com>; eschman@unm.edu <eschman@unm.edu>

Cc: Miles Shiver <mshiver4@dukecityredimix.com>; Kristi Ingro <kingro@dukecityredimix.com>; John Betz <jobetz@montrose-env.com>

Subject: NOI for Shiver Redi-Mix LLC - Duke City Redi-Mix Broadway Plant Permit 1638-M3 Revision Public Notice

To whom it may concern

The attached public notice NOI is for the significant revision of Permit 1638-M3 to add a waste concrete recycle plant to the Duke City Redi-Mix Broadway Plant site. This notice is a requirement of 20.11.41.13.B(1) NMAC.

Thank You

Paul Wade
Senior Associate Engineer
Montrose Environmental Solutions, Inc.
Albuquerque, NM | US Mountain Time
Office: +1-505-830-9680 x6 | Mobile:
pwade@montrose-env.com | www.montrose-env.com
Office Location:
9100 2nd Street NW, Suite 200
Albuquerque, NM 87114-1664

This notice is a requirement of SUBJECT: Public Notice of Proposed Air Quality Construction Permit Application Shiver Redi-Mix, LLC dba Duke City Redi-Mix - Duke City Redi-Mix Broadway Blvd

Dear Neighborhood Association/Coalition Representative(s),

Why did I receive this public notice?

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

What is the Air Quality Permit application review process?

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

What do I need to know about this proposed application?

Applicant Name	Shiver Redi-Mix, LLC dba Duke City Redi-Mix
Site or Facility Name	Duke City Redi-Mix Broadway Blvd
Site or Facility Address	7711 Broadway Blvd SE
New or Existing Source	EXISTING
Anticipated Date of Application Submittal	January 14, 2026
Summary of Proposed Source to Be Permitted	EXAMPLES: Significant permit revision to add a 200 tph recycle crushing and screening plant to the permit. Update or remove some of the extraneous language that was submitted in the last permit revision.

What emission limits and operating schedule are being requested?

See attached Notice of Intent to Construct form for this information.

How do I get additional information regarding this proposed application?

For inquiries regarding the proposed source, contact:

- Miles Shiver
- mshiver4@dukecityredimix.com
- (505) 877-5777

For inquiries regarding the air quality permitting process, contact:

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

NOTICE FROM THE APPLICANT

Notice of Intent to Apply for Air Quality Construction Permit

You are receiving this notice because the New Mexico Air Quality Control Act (20.11.41.13B NMAC) requires any owner/operator proposing to construct or modify a facility subject to air quality regulations to provide public notice by certified mail or electronic mail to designated representatives of recognized neighborhood associations and coalitions within 0.5-mile of the property on which the source is or is proposed to be located.

This notice indicates that the owner/operator intends to apply for an Air Quality Construction Permit from the Albuquerque – Bernalillo County Joint Air Quality Program. Currently, no application for this proposed project has been submitted to the Air Quality Program. Applicants are required to include a copy of this form and documentation of mailed notices with their Air Quality Construction Permit Application.

Proposed Project Information

**Applicant's name
and address:**

Nombre y domicilio del solicitante: Shiver Redi-Mix, LLC, dba Duke City Redi-Mix, 7711 Broadway Blvd SE, Albuquerque, NM 87105

**Owner / operator's
name and address:**

Nombre y domicilio del propietario u operador: Shiver Redi-Mix, LLC dba Duke City Redi-Mix

Contact for comments and inquires:

Datos actuales para comentarios y preguntas:

Name (*Nombre*): Miles Shiver

Address (*Domicilio*): 7711 Broadway Blvd SE, Albuquerque, NM 87105

Phone Number (*Número Telefónico*): (505) 877-5777

E-mail Address (*Correo Electrónico*): mshiver4@dukecityredimix.com

Actual or estimated date the application will be submitted to the department:

Fecha actual o estimada en que se entregará la solicitud al departamento: January 14, 2026

Description of the source:

Descripción de la fuente: Redi Mix Concrete Batch Plant

**Exact location of the source
or proposed source:**

Ubicación exacta de la fuente o fuente propuesta: 7711 Broadway Blvd SE, 348,400 easting, 3,872,190 northing, zone 13, NAD 83

Nature of business:

Tipo de negocio: Produce redi mix concrete

**Process or change for which the
permit is requested:**

Proceso o cambio para el cuál de solicita el permiso: Install a new portable 250 ton per hour waste concrete recycle plant

Maximum operating schedule:

Horario máximo de operaciones: Concrete Batch Plant - 24 huors per day, Recycle Plant - 7 AM to 5 PM

Normal operating schedule:

Horario normal de operaciones: Concrete Batch Plant - 24 huors per day, Recycle Plant - 8 AM to 5 PM

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

Air Contaminant <i>Contaminante de aire</i>	Proposed Construction Permit <i>Permiso de Construcción Propuesto</i>		Net Changes (for permit modification or technical revision) <i>Cambio Neto de Emisiones</i> <i>(para modificación de permiso o revisión técnica)</i>	
	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>
NO_x	0.58	1.90	0.25	0.44
CO	2.33	4.45	2.19	3.83
VOC	0.21	0.62	0.12	0.21
SO₂	0.066	0.28	0.0039	0.068
PM₁₀	9.41	11.01	5.27	2.21
PM_{2.5}	1.37	1.84	0.67	0.34
HAP	0.02	0.05	0.015	0.027

NOTE: To add extra rows for H₂S or Pb in Word, click in a box in the last row. Click the plus (+) sign that appears on the right of the row to add a row.

Questions or comments regarding this Notice of Intent should be directed to the Applicant. Contact information is provided with the Proposed Project Information on the first page of this notice. To check the status of an Air Quality Construction Permit application, call 311 and provide the Applicant’s information, or visit www.cabq.gov/airquality/air-quality-permits.

The Air Quality Program will issue a Public Notice announcing a 30-day public comment period on the permit application for the proposed project when the application is deemed complete. The Air Quality Program does not process or issue notices on applications that are deemed incomplete. More information about the air quality permitting process is attached to this notice.

Air Quality Construction Permitting Overview

This is the typical process to obtain an Air Quality Construction Permit for Synthetic Minor and Minor sources of air pollution from the Albuquerque – Bernalillo County Joint Air Quality Program.

Step 1: Pre-application Meeting: The Applicant and their consultant must request a meeting with the Air Quality Program to discuss the proposed action. If air dispersion modeling is required, Air Quality Program staff discuss the modeling protocol with the Applicant to ensure that all proposed emissions are considered.

Notice of Intent from the Applicant: Before submitting their application, the Applicant is required to notify all nearby neighborhood associations and interested parties that they intend to apply for an air quality permit or modify an existing permit. The Applicant is also required to post a notice sign at the facility location.

Step 2: Administrative Completeness Review and Preliminary Technical Review: The Air Quality Program has 30 days from the day the permit is received to review the permit application to be sure that it is administratively complete. This means that all application forms must be signed and filled out properly, and that all relevant technical information needed to evaluate any proposed impacts is included. If the application is not complete, the permit reviewer will return the application and request more information from the Applicant. Applicants have three opportunities to submit an administratively complete application with all relevant technical information.

Public Notice from the Department: When the application is deemed complete, the Department will issue a Public Notice announcing a 30-day public comment period on the permit application. This notice is distributed to the same nearby neighborhood associations and interested parties that the Applicant sent notices to, and published on the Air Quality Program's website.

During this 30-day comment period, individuals have the opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing. If approved by the Environmental Health Department Director, Public Information Hearings are held after the technical analysis is complete and the permit has been drafted.

Step 3: Technical Analysis and Draft Permit: Air Quality Program staff review all elements of the proposed operation related to air quality, and review outputs from advanced air dispersion modeling software that considers existing emission levels in the area surrounding the proposed project, emission levels from the proposed project, and meteorological data. The total calculated level of emissions is compared to state and federal air quality standards and informs the decision on whether to approve or deny the Applicant's permit.

Draft Permit: The permit will establish emission limits, standards, monitoring, recordkeeping, and reporting requirements. The draft permit undergoes an internal peer review process to determine if the emissions were properly evaluated, permit limits are appropriate and enforceable, and the permit is clear, concise, and consistent.

Public Notice from the Department: When the technical analysis is complete and the permit has been drafted, the Department will issue a second Public Notice announcing a 30-day public comment period on the technical analysis and draft permit. This second Public Notice, along with the technical analysis documentation and draft permit, will be published on the Air Quality Program's website, and the public notice for availability of the technical analysis and draft permit will only be directly sent to those who requested further information during the first comment period.

Air Quality Construction Permitting Overview

During this second 30-day comment period, residents have another opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing.

Possible Public Information Hearing: The Environmental Health Department Director may decide to hold a Public Information Hearing for a permit application if there is significant public interest and a significant air quality issue. If a Public Information Hearing is held, it will occur after the technical analysis is complete and the permit has been drafted.

Step 4: Public Comment Evaluation and Response: The Air Quality Program evaluates all public comments received during the two 30-day public comment periods and Public Information Hearing, if held, and updates the technical analysis and draft permit as appropriate. The Air Quality Program prepares a response document to address the public comments received, and when a final decision is made on the permit application, the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process. If no comments are received, a response document is not prepared.

Step 5: Final Decision on the Application: After public comments are addressed and the final technical review is completed, the Environmental Health Department makes a final decision on the application. If the permit application meets all applicable requirements set forth by the New Mexico Air Quality Control Act and the federal Clean Air Act, the permit is approved. If the permit application does not meet all applicable requirements, it is denied.

Notifications of the final decision on the permit application and the availability of the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process.

The Department must approve a permit application if the proposed action will meet all applicable requirements and if it demonstrates that it will not result in an exceedance of ambient air quality standards. Permit writers are very careful to ensure that estimated emissions have been appropriately identified or quantified and that the emission data used are acceptable.

The Department must deny a permit application if it is deemed incomplete three times, if the proposed action will not meet applicable requirements, if estimated emissions have not been appropriately identified or quantified, or if the emission data are not acceptable for technical reasons.

For more information about air quality permitting, visit www.cabq.gov/airquality/air-quality-permits



Proposed Air Quality Construction Permit

Permiso de Construcción de Calidad del Aire Propuesto

- Applicant's Name:** Shiver Redi-Mix, LLC dba Duke City Redi-Mix
 Nombre del solicitante:
- Owner or Operator's Name:** Shiver Redi-Mix, LLC dba Duke City Redi-Mix
 Nombre del Propietario u Operador:
- Actual or Estimated Date the Application will be Submitted to the Department:** January 14, 2026
 Fecha Actual o Estimada en que se Entrará la Solicitud al Departamento:
- Exact Location of the Source or Proposed Source:** 7711 Broadway Blvd. SE, Albuquerque, NM 87105
 Ubicación Excata de la Fuente o Fuente Propuesta:
- Description of the Source:** Redi Mix Concrete Batch Plant
 Descripción de la Fuente:
- Nature of Business:** Produce redi mix concrete
 Tipo de Negocio:
- Process or change for which a permit is requested:** Install a new portable 250 ton per concrete recycle plant
 Proceso o cambio para el cual se solicita el permiso:

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

Air Contaminant Contaminante de Aire	Proposed Construction Permit Permiso de Construcción Propuesto		Net Change Emissions (for permit modification) Cambio Neto de Emisiones (para modificación de permiso)	
	Pounds per hour libras por hora	Tons per year toneladas por año	Pounds per hour libras por hora	Tons per year toneladas por año
NO _x	0.58	1.90	0.25	0.44
CO	2.33	4.45	2.19	3.83
VOC	0.21	0.62	0.12	0.20
SO ₂	0.066	0.28	0.039	0.068
PM ₁₀	2.50 9.71	7.47 11.01	2.48 5.27	7.23 2.21
PM _{2.5}	1.18 1.37	1.49 1.94	0.48 0.67	0.34 0.34
HAP	4.055 0.02	0.05	0.005	0.027

- Maximum Operating Schedule:** CBP - 24 hour/day; Recycle Plant - 7 AM to 5 PM
 Horario Máximo de Operaciones:
- Normal Operation Schedule:** CBP - 24 hour/day; Recycle Plant - 8 AM to 5 PM
 Horario Normal de Operaciones:
- Current Contact Information for Comments and Inquiries:**
 Datos actuales para Comentarios y Preguntas
 Name (Nombre): Miles Shiver IV
 Address (Domicilio): 7711 Broadway Blvd SE, Albuquerque, NM 87105
 Phone Number (Número Telefónico): (505) 877-5777
 Email Address (Correo Electrónico): mshiver4@dukecityredimix.com

Call 311 for additional information concerning this project, the Air Quality Program, or to file a complaint.
 Llame al 311 para obtener información adicional sobre este proyecto, del Programa de Calidad del Aire, o para presentar una queja.
 Gọi 311 để biết thêm thông tin hoặc để khiếu nại về dự án này, Chương Trình Chất Lượng Không Khí

City of Albuquerque, Environmental Health Department, Air Quality Program - Stationary Source Permitting
 Ciudad de Albuquerque, Departamento de Salud Ambiental, Programa de Calidad del Aire - Permisos para Fuentes Inmóviles
 (505) 768-1972, aqd@cabq.gov

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

Duke City Redi-Mix
Join Our Growing Team!



Currently Hiring All Positions
Apply at
www.dukecityredimix.com

Yellow sign with text and a small graphic.

FACILITY: Duke City Redi-Mix
NPDES ID: NY78051078
This notice and sign are required for all discharges under the Industrial Discharge Provisions under the U.S. EPA's National Clean Air Act Program.
CONTACT: ENCLC, LLC
To obtain a copy of this document, please contact:
By e-mail: enclc@enclc.com
By phone: (800) 857-4040
By fax: (800) 857-4040
By mail: ENCLC, LLC, 10000
CFA Highway, Spring Hill, TN 37174

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City of Albuquerque Environmental Health Department Air Quality Program



Air Quality Compliance History Disclosure Form

The Albuquerque-Bernalillo County Joint Air Quality Program (“Program”) administers and enforces local air quality laws for the City of Albuquerque (“City”) and Bernalillo County (“County”) on behalf of the City Environmental Health Department, including the New Mexico Air Quality Control Act (“AQCA”), NMSA 1978, Sections 74-2-1 to -17. In accordance with Sections 74-2-7(P) and (S) of the AQCA, the Program may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant or permittee meets any one of the criteria outlined in the AQCA. The Program requires applicants to file this Compliance History Disclosure Form in order for the Program to deem an air permit application administratively complete, or issue an air permit for those permits without an initial administrative completeness determination process. Additionally, an existing permit holder (permits issued prior to the Effective Date of this Form) shall provide this Compliance History Disclosure Form to the Program upon the Program’s request. Note: Program Staff can answer basic questions about this Compliance History Disclosure Form but cannot provide specific guidance or legal advice.

Instructions

1. Applications filed pursuant to the following regulations shall include this Compliance History Disclosure Form, in accordance with Section 74-2-7(S) of the AQCA: *Construction Permits* (20.11.41 NMAC); *Operating Permits* (20.11.42 NMAC); *Nonattainment Areas* (20.11.60 NMAC); *Prevention of Significant Deterioration* (20.11.61 NMAC); *Acid Rain* (20.11.62 NMAC); and *Fugitive Dust* (20.11.20 NMAC) except this Form shall not be required for asbestos notifications under 20.11.20.22 NMAC.
2. This Compliance History Disclosure Form is not site specific: responses shall be based on the applicant/permittee as an entity and not be limited to the application, site, facility or source.
3. The permittee identified on this Compliance History Disclosure Form shall match the permittee in the existing permit or new application. If the information in an existing permit needs to be changed, please contact the Program about revisions and ownership transfers.
4. Answer every question completely and truthfully, and do not leave any blank spaces. If there is nothing to disclose in answer to a particular question, check the box labeled “No” except for Question 5b. Failure to provide any of the information requested in this Compliance History Disclosure Form may constitute grounds for an incompleteness determination, application denial, or permit revocation.
5. Be especially careful not to leave out information in a way that might create an impression that you are trying to hide it. Omitting information, even unintentionally, may result in application denial or permit revocation.
6. For any required explanations, be sure to identify the question to which the explanation is responsive. If you submit any document in connection with your answer to any question, refer to it as, “Exhibit No. ___”, and attach it after the explanation(s) at the end of the Compliance History Disclosure Form, consecutively numbering each additional page at the top right corner.
7. The Program may require additional information to make a thorough review of an application. At all times before the Program has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Program. The applicant’s duty to supplement and correct the application includes, but is not limited to, relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Program’s review and decision. While the Program is processing an application, regardless of whether the Program has determined the application is administratively complete, if the Program determines that additional information is necessary to evaluate or make a final decision regarding the application, the Program may request additional information and the applicant shall provide the requested additional information.
8. Supplementary information required by the Program may include responses to public comment received by the Program during the application review process.
9. Any fees submitted for processing an application that has been denied will not be refunded. If the Program denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.


COMPLIANCE HISTORY		
A. Applicant/Permittee Name: Miles Shiver IV		<i>Check Applicable Box:</i> <input checked="" type="checkbox"/> Applicant <input checked="" type="checkbox"/> Permittee
B. Time Period of Compliance Reporting (10 Years): April 1, 2016 to March 31, 2026 <i>Instructions: For applicants, answer the following questions with information from within the 10 years preceding the current application. For existing permit holders requested to submit this form by the Program outside of an application, answer the following questions with information from within the 10 years preceding the Program's issuance of each permit.</i>		
C. Questions		
1	Knowingly misrepresented a material fact in an application for a permit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3	Been convicted in any court of any state or the United States of a felony related to environmental crime?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4	Been convicted in any court of any state or the United States of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5a	Constructed or operated any facility for which a permit was sought, including the current application, without the required air quality permit(s) under 20.11.41 NMAC, 20.11.42 NMAC, 20.11.60 NMAC, 20.11.61 NMAC, or 20.11.62 NMAC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5b	If "No" to question 5a, mark N/A and go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: i. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Program or the New Mexico Environment Department; or ii. The operator of the facility, using good engineering practices and established approved calculation methodologies, estimated that the facility's emissions would not require an air permit, and the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7	For each "yes" answer, or "no" to 5b, please attach an explanation and supporting documentation.	

I, the undersigned, hereby certify under penalty of law that this Compliance History Disclosure Form (Form) and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. I have knowledge of the information in this Form and it is, to the best of my knowledge and belief, true, accurate, and complete. I understand that there are significant penalties for submitting false information, including denial of the application or revocation of a permit, as well as fines and imprisonment for knowing violations. If I filed an application, I covenant and agree to promptly supplement and correct information in this Form until the Program makes a final decision regarding the application. Further, I certify that I am qualified and authorized to file this Form, to certify to the truth and accuracy of the information herein, and bind the permittee and source.

Signed on [\[Click to Insert Date\]](#) 4/15/2026

Miles Shiver IV

Print Name



Signature

CEO/Owner

Print Title

Shiver Redi-Mix, LLC dba Duke City Redi-Mix

Company Name