



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



DEC 27 2016

Jeff Hamilton
Minturn Huller Coop, Inc.
PO Box 760
Chowchilla, CA 93610-0545

Re: Notice of Preliminary Decision - Authorities to Construct
Facility Number: N-1319
Project Number: N-1162806

Dear Mr. Hamilton:

Enclosed for your review and comment is the District's analysis of Minturn Huller Coop, Inc.'s application for Authorities to Construct for the installation of an air curtain incinerator (N-1319-10-0) and the modification of the permitted annual throughputs of six almond processing lines (N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, and '-9-1) to offset the increases in PM10 emissions associated with the air curtain incinerator, at 9080 South Minturn Road, Chowchilla.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Brian Clerico of Permit Services at (559) 230-5892.

Sincerely,

bis
Arnaud Marjollet
Director of Permit Services

AM:bkc

Enclosures

cc: Tung Le, CARB (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Air Curtain Incinerator

Facility Name: Minturn Huller Coop, Inc.	Date: December 19, 2016
Mailing Address: 9080 S Minturn Rd Chowchilla, CA 93610	Engineer: Brian Clerico Lead Engineer: Joven Refuerzo
Contact Person: Roger Isom, Agent	
Telephone: (559) 455-9272	
E-Mail: roger@agprocessors.org	
Application #(s): N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0	
Project #: N-1162806	
Deemed Complete: October 9, 2016	

I. Proposal

Minturn Huller Coop, Inc. has requested Authority to Construct (ATC) permits for the installation of an air curtain incinerator (N-1319-10-0) and the modification of existing almond precleaning and hulling and shelling permits (N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1) to offset the PM10 emission increases associated with the air curtain incinerator. The following condition on all the ATC permits will ensure compliance with this offset requirement:

- Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]

The air curtain incinerator will be used to burn stockpiles of wood sticks removed from the almond unloading and precleaning process. Up to 50 ton/day and 10,000 ton/year of almond wood waste material will be burned. Historically, Minturn paid for the material to be chipped and hauled to a biomass power plant. However, with the shutdown of a number of biomass power plants in the San Joaquin Valley and legislative stipulations on the ratio of agricultural to forest derived biomass that can be burned on still operating biomass plants accepting subsidies, disposal of agricultural biomass at biomass power plants has been curtailed. Consequently, Minturn has built up a 10,000+ ton inventory of almond stick waste materials. Open burning is not an option because the sticks, having been removed from the field, are not considered agricultural waste under District Rule 4103, Open Burning. The feasibility and cost effectiveness of alternative disposal options such as sending the material to a landfill or composting facility are addressed in the Top-Down Best Available Technology Control Determination in Appendix G of this application review.

The current permits are included in Appendix A.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4103	Open Burning (4/15/2010)
Rule 4106	Prescribed Burning and Hazard Reduction Burning (6/21/2001)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4202	Particulate Matter Emission Rate (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/1992)
Rule 4302	Incinerator Burning (12/16/93)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)	
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines	

III. Project Location

The facility is located at 9080 South Minturn Road in Chowchilla. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Minturn Huller Cooperative operates an almond processing plant. As a byproduct of the almond receiving and precleaning and process, field debris consisting of wood sticks and dirt are removed from the almonds and collected into piles. Minturn has been accumulating an inventory of wood sticks as the closure of biomass power plants within the San Joaquin Valley has curtailed what was the primary and most cost effective option for the disposal of woody biomass for local agricultural sources and agricultural processors.

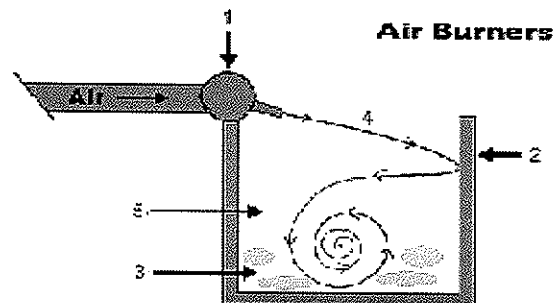
Minturn has proposed an air curtain incinerator as a means of disposing of their wood sticks. The air curtain incinerator is a 30 feet long by 8 feet wide by 8 feet high (usually portable) unit consisting of refractory-lined, opened-topped firebox and a fan. See pages 3 and 4 of this application review for a schematic of the air curtain incinerator and photographs of air curtain incinerators in the field. For portable units, the power source for the fan is a diesel engine (< 100 bhp). Wood material is loaded through the top opening of the firebox by heavy equipment such as a grapple loader or claw. Although the device is described as an incinerator and classified as such under New Source Performance Standards Subparts CCCC and EEEE, unlike conventional incinerators, there are no burners per se or use of supplementary fuels to support the combustion. Once ignited, the wood material sustains its own combustion. Ignition of the wood material can be performed with accelerants (e.g. 2 – 5 gallons of diesel or

kerosene fuel)¹ or with a propane torch, driptorch, or flare. Alternatively, a "hot start" may be performed using the bottom layer of hot embers from the previous day's burn. Once the fire is ignited, to avoid blowing out the fire, 15 – 20 minutes of burn time is required before the air curtain can be engaged. (The applicable New Source Performance Standard allows a 30 minute start-up period.)

The air curtain is produced by a 30 hp electric powered fan that produces up to 18,000 cfm of air, which is distributed across the top of the firebox by means of a manifold lining the top of one side. The high velocity air curtain is directed at a slight angle downward so that a rotational air current develops within the upper portion of the firebox. The air curtain promotes more complete combustion by: (1) oxygenating the fire, increasing its temperature (1,600 - 2,200 °F), which helps combust green wood, and (2) increasing the residence time of gases and particles within the firebox by impeding their upward flow out of the firebox. The result is a burn with visible emissions not exceeding 10% opacity. As the wood material in the firebox burns down, new material is periodically dropped by a loader through the top opening of the firebox. When new material is dropped into the firebox, the air curtain is briefly "broken" and a puff of smoke is emitted. According to a number of emissions tests performed, the exhaust flow exits the firebox along the side opposite the air curtain manifold.

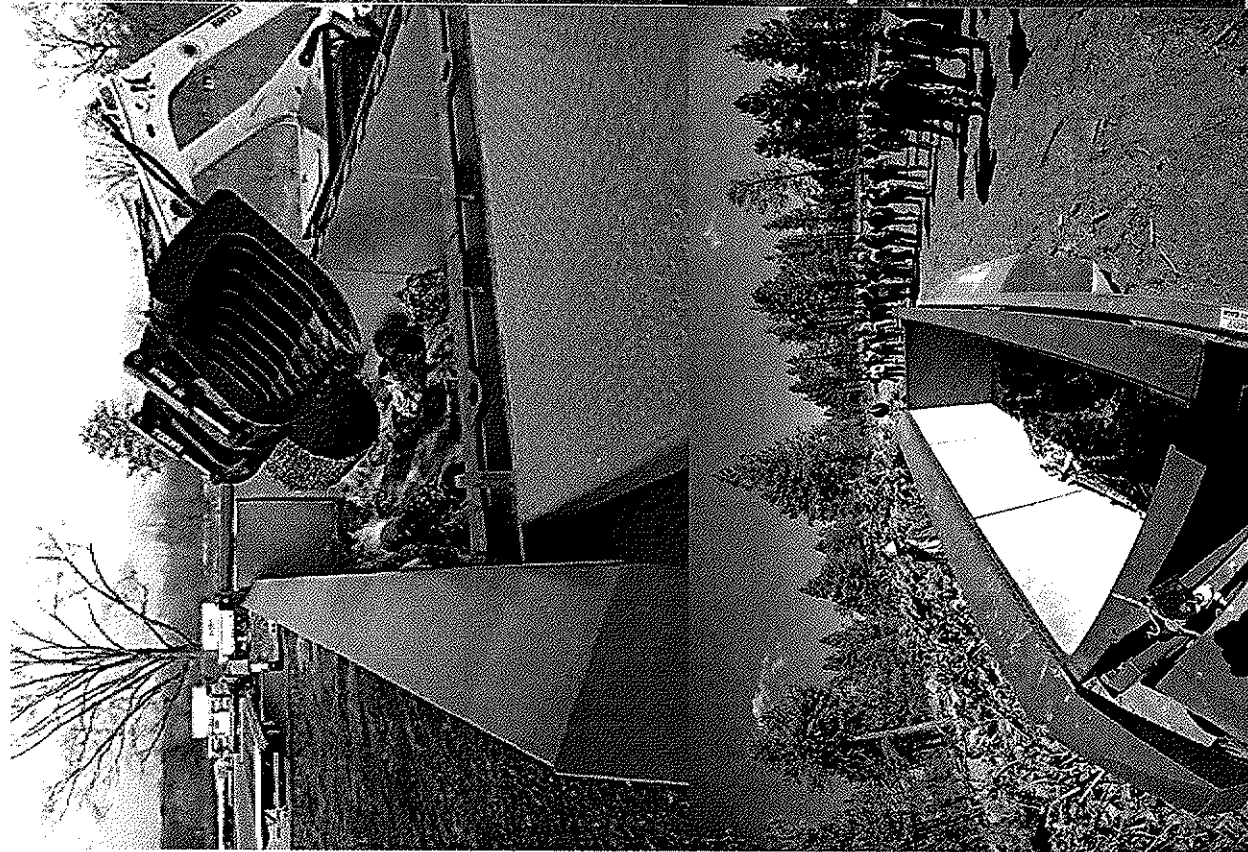
Minturn proposes to install an Air Burners Inc. Model S-220 unit. The maximum burn rate of the S-220 unit is approximately 6 tons of woody material per hour. At the conclusion of the burn, the ashes are removed with a large rake and transported to the east side of the facility and stockpiled with the "dirt" material that has been removed from the precleaning lines.

Schematic from Air Burner Inc.



1. Air-curtain burner manifold directs high-velocity airflow downward along refractory-lined walls.
2. Firebox contains the fire and ash.
3. Vegetation to be burned.
4. Airflow forms an air curtain over the burning vegetation.
5. Continuous airflow oxygenates the burning vegetation, allowing for higher burning temperatures and a more complete burn.

¹ Accelerants (e.g. gasoline, diesel fuel, kerosene, turpentine) will not be permitted in the present project.



Photographs of air curtain incinerators in operation.

V. Equipment Listing

Pre-Project Equipment Description

- N-1319-3-2: ALMOND PRECLEANING OPERATION SERVED BY A MAC EQUIPMENT 144MCF416 BAGHOUSE
- N-1319-4-2: ALMOND HULLING AND SHELLING OPERATION SERVED BY A MAC EQUIPMENT 144MCF756 BAGHOUSE
- N-1319-5-2: ALMOND PRECLEANING OPERATION SERVED BY AN LMC WEST MODEL 594-LP-12 BAGHOUSE
- N-1319-6-3: ALMOND HULLING AND SHELLING OPERATION SERVED BY TWO LMC WEST MODEL 450-LP-12 BAGHOUSES AND ONE LMC MODEL 312-LP-12 BAGHOUSE
- N-1319-8-0: ALMOND RECEIVING AND PRECLEANING OPERATION WITH RECEIVING PITS, SHAKERS, DESTONERS, PREHULLERS, ELEVATORS, AUGERS, ASPIRATORS, BINS, AND CONVEYORS SERVED BY TWO 62,500 CFM DONALDSON 528 LP 12 BAGHOUSES
- N-1319-9-0: ALMOND HULLING AND SHELLING OPERATION WITH FEEDERS, DECKS, CRACKERS, DESTONERS, SHEAR ROLLERS, ELEVATORS, HOPPERS, ASPIRATORS, AUGERS, AND CONVEYORS SERVED BY THREE 120,000 CFM DONALDSON 780 LP 12 BAGHOUSES

Proposed Modification

- N-1319-3-3: LOWER ANNUAL THROUGHPUT LIMIT FROM 172,800 TO 149,000 FIELD WEIGHT TONS
- N-1319-4-3: LOWER ANNUAL THROUGHPUT LIMIT FROM 43,200 TO 37,600 MEAT TONS
- N-1319-5-3: LOWER ANNUAL THROUGHPUT LIMIT FROM 172,800 TO 149,000 FIELD WEIGHT TON
- N-1319-6-4: CORRECT EMISSION FACTOR BASIS FROM FIELD WEIGHT TONS TO MEAT TONS AND LOWER ANNUAL THROUGHPUT FROM 43,200 TO 37,600 MEAT TONS
- N-1319-8-1: REVISE EMISSION FACTOR BASIS FROM BAGHOUSE AIR FLOW AND GRAIN LOADING TO THROUGHPUT AND AP-42 EMISSION FACTOR AND LIMIT ANNUAL THROUGHPUT TO 272,000 FIELD WEIGHT TONS

- N-1319-9-1: REVISE EMISSION FACTOR BASIS FROM BAGHOUSE AIR FLOW AND GRAIN LOADING TO THROUGHPUT AND AP-42 EMISSION FACTOR AND LIMIT ANNUAL THROUGHPUT TO 68,000 MEAT TONS
- N-1319-10-0: AIR BURNERS INC. MODEL S-220 AIR CURTAIN INCINERATOR WITH ELECTRIC POWERED FAN

Post-Project Equipment Description

- N-1319-3-3: ALMOND PRECLEANING OPERATION SERVED BY A MAC EQUIPMENT 144MCF416 BAGHOUSE
- N-1319-4-3: ALMOND HULLING AND SHELLING OPERATION SERVED BY A MAC EQUIPMENT 144MCF756 BAGHOUSE
- N-1319-5-3: ALMOND PRECLEANING OPERATION SERVED BY AN LMC WEST MODEL 594-LP-12 BAGHOUSE
- N-1319-6-4: ALMOND HULLING AND SHELLING OPERATION SERVED BY TWO LMC WEST MODEL 450-LP-12 BAGHOUSES AND ONE LMC MODEL 312-LP-12 BAGHOUSE
- N-1319-8-1: ALMOND RECEIVING AND PRECLEANING OPERATION WITH RECEIVING PITS, SHAKERS, DESTONERS, PREHULLERS, ELEVATORS, AUGERS, ASPIRATORS, BINS, AND CONVEYORS SERVED BY TWO 62,500 CFM DONALDSON 528 LP 12 BAGHOUSES
- N-1319-9-1: ALMOND HULLING AND SHELLING OPERATION WITH FEEDERS, DECKS, CRACKERS, DESTONERS, SHEAR ROLLERS, ELEVATORS, HOPPERS, ASPIRATORS, AUGERS, AND CONVEYORS SERVED BY THREE 120,000 CFM DONALDSON 780 LP 12 BAGHOUSES
- N-1319-10-0: AIR BURNERS INC. MODEL S-220 AIR CURTAIN INCINERATOR WITH ELECTRIC POWERED FAN

VI. Emission Control Technology Evaluation

PM10 is the only pollutant of concern emitted by the almond precleaning and hulling and shelling units. PM10 is controlled by baghouses from these units, which generally achieve 99% or greater control of collected PM10.

Combustion contaminants NO_x, SO_x, PM₁₀, CO, and VOC are emitted by the air curtain incinerator. The purpose of the air curtain is to promote more complete combustion compared to open burning, producing less PM₁₀, VOC and CO. There are also source test data that indicate the air curtain produces less NO_x than open burning. Typically, air curtain incinerators are portable units, and a diesel IC engine will provide the source of power for the fan and auxiliary power needs of the unit. However, Minturn has proposed an electrically powered unit, which eliminates diesel combustion contaminants from the process.

VII. General Calculations

A. Assumptions

The following abbreviations will be used in this application review:

FWT = field weight tons (for material processed by the precleaning units)

MT = meat tons (for material processed by the hulling and shelling units)

N-1319-3: Almond Precleaning

- The only pollutant emitted is PM₁₀.
- Pre-project maximum daily processing rate = 960 FWT (current PTO)
- Post-project maximum daily processing rate = 960 FWT (proposed)
- Pre-project maximum annual processing rate = 172,800 FWT (from PTO, 960 FWT × 180 days of operation)
- Post-project maximum annual processing rate = 149,000 FWT (proposed)

N-1319-4: Almond Hulling and Shelling

- The only pollutant emitted is PM₁₀.
- Pre-project maximum daily processing rate = 240 MT (current PTO)
- Post-project maximum daily processing rate = 240 MT (proposed)
- Pre-project maximum annual processing rate = 43,200 MT (from PTO, 240 MT × 180 days of operation)
- Post-project maximum annual processing rate = 37,550 MT (proposed)

N-1319-5: Almond Precleaning

- The only pollutant emitted is PM₁₀.
- Pre-project maximum daily processing rate = 960 FWT (current PTO)
- Post-project maximum daily processing rate = 960 FWT (proposed)
- Pre-project maximum annual processing rate = 172,800 FWT (from PTO, 960 FWT × 180 days of operation)
- Post-project maximum annual processing rate = 149,000 FWT (proposed)

N-1319-6: Almond Hulling and Shelling

The current PTO has a daily throughput limit of 960 field weight tons. However, hulling and shelling operations are measured in terms of meat tons, and the current emission factor on the permit is the appropriate emission factor for meat tons. According to the facility, 240 meat tons corresponds to 960 field weight tons, matching the MT to FWT ratio in permits N-1319-3 and -4. Therefore, the District will correct the permit and utilize a processing limit that reflects meat tons (MT) processed versus field weight tons (FWT) processed.

- The only pollutant emitted is PM10.
- Pre-project maximum daily processing rate = 240 MT (current PTO)
- Post-project maximum daily processing rate = 240 MT (proposed)
- Pre-project maximum annual processing rate = 43,200 MT (from PTO, 240 MT × 180 days of operation)
- Post-project maximum annual processing rate = 37,550 MT (proposed)

N-1319-8: Almond Precleaning

The potential to emit for this unit will be re-calculated on the basis of AP-42 emission factors and throughput, consistent with the other precleaning units at this facility. The current PTO bases the potential to emit on maximum air flow (scfm), the maximum grain loading of the baghouses (gr/dscf), and 24 hour per day and 4,500 hours per year of operation.

District Policy SSP 2015, Almond Hulling Permit Processing, notes that standard practice is to establish emissions on a basis of field weight tons processed per day, although using air flow is permitted. The potential to emit for Minturn's other two precleaning lines and two hulling and shelling lines have always been based on throughput and AP-42 emissions factors for almond processing. Moreover, Minturn records the throughput for all its lines for District's annual emission inventory survey. Therefore, for consistency among all the permits, the potential to emit for the newest precleaning (N-1319-8) and hulling and shelling (N-1319-9) lines should be established on the same basis: throughput and AP-42 emission factors.

Since the almond precleaning (N-1319-8) and hulling and shelling (N-1319-9) are permitted at continuous 24 hours/day air flow, this is equivalent to permitting the lines at the design capacity throughput on a daily basis. The equivalent throughput on an annual basis will take the design capacity daily throughput, divide by 24 hour/day to get an hourly throughput, then multiply the hourly throughput by 4,500 hours per year to establish the equivalent annual throughput.

- The only pollutant emitted is PM10.
- Pre-project maximum daily processing rate = 2,880 FWT according to Rule 4202 analysis in the application review for ATC project N-1131527)
- Post-project maximum daily processing rate = 2,880 FWT (proposed)
- Pre-project maximum annual processing rate = 2,880 FWT/day × 1 day/24 hours × 4,500 hours/year = 540,000 FWT/year)

- Post-project maximum annual processing rate = 272,000 FWT (proposed)

N-1319-9: Almond Hulling and Shelling

The potential to emit for this unit will be calculated on the basis of AP-42 emission factors and throughput, consistent with the other hulling and shelling units at this facility. See discussion above for N-1319-8.

- The only pollutant emitted is PM10.
- Pre-project maximum daily processing rate = 480 MT (based on 1,920 FWT from Rule 4202 analysis in the application review for ATC project N-1131527; $1,920 \text{ FWT} \times 1 \text{ MT}/4 \text{ FWT} = 480 \text{ MT}$)
- Post-project maximum daily processing rate = 480 MT (proposed)
- Pre-project maximum annual processing rate = $480 \text{ MT/day} \times 1 \text{ day}/24 \text{ hours} \times 4,500 \text{ hours/year} = 90,000 \text{ MT/year}$
- Post-project maximum annual processing rate = 68,000 MT (applicant)

N-1319-10: Air Curtain Incinerator

- The air contaminants emitted are combustion contaminants (NOx, SOx, PM10, CO, and VOC) from the burning of woody almond biomass and PM10 from the handling of wood ash after the burn is completed.
- Maximum burn rate by design capacity = 6 tons/hour (Air Burners Inc.)
- Proposed maximum daily burn rate = 50 tons/day (applicant)
- Proposed maximum annual burn rate = 10,000 tons/year (applicant)
- The mass reduction of the almond sticks from the burn is 97-98% (Air Burners Inc.). Thus, after the burn, 3% of the original mass of material remains as residual wood ash.
- Wood ash generated daily = 1.5 ton ($50 \text{ ton/day} \times 0.03 \text{ lb-wood ash/lb-wood burned}$)
- Wood ash generated annually = 300 ton ($10,000 \text{ ton/yr} \times 0.03 \text{ lb-wood ash/lb-wood burned}$)

B. Emission Factors

Almond Processing

Abbreviations: FWT = field weight tons; MT = meat tons

Emission Factors for Unloading and Precleaning (units N-1319-3, '-5, and '-8)			
Operation	Emission Factor (lb- PM10/FWT)	Control	Source
Unloading	0.0005	baghouse	Current PTOs, AP-42, Table 9.10.2.1-1 Application Review for ATC project N-980142 (see Appendix B)
Precleaning	0.015	baghouse	
Combined	0.0155	baghouse(s)	

Emission Factor for Hulling and Shelling (units N-1319-4, '-6, and '-9)			
Operation	Emission Factor (lb-PM10/MT)	Control	Source
Unloading	0.065	baghouse	Current PTOs, AP-42, Table 9.10.2.1-1 Application Review for ATC project N-980142 (see Appendix B)

Air Curtain Incinerator

The District received a draft copy of EPA's Managing Debris after a Natural Disaster: Evaluation of the Combustion of Storm-Generated Vegetative and C&D Debris in an Air Curtain Burner: Source Emissions Measurement Results (November 17, 2016). The study measured emissions and estimated emission factors for an air curtain incinerator burning vegetative and construction and demolition debris in 2008 as part of the cleanup from Hurricane Katrina (2005). However, the District questions the validity of EPA's analysis of the Katrina testing for use in this permitting action, given the resulting PM emissions factor from the air curtain incinerator (7.7 lb-PM10/ton) is actually higher than generally accepted emissions factors for open burning of the almond wood (6 lb-PM/ton, AP-42, Table 2.5-5; and 7.0 lb-PM10/ton, ARB Memo, Agricultural Burning Emission Factors, August 17, 2000) that will be burned in the Minturn incinerator. See Appendix C for the District's discussion of the draft EPA emission factors.

A number of emission tests have been conducted on air curtain incinerators. A table of the emission factors derived from those tests is provided in Appendix D along with the emission factors for open burning of almond agricultural biomass and biomass power plants for comparison.

In selecting the most representative emission factors, the District was guided by the following considerations:

- (1) A limited number of emissions tests have been published to date;
- (2) The source test results published show a wide variance;
- (3) Air curtain incineration may be regarded as a controlled form of open burning;
- (4) The PM10, CO, and VOC emission factors for open burning show a high degree of dependence on the material burned;
- (5) The ARB open burn emission factors for almond wood provide an upper bound for PM10, CO, and VOC because the visual evidence alone indicates the air curtain incinerator is performing significantly better at reducing PM10 (and, by extension, other products of incomplete combustion such as CO and VOC) than open burning of the same material;
- (6) The emission factors for biomass power plants provide a lower bound for PM10 because the biomass powers plants are controlled by a baghouse;
- (7) SOx emissions are entirely material dependent; thus, the open burn factors for almond agricultural biomass are likely most representative for this project;

- (8) The two published NO_x emission factors from air curtain emission tests appear to be significantly lower than other sources of biomass combustion. Therefore, the District estimated a conservative NO_x emission factor that (1) takes account of the published emissions test results, and (2) modifies those results using higher recorded NO_x concentration data published by EPA in 2007 from Hurricane Katrina. Please note, the 2007 EPA emissions study is distinct from the draft 2008 EPA emission study.

The District is thus using the most conservative set of emission factors among the air curtain source tests published to date.

Emission Factors for Air Curtain Incinerator		
Pollutant	Emission Factor (lb/ton)	Source (See Appendix D)
NO _x	1.0	SJV Estimation from US EPA Katrina Air Curtain Emissions Study
SO _x	0.1	ARB Open Burn for Almond Tree Wood
PM ₁₀	1.1 ²	USDA, Baker, Oregon Air Curtain Test
CO	2.6	
VOC	1.1	

Emission Factor for Wood Ash Handling		
Pollutant	Emission Factor (lb/ton)	Source (See Appendix E)
PM ₁₀	0.23 ³	Fugitive particulate emission factors for dry fly ash disposal, Journal of the Air & Waste Management Association, 63(&): 806-818, 2013

C. Calculations

The following abbreviations will be used in the potential to emit calculations:

FWT = field weight tons (for material processed by the precleaning units)

MT = meat tons (for material processed by the hulling and shelling units)

² The Baker, Oregon source test measured PM_{2.5} of 1.1 lb/ton. This was converted into a PM₁₀ emission factor by using the ratio of PM₁₀ to PM_{2.5} from ARB open burn emission factors for almond agricultural residues. For almond agricultural residues, the ratio of PM₁₀ to PM_{2.5} is 7.0 lb-PM₁₀/ton to 6.7 lb-PM_{2.5}/ton. 1.1 lb-PM_{2.5}/ton × (7.0 lb-PM₁₀/ton ÷ 6.7 lb-PM_{2.5}/ton) = 1.149, which, to two significant figures, is 1.1 lb-PM₁₀/ton.

³ The wood ash handling emission factor is for the combined activities of unloading from a dump truck and spreading coal fly ash at a landfill. The emission factor was reported as 18 g/Mg for PM_{2.5} and 96 g/Mg for PM₁₀ – PM_{2.5}. Thus, the total PM₁₀ emission factor is 18 g/Mg + 96 g/Mg = 114 g/Mg. 114 g/Mg = 114 lb/10⁶ lb × 2,000 lb/1 ton = 0.228 lb-PM₁₀/ton or 0.23 lb-PM₁₀/ton.

1. Pre-Project Potential to Emit (PE1)

Almond Processing

All the emissions from the almond processing units are PM10.

Daily PE1 = Throughput (FWT/day or MT/day) × Emission Factor (lb-PM10/FWT or lb-PM10/MT)

Daily PE1				
Permit #	Operation	Throughput (tons/day)	Emission Factor (lb-PM10/FWT) or (lb-PM10/MT)	Daily PE1 (lb-PM10/day)
N-1319-3-2	Almond Precleaning	960	0.0155	14.9
N-1319-4-2	Almond Hulling & Shelling	240	0.065	15.6
N-1319-5-2	Almond Precleaning	960	0.0155	14.9
N-1319-6-3	Almond Hulling & Shelling	240	0.065	15.6
N-1319-8-0	Almond Precleaning	2,880	0.0155	44.6
N-1319-9-0	Almond Hulling & Shelling	480	0.065	31.2

Annual PE1 = Throughput (FWT/year or MT/year) × Emission Factor (lb-PM10/FWT or lb-PM10/MT)

Annual PE1				
Permit #	Operation	Throughput (tons/year)	Emission Factor (lb-PM10/FWT) or (lb-PM10/MT)	Annual PE1 (lb-PM10/year)
N-1319-3-2	Almond Precleaning	172,800	0.0155	2,678
N-1319-4-2	Almond Hulling & Shelling	43,200	0.065	2,808
N-1319-5-2	Almond Precleaning	172,800	0.0155	2,678
N-1319-6-3	Almond Hulling & Shelling	43,200	0.065	2,808
N-1319-8-0	Almond Precleaning	540,000	0.0155	8,370
N-1319-9-0	Almond Hulling & Shelling	90,000	0.065	5,850

2. Post Project Potential to Emit (PE2)

Almond Processing

With no change to the maximum daily throughput, the daily PE2 = daily PE1.

Annual PE2 = Throughput (FWT/year or MT/year) × Emission Factor (lb-PM10/FWT or lb-PM10/MT)

Annual PE2				
Permit #	Operation	Throughput (tons/year)	Emission Factor (lb-PM10/FWT) or (lb-PM10/MT)	Annual PE2 (lb-PM10/year)
N-1319-3-3	Almond Precleaning	149,000	0.0155	2,310
N-1319-4-3	Almond Hulling & Shelling	37,600	0.065	2,444
N-1319-5-3	Almond Precleaning	149,000	0.0155	2,310
N-1319-6-4	Almond Hulling & Shelling	37,600	0.065	2,444
N-1319-8-1	Almond Precleaning	270,000	0.0155	4,185
N-1319-9-1	Almond Hulling & Shelling	68,000	0.065	4,420

N-1319-10-0: Air Curtain Incinerator Combustion

The air curtain incinerator is a source of combustion contaminants from the burning of almond derived biomass.

Daily PE2 = Throughput (ton/day) × Emission Factor (lb-pollutant/ton)

Daily PE2 for Air Curtain Incinerator					
Pollutant	Throughput (tons/day)		Emission Factor (lb/ton)		PE2 (lb/day)
NO _x	50	×	1.0	=	50.0
SO _x		×	0.1	=	5.0
PM10		×	1.1	=	55.0
CO		×	2.6	=	130.0
VOC		×	1.1	=	55.0

Annual PE2 = Throughput (ton/year) × Emission Factor (lb-pollutant/ton)

Annual PE2 for Air Curtain Incinerator					
Pollutant	Throughput (tons/year)		Emission Factor (lb/ton)		PE2 (lb/year)
NO _x	10,000	×	1.0	=	10,000
SO _x		×	0.1	=	1,000
PM10		×	1.1	=	11,000
CO		×	2.6	=	26,000
VOC		×	1.1	=	11,000

N-1319-10-0: Ash Handling

The ash will be removed at the site of the incinerator and transported and stored with the dirt removed from the almond precleaning operations on the east side of the facility. According to Air Burners Inc., 2 – 3% of the original mass of the material remains as wood ash.

Daily PE2 = Ash Throughput (ton/day) × Emission Factor (lb-PM10/ton)

$$= 1.5 \text{ ton/day} \times 0.23 \text{ lb-PM10/ton}$$

$$= 0.3 \text{ lb-PM10/day}$$

Annual PE2 = Ash Throughput (ton/year) × Emission Factor (lb-PM10/ton)

$$= 300 \text{ ton/year} \times 0.23 \text{ lb-PM10/ton}$$

$$= 69 \text{ lb-PM10/year}$$

Total PM10 Emissions for N-1319-10-0		
Emissions Source	Daily PE (lb-PM10/day)	Annual PE (lb-PM10/year)
Air Curtain Combustion	55.0	11,000
Ash Handling	0.3	69
Total	55.3	11,069

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

Unit N-1319-7-0 is a fumigation operation with phosphine and ammonia as the only pollutants of concern. The annual PE1 for the almond processing units were calculated in Section VII.C.1 of this application review.

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM10	CO	VOC
N-1319-3-2	0	0	2,678	0	0
N-1319-4-2	0	0	2,808	0	0
N-1319-5-2	0	0	2,678	0	0
N-1319-6-3	0	0	2,808	0	0
N-1319-7-0	0	0	0	0	0
N-1319-8-0	0	0	8,370	0	0
N-1319-9-0	0	0	5,850	0	0
SSPE1	0	0	25,192	0	0

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

Unit N-1319-7-0 is a fumigation operation with phosphine and ammonia as the only pollutants of concern. The annual PE2 for the almond processing units and air curtain incinerator were calculated in Section VII.C.2 of this application review.

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM10	CO	VOC
N-1319-3-3	0	0	2,310	0	0
N-1319-4-3	0	0	2,444	0	0
N-1319-5-3	0	0	2,310	0	0
N-1319-6-4	0	0	2,444	0	0
N-1319-7-0	0	0	0	0	0
N-1319-8-1	0	0	4,185	0	0
N-1319-9-1	0	0	4,420	0	0
N-1319-10-0	10,000	1,000	11,069	26,000	11,000
SSPE2	10,000	1,000	29,182	26,000	11,000

5. Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO_x	SO_x	PM10	PM2.5	CO	VOC
SSPE1	0	0	25,192	25,192	0	0
SSPE2	10,000	1,000	29,182	29,182	26,000	11,000
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	No

Note: PM2.5 is assumed to be equal to PM10

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM10
Estimated Facility PE before Project Increase	0	0	0	0	13	13
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise, BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

This facility is not a Major Source for any pollutant therefore, BE = PE1.

Permit Unit	BE (lb/year)				
	NO _x	SO _x	PM10	CO	VOC
N-1319-3-2	0	0	2,678	0	0
N-1319-4-2	0	0	2,808	0	0
N-1319-5-2	0	0	2,678	0	0
N-1319-6-3	0	0	2,808	0	0
N-1319-8-0	0	0	8,370	0	0
N-1319-9-0	0	0	5,850	0	0
N-1319-10-0	0	0	0	0	0

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (200,000 lb/year).

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Total PE from New and Modified Units	5	6	0	13	15	15
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable, and no further analysis is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix F.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- Any new emissions unit with a potential to emit exceeding two pounds per day,
- The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or

- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

The air curtain incinerator and the related wood ash handling are the only new emission units in this project. As indicated in Section VII.C.2 of this application review, the air curtain incinerator has a PE for combustion contaminants greater than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC. Therefore, BACT is triggered for these pollutants. Although the PE for CO is greater than 2.0 lb/day, the SSPE2 for CO is less than 200,000 ton/year; therefore, BACT is not triggered for CO emissions.

The PE of the wood ash handling is not greater than 2.0 lb-PM₁₀/day; therefore, BACT is not triggered for wood ash handling.

b. Relocation of emissions units – PE > 2 lb/day

This project does not involve emissions units being relocated from one stationary source to another; therefore, BACT is not triggered for the relocation of an emission unit.

c. Modification of emissions units – AIPE > 2 lb/day

The almond precleaning and hulling and shelling operations are modified emissions units.

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

PE2 = Post-Project Potential to Emit, (lb/day)

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day).

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1.

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation.

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

Adjusted Increase in Permitted Emissions (AIPE)					
Permit Unit	PE2 (lb-PM10/day)	PE1 (lb-PM10/day)	EF2/EF1	AIPE (lb-PM10/day)	BACT Triggered?
N-1319-3-3	14.9	14.9	1	0.0	No
N-1319-4-3	15.6	15.6	1	0.0	No
N-1319-5-3	14.9	14.9	1	0.0	No
N-1319-6-4	15.6	15.6	1	0.0	No
N-1319-8-1	44.6	44.6	1	0.0	No
N-1319-9-1	31.2	31.2	1	0.0	No

As the table above indicates, BACT is not triggered for any pollutant for the almond precleaning and hulling and shelling operations.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification. Therefore, BACT is not triggered for SB 288 or Federal Major Modification purposes.

2. BACT Guideline

BACT is triggered for NO_x, SO_x, PM₁₀, and VOC emissions from the air curtain incinerator. The District does not have an existing BACT Guideline for Air Curtain Incinerators. Therefore, a new top-down BACT analysis will be performed for this project in Appendix G.

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements.

Pursuant to the attached Top-Down BACT Analysis (see Appendix G), BACT has been satisfied with the following:

NO_x, SO_x, PM₁₀, and VOC: air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start-up (using NSPS Subpart CCCC procedure and averaging period).

Note that pollutant emission limits are not specified because emissions are known to vary by type of biomass material burned, and this guideline is not specific to any type of biomass.

B. Offsets

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO _x	SO _x	PM10	CO	VOC
SSPE2	10,000	1,000	29,182	26,000	11,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

2. Quantity of Offsets Required

As seen above, the SSPE2 is not greater than the offset thresholds for any pollutant; therefore, offset calculations are not necessary and offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- Any project which results in the offset thresholds being surpassed, and/or
- Any project with an SSPE2 of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in VII.C.7 and VII.C.8, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	0	10,000	20,000 lb/year	No
SO _x	0	1,000	54,750 lb/year	No
PM ₁₀	25,192	29,182	29,200 lb/year	No
CO	0	26,000	200,000 lb/year	No
VOC	0	11,000	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	10,000	0	10,000	20,000 lb/year	No
SO _x	1,000	0	1,000	20,000 lb/year	No
PM ₁₀	29,182	25,192	4,007	20,000 lb/year	No
CO	26,000	0	26,000	20,000 lb/year	Yes
VOC	11,000	0	11,000	20,000 lb/year	No

As demonstrated above, the SSIPE CO is greater than 20,000 lb/year; therefore, public noticing is required.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 100 lb/day and 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions

On PTOs N-1319-3-2, '-4-2, '-5-2, and '-6-3, the annual throughput limit is expressed as a daily throughput limit multiplied by a maximum of 180 days of operation per year. In the ATCs for this project, the annual throughput will be stated explicitly and the number of days of allowed operation will be removed.

The following condition requiring concurrent implementation will be included on all the Authority to Construct permits to ensure annual decreases in PM10 emissions from units N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1 offset the increase in annual PM10 emissions from the air curtain incinerator:

- Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]

ATC N-1319-3-3: Precleaning

- The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
- The quantity of almonds processed through the precleaning operation shall not exceed 149,000 field weight tons in any year. [District Rule 2201]
- PM10 emission concentration from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
- PM10 emission concentration from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]

- ~~• The precleaning operation shall not operate more than 180 days per year. [District Rule 2201]~~

ATC N-1319-4-3: Hulling and Shelling

- The quantity of almonds processed through the hulling/shelling operation shall not exceed 240 meat tons in any one day. [District Rule 2201] N
- The quantity of almonds processed through the hulling/shelling operation shall not exceed 37,600 meat tons in any year. [District Rule 2201] N
- The PM10 emissions from the hulling/shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
- ~~• The hulling/shelling operation shall not operate more than 180 days per year. [District Rule 2201]~~

ATC N-1319-5-3: Precleaning

- The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
- The quantity of almonds processed through the precleaning operation shall not exceed 149,000 field weight tons in any year. [District Rule 2201]
- PM10 emission concentration from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
- PM10 emission concentration from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
- ~~• The precleaning operation shall not operate more than 180 days per year. [District Rule 2201]~~

ATC N-1319-6-4: Hulling and Shelling

- The quantity of almonds processed through the hulling/shelling operation shall not exceed 240 meat tons in any one day. [District Rule 2201]
- The quantity of almonds processed through the hulling/shelling operation shall not exceed 37,600 meat tons in any year. [District Rule 2201]
- The PM10 emissions from the hulling/shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]

- ~~The hulling/shelling operation shall not operate more than 180 days per year. [District Rule 2201]~~

ATC N-1319-8-1: Precleaning

- The quantity of almonds processed through the precleaning operation shall not exceed 2,880 field weight tons in any one day. [District Rule 2201]
- The quantity of almonds processed through the precleaning operation shall not exceed 270,000 field weight tons in any year. [District Rule 2201]
- PM10 emission concentration from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
- PM10 emission concentration from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
- ~~Operation of this equipment shall not exceed 4,500 hours per year. [District Rule 2201]~~

ATC N-1319-9-1: Hulling and Shelling

- The quantity of almonds processed through the hulling/shelling operation shall not exceed 480 meat tons in any one day. [District Rule 2201]
- The quantity of almonds processed through the hulling/shelling operation shall not exceed 68,000 meat tons in any year. [District Rule 2201]
- The PM10 emissions from the hulling/shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
- ~~Operation of this equipment shall not exceed 4,500 hours per year. [District Rule 2201]~~

ATC N-1319-10-0: Air Curtain Incinerator

- The air curtain incinerator shall be operated according to manufacturer's specifications and in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
- The air curtain incinerator shall burn only almond wood waste material that has been generated onsite as a byproduct of almond processing. [District Rule 2201]
- The air curtain incinerator shall burn no more than 50 tons of almond wood waste material in any one day. [District Rules 2201 and 4102]
- The air curtain incinerator shall burn no more than 10,000 tons of almond wood waste material in any year. [District Rules 2201 and 4102]

- For conducting a cold start, the operator shall use a propane or butane torch, driptorch, or flare to ignite the material inside the air curtain incinerator. No accelerants (e.g. gasoline, diesel fuel, kerosene, turpentine) may be used. [District Rules 2201 and 4102]
- Emissions (in units of pounds per ton of almond wood waste material) from the air curtain incinerator shall not exceed any of the following limits: 1.0 lb-NO_x/ton, 0.1 lb-SO_x/ton, 1.1 lb-PM₁₀/ton, 2.6 lb-CO/ton, or 1.1 lb-VOC/ton. [District Rule 2201]
- During the startup period that is within the first 30 minutes of operation, visible emissions from the air curtain incinerator shall not exceed 35 percent opacity as determined by the average of three, 30 minute blocks consisting of five 6-minute average opacity values. [District Rule 2201]
- After the startup period, visible emissions from the air curtain incinerator shall not exceed 10 percent opacity as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values. [District Rule 2201]
- Emissions from wood ash handling and storage shall not exceed 0.46 lb-PM₁₀/ton.⁴ [District Rule 2201]
- The amount of wood ash handled shall not exceed 1.5 ton in any one day.⁵ [District Rules 2201 and 4102]
- The amount of wood ash handled shall not exceed 300 tons in any year. [District Rules 2201 and 4102]
- Wood ash removed from the firebox shall be handled, stored, and disposed of in a manner minimizing entrainment into the atmosphere. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

ATCs N-1319-3-3, '4-3, '5-3, '6-4, '8-1, and '9-1: Almond Precleaning and Hulling and Shelling

Per the District Policy SSP-2105, Almond Hulling Permit Processing (8/22/02):

⁴ There are two material handling steps for the wood ash: (1) removal from the firebox, and (2) stockpiling on the material for onsite storage. Therefore, the base emission factor, which covers dumping and spreading, will be multiplied by two.

⁵ The amount of ash residue is assumed to be 3% of the total mass of wood introduced into the firebox. See Section VII.A of this application review for unit N-1319-10-0. The throughput limit for wood ash is linked to the overall process rate limits of 50 ton/day and 10,000 ton/year. To require weighing of the wood ash handled each day would be to introduce additional handling of this material, thereby additional opportunities for entrainment into the atmosphere.

"Any modification to an existing permit unit that does not result in an increase in permitted emissions for that unit shall not be required to perform source testing."

This project does not result in an increase in permitted emissions in the precleaning or hulling and shelling units. Therefore, source testing will not be required for the almond precleaning or hulling and shelling units in this project.

ATC N-1319-10-0: Air Curtain Incinerator

The air curtain incinerator is an unconventional and complex emissions source to test. A discussion of the challenges of conducting emissions testing of an air curtain incinerator can be found in the source test report from Fountainhead Engineering (2000).⁶ No source testing conducted by an individual facility has been undertaken without substantial involvement by a government entity and/or the manufacturer. Since District Policy APR 1705, Source Test Frequency, makes an allowance for source test feasibility when considering whether or not to require source testing, and since the District selected representative yet conservative emission factors, no source testing will be required on the air curtain incinerator ATC.

2. Monitoring

ATCs N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, and '-9-1: Almond Precleaning and Hulling and Shelling

The precleaning and hulling and shelling ATCs will carry over the existing standard monitoring conditions for baghouses per District policy. No change is proposed for these conditions.

ATC N-1319-10-0: Air Curtain Incinerator

Opacity monitoring will be required of the air curtain incinerator. The specific opacity requirements are discussed under Rule 4001, New Source Performance Standards, Subpart CCCC.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201.

The following throughput recordkeeping conditions have been modified to include the cumulative annual throughput for purposes of demonstrating compliance with the annual permitted PM10 emission limits:

⁶ http://www.airburners.com/DATA-FILES_Tech/AirBurners-Emissionstest_Allpr.pdf

ATC N-1319-3-3:

- The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this precleaning operation. [District Rule 2201]

ATC N-1319-4-3:

- The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]

ATC N-1319-5-3:

- The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this receiving and precleaning operation. [District Rule 2201]

ATC N-1319-6-4:

- The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]

ATC N-1319-8-1:

- The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this receiving and precleaning operation. [District Rule 2201]

ATC N-1319-9-1:

- The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]

ATC N-1319-10-0:

- The permittee shall maintain daily and cumulative annual records of the tons of wood material burned in the air curtain incinerator. [District Rule 2201]

No records of the tons of wood ash handled will be required. To require daily weighing of the ash would be to introduce additional ash handling, increasing the probability of entrainment of the ash into the atmosphere, i.e. PM10 emissions (see footnote 5 under the DEL section). Therefore, the assumption will be made that the ash will comprise no more than 3% by weight of the material introduced into the air curtain firebox.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201 for the precleaning or the hulling and shelling operations.

The air curtain incinerator is required to file annual reports to fulfill the requirements of NSPS Subpart CCCC. See discussion for Rule 4001 below.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix H of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

In addition to the air curtain incinerator mass emission rates and throughput limits indicated in the DEL section above, the following conditions are required for the air curtain ATC N-1319-10-0 to ensure compliance with the assumptions used in the AAQA:

- The air curtain incinerator shall be located at the following coordinates: UTM - 10S, 742534 E, 4115656 N. [District Rule 2201]
- Active burning inside the air curtain shall only be conducted from 7:00 am to 5:00 pm from September 22 through June 20. [District Rule 2201]
- Active burning inside the air curtain shall only be conducted from 7:00 am to 7:00 pm from June 21 through September 21. [District Rule 2201]
- The permittee shall maintain operational control (e.g. through a lease agreement) or restrict public access to the adjacent parcel of land east of the facility boundary. [District Rule 2201]
- Wood ash removed from the firebox shall be handled, stored, and disposed of in a manner minimizing entrainment into the atmosphere. [District Rule 2201]

According to Air Burners Inc., the design capacity of the firebox is 6 ton/hour; therefore, compliance with the 6 ton/hour burn rate assumption is expected without further stipulation by permit condition.

Rule 2410 Prevention of Significant Deterioration

The prevention of significant deterioration (PSD) program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant.

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

Per Section 4.1, the air curtain incinerator is exempt from the requirements of this rule as it is classified as a solid waste incineration unit that is required to obtain a Part 70 permit pursuant to section 129(e) of the Clean Air Act.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

Subpart CCCC—Standards of Performance for Commercial and Industrial Solid Waste Incineration Units

The District is not delegated Subpart CCCC; therefore, references to this subpart will not be included on the ATC for the air curtain incinerator until the operator is issued a Title V permit. However, the substance of the requirements of this subpart will be included on the ATC because they have been determined to be part of the BACT requirements for this unit, as required by District Rule 2201.⁷

§60.2000 What does this subpart do?

This subpart establishes new source performance standards for commercial and industrial solid waste incineration (CISWI) units.

The air curtain incinerator in this project is used for disposal of a byproduct of an industrial/commercial process and is thus considered a CISWI unit; therefore, this subpart (and not Subpart EEEE, Standards of Performance for Other Solid Waste Incineration Units⁸), is applicable.

⁷ Per District Rule 2201, Section 3.10, BACT is the most stringent emission limitation or control technique of the following: (3.10.3) Contained in an applicable federal New Source Performance Standard.

⁸ Subpart EEEE applies to units used for wildfire hazard reduction.

§60.2005 When does this subpart become effective?

This subpart takes effect on August 7, 2013. Some of the requirements in this subpart apply to planning the CISWI unit (i.e., the preconstruction requirements in §60.2045 and 60.2050). Other requirements such as the emission limitations and operating limits apply after the CISWI unit begins operation.

APPLICABILITY

§60.2010 Does this subpart apply to my incineration unit?

Yes, if your incineration unit meets all the requirements specified in paragraphs (a) through (c) of this section.

(a) Your incineration unit is a new incineration unit as defined in §60.2015.

(b) Your incineration unit is a CISWI unit as defined in §60.2265.

(c) Your incineration unit is not exempt under §60.2020.

The sections that apply to an air curtain incinerator are indicated under §60.2020.

§60.2020 What combustion units are exempt from this subpart?

This subpart exempts the types of units described in paragraphs (a), (c) through (i) and (n) of this section, but some units are required to provide notifications. Air curtain incinerators are exempt from the requirements in this subpart except for the provisions in §60.2242, 60.2250, and 60.2260.

(i) Air curtain incinerators. Air curtain incinerators that burn only the materials listed in paragraphs (i)(1) through (3) of this section are only required to meet the requirements under "Air Curtain Incinerators" (§60.2245 through 60.2260).

(1) 100 percent wood waste.

(2) 100 percent clean lumber.

(3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste.

The air curtain incinerator in this project will burn only wood waste; therefore, only sections §60.2245 through 60.2260 apply.

TITLE V APPLICABILITY

§60.2242 Am I required to apply for and obtain a Title V operating permit for my unit?

Yes. Each CISWI unit and air curtain incinerator subject to standards under this subpart must operate pursuant to a permit issued under Section 129(e) and Title V of the Clean Air Act.

The following condition will be included on the ATC for the air curtain incinerator:

- Within 12 months of initial operation of this air curtain incinerator, the operator shall submit a complete application for a Title V operating permit to the District for compliance with New Source Performance Standard Subpart CCCC - Standards of Performance for Commercial and Industrial Solid Waste Incineration Units. [40 CFR 60.2242]

Air Curtain Incinerators

§60.2245 What is an air curtain incinerator?

(a) An air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or open pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor. (Air curtain incinerators are not to be confused with conventional combustion devices with enclosed fireboxes and controlled air technology such as mass burn, modular, and fluidized bed combustors.)

(b) Air curtain incinerators that burn only the materials listed in paragraphs (b)(1) through (3) of this section are only required to meet the requirements under "Air Curtain Incinerators" (§§60.2245 through 60.2260).

- (1) 100 percent wood waste.
- (2) 100 percent clean lumber.
- (3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste.

The following condition is being applied as a BACT requirement and will be included on the ATC:

- The air curtain incinerator shall burn only wood waste that has been generated onsite as a byproduct of almond processing. [District Rule 2201]

§60.2250 What are the emission limitations for air curtain incinerators?

Within 60 days after your air curtain incinerator reaches the charge rate at which it will operate, but no later than 180 days after its initial startup, you must meet the two limitations specified in paragraphs (a) and (b) of this section.

(a) Maintain opacity to less than or equal to 10 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values), except as described in paragraph (b) of this section.

(b) Maintain opacity to less than or equal to 35 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) during the startup period that is within the first 30 minutes of operation.

The following conditions are being applied as a BACT requirement and will be included on the ATC:

- During the startup period that is within the first 30 minutes of operation, visible emissions from the air curtain incinerator shall not exceed 35 percent opacity as determined by the average of three, 30 minute blocks consisting of five 6-minute average opacity values.⁹ [District Rule 2201]
- After the startup period, visible emissions from the air curtain incinerator shall not exceed 10 percent opacity as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values. [District Rule 2201]

§60.2255 How must I monitor opacity for air curtain incinerators?

- (a) Use Method 9 of appendix A of this part to determine compliance with the opacity limitation.

The following conditions have a basis from District Rule 4101 and will be included on the ATC:

- Compliance with the opacity limits on this permit shall be determined by EPA Method 9. [District Rule 4101]
- Observers for the opacity compliance demonstration shall be certified according to the procedure in EPA Method 9. [District Rule 4101]

- (b) Conduct an initial test for opacity as specified in §60.8.

The following conditions will ensure compliance with the opacity testing frequency requirements and will be included on the ATC:

- Within 60 days of the air curtain incinerator reaching a material burn rate representative of normal operation, and no later than 180 days after commencing operation, the operator shall conduct an initial test for opacity. [District Rule 1081]
- (c) After the initial test for opacity, conduct annual tests no more than 12 calendar months following the date of your previous test.
- The operator shall conduct periodic testing for opacity at least once every 12 calendar months. [District Rule 1081]

⁹ Since the language in the regulation is literally impossible to fulfill – one cannot have a 1-hour block of readings for a process that is required in the regulation to be completed in 30 minutes – the language used in the condition was suggested by EPA Region 9 staff (Thien Khoi Nguyen).

§60.2260 What are the recordkeeping and reporting requirements for air curtain incinerators?

(a) Prior to commencing construction on your air curtain incinerator, submit the three items described in paragraphs (a)(1) through (3) of this section.

(1) Notification of your intent to construct the air curtain incinerators.

(2) Your planned initial startup date.

(3) Types of materials you plan to burn in your air curtain incinerator.

Minturn's ATC application satisfies the requirements of sections (a)(1) – (3).

(b) Keep records of results of all initial and annual opacity tests onsite in either paper copy or electronic format, unless the Administrator approves another format, for at least 5 years.

(c) Make all records available for submittal to the Administrator or for an inspector's onsite review.

(d) You must submit the results (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) of the initial opacity tests no later than 60 days following the initial test. Submit annual opacity test results within 12 months following the previous report.

(e) Submit initial and annual opacity test reports as electronic or paper copy on or before the applicable submittal date.

(f) Keep a copy of the initial and annual reports onsite for a period of 5 years.

The following recordkeeping and report submittal requirements will be included on the ATC:

- The permittee shall submit to the District the opacity test results report in paper or electronic format within 60 days of completion of the field test. [District Rule 1081]
- The operator shall keep records of all initial and annual opacity test results and reports onsite in either paper copy or electronic format for at least 5 years. [District Rule 1070]
- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to almond processing operations or to the air curtain incinerator.

Rule 4101 Visible Emissions

This rule requires that no air contaminant be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity.

N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, and '-9-1

The baghouses serving the almond precleaning and hulling and shelling operations will continue to have the standard condition for baghouse exhaust per District policy:

- Visible emissions from each baghouse serving the precleaning [or hulling and shelling] operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]

N-1319-10-0

The air curtain incinerator is not exempt from the opacity limits of this rule. The compliance period (i.e. three minutes in any hour) in Rule 4101 is different from the compliance period from NSPS Subpart CCCC (three 1-hour blocks consisting of ten 6-minute averages); therefore, the 20% visible emission limit from this rule and its compliance period will be included on the ATC for the air curtain incinerator:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following condition will be placed to the permit to ensure compliance with this rule.

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

A Health Risk Assessment (HRA) is not required for a project with a total facility prioritization score of less than 1.0. According to the Risk Management Review (RMR) Memo (see Appendix H) for this project, the total facility prioritization score including this project was greater than 1.0. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
N-1319-10-0	0.252 per million	No

Units N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, and '-9-1 have no change in daily emission and a decrease in annual emissions. Only the increases in emissions from N-1319-10-0 were evaluated.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As indicated above, T-BACT is not required for this project. Compliance with the District's Risk Management Policy is expected.

The following conditions will be required on ATC N-1319-10-0 to ensure compliance with the assumptions in the RMR:

- The air curtain incinerator shall burn no more than 50 tons of wood material in any one day. [District Rules 2201 and 4102]
- The air curtain incinerator shall burn no more than 10,000 tons of wood material in any year. [District Rules 2201 and 4102]
- For conducting a cold start, the operator shall use a propane or butane torch, driptorch, or flare to ignite the material inside the air curtain incinerator. No accelerants (e.g. gasoline, diesel fuel, kerosene, turpentine) may be used. [District Rules 2201 and 4102]
- The amount of wood ash handled shall not exceed 1.5 ton in any one day. [District Rules 2201 and 4102]
- The amount of wood ash handled shall not exceed 300 tons in any year. [District Rules 2201 and 4102]

Rule 4103 Open Burning

The purpose of this rule is to permit, regulate, and coordinate the use of open burning while minimizing smoke impacts on the public.

This rule applies to open burning conducted in the San Joaquin Valley Air Basin, with the exception of prescribed burning and hazard reduction burning as defined in Rule 4106 (Prescribed Burning and Hazard Reduction Burning).

Section 3.23 defines open burning as:

“the combustion of any combustible refuse or other material of any type outdoors in the open air, not in any enclosure, where the products of combustion are not directed through a flue. For the purposes of this rule, prescribed burning and hazard reduction burning are not considered to be open burning.”

The air curtain incinerator burns material inside an enclosure with the air curtain serving as a control device that increases the residence time of the products of incomplete combustion (CO, VOC, and PM). The District does not regard air curtain incinerators as a form of open burning. Therefore, this rule is not applicable to the air curtain incinerator.

Rule 4106 Prescribed Burning and Hazard Reduction Burning

The purpose of this rule is to permit, regulate, and coordinate the use of prescribed burning and hazard reduction burning while minimizing smoke impacts on the public.

The provisions of this rule shall apply to all prescribed burning, and to hazard reduction burning in wildland/urban interface.

The rule defines prescribed burning in Section 3.12 (and 3.11) as:

“the planned application of fire, including natural or accidental ignition, to vegetation on lands selected in advance of such application to meet specific planned resource management objectives as set forth in section 3.11.”

Section 3.11 defines planned resource management objectives as including:

“forest management, wildlife habitat management, range improvement, fire hazard reduction, wilderness management, weed abatement, watershed rehabilitation, vegetation manipulation, disease and pest prevention, and ecosystem management.”

Hazard reduction burning is defined in Section 3.7 as:

“the burning of flammable vegetation that has been removed and cleared away from buildings or structures in compliance with local ordinances to reduce fire hazard pursuant to Section 4291 of the California Public Resources Code for the purpose of maintaining a firebreak of up to 100 feet from such buildings or structures.”

The use of the air curtain incinerator to dispose of wood material does not qualify as a prescribed burn nor a hazard reduction burn as defined in this rule. Therefore, this rule does not apply to the air curtain incinerator in this project.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

The following formula is used to calculate the PM concentration:

$$\text{PM Conc. (gr/scf)} = \frac{(\text{PM emission rate}) \times (7,000 \text{ gr/lb})}{(\text{Air flow rate}) \times (60 \text{ min/hr}) \times (24 \text{ hr/day})}$$

As a conservative estimate, assume the PM emission rate is equal to twice the permitted PM10 emission rate for the almond processing lines. For the air curtain incinerator, a multiplier of 1.02 from ARB Memorandum for Agricultural Burning Emission Factors (2000) was used to derive PM (PM30) from the PM10.

Rule 4201 Particulate Matter Concentration				
Permit Unit	PM Emission rate (lb/day)	Air Flow Rate ¹⁰ (scfm)	PM conc. (gr/scf)	Compliance with the 0.1 gr/dscf limit?
N-1319-3	29.8	47,500	0.003	Yes
N-1319-4	31.2	107,300	0.001	Yes
N-1319-5	29.8	56,466	0.003	Yes
N-1319-6	31.2	42,200	0.004	Yes
N-1319-8	89.2	62,500	0.007	Yes
N-1319-9	62.4	120,000	0.003	Yes
N-1319-10	56.1	9,300	0.029	Yes

As indicated in the table above, all units in this project are expected to have a PM exhaust concentration lower than 0.1 gr/scf. The following permit condition will be included on the ATCs to ensure compliance with the requirements of this rule:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Rule 4202 Particulate Matter - Emission Rate

The purpose of this rule is to limit particulate matter (PM) emissions by establishing allowable (PM) emission rates.

The formula for establishing the allowable PM emissions rate is a function of the process weight. The definition of *process weight* in the rule includes "the total weight of all materials introduced into any specific process ..."

$$E = 3.59 \times P^{0.62} \text{ if } P \leq 30 \text{ tons/hr}$$

¹⁰ For units served by multiple baghouses, since the distribution of PM emissions across the baghouses is not known, the baghouse with the lowest flow rate will represent the source operation for all the emissions as a conservative estimate. Flow Rate References: N-1319-3 (ATC project N-980142); N-1319-4 (ATC project N-980142); N-1319-5 (ATC project N-1082807); N-1319-6 (ATC project N-1072612, 3 baghouses: 85,400 dscfm, 78,000 dscfm, and 42,200 dscfm); N-1319-8 (ATC project N-1131527, 2 baghouses at 62,500 cfm each); N-1319-9 (ATC project N-1131527, 3 baghouses at 120,000 cfm each); N-1319-10 (Victoria, Australia Source test of Air Burners model S-119, which is smaller than the S-220 in this project. Flow rate range 250 Nm³/min – 350 Nm³/min or 9,300 scfm – 13,000 scfm (at 60 °F))

$$E = 17.31 \times P^{0.16} \text{ if } P > 30 \text{ tons/hr}$$

Where,

E = allowable PM emissions in lb/hr

P = process weight rate in tons/hr

The following table compares the Rule 2201-based potential to emit (PE) (in lb/hr) to E.

Rule 4202 Compliance					
Permit Unit	Permitted Throughput (ton/day)	P process weight (ton/hr) ¹¹	E allowable emission rate from Rule 4202 Eqn. (lb-PM/hr)	Rule 2201 PE (PM/hr) ¹²	PE < E?
N-1319-3	960	40	31.23	1.24	Yes
N-1319-4	240	10	14.97	1.30	Yes
N-1319-5	960	40	31.23	1.24	Yes
N-1319-6	240	10	14.97	1.30	Yes
N-1319-8	2,880	120	37.24	3.72	Yes
N-1319-9	480	20	23.00	2.60	Yes
N-1319-10	50	4.17	8.70	4.61	Yes

Since the Rule 2201 PE is less than E for the almond processing lines and the air curtain incinerator, all units are expected to operate in compliance with this rule. The Rule 2201-based DEL conditions are sufficient to ensure compliance with this rule.

Rule 4301 Fuel Burning Equipment

The purpose of this rule is to limit the emission of air contaminants from fuel burning equipment. This rule limits the concentration of combustion contaminants and specifies maximum emission rates for sulfur dioxide, nitrogen oxide and combustion contaminant emissions.

The provisions of this rule shall apply to any fuel burning equipment except air pollution control equipment which is exempted according to Section 4.0.

The rule defines fuel burning equipment as:

“any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.”

¹¹ The almond processing may operate 24 hours per day. The air curtain may operate up to 12 hours per day.

¹² As a conservative estimate, assume the PM emission rate is equal to twice the permitted PM10 emission rate for the almond processing lines. For the air curtain incinerator, a multiplier of 1.02 from ARB Memorandum for Agricultural Burning Emission Factors (2000) was used to derive PM (PM30) from the PM10.

Calculation: PM (lb/hr) = (lb-PM10/day) × (1 day/# hours of operation) × (lb-PM/lb-PM10);

For the air curtain (N-1319-10): PM (lb/hr) = 55.3 lb-PM10/day × 1 day/12 hours × 1.02 lb-PM/1 lb-PM10 = 4.61 lb-PM/hr

The primary purpose of the air curtain incinerator is to dispose of wood waste, not the production of heat or power by indirect heat transfer. The air curtain incinerator is not *fuel burning equipment* according to the definition in this rule, and, therefore, this rule is not applicable.

Rule 4302 Incinerator Burning

This rule limits air pollution by prohibiting the use of any incinerator except for a multiple-chamber incinerator or one equally effective in controlling air pollution.

From District Rule 1020, Definitions, Section 3.27, a multiple-chamber incinerator is defined as:

any source operation, structure, or any part of a structure used to dispose of combustible refuse by burning, consisting of three (3) or more refractory lined combustion furnaces in series, physically separated by refractory walls, interconnected by gas passage ports or ducts, and *employing adequate design parameters necessary for maximum combustion of the material to be burned*. The refractories shall have a pyrometric cone equivalent of at least 17, tested according to the method described in the American Society for Testing Materials, Method C-24.

The purpose of a multiple-chamber incinerator is to minimize the emissions of the products of incomplete combustion, i.e. PM10, CO, and VOC. The secondary and tertiary chambers of a multiple-chamber incinerator accomplish this by re-burning the flue gas from the primary chamber before emitting the exhaust to the atmosphere. The air curtain of the air curtain incinerator performs a function similar to the secondary and tertiary chambers of a multiple-chamber incinerator. Besides oxygenating the fire with forced air and increasing the combustion temperature, the air curtain increases the residency time of the products of incomplete combustion by forming a barrier preventing their immediate escape. The increased residency time causes particles (especially) and gases to be re-burned continually in the flame.

For the disposal of large amounts of agricultural wood waste material, the District regards the air curtain incinerator as an *equally effective* control device as a multiple-chamber incinerator provided the air curtain is operated according to manufacturer's specifications and operates in compliance with visible emissions limits. Therefore, compliance with this rule is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

The air curtain incinerator produces CO₂ (3,616 lb-CO₂/ton-burned) and methane 1.4 lb-CH₄/ton-burned)¹³ from the combustion of woody biomass. However, the District regards the burning of biomass as a carbon neutral process. Particularly in the present case, the material to be burned, almond stick debris removed from harvested almonds, is regenerated in full annually.

The air curtain incinerator is powered by an electric motor using utility power. No greenhouse gases are assessed to equipment using electricity from a public utility.

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement

¹³ http://www.airburners.com/data-gov/regulating_air_curtain_burners-05.12.2012.pdf, (USDA Fire Sciences Lab source test in Baker, Oregon).

and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATC permits N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 subject to the permit conditions on the attached draft ATCs in Appendix I.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-1319-3-3	3020-01-D	196 hp electric motors	\$314
N-1319-4-3	3020-01-F	681.75 hp electric motors	\$607
N-1319-5-3	3020-01-E	360.5 hp electric motors	\$412
N-1319-6-4	3020-01-G	1287.5 hp electric motors	\$815
N-1319-8-1	3020-01-F	598.8 hp electric motors	\$607
N-1319-9-1	3020-01-H	1,652 hp electric motors	\$1,030
N-1319-10-0	3020-01-B	30 hp electric motors	\$129

Appendices

- A: Current PTOs
- B: Almond Processing Emission Factors
- C: Analysis of Draft EPA Emission Factors from Managing Debris after a Natural Disaster: Evaluation of the Combustion of Storm-Generated Vegetative and C&D Debris in an Air Curtain Burner: Source Emissions Measurement Results (November 17, 2016)
- D: Air Curtain Incinerator Emissions Factors
- E: Coal Fly Ash Study Emission Factor
- F: Quarterly Net Emissions Change
- G: Top-Down Best Available Control Technology Analysis
- H: Risk Management Review and Ambient Air Quality Analysis Memo
- I: Draft Authorities to Construct

Appendix A

Current PTOs

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-3-2

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND PRECLEANING OPERATION SERVED BY A MAC EQUIPMENT 144MCF416 BAGHOUSE

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
4. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
6. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
7. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
8. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
9. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
10. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
11. The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
12. The PM10 emissions from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
13. The PM10 emissions from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
14. The precleaning operation shall not operate more than 180 days per year. [District Rule 2201]
15. A daily log shall be maintained and shall include the date and quantity, in field weight tons, of almonds processed through the precleaning operation and the days of operation. [District Rule 2201]
16. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
18. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-4-2

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND HULLING AND SHELLING OPERATION SERVED BY A MAC EQUIPMENT 144MCF756 BAGHOUSE

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Visible emissions from each baghouse serving the hulling/shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
4. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
6. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
7. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
8. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
9. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
10. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
11. The quantity of almonds processed through the hulling/shelling operation shall not exceed 240 meat tons in any one day. [District Rule 2201]
12. The PM10 emissions from the hulling/shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
13. The hulling/shelling operation shall not operate more than 180 days per year. [District Rule 2201]
14. A daily log shall be maintained and shall include the date and quantity, in meat tons, of almonds processed through the hulling/shelling operation and the days of operation. [District Rule 2201]
15. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
16. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-5-2

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND PRECLEANING OPERATION SERVED BY AN LMC WEST MODEL 594-LP-12 BAGHOUSE

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
3. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
7. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
8. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
9. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
10. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
11. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
12. The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
13. The PM10 emissions from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
14. The PM10 emissions from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
15. The precleaning operation shall not operate more than 180 days per year. [District Rule 2201]
16. A daily log shall be maintained and shall include the date and quantity, in field weight tons, of almonds processed through the receiving and precleaning operation and the days of operation. [District Rule 2201]
17. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

18. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
19. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-6-3

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND HULLING AND SHELLING OPERATION SERVED BY TWO LMC WEST MODEL 450-LP-12 BAGHOUSES AND ONE LMC MODEL 312-LP-12 BAGHOUSE

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Visible emissions from each baghouse serving the hulling and shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
7. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
8. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
9. The cleaning frequency and duration of each baghouse shall be adjusted to optimize the control efficiency. [District Rule 2201]
10. Material removed from each baghouses shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
11. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
12. The amount of almonds processed through the hulling and shelling operation shall not exceed 960 field weight tons in any given day. [District Rule 2201]
13. The PM10 emissions from the hulling and shelling operation shall not exceed 0.065 pounds per field weight ton. [District Rule 2201]
14. The hulling and shelling operation shall not operate more than 180 days per year. [District Rule 2201]
15. The permittee shall maintain daily and cumulative annual records of almonds processed through hulling and shelling operation in field weight tons and the days of operation. [District Rule 2201]
16. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
18. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-8-0

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND RECEIVING AND PRECLEANING OPERATION WITH RECEIVING PITS, SHAKERS, DESTONERS, PREHULLERS, ELEVATORS, AUGERS, ASPIRATORS, BINS, AND CONVEYORS SERVED BY TWO 62,500 CFM DONALDSON 528 LP 12 BAGHOUSES

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
6. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
7. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
8. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
9. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
10. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
11. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
12. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 5.5 inches water column. [District Rule 2201]
13. Controlled PM10 emissions from each Donaldson 528 LP 12 dust collector shall not exceed 0.001 gr/scf. [District Rule 2201]
14. Operation of this equipment shall not exceed 4,500 hours per year. [District Rule 2201]
15. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
16. Records of the number of hours per year that this equipment operated shall be kept. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE
These terms and conditions are part of the Facility-wide Permit to Operate.

17. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
18. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-1319-9-0

EXPIRATION DATE: 09/30/2017

EQUIPMENT DESCRIPTION:

ALMOND HULLING AND SHELLING OPERATION WITH FEEDERS, DECKS, CRACKERS, DESTONERS, SHEAR ROLLERS, ELEVATORS, HOPPERS, ASPIRATORS, AUGERS, AND CONVEYORS SERVED BY THREE 120,000 CFM DONALDSON 780 LP 12 BAGHOUSES

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. Visible emissions from each baghouse serving the hulling and shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
6. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
7. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
8. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
9. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
10. The cleaning frequency and duration of each baghouse shall be adjusted to optimize the control efficiency. [District Rule 2201]
11. Material removed from the baghouses shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
12. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 5.5 inches water column. [District Rule 2201]
13. Controlled PM10 emissions from each Donaldson 780 LP 12 dust collector shall not exceed 0.001 gr/scf. [District Rule 2201]
14. Operation of this equipment shall not exceed 4,500 hours per year. [District Rule 2201]
15. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
16. Records of the number of hours per year that this equipment operated shall be kept. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

17. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
18. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

These terms and conditions are part of the Facility-wide Permit to Operate.

Appendix B

Almond Processing Emission Factors

Table 9.10.2.1-1 (Metric And English Units). EMISSION FACTORS FOR ALMOND PROCESSING^a

EMISSION FACTOR RATING: E

Source	Filterable PM		Condensable Inorganic PM		PM-10 ^b	
	kg/Mg	lb/ton	kg/Mg	lb/ton	kg/Mg	lb/ton
Unloading ^c (SCC 3-02-017-11)	0.030	0.060	ND	ND	ND	ND
Precleaning cyclone ^d (SCC 3-02-017-12)	0.48	0.95	ND	ND	0.41	0.82
Precleaning baghouse ^e (SCC 3-02-017-12)	0.0084	0.017	ND	ND	0.0075	0.015
Hulling/separating cyclone ^d (SCC 3-02-017-13)	0.57	1.1	ND	ND	0.41	0.81
Hulling/separating baghouse ^e (SCC 3-02-017-13)	0.0078	0.016	ND	ND	0.0065	0.013
Hulling/shelling baghouse ^f (SCC 3-02-017-14)	0.026	0.051	0.0068	0.014	ND	ND
Classifier screen deck cyclone ^d (SCC 3-02-017-15)	0.20	0.40	ND	ND	0.16	0.31
Air leg ^d (SCC 3-02-017-16)	0.26	0.51	ND	ND	ND	ND
Roaster ^g (SCC 3-02-017-17)	ND	ND	ND	ND	ND	ND

^a Process weights used to calculate emission factors include nuts and orchard debris as taken from the field, unless noted. ND = no data. SCC = Source Classification Code.

^b PM-10 factors are based on particle size fractions found in Reference 1 applied to the filterable PM emission factor for that source. See Reference 3 for a detailed discussion of how these emission factors were developed.

^c References 1-3,10-11.

^d Reference 1. Emission factor is for a single air leg/classifier screen deck cyclone. Facilities may contain multiple cyclones.

^e References 1,9.

^f Reference 10.

^g Factors are based on finished product throughputs.

#2. Emissions from the unloading operation will be calculated separately from the precleaning operation emissions even though they are served by the same baghouse. This is because the unloading operation is a separate emissions unit.

#3. The PM10 fraction is 0.909 lbs PM10 per lb of PM. This is from ARB test report for almond hullers, 1975. This fraction is used in deriving PE for the unloading operation.

(B). Emission Factors (EF) :

#1. An emission factor for almond processing from AP-42, Table 9.10.2.1-1 (1/95) for precleaning operation served by a baghouse will be utilized to calculate the PM10 emissions (appendix #2).

Hence, the controlled EF is : $EF_{PM10/Precleaning} = 0.015 \text{ lbs PM10/field weight ton}$

#2. An emission factor for almond processing from AP-42, Table 9.10.2.1-1 (1/95) for unloading operations will be utilized to calculate the PM10 emissions from the receiving of the almonds.

$EF_{PM10/Unloading - Uncontrolled} = 0.06 \text{ lbs PM/field weight ton (fwt)}$

$EF_{PM10/Unloading - Controlled} = (0.06 \text{ lbs PM/fwt}) \times (0.909 \text{ lbs PM10/ lb of PM}) \times (1 - 0.99)$

$= 0.0005 \text{ lbs of PM10/fwt}$

#3. The applicant has proposed to meet an emission factor for almond processing from AP-42, Table 9.10.2.1-1 (1/95) for hulling & separating operations and this factor will be utilized to calculate the PM10 emissions (appendix #2).

Hence, the controlled EF is : $EF_{PM10/Hulling and Shelling} = 0.065 \text{ lbs PM10/meat ton}$

(The above EF is based on the EF of 0.013 lbs/fwt for a hulling/gravity table separating operation served by a baghouse. Since the applicant has given us the process throughput weight in meat tons, we have to convert 0.013 lbs/fwt to an EF in lbs of PM10/meat tons. As used in past projects, 25 tons of fw product has 5 tons of meats. Hence, $0.013 \text{ lbs/fwt} \times 25 \text{ fwt} \div 5 \text{ meat tons} = 0.065 \text{ lbs/meat tons.}$)

Appendix C

Analysis of Draft EPA Emission Factors from Managing Debris after a Natural Disaster: Evaluation of the Combustion of Storm-Generated Vegetative and C&D Debris in an Air Curtain Burner: Source Emissions Measurement Results (November 17, 2016)

The District has identified the following concerns with using EPA's draft emission factors in the present project:

- 1. EPA's calculated flow rates used to derive the pollutant mass emission rates are unusually high, potentially causing an overstatement of all the emission factors by a factor of 4.**

A detailed discussion of this issue is based on a memo from Air Burners Inc., which is attached. At issue is EPA's bulk flow rate calculation, which is based on a mass balance of carbon. This method yields a calculated exit velocity of 30 m/s, which is inconsistent with an earlier EPA measurement from a pitot scan of about 4.5 m/s. Other emissions testing of air curtain incinerators show exit velocities more in line with the 4.5 m/s reading, than the 30 m/s calculation: e.g. Jordan (3.5 m/s); Australia (0.7 m/s), Fountainhead (2.6 m/s).

- 2. The high SO_x emission factor suggests a possible overstatement of all the emission factors by a factor of 4 - 5.**

The draft SO_x emission factor is more than twice the next highest reported value and almost five times the open burn value for almonds or forest material. Since SO_x emissions are purely a function of the sulfur content of the material burned, the high SO_x emission factor could be another indicator that the emission factors are high across the board by a factor of five because of EPA's flow rate calculation estimation procedure above. Alternatively, the wood burned could have a considerable amount of contamination from sitting in brackish water for up to three years.

The following concerns relate specifically to EPA's draft PM emission factor.

- 3. The vegetative debris/wood burned was submerged in brackish water for up to three years (Hurricane August 2005 – Test dates June 2008); hence, salts precipitated on and in the wood likely ended up as PM in the emission testing. Estimated effect on PM₁₀ EF: 30% too high.**

The PM fraction contained a relatively high amount of inorganic condensible PM (EPA report, Table 5 – 4: 38% weighted average; 51% in Run 1 and 26% in Run 2, Run 3 not reported). The report noted a variety and concentrations of chlorinated organics found in the air toxics analysis. The predominant anionic species in salt water is chloride ion, which could be the source of the chlorine in the chlorinated organics observed. Wood is porous, so salts could precipitate on the wood over time. The presence of salts in combustion processes are known to produce condensible PM, which can be seen in detached plumes. An indication of this phenomenon at work here is that the observed average opacity was higher than in other air curtain tests: e.g. Run 3 failed opacity (using NSPS Subpart EEEE standard). The higher opacities cannot be because of overloading because according to Air Burners Inc., the model air curtain has a capacity of 6-10 tons/hour, but in the Katrina study, it was used at a throughput 4 tons/hr. The likely wetness of the wood may have contributed to the high opacity and PM, although according to the moisture analysis EPA performed on the feedstocks, the water content was not more than 30%, which is similar to green wood. The air curtain incinerator should be able to burn green wood and maintain compliance with NSPS visible

emission limits of 10% opacity or less. For reference purposes, 20% moisture content is the max. threshold for our wood burning rule. Almond biomass = 18%, ARB open burn memo).

4. The average isokinetic variation (ratio of $\text{Velocity}_{\text{sample}}/\text{Velocity}_{\text{stack}}$) was 65.9%. Estimated effect on PM10 EF: 10%+ too high.

A low isokinetic % means the measured PM value is higher than the actual PM value (<https://www.arb.ca.gov/testmeth/vol1/vol1suppl.doc>). 90 – 110% (or under some conditions 80 – 120%) is the normal acceptable quality control range. The magnitude of error depends on a number of variables, especially particle size distribution. EPA characterizes the overestimation error from anisokinetic sampling conditions in the Katrina study as “slight” perhaps because the PM emission factor appears to be predominantly composed of PM2.5. However, in ARB’s Supplement to Stationary Source Test Methods, Volume 1, Chapter IX, pg. 6), an example is given of a study where an isokinetic variation of 50% represented an 80% over-estimate of the PM12 emissions. On the Fountainhead test, a similar sized unit to the unit used in the EPA study, the reported average isokinetic variation was 112%, which would lead one to believe that the reported Fountainhead emission factor was on the low side, but also that isokinetic sampling is achievable with such as source.

From page 90 (pg 106 .pdf) of EPA’s report, *“If isokinetic rate calculations are based upon the estimated total flow rates presented in Table 5-1, variation was between 6.1% and 46.5% isokinetic.”* Meaning if EPA’s calculated flow is 100% correct, then the isokinetic variation (#1) is dramatically worse than the 65.9%. The bias to a higher PM rate grows exponentially higher at lower isokinetic percentages.

Brian Clerico

From: nfuhrmann@airburners.com
Sent: Wednesday, December 14, 2016 4:01 PM
To: Brian Clerico
Cc: mike@mikelyons.com.au
Subject: RE: Air Burners NOX Review of EPA Katrina report

Hi Brian,

Thank you for sending us your draft. We agree with you regarding the below draft response and we authorize and ask you to use our company name, Air Burners, Inc. as reference or otherwise in any publication and by any means that you deem necessary, including the public notification which will be posted on the official web site of Valley Air.

We are sending Mike Lyons a copy of this reply to you.

Kind Regards,
Air Burners, Inc.
Norbert Fuhrmann
Vice President
561-248-9011 cell



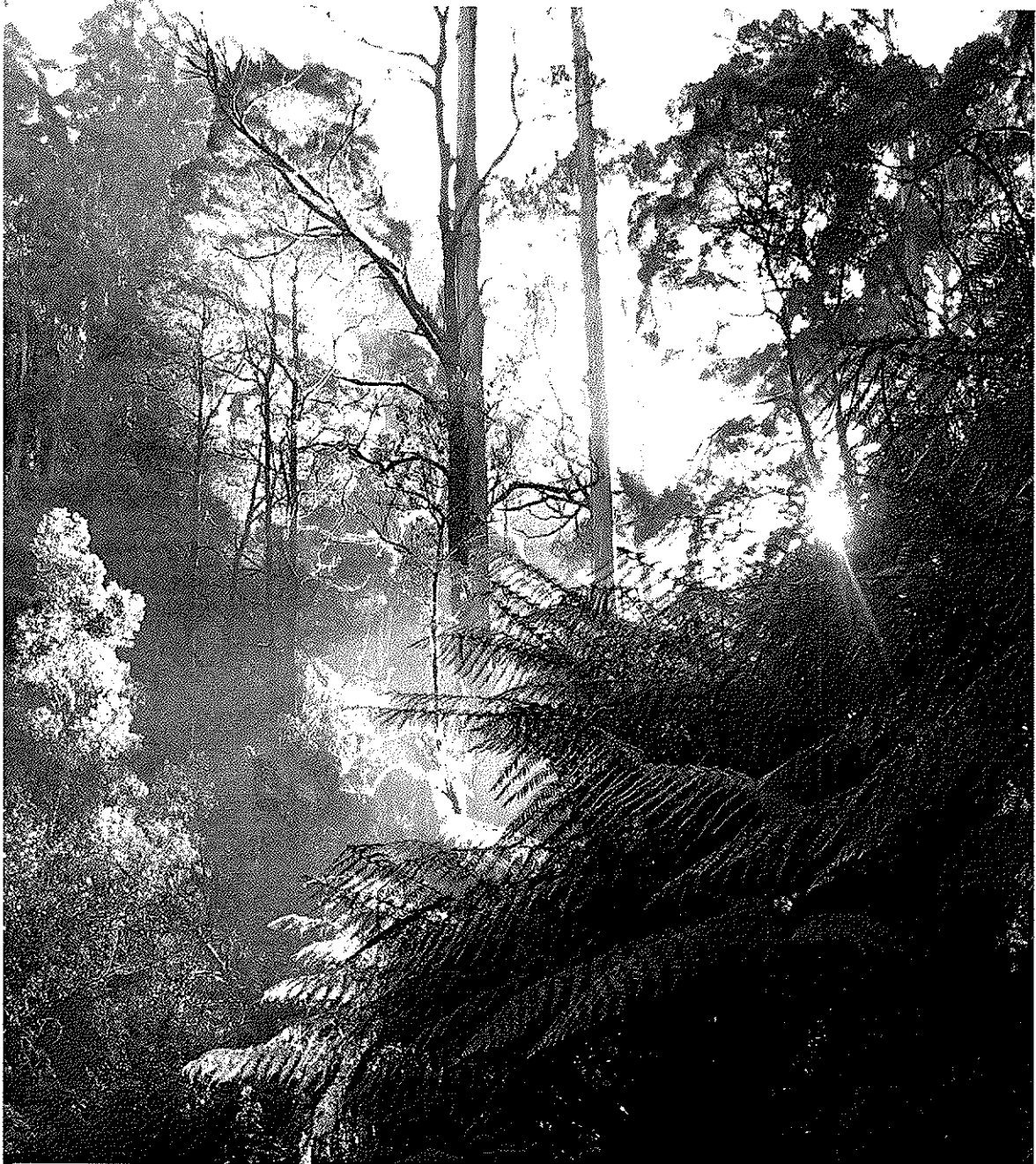
Mike Lyons & Associates Pty Ltd

53 Willis Street, HAMPTON Victoria 3188

Ph: (03) 9598 3803

fax: (03) 9598 2174

email: mike@mikelyons.com.au



REPORT PREPARED FOR:	Air Burners Inc. 4390 Cargo Way, Palm City FL 34990
SUBJECT	Recalculation of NO _x Emission Factor
DATE	20 th November 2016
OUR REFERENCE	ma3769r
NOTE:	Company Confidential – Not for Distribution*

* see 12/14/16 email from Norbert Fuhrmann



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Executive Summary

The draft USEPA Katrina Report (*Managing Debris after a Natural Disaster: Evaluation of the Combustion of Storm-Generated Vegetative and C&D Debris in an Air Curtain Burner Volumes A, B and C.*) has concluded that the Emission Factor (the ratio of NO_x emitted in lbs to the timber feed rate in US tons) is an order of magnitude higher than those quoted in any other published monitoring report.

By reconstructing the calculation for the three vegetative waste runs, we have determined that the flow rates used in the Katrina report are up to 5 times higher than those measured from similar fireboxes under similar operating conditions, and have consequently exaggerated the mass emission rate of NO_x.

In determining the isokineticity of the scoop used for collection of samples, the report quoted an assumed vertical velocity of about 4.5 metres/sec, obtained from a pitot scan at an earlier time. This figure is reasonably correct, and agreed with the flow rates after our recalculation. However, the bulk flow rate, determined solely from theory on the basis of carbon combustion, yielded an impossible exit velocity of up to 30 metres/second (nearly 100 feet/second).

After recalculation of the exit velocity, the NO_x/Feed rate Emission Factors reduced to a range of 0.55 to 0.70 lbs/ton.



1.0 Scope

Calculations of the Emission Factor (*the ratio of NO_x in lbs to the feed rate in US tons*) have been recorded in the USEPA Katrina report (*Managing Debris after a Natural Disaster: Evaluation of the Combustion of Storm-Generated Vegetative and C&D Debris in an Air Curtain Burner Volumes A, B and C.*) as exceeding 2.6 lbs per US ton. This value significantly exceeds those obtained from existing reports.

NOx Data Clean Wood Waste Only - Work Sheet									
	Model	Charge Rate	Opacity	Concentr	Mass Rates	EF	Mass Rates	Concentr	EF
		t/hr	%	mg/Nm ³	g/min	lbs/t	kg/hr	ppm	mg/kg
Australia EPA	S119	4	0	40.00	9.60	0.217			
BC Hydro	S216	6	5-10	6.5		0.04	0.12		
Fountainhead	S327	19.8	5.4			0.05			
US EPA KATRINA	S327	4	8.3			2.60			
US FS Missoula	S217	6	na						

Figure 1. Comparison of test results

The purpose of this report is to determine the reasons for this excessive value.

2.0 Elements of the calculation

The principal elements of this calculation are:

- Total box airflow rate
- Timber feed rate
- Excess air requirements
- Exhaust temperature
- Core temperature
- NO_x concentration
- CO₂ concentration
- Moisture content of timber
- Residual carbon
- The nature of the waste feed

2.1 Total box airflow rate

In the Katrina report, total firebox flow rates are not measured, but calculated theoretically from the carbon balance. This process gives an inflated value for the flow rate, which correspondingly inflates the emission factors for NO_x and other substances.

2.1.1 Scoop sampling method

Flow measurements were initially taken from a sampling system as shown below. Air was drawn in via a scoop, and conducted via a 4" insulated pipe, then into a 6" duct set up for emission sampling. The intake to the scoop was said to be isokinetic, i.e. the intake velocity is equal to the discharge velocity from the firebox.

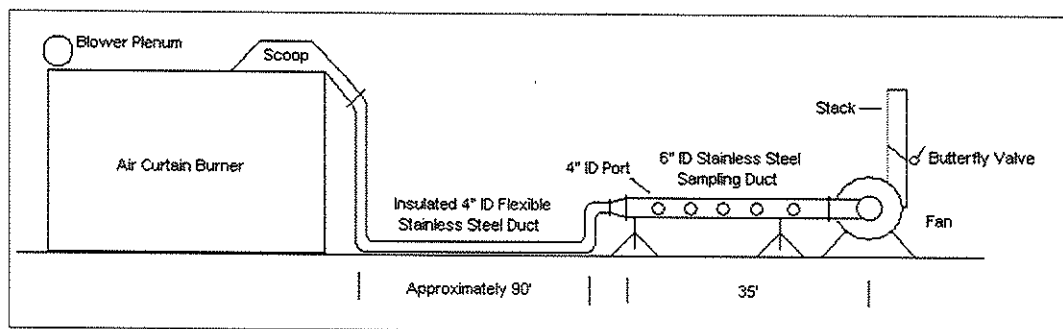


Figure 2. Scoop sampling system

3.3.2.3 Flue Gas Volumetric Flow Rate (EPA Methods 1A and 2C)

Flue gas volumetric flow rates were determined by EPA Method 1A - Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts and EPA Method 2C - Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks and Ducts (Standard Pitot Tube), as described in 40 CFR Part 60, Appendix A-1 (U.S. EPA, 1996m, U.S. EPA, 1996n). A measurement location in the effluent stream was selected to minimize angular and cyclonic flow. Using Method 1A, the duct cross section was divided into an appropriate number of equal areas and the probe was marked to signify the velocity traverse points. Due to the potential for flow disturbance in small stacks, the sample extraction and flow measurement were performed apart from one another. Sampling ports for extractive samples were located eight equivalent diameters upstream of the velocity sampling ports to allow for the re-establishment of flow stability. Using Method 2C, a traverse for velocity head and sampling duct gas temperature was performed using a standard pitot tube and thermocouple probe to minimize flow disturbance. Prior to each run set a preliminary, informal traverse on the duct was performed that revealed a relatively flat flow profile. An average Δp was used to determine nozzle tips and locations. The pitot was left at this average point in the duct throughout the test and was continuously monitored as the runs progressed (remembering that the flows changed in time as the ACB was loaded due to transient fluctuations in temperature and pressure) and the sampling technicians recorded that Δp along with real time temperatures to produce the volumetric flows reported for the runs. Those data are on the individual run data sheets located in the Appendices. Sampling duct gas volumetric flow rates were calculated using the resultant data, the sampling duct gas density, and duct cross sectional area. Measurements were performed in conjunction with each test run for filterable/condensable particulate, metals, and dioxins/furans. ACB flow estimates, along with pollutant concentration data from concurrent methods, were used to calculate pollutant mass emission rates.

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Figure 3. Procedure for pitot sampling in-duct



- Veg. waste #1 - 76,342 scfm
- Veg. waste #2 - 121,589 scfm
- Veg. waste #3 - 114,509 scfm

- Veg. waste #1 – 18.6 metres/sec (=3614 fpm)
- Veg. waste #2 – 29.24 metres/sec (=5756 fpm)
- Veg. waste #3 – 27.53 metres/sec (=5419 fpm)

The entry face of the extraction scoop was 18 inches by 5 inches, with the longer dimension spanning the final 18 inches of the ACB firebox width on the side opposite the blower plenum as shown in Figure 2-2. This 18-inch span along the length of the ACB represents the area where, from earlier flow determinations on an identical burner (Miller and Lemieux, 2007), essentially all the combustion product gases exit the firebox. With this experience in mind, and the earlier measurement of 15 ft/sec bulk velocity in that 18-inch span, estimated extraction scoop isokinetic variation during the sampling runs was calculated. During the test program, isokinetic variation was between 47.8% and 90.9%, with an average of 65.9%. The high oxygen concentrations found in the exhaust gas however, suggest that significant amounts of dilution air were pulled into the sampling scoop, possibly due to the high winds that persisted throughout the test burns. It is likely that the high winds impacted the effectiveness of the sampling scoop although the emission factor calculations found later in this report are not impacted by this additional dilution.

This is greatly at variance with the calculated bulk velocities in the Katrina report of up to 29 metres/sec (95 ft/sec). It is, however, completely in line with the recalculated velocities of 4.7 to 7.8 metres/sec (15 to 25 ft/sec).



2.1.3 Conversion of calculated airflows to equivalent exit velocities

	side 1 (")	side 2 (")	side 1 (m)	side 2 (m)	area (m ²)
Box dimensions	324	101	8.230	2.565	21.11
Slot dimensions	324	24	8.230	0.610	5.017
Scoop dimensions	18	5	0.457	0.127	0.0581
Sampling duct diam.	6		0.152		0.01824

Scoop temperature (°C)	500
Sampling temperature (°C)	120

Burn Description	Flow rate	Flow rate	NTP Flow rate	Actual flow rate	Slot velocity	Scoop intake @ 425°C	Sample 6" duct flow @120°C	Sample duct velocity
	dry scfm	dry Nm ³ /min	dry Nm ³ /sec	am ³ /sec @ 425°C	am/sec	am ³ /sec	am ³ /sec	am/sec
Veg #1	76342	2162	36.03	92.09	18.36	1.0658	0.5420	29.7
Veg #2	121589	3443	57.38	146.67	29.24	1.6975	0.8632	47.3
Veg #3	114509	3243	54.04	138.13	27.53	1.5987	0.8129	44.6

Table 1. Equivalent sampling duct velocities using Katrina calculated airflows

Assuming that the sampling scoop is gathering the air sample isokinetically (as claimed in the report), then after conducting to a 6" diameter duct this will result in a sampling velocity of :

- Veg. waste #1 – 29.7 metres/sec (=5846 fpm)
- Veg. waste #2 – 47.3 metres/sec (=9311 fpm)
- Veg. waste #3 – 44.6 metres/sec (=8780 fpm)

These would be airspeeds far above those actually experienced by the sampling team.



2.1.4 Katrina calculations for NO_x

Based on the data provided in the Katrina report, the calculation below shows the derivation of the NO_x emission factor. It can be seen that the flow rates are the keys to these values.

(1) US Units						
Run	Date	Flow rate	Feed Rate	Feed rate	CO ₂	NO _x
		dry scfm	t/hr	lbs/hr	%	ppm
Veg Run 1	June 24, 2008	76342	4.8	9600	1.9	18
Veg Run 2	June 24, 2008	121589	4.8	9600	1.2	13
Veg Run 3	June 25, 2008	114509	6.8	13600	1.9	24
(2) Metric Units - convert concentrations and flow rates						
		dry Nm ³ /hr	MT/hr	kg/hr	mg/m ³	mg/m ³
Veg Run 1	June 24, 2008	129705	4.354	4354		36.94
Veg Run 2	June 24, 2008	206579	4.354	4354		26.68
Veg Run 3	June 25, 2008	194550	6.169	6169		49.25
(3) Metric Units - calculate mass rates						
		dry Nm ³ /hr	MT/hr	kg/hr	kg/hr	kg/hr
Veg Run 1	June 24, 2008	129705	4.354	4354		4.79
Veg Run 2	June 24, 2008	206579	4.354	4354		5.51
Veg Run 3	June 25, 2008	194550	6.169	6169		9.58
(4) Metric Units - ratios						
		dry Nm ³ /hr	MT/hr	kg/hr	kg/MT	kg/MT
Veg Run 1	June 24, 2008	129705	4.354	4354		1.10
Veg Run 2	June 24, 2008	206579	4.354	4354		1.27
Veg Run 3	June 25, 2008	194550	6.169	6169		1.55
(5) US Units - ratios						
		dry scfm	t/hr	lbs/hr	lb/ton	lb/ton
Veg Run 1	June 24, 2008	76342	4.8	9600		2.2
Veg Run 2	June 24, 2008	121589	4.8	9600		2.5
Veg Run 3	June 25, 2008	114509	6.8	13600		3.1

Table 2. Summary and calculation using Katrina data for flow rates

If these airflows are used to calculate the emission ratios for NO_x or any other substance, they will result in an inflated set of emission factors:

- Veg. waste #1 – 2.2 lbs/ton
- Veg. waste #2 – 2.5 lbs/ton
- Veg. waste #3 – 3.1 lbs/ton



2.1.5 Calculation of actual firebox airflow

There are some fundamental "knowns" about the S327 firebox:

1. The manifold which supplies air for the accelerated combustion process will deliver a maximum of 7600 scfm to the firebox.
2. Depending on the timber feed rate, make-up air will be drawn into the system according to needs.
3. In addition to this, a calculated excess of air will be required, to reduce the predicted CO₂ down to the observed value.
4. A portion of this air will mix with the outgoing exhaust and dilute the raw CO₂
5. All of the emissions to air take place in a "slot", which for this model S327 will be about 24" wide and will occupy the full length of the box.
6. The core temperature is usually about 2000 – 2500°F
7. The emission temperature is usually about 800 - 950°F

In addition to this there are other important factors related to the timber feed and specific to the aftermath of the Katrina floods:

8. Moisture content – this can be high for fresh cut timber, and considering the fact that this has been immersed in brack water for some time we would expect this to also be similar.
9. Carbon residual – although the system can accept "4 tons/hour", all of the carbon is not consumed within the hour. In practice a significant quantity of char remains, and continues to burn during the night when the box is dormant.
10. Due to its immersion in contaminated water, it is probable that there will be some degree of absorption of nitrogen based salts (e.g. from fertilisers, uncontrolled waste etc.)

It has been noted in all tests to date, that levels of CO₂ are low, and levels of O₂ are near to atmospheric. It can be shown that this is due to the fact that the emission consists of a portion of fully combusted fuel from the core of the fire, mixed (and cooled) by the incoming air from the manifold.

Taking all of the above into account, we have:

Run	Feed rate (T/hr)	Exhaust temp °F	Core temp °F	Water content (%)	Carbon Residue (%)	CO ₂ (%)	Excess air (%)	Flow rate (scfm)
Veg #1	4.8	925	2500	35	15	1.9	184	19557
Veg #2	4.8	925	2500	35	15	1.2	374	32381
Veg #3	6.8	850	2500	35	15	1.9	213	25309

Table 3. Parameters used in recalculation



2.1.6 Application of recalculated airflow

Substituting the new air flows into the spreadsheet:

	side 1 (")	side 2 (")	side 1 (m)	side 2 (m)	area (m ²)
Box dimensions	324	101	8.230	2.565	21.11
Slot dimensions	324	24	8.230	0.610	5.017
Scoop dimensions	18	5	0.457	0.127	0.0581
Sampling duct diam.	6		0.152		0.01824

Scoop temperature (°C)	500
Sampling temperature (°C)	120

Burn Description	Flow rate dry scfm	Flow rate dry Nm ³ /min	Flow rate dry Nm ³ /sec	Actual flow rate am ³ /sec @ 425°C	Slot velocity am/sec	Scoop intake @ 425°C am ³ /sec	Sample 6" duct flow @120°C am ³ /sec	Sample duct velocity am/sec
Veg #1	19557	554	9.23	23.59	4.70	0.2730	0.1388	7.6
Veg #2	32381	917	15.28	39.06	7.79	0.4521	0.2299	12.6
Veg #3	25309	717	11.94	30.53	6.09	0.3533	0.1797	9.8

Table 4. Equivalent sampling duct velocities using recalculated airflows

These recalculated flows accord with the observed performance of S327 fireboxes, with a bulk exhaust velocity in the normally observed range (4 – 8 metres/sec) and the sampling velocity in the 6" duct now in a conventional range.



2.1.7 Recalculation of NO_x ratios

Substituting the new air flows into the spreadsheet used for the original calculations in section 2.1.4:

(1) US Units						
Run	Date	Flow rate	Feed Rate	Feed rate	CO ₂	NO _x
		dry scfm	t/hr	lbs/hr	%	ppm
Veg Run 1	June 24, 2008	19557	4.8	9600	1.9	18
Veg Run 2	June 24, 2008	32381	4.8	9600	1.2	13
Veg Run 3	June 25, 2008	25309	6.8	13600	1.9	24
(2) Metric Units - convert concentrations and flow rates						
		dry Nm ³ /hr	MT/hr	kg/hr	mg/m ³	mg/m ³
Veg Run 1	June 24, 2008	33227	4.354	4354		36.94
Veg Run 2	June 24, 2008	55015	4.354	4354		26.68
Veg Run 3	June 25, 2008	43000	6.169	6169		49.25
(3) Metric Units - calculate mass rates						
		dry Nm ³ /hr	MT/hr	kg/hr	kg/hr	kg/hr
Veg Run 1	June 24, 2008	33227	4.354	4354		1.23
Veg Run 2	June 24, 2008	55015	4.354	4354		1.47
Veg Run 3	June 25, 2008	43000	6.169	6169		2.12
(4) Metric Units - ratios						
		dry Nm ³ /hr	MT/hr	kg/hr	kg/MT	kg/MT
Veg Run 1	June 24, 2008	33227	4.354	4354		0.28
Veg Run 2	June 24, 2008	55015	4.354	4354		0.34
Veg Run 3	June 25, 2008	43000	6.169	6169		0.34
(5) US Units - ratios						
		dry scfm	t/hr	lbs/hr	lb/ton	lb/ton
Veg Run 1	June 24, 2008	19557	4.8	9600		0.564
Veg Run 2	June 24, 2008	32381	4.8	9600		0.674
Veg Run 3	June 25, 2008	25309	6.8	13600		0.687

Table 5. Summary using recalculated data for flow rates

If the recalculated airflows are now used to calculate the emission ratios for NO_x we find that the ratios are now in line with other test programs:

- Veg. waste #1 – 0.56 lbs/ton
- Veg. waste #2 – 0.67 lbs/ton
- Veg. waste #3 – 0.69 lbs/ton

Appendix D

Air Curtain Incinerator Emissions Factors

Emissions Tests of Air Curtain Incinerators								
Test	Material	Year	NOx (lb/ton)	SOx (lb/ton)	PM10 (lb/ton)	CO (lb/ton)	VOC (lb/ton)	Notes
US Dept. Health, Education, and Welfare, J.O. Burckle (AP-42)	Wood and cord wood	1968	4	-	13	-	-	Pilot Scale Box Trench Burner, Max temp 1,300 F.
Fountainhead Engineering, Clarkson, Michigan	Wood	2000	Not reported	Not reported	0.12	1.1	Not reported	Modified EPA Methods. The Victoria Australia test indicated the Fountainhead test showed 0.05 lb-NOx/ton
USDA, Baker Oregon, (Air Curtain S-217)	Forest Vegetation	2002	Not measured	Not measured	1.1 (PM2.5)	2.6	1.1	Missoula Fire Science Lab
BC Hydro, Jordan River British Columbia	Wood	2003	0.04	0.0031	0.13	0.61	0.11	Modified EPA Methods and Canadian Methods
Draft EPA Katrina study	Vegetative Debris	2007	1.6	0.49	7.7	6.9	0.41	EPA Methods
Victoria, Australia	Wood	2016	0.27	0.23	0.0064	4.2	0.096	(US)EPA Methods

Biomass Open Burn and Biomass Power Plant								
Source	Material	Year	NOx (lb/ton)	SOx (lb/ton)	PM10 (lb/ton)	CO (lb/ton)	VOC (lb/ton)	Notes/ Documentation
Open Burn - ARB	Almond	1992	5.9	0.1	7.0	52	5.2	ARB Memo
Open Burn - ARB	Forest	Not indicated	3.5	0.1	19 - 30	154 - 312	8 - 21	ARB Memo
AP-42 Open Burn	Almond	1974	-	-	6 (PM)	46	6	Ref. ARB publication/ UC Davis 1974
AP-42 Open Burn	Forest	1995	4 (est.)	-	17	140	19	Presentation, G. Yamate, 1975
Merced Power (N-4607-8-7) and Ampersand Chowchilla (C-6923-3-10)	Biomass	-	1.2	0.61	0.61	0.87	0.076	Permits of Biomass plants located nearest Minturn

NOx Emission Factor Estimation

There are two published source tests on air curtain incinerators where NOx emission factors were derived: BC Hydro (0.040 lb-NOx/ton) and Victoria, Australia (0.274 lb-NOx/ton). These values are significantly lower than the biomass power plant NOx emissions, which is equipped with NOx control (e.g. selective non-catalytic reduction system).

EPA published NO and NO₂ concentration measurements (ppmv) from an air curtain incinerator burning vegetative debris in its Katrina study; however, no emission factor (lb-NOx/ton material burned) was published or derived from the data because no flow rates or material throughputs corresponding to the measured concentrations were published. The Katrina study found an average NOx (NO + NO₂) measurement of 79 ppmv, and mentioned "sporadic" and "inconsistent" NOx ppmv measurements of 1 – 4 ppmv by the Fountainhead source test, which did not publish a NOx result. Just comparing the published NOx source test data on a ppmv basis, the Katrina ppmv values are the highest (Katrina: 79 ppmv; BC Hydro: 3.4 ppmv; Victoria, Australia: 19.5 ppmv). Assuming the emission factor that could be derived from the Katrina data will be proportional higher as well, following ratio will be used to produce the most conservative NOx emission factor based on the available data:

$$\left(\frac{\text{lb} - \text{NOx}}{\text{ton}}\right)_{\text{Katrina}} = \left(\frac{\text{lb} - \text{NOx}}{\text{ton}}\right)_{\text{Source Test X}} \times \frac{(\text{ppmv NOx})_{\text{Katrina}}}{(\text{ppmv NOx})_{\text{Source Test X}}}$$

Source Test X = BC Hydro

The NOx emission factor from the BC Hydro test was 0.040 lb-NOx/ton.¹⁴ The average NOx concentration measured during the BC Hydro test was 6.5 mg/m³ (at 20 °C). The molar volume of an ideal gas at 20°C is 24.1 × 10⁻³ m³/g-mol.

$$6.5 \frac{\text{mg NO}_x}{\text{m}^3(\text{at } 20^\circ\text{C})} \times \frac{1 \text{ g mol NO}_2}{46 \text{ g NO}_2} \times \frac{1 \text{ g}}{1,000 \text{ mg}} \times \frac{24.1 \times 10^{-3} \text{ m}^3 (\text{at } 20^\circ\text{C})}{1 \text{ g mol}} = 3.4 \text{ ppmv NO}_x$$

$$\left(\frac{\text{lb} - \text{NOx}}{\text{ton}}\right)_{\text{Katrina}} = \left(\frac{0.040 \text{ lb} - \text{NOx}}{\text{ton}}\right)_{\text{BC Hydro}} \times \frac{(79 \text{ ppmv NOx})_{\text{Katrina}}}{(3.4 \text{ ppmv NOx})_{\text{BC Hydro}}}$$

$$\left(\frac{\text{lb} - \text{NOx}}{\text{ton}}\right)_{\text{Katrina}} = \frac{0.93 \text{ lb} - \text{NOx}}{\text{ton}}$$

Source Test X = Victoria, Australia

The NOx emission factor from the Victoria, Australia test was 0.247 lb-NOx/ton. The average NOx concentration measured during the Victoria, Australia test was 40.0 mg/Nm³ (i.e. at 0 °C). The molar volume of an ideal gas at 0°C is 22.4 × 10⁻³ m³/g-mol.

¹⁴ Based on an emission rate of 0.12 kg-NO₂/hr and 6 metric tonnes feed/hr
EF = 0.12 kg/hr × 2.2 lb/kg × 1 hr/6 tonne × 1 tonne/1.1 tons = 0.040 lb-NOx/ton

$$40.0 \frac{mg NO_2}{Nm^3} \times \frac{1 g mol NO_2}{46 g NO_2} \times \frac{1 g}{1,000 mg} \times \frac{22.4 \times 10^{-3} Nm^3}{1 g mol} = 19.5 ppmv NO_x$$

$$\left(\frac{lb - NOx}{ton} \right)_{Katrina} = \left(\frac{0.274 lb - NOx}{ton} \right)_{Australia} \times \frac{(79 ppmv NOx)_{Katrina}}{(19.5 ppmv NOx)_{Australia}}$$

$$\left(\frac{lb - NOx}{ton} \right)_{Katrina} = \frac{1.1 lb - NOx}{ton}$$

Average NOx Emission Factor

Average NOx emission factor (lb/ton) = (0.93 lb-NOx/ton + 1.1 lb-NOx/ton) ÷ 2

Average NOx emission factor (lb/ton) = 1.0 lb-NOx/ton

Appendix E

Coal Fly Ash Study Emission Factor

Fugitive particulate emission factors for dry fly ash disposal

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Dry fly ash disposal involves dropping ash from a truck and the movement of a heavy grader or similar vehicle across the ash surface. These operations are known to produce fugitive particulate emissions that are not readily quantifiable using standard emission measurement techniques. However, there are numerous situations—such as applying for a source air permit—that require these emissions be quantified. Engineers traditionally use emission factors (EFs) derived from measurements of related processes to estimate fly ash disposal emissions. This study near a dry fly ash disposal site using state-of-the-art particulate monitoring equipment examines for the first time fugitive emissions specific to fly ash handling at an active disposal site. The study measured hourly airborne mass concentrations for particles smaller than 2.5 μm ($\text{PM}_{2.5}$) and 10 μm (PM_{10}) along with meteorological conditions and atmospheric turbidity at high temporal resolution to characterize and quantify fugitive fly ash emissions. Fugitive fly ash transport and dispersion were computed using the on-site meteorological data and a regulatory air pollutant dispersion model (AERMOD). Model outputs coupled with ambient measurements yielded fugitive fly ash EFs that averaged 96 g Mg^{-1} (of ash processed) for the PM_{10} fraction ($=\text{PM}_{10} - \text{PM}_{2.5}$) and 18 g Mg^{-1} for $\text{PM}_{2.5}$. Median EFs were much lower due to the strongly skewed shape of the derived EF distributions. Fugitive EFs from nearby unpaved roads were also characterized. Our primary finding is that EFs for dry fly ash disposal are considerably less than EFs derived using US Environmental Protection Agency AP-42 Emissions Handbook formulations for generic aggregate materials. This appears to be due to a large difference (a factor of 10+) between fugitive vehicular EFs estimated using the AP-42 formulation for vehicles driving on industrial roads (in this case, heavy slow-moving grading equipment) and EFs derived by the current study.

Implications: Fugitive fly ash emission factors (EFs) derived by this study contribute to the small existing knowledge base for a type of pollutant that will become increasingly important as ambient particulate standards become tighter. In areas that are not in attainment with standards, realistic EFs can be used for compliance modeling and can help identify which classes of sources are best targeted to achieve desired air quality levels. In addition, understanding the natural variability in fugitive fly ash emissions can suggest methods that are most likely to be successful in controlling fugitive emissions related to dry fly ash storage.

Supplemental Materials: Supplemental materials are available for this paper. Go to the publisher's online edition of the *Journal of the Air & Waste Management Association*.

Introduction

The U.S. Environmental Protection Agency (EPA) defines fugitive emissions in Title V (parts 70 and 71) of the Clean Air Act as emissions that cannot “reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening” (see *Code of Federal Regulations, CFR*, CFR title 40, part 70.2, 2011). This definition includes gases, liquid droplets, and solid particulate matter. Emissions streams that pass through a vent, stack, or chimney are confined, making them relatively easy to sample. By contrast, fugitive emissions are not confined and that makes quantifying them a challenge.

Despite the difficulties measuring them, fugitive emissions can often comprise a large portion of the total emissions associated with a source that is required to obtain an air permit. Fugitive particulate matter emissions (hereafter, “fugitive emissions”) can also be difficult to control. They must be considered when determining whether a source adversely impacts attainment of ambient air quality standards. In addition, fugitive

emissions must be addressed for New Source Review and Prevention of Significant Deterioration impact analyses for electric generating units larger than 250 million BTU per hour heat input (CFR title 40, part 51, §166, 2008). Fugitive emissions modeling is generally required if annual emissions of a pollutant exceed certain thresholds. These thresholds are 10 English tons per year (tpy) for fine particle ($\text{PM}_{2.5}$) mass and 15 tpy for particles $<10 \mu\text{m}$ in size (PM_{10}). Accurate emissions estimates may, in many situations, determine whether annual emission estimates fall above or below the threshold for modeling. Quantifying fugitive emissions is especially important to source operators that handle granular materials (e.g., coal, fly ash, limestone) or that operate vehicles on unpaved surfaces.

Quantifying fugitive emissions for air permitting purposes generally relies on published emission factors. These factors relate the amount of particulate material emitted into the air from a specific process to some more easily quantifiable aspect of the process. For example, a formula exists (U.S. EPA, 1995, and subsequent updates) that estimates the amount of fugitive

Appendix F

Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/year.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/year.

The annual PE1 and PE2 values are from Sections VII.C.2 and VII.C.1 in this application review.

QNEC for N-1319-3-3			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	2,310	2,678	-92.00
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-4-3			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	2,444	2,808	-91.00
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-5-3			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	2,310	2,678	-92.00
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-6-4			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	2,444	2,808	-91.00
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-8-1			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	4,185	8,370	-1046.25
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-9-1			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM10	4,420	5,850	-357.50
CO	0	0	0
VOC	0	0	0

QNEC for N-1319-10-0			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC (lb/qtr)
NO _x	10,000	0	2,500.00
SO _x	1,000	0	250.00
PM10	11,069	0	2,767.25
CO	26,000	0	6,500.00
VOC	11,000	0	2,750.00

Appendix G

Top-Down Best Available Control Technology Analysis

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 2.4.1

Emission Unit: Stationary Air Curtain
Incinerator

Industry Type: Agricultural Materials
Processing, Biomass Disposal

Equipment Rating: Any

Last Update: December 12, 2016

Pollutants	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start- up (using NSPS Subpart CCCC procedure and averaging period)		• Biomass Power Plant, • Landfill, • Composting
SOx			
PM10			
NOx			

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

**San Joaquin Valley
Unified Air Pollution Control District**

Best Available Control Technology (BACT) Guideline 2.4.1

Emission Unit: Air Curtain Incinerator

Equipment Rating: 6 tons/hour

Facility: Minturn Huller Co-op, Inc

References: N-1319-10-0;
Project N-1162806

Location: 9080 S Minturn Rd, Chowchilla

Date of Determination: December 22, 2016

Pollutant(s)	BACT Requirements
VOC	Air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start-up (using NSPS Subpart CCCC procedure and averaging period)
SOx	
PM10	
NOx	

BACT Status: ☒ Achieved in Practice ☐ Small Emitter
Alternate Basic Equipment
☐ Biomass Power Plant
☐ Landfill
☐ Composting

Mail to: CAPCOA BACT Clearinghouse Project Assessment Branch P.O. Box 2815 Sacramento, CA 95812	For CAPCOA use only Record No.: ; Form No.: ; BLIS District Code: Codes - EPA Source: ; SCAQMD: ; EPA ID No.: ARB Sc: ; Ctrl: ; BLIS Process: ; AIRS Facility No.:
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CAPCOA BACT DETERMINATION REPORTING FORM

Instructions: Complete this form when issuing an authority to construct. Please use one form per determination (i.e. pollutant). Please use one form per determination (i.e. pollutant). Section A need only be completed on one form in the case of a source with multiple determinations. See the reverse side for descriptions of the field identifiers used below. Please attach a copy of the permit or permit conditions if practical. Please call (916)327-5601 for clarification of any questions. (1/5/94)

SECTION A. Source Information

Company and Project Name: Minturn

Facility Address: 9080 S Minturn Rd, Chowchilla

SIC Code: 0723

Application No.: N-1162806 ; Authority to Construct No.: N-1319-10-0

Authority to Construct Issue Date: January 2017

District: SJVUAPCD ; District Contact: Arnaud Marjollet; Phone No.: (559) 230-5900

Est. Startup Date: 2017; Today's Date: 12/19/16; Permit Unit Status: New

Basic Equip./Process: Air curtain incinerator (electric powered) burning sticks from almond processing

Rated Capacity: 6 ton/hr; Output: N/A ; SCC Code:
 Fuel Type: n/a; Backup Fuel(s): N/A ; Project Cost: \$130,000.

SECTION B. Control Data - Pollutants: Combustion contaminants (NOx, SOx, PM10, CO, and VOC);
 Control Equip. N/A

Emissions: Uncontrolled: 1.0 lb-NOx/ton, 0.1 lb-SOx/ton, 1.1 lb-PM10/ton, 2.6 lb-CO/ton, 1.1 lb-VOC/ton
 Controlled Limits:

Enforceable Permit Emissions Limit(s): Maximum throughput 10,000 tons/year, 10% opacity

Emission Type: wood combustion contaminants; Cost of Control Equipment:- N/A

Regulatory Requirement: *District-Defined BACT District-Defined LAER* Other: N/A

BACT/LAER Specification: Reference or Basis: SJVUAPCD

Mass Emission Rate: See emission factors and 10,000 ton/yr throughput ; Destruction efficiency (%): N/A

Normalized Mass Emission Rate: N/A lbm/MMBtu; N/A g/bhp-hr; N/A lbm per ton input

Emission Concentration: N/A Other: N/A

Method of Compliance Verification: Visible emissions, Records

Other Relevant Permit Limits: Time of Operation: N/A Fuel use: N/A Percent Capacity/Use: N/A

BACT ANALYSIS

Air Curtain Incinerator

Facility Name:	Minturn Huller Coop, Inc.	Date:	December 12, 2016
Mailing Address:	9080 S Minturn Rd	Engineer:	Brian Clerico
	Chowchilla, CA 93610	Lead Engineer:	Joven Refuerzo
Contact Person:	Roger Isom		
Telephone:	(559) 455-9272		
E-Mail:	roger@agprocessors.org		
Application #(s):	N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0		
Project #:	N-1162806		
Deemed Complete:	October 9, 2016		

I. Proposal

Minturn Huller Coop, Inc. is proposing to install an air curtain incinerator (N-1319-10-0) to dispose of stockpiles of almond sticks removed during the almond pre-cleaning process. Historically, Minturn paid for the material to be chipped and hauled to a biomass plant. However, with the shutdown of a number of biomass power plants in the San Joaquin Valley and legislative stipulations on the ratio of agricultural to forest derived biomass that can be burned on still operating biomass plants accepting subsidies, disposal of agricultural biomass at biomass power plants has been curtailed. Consequently, Minturn has been stockpiling almond sticks and has built up a 10,000+ ton inventory of this material. District Rule 4103, Open Burning, is not applicable to this material because once it has been removed from the field, it is no longer considered agricultural waste under the rule. The feasibility and cost effectiveness of alternative disposal options such as sending the material to a landfill or composting facility are addressed in this Top-Down Best Available Technology Control Determination.

This project triggers Best Available Control Technology (BACT) for NO_x, SO_x, PM₁₀, and VOC.

II. Process Description

Minturn Huller Cooperative operates an almond processing plant. As a byproduct of the almond receiving and precleaning and process, field debris consisting of wood sticks (as well as dirt) are removed from the almonds and collected into piles. Minturn has been accumulating an inventory of wood sticks (~10,000 tons) as the closure of biomass power plants within the San Joaquin Valley has reduced what was the primary and most cost effective option for the disposal of woody biomass for local agricultural sources and agricultural processors. Thus, Minturn has proposed an air curtain incinerator as a means of disposing of their wood sticks.

The air curtain incinerator is a 30 feet by 8 feet by 8 feet (usually portable) unit consisting of refractory lined, opened-topped firebox and a fan. For portable units, the power source for the fan is a diesel engine (< 100 bhp). Wood material is loaded through the top opening of the firebox by heavy equipment such as a grapple loader or claw. Although the device is described as an incinerator and classified as such under New Source Performance Standards Subparts

CCCC and EEEE, unlike conventional incinerators, there are no burners per se or use of supplementary fuels to support the combustion. Once ignited, the wood material sustains its own combustion. Ignition of the wood material can be performed with accelerants (e.g. 2 – 5 gallons of diesel or kerosene fuel) or with a propane torch. Alternatively, a “hot start” may be performed using the bottom layer of hot embers from the previous day’s burn. Once the fire is ignited, to avoid blowing out the fire, 15 – 20 minutes of burn time is required before the air curtain can be engaged.

On top the firebox, along its entire length, is the air outlet manifold from a fan that pushes a high velocity “curtain” of air across the top of the firebox. As the high velocity air curtain blows across the top, a rotational air current develops within the upper portion of the firebox. The air curtain promotes more complete combustion by: (1) oxygenating the fire, increasing its temperature (1,600 - 2,200 °F), which helps combust green or high moisture vegetation, and (2) increasing the residence time of gases and particles within the firebox by impeding their upward flow out of the firebox. The result is a burn with visible emissions not exceeding 10% opacity. As the wood material in the firebox burns down, new material is periodically dropped by a loader through the top opening of the firebox. When new material is dropped into the firebox, the air curtain is briefly “broken,” and a puff of smoke is emitted. According to a number of emissions tests performed, the exhaust flow exits the firebox along the side opposite the air curtain manifold.

Operating schedule: 10 hours/day during Fall, Winter, and Spring, 12 hours/day during Summer (condition from Ambient Air Quality Analysis); 365 days/year

III. EMISSION CONTROL TECHNOLOGY EVALUATION:

Rule 2201, Section 3.10, defines Best Available Control Technology (BACT) as the most stringent emission limitation or control technique of the following:

- Achieved in practice for such category and class of source;
- Contained in any State Implementation Plan approved by the Environmental Protection Agency for such category and class of source. A specific limitation or control technique shall not apply if the owner of the proposed emissions unit demonstrates to the satisfaction of the APCO that such a limitation or control technique is not presently achievable; or
- Contained in an applicable federal New Source Performance Standard; or
- Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source.

A. BACT Applicability

District Rule 2201 requires BACT to be applied to any new emissions unit with a potential to emit of any pollutant greater than 2.0 lb/day. Since the potential to emit for air curtain incinerator is greater than 2.0 lb/day for NO_x, SO_x, PM₁₀, and VOC, BACT is triggered for these pollutants. Although the potential to emit for CO is greater than 2.0 lb/day, since the Stationary Source Potential to Emit (SSPE) for CO is less than 200,000 lb/year.

B. BACT Policy

The District does not have any BACT Guidelines in its Clearinghouse that would cover incineration of agricultural waste. Therefore, a new BACT guideline is being developed with this project.

The following other published BACT Guidelines were consulted to determine potential control technologies for this class and category of operation:

- The U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse,
- California Air Resources Board (CARB) BACT Clearinghouse,
- California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse,
- Sacramento Metropolitan Air Quality Management District (SMAQMD),
- San Diego Air Pollution Control District (SDAPCD)
- Santa Barbara County Air Pollution Control District (SBCAPCD),
- South Coast Air Quality Management District (SCAQMD),
- Bay Area Air Quality Management District (BAAQMD), and
- Yolo-Solano Air Quality Management District (YSAQMD)

However, none of the above sources has a published BACT guideline for an air curtain incinerator.

Technology Transfer Analysis

The District has a BACT guideline for a municipal-waste incinerator (1.9.8); however, this guideline is not transferable because the air curtain incinerator does not use any burners or supplemental fuel to maintain combustion, nor does it have a stack or flue that can duct pollutants to a control device.

Therefore, none of the burner technologies that are used with other sources of open combustion are transferable.

Applicable Rules:

The District does not have a rule that addresses air curtain burners. District Rule 4103, Open Burning, and District Rule 4106, Prescribed Burning and Hazard Reduction Burning, do not apply to the air curtain burner in this project. The District does apply Rule 4106 to the use of air curtain incinerators for wildfire risk reduction. However, Rule 4106 would not apply to the use of an air curtain as part of stationary source operations, as in the present case.

New Source Performance Standards Subpart CCCC - Standards of Performance for Commercial and Industrial Solid Waste Incineration Units, does apply to the air curtain burner in this project. This subpart has a section that applies specifically to air curtain burners that burn only wood waste. The subpart requires limits on visible emissions of not more than 35% opacity at start-up (first 30 minutes of operation) and not more than 10% opacity after the start-up period.

SJVAPCD Permits

The District has not previously issued a stationary source permit for an air curtain incinerator. For air curtain incinerators used for wildfire hazard reduction, the District has regulated those sources through District Rule 4106, Prescribed Burning and Hazard Reduction Burning, and no permit has been required.

Other Permits

In 2004, San Diego APCD issued a permit for a portable air curtain incinerator powered by a diesel IC engine to the California Department of Parks and Recreation for wildfire hazard reduction. The permit analysis included a risk assessment and Ambient Air Quality Analysis. The BACT analysis, which was not published, showed that no feasible or cost effective alternatives existed for the disposal of large quantities of wood in the time frame required.

South Coast AQMD issued a permit for an air curtain incinerator located on Catalina Island "a long time ago" as an alternative to open burning. However, the permit for that unit was surrendered after a brief operating period.

C. BACT Analysis for NO_x, SO_x, PM₁₀, and VOC

The BACT analysis will evaluate the pollutants triggering BACT collectively since (1) no pollutant specific add-on controls have been identified and (2) the alternative basic equipment options identified affect the emission rates of all the pollutants, thus requiring calculation of a Multi-Pollutant Cost Effectiveness Threshold (MCET) per APR 1305, Best Available Control Technology Policy.

Step 1 - Identify All Possible Control Technologies

The control technology or alternative basic equipment (ABE) options for large-scale disposal of wood waste include:

- Air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start-up (NSPS Subpart CCCC).

Note that pollutant emission limits are not specified because emissions are known to vary by type of biomass material burned, and this BACT guideline is not specific to the type of biomass.

- Air curtain incinerator (powered by diesel IC engine), with visible emissions of 10% opacity or less after start-up (NSPS Subpart CCCC)
- Biomass power plant.
- Landfill disposal.
- Composting (shipping to offsite facility).
- Enclosed air curtain incinerator and venting the emissions to NO_x and/or other pollutant control device(s).

Step 2 - Eliminate Technologically Infeasible Options

- Biomass power plant.

The reason for Minutrn proposing the air curtain incinerator is that the local biomass plants have recently not been accepting this material.

- Enclosure of the air curtain incinerator and venting the emissions to NOx and/or other pollutant control device(s).

There are no examples of air curtain burners operating within an enclosed space for safety and operational concerns.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Landfill (Alternate Basic Equipment)
2. Composting (Alternate Basic Equipment)
3. Air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start-up (per NSPS Subpart CCCC procedure and averaging period).
4. Air curtain incinerator (powered by diesel IC engine), with visible emissions of 10% opacity or less after start-up (per NSPS Subpart CCCC procedure and averaging period).

Step 4 - Cost Effectiveness Analysis

The applicant has proposed Option #3 from the table above. Options #1 and 2 are less polluting options.

The cost of the air curtain and the less polluting options are summarized in the tables below:

Annual Cost of Air Curtain	
Capital Costs	
Air Curtain (Air Burners Inc.)	\$109,753
Freight (Air Burners Inc.)	\$6,166
Sales Tax at 8%	\$8,780
Training	\$5,000
Total Capital Costs	\$129,699
Annualized Capital Costs (at 10%, see Attachment A)	\$21,108
Annual Operating Costs	
Labor (10 hr/day x \$30/hr x 200 day/yr x 1 worker) ¹	\$60,000
Fuel (diesel)	\$4,321 ²
Total Annual Operating Cost	\$85,429

The costs of landfilling or composting the almond sticks involve transporting the sticks off-site to a landfill or composting site that will accept them. A local biosolids compost site indicated the material would be acceptable for composting; however, they do not have space for any of this material at present. A compost operator in Kern County indicated that the problem for composters is a shortage of nitrogenous materials (and water). Taking on more wood waste (a carbonaceous material) would only make the carbon to nitrogen ratio worse (i.e, higher), hence, it would be unlikely that anyone would accept this material at any price given the current imbalance.

The costs of off-site disposal are dominated by the tipping fees. The median or average tipping fee cost in 2015 for green waste from CalRecycle (see Attachment B) will be used.

The commercial hauling costs are based on the following calculation:

$10,000 \text{ tons almond sticks/yr} \times 2,000 \text{ lb/ton} \times 1 \text{ yd-wood sticks (unchipped)/400 lb}^3 \times 1 \text{ load/100 yd} \times \$150/\text{load}^4 = \$75,000/\text{yr}$

Annual Cost of Transport to Landfill	
Annual Off-site Transportation Costs	
Tipping fee (\$43/ton x 10,000 tons/yr) CalRecycle	\$430,000
Commercial hauling costs (City of Bakersfield)	\$75,000
Total Annual Operating Cost	\$505,000

*CalRecycle, Median for greenwaste in Central Valley (February 2015). Merced County Highway 59 landfill, one of the local landfills, has a green material fee of \$21/ton; however, they indicated they would charge almond sticks from the huller-sheller at their general rate (\$43/ton) because in their experience it contains soil, dirt, etc. <http://www.calrecycle.ca.gov/publications/Documents/1520%5C20151520.pdf>

¹ 50 ton/day and 10,000 ton/yr burn limit. Assumes 5 tons burned per hour to reach the 50 ton/day limit, and 200 operating days/yr to reach the 10,000 ton/yr burn limit.

² Diesel fuel at 3.9 gal/hr (from loader at Bakersfield City Wood site) x 2 hr/day x \$2.77/gal x 200 days/yr = \$4,321.

³ CalRecycle density of uncompacted, unchipped wood waste.

<http://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations.htm>

⁴ Flat rate charged to City of Bakersfield to haul overs from compost facility (2601 South Mount Vernon Avenue, Bakersfield) to Bena Landfill 2951 Neumarkel Road, Bakersfield, approximately 15 miles one-way.

Material sent to a composting facility must also be received chipped; hence, a chipping cost must be added.

Annual Cost of Transport to Compost Site	
Annual Off-site Transportation Costs	
Tipping fee (\$30/ton x 10,000 tons/yr) CalRecycle	\$300,000
Commercial hauling costs (City of Bakersfield)	\$75,000
Chipping costs (\$6-10/ton x 10,000 tons/yr) CalRecycle	\$60,000
Total Annual Operating Cost	\$435,000

*CalRecycle, Median and average for greenwaste. No region specific value reported by CalRecycle. (February 2015).

<http://www.calrecycle.ca.gov/publications/Documents/1520%5C20151520.pdf>

Multi-Pollutant Cost Effectiveness Threshold (MCET)

District Policy 1305 requires that for control options that affect more than one pollutant, a MCET is calculated. If the difference between the cost of the ABE option (e.g. landfill, composting) and the proposed option (e.g. air curtain) is greater than the MCET, then the option is not cost effective.

Cost effective threshold = CET (\$/ton)

$$MCET = CET_{NOx} \times PE_{NOx} + CET_{SOx} \times PE_{SOx} + CET_{PM10} \times PE_{PM10} + CET_{VOC} \times PE_{VOC}$$

$$MCET = (\$24,500/\text{ton} \times 5.0 \text{ ton-NOx/yr}) + (\$18,300/\text{ton} \times 0.5 \text{ ton-SOx/yr}) + (\$11,400/\text{ton} \times 5.5 \text{ ton-PM10/yr}) + (\$17,500/\text{ton} \times 5.5 \text{ ton-VOC/yr})$$

$$MCET = \$290,600$$

In the present analysis, it is simpler and more conservative to make no deduction to the MCET for emissions caused by either ABE option.

Compare Annual Cost of ABE Options to MCET

Landfill Disposal Option:

$$\text{Cost of Landfill} - \text{Cost of air curtain} = \$505,000/\text{yr} - \$85,429/\text{yr} = \$419,571/\text{yr}$$

$$MCET = \$290,600/\text{yr}$$

Since the cost difference for the landfill disposal option is greater than the MCET, the landfill is not a cost effective ABE at this time.

Composting Option:

$$\text{Cost of Compost} - \text{Cost of air curtain} = \$435,000/\text{yr} - \$85,429/\text{yr} = \$349,571/\text{yr}$$

$$MCET = \$290,600/\text{yr}$$

Since the cost difference for the composting option is greater than the MCET, the composting is not a cost effective ABE at this time.

Step 5 - Select BACT

BACT for NO_x, SO_x, PM₁₀, and VOC is the air curtain incinerator (electric powered), with visible emissions of 10% opacity or less after start-up (using NSPS Subpart CCCC procedure and averaging period).

Note that pollutant emission limits are not specified because emissions are known to vary by type of biomass material burned, and this BACT guideline is not specific to the type of biomass.

Attachment A

District BACT Annualized Cost Worksheet

BACT Cost Effectiveness Worksheet

Capital Costs (P) to be financed (supplied by applicant)	\$129,699.00 (1)
Interest rate for financing (assume 10%)	0.10 (i)
time period of financing (assume 10 years)	10 (n)
annualization factor = $\frac{i(1+i)^n}{(1+i)^n - 1}$	0.16 (2)
annualized capital costs [Calculated as (1) X (2)]	\$21,107.91 (3)
annual cost of operation and maintenance (includes monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)	\$0.00 (4)
total cost of control technology [(3) + (4)]	\$21,107.91 (5)
tons/year reduced by control technology being analyzed	3.25 (6)
cost effectiveness (\$/ton) [(5) / (6)]	\$6,494.74 (7)

Pollutant	Cost Effectiveness Threshold
VOC	17500
NOx	24500
PM10	11400
SOX	18300
CO	300

Attachment B

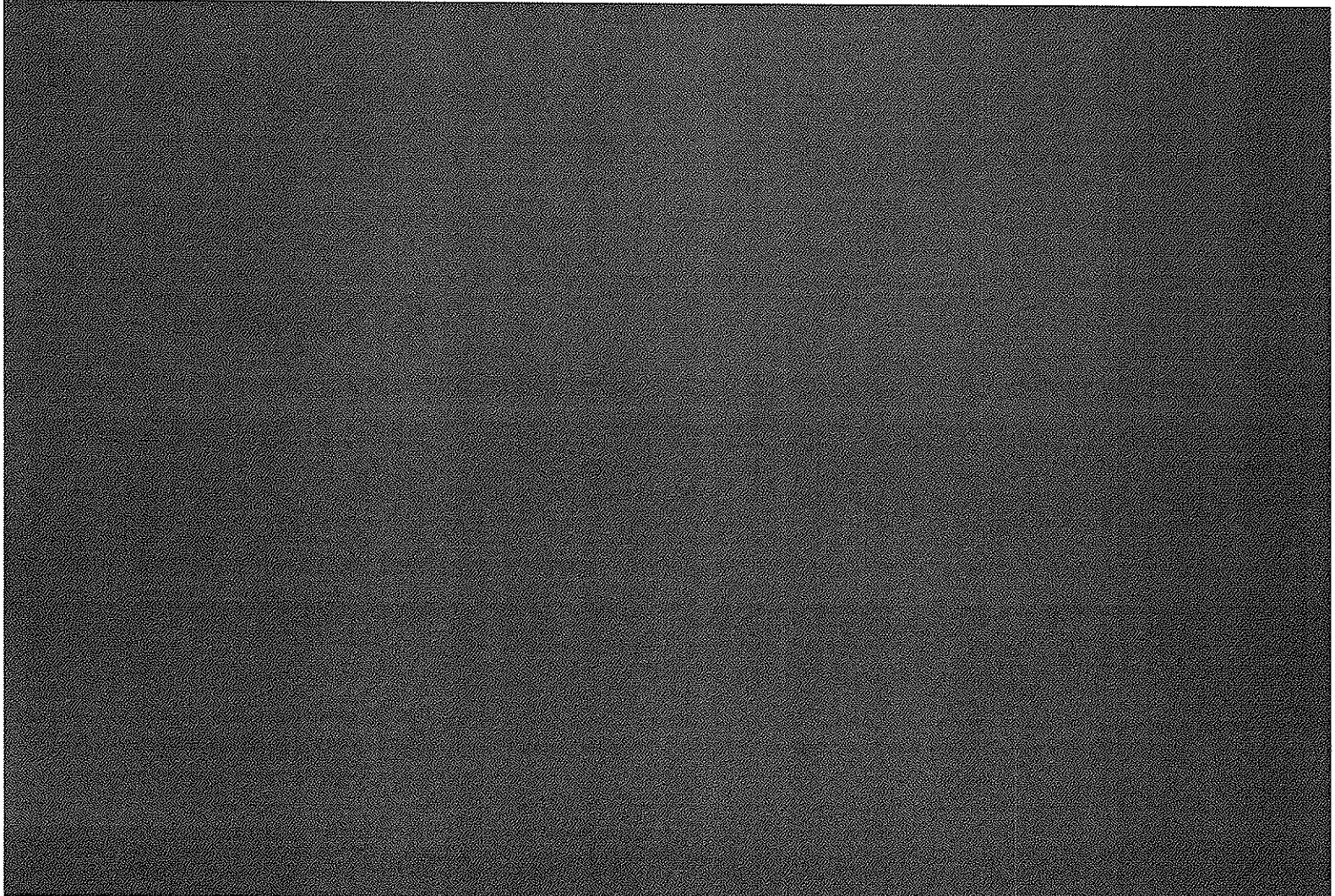
2015 CalRecycle Report on Tipping Fees

Landfill Tipping Fees in California



California Department of Resources Recycling and Recovery

February 2015



down. If true, this makes building a competitive recycling and composting infrastructure very challenging.

- The median green waste tipping fee at landfills in California was \$39 per ton. More than half of landfills (58 percent) charge less for green waste than MSW, while only 16 percent charge more for green waste (Figure 4).
- California's per ton landfill tipping fee data had pronounced regional fee differences. The Bay Area and Coastal Area median tipping fees were \$68 and \$64. The Southern region median tipping fee was \$56. The Central Valley median tipping fee was \$43, with only four landfills with fees above the statewide median. The Mountain region appeared to have the lowest median of \$42, but this data set is split with half of the fees below \$42 and the other half above \$70, so the median does not describe this data well (Table 6).
- The 27 private landfills had a much narrower range in tipping fees, with a median of \$57 per ton, which was well above the \$45 median of the more variable 71 public landfills (Table 8).
- Tipping fees vary most at smaller landfills (less than 200,000 tons per year), while there is less variation in tipping fees at medium (from 200,000 tons to 1,000,000 tons per year) and larger landfills (more than 1,000,000 tons per year). Lower fees were also more common at these medium and larger landfills (Table 10).
- Areas with many nearby landfills tend to have lower tipping fees than landfills without other landfills nearby (Table 11).
- When comparing California tipping fee data to other entities that use averaged data, it is necessary to use the California average tipping fee as a more comparable metric rather than the median.
 - In the United States, the average tipping fee at landfills was \$49 in 2013, \$5 less than California's average tipping fee of \$54 per ton (Figure 12).
 - In the European Union, the average tipping fee at landfills was \$100 in 2012, nearly double California's average tipping fee of \$54 per ton (Figure 16).
- In both the United States and the European Union, states or countries that landfill more of their waste have lower average tipping fees compared to states or countries that landfill less of their waste. When viewed in this context, California charges slightly less than expected given our high percentage of waste diverted from landfills. (Figure 13 and Figure 18).

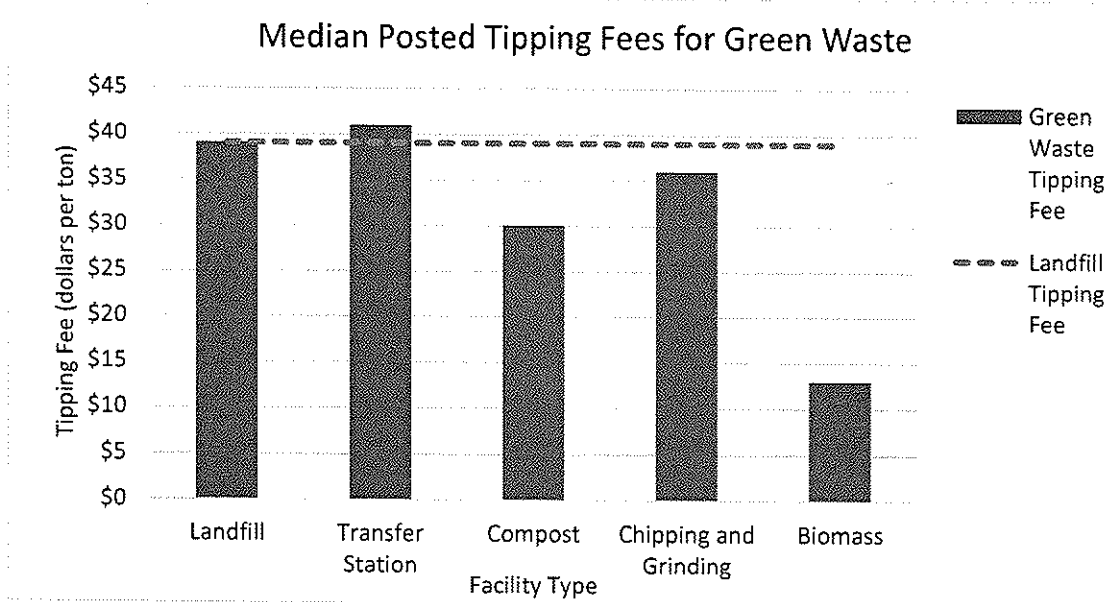
Some general conclusions can be drawn from these findings:

- Tipping fees in California are complex and have a lot of local variation.
- California has lower landfill tipping fees compared with other environmentally progressive areas such as the Northeastern and Northwestern regions of the United States and the European Union. With some exceptions, the higher the tipping fee, the lower percentage of waste a region landfills.

Table 5: Posted green waste tipping fees at disposal and diversion facilities that accept green waste in California.

Facility	Median Green Waste	Average Green Waste	Range Green Waste
Landfill	\$39	\$40	\$9-\$126
Transfer Station	\$41	\$49	\$0-\$178
Compost	\$30	\$30	\$0-\$127
Chipping and Grinding	\$36	\$40	\$0-\$128
Biomass	\$13	\$16	\$0-\$47

Figure 5: Median posted tipping fees for green waste. The green line is the landfill median. All landfills were surveyed in this study; other facilities have a portion of facilities sampled.



A substantial amount of green waste generated in California goes to facilities other than landfills. In California, disposal is tracked in CalRecycle's DRS, but for the most part diverted materials are not directly tracked. Green waste materials can be recovered for recycling at some transfer stations (those that act as material recovery facilities), converted into energy at a biomass conversion facility, processed at a chipping and grinding facility for future use, or composted at a composting facility (includes anaerobic digestion). Compost, chipping and grinding facilities, and biomass conversion facilities capture organic material and process or convert the material for a more beneficial use. The products from these facilities are sold to agricultural and horticultural consumers as soil amendment and mulch or to public utilities as electricity from biomass conversion. There are more than 350 of these facilities in California.

Appendix H

Risk Management Review and Ambient Air Quality Analysis Memo

San Joaquin Valley Air Pollution Control District

Risk Management Review

To: Brian Clerico– Permit Services
From: Matthew Cegielski– Technical Services
Date: December 14, 2016
Facility Name: Minturn Huller
Location: 9080 S Minturn Road Chowchilla, CA
Application #(s): N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0
Project #: N-1162806

A. RMR SUMMARY

RMR Summary			
Categories	Air Curtain Burner (Unit 10-0)	Project Totals	Facility Totals
Prioritization Score	23.2	>1.0	>1.0
Acute Hazard Index	0.02	0.0	0.0
Chronic Hazard Index	0.01	0.0	0.0
Maximum Individual Cancer Risk	2.52 E-07	2.52 E-07	2.52 E-07
T-BACT Required?	No		
Special Permit Requirements?	Yes		

Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 3-3, 4-3, 5-3, 6-4, 8-1, and 9-1

No special requirements are required for this project.

Unit # 10-0

1. The Air Curtain Destructor will be limited to burning almond biomass to 6 tons/hr, 50 tons/day, and 10,000 tons/yr.
2. The hours of operations will be limited to 0700 to 1700 from September 22 to June 20th and 0700-1900 from June 21st to September 21st.
3. The Air Curtain Destructor will be located at UTM 742,534 and 4,115,656.
4. After hours of operation are completed, the fire in the firebox will be snuffed out and will not be allowed to smolder overnight. Ash from firebox will be emptied in a manner to minimize emissions and will be mixed with soil in an area immediately south of the firebox.

5. The firebox ash will be transported to and dispersed within the storage area in a manner to minimize emissions. The lease of the land east of the storage area will be maintained during operation of the unit.
6. The Air Curtain Destructor will be operated according to manufacturer's guidelines and to minimize emissions. This includes but not limited to the following prohibitions: biomass shall not protrude from the firebox into the air curtain, flames shall not be visible above the air curtain, and plumes of ash shall not be generated due to excessive loading.

B. RMR REPORT

I. Project Description

Technical Services received a request on December 14, 2016, to perform an Ambient Air Quality Analysis and a Risk Management Review for an Air Curtain Destructor and the lowering of the annual throughput on the other units.

II. Analysis

The lowering of the annual throughput on units 3, 4, 5, 6, 8, and 9 does not result in an increase of emissions and were not evaluated.

Toxic emissions for the Air Curtain Destructor were calculated using District approved emission factors based on the 1999 CARB Report, (Table 19, Biomass Fluidized Bed Combustor Combustion portion) *Development of Toxics Emission Factors from Source Test Data Collected Under the Air Toxics Hot Spots Program*. These emission factors were considered the best fit for the combustion parameters and operating conditions.

Toxic emission from handling the ash from the Air Curtain Destructor were based on emission factors from (Biomass) Table 17 in June 2008 *Trace Metal Mobilization During Combustion of Biomass Fuels*.

Emissions were entered into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines. The prioritization score for the facility is greater than 1.0 (see RMR Summary Table).

Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2009-20011 from Madera to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters			
Unit 10-0 Air Curtain Destructor Combustion			
Source Type	Point*	Location Type	Rural
Stack Height (m)	2.46*	Closest Receptor (m)	340
Stack Diameter. (m)	3.796*	Type of Receptor	Worker
Stack Exit Velocity (m/s)	0.7	Fuel Type	Almond Biomass
Stack Exit Temp. (°K)	450	Biomass Usage (ton/day)	50
Biomass Usage (ton/hr)	6	Biomass Usage (ton/yr)	10,000

*The firebox is rectangular shaped and the area was converted to an equivalent diameter. Source testing provided by the reference for the Air Curtain was done one foot above the lip of the container and this was considered as the release height for the measured average velocity.

Analysis Parameters			
Unit 10-0 Air Curtain Destructor Firebox Ash Removal			
Source Type	Area	Location Type	Rural
X-Length (m)	9.17	Closest Receptor (m)	340
Y-Length (m)	2.59	Type of Receptor	Worker
Release Height (m)	2.158	Pollutant Type	PM
Biomass Usage (lb/hr)	1.44E-02	Biomass Usage (lb/yr)	34.5

Analysis Parameters			
Unit 10-0 Air Curtain Destructor Ash Storage			
Source Type	Area	Location Type	Rural
X-Length (m)	18.29	Closest Receptor (m)	340
Y-Length (m)	60.96	Type of Receptor	Worker
Release Height (m)	2.896	Pollutant Type	PM
Biomass Usage (lb/hr)	1.44E-02	Biomass Usage (lb/yr)	34.5

The following parameters were used for the review:

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM₁₀ with the emission rates below:

[illegible]

The NO_x, SO_x, and CO were evaluated based on a twelve hour operating period from 0700 to 1900. The PM₁₀ was further evaluated based on the season and operating period combination specified in the permit requirements.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass ¹	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ²	Pass ²
PM _{2.5}	X	X	X	Pass ²	Pass ²

*Results were taken from the PSD report.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

IV. Documents in Data Folder

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. Facility Summary

Appendix I

Draft Authorities to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1319-3-3

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND PRECLEANING OPERATION SERVED BY A MAC EQUIPMENT 144MCF416
BAGHOUSE: LOWER ANNUAL THROUGHPUT LIMIT FROM 172,800 TO 149,000 FIELD WEIGHT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
7. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
8. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

N-1319-3-3: Dec 19 2016 5:15PM - CLERICOB : Joint Inspection NOT Required

9. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
10. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
11. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
12. The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
13. The quantity of almonds processed through the precleaning operation shall not exceed 149,000 field weight tons in any year. [District Rule 2201]
14. The PM10 emissions from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
15. The PM10 emissions from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
16. The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this precleaning operation. [District Rule 2201]
17. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
18. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
19. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1319-4-3

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND HULLING AND SHELLING OPERATION SERVED BY A MAC EQUIPMENT 144MCF756
BAGHOUSE: LOWER ANNUAL THROUGHPUT LIMIT FROM 43,200 TO 37,600 MEAT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Visible emissions from each baghouse serving the hulling/shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
5. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
7. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
8. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-1319-4-3 : Dec 19 2016 5:15PM - CLERICOB : Joint Inspection NOT Required

9. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
10. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
11. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
12. The quantity of almonds processed through the hulling/shelling operation shall not exceed 240 meat tons in any one day. [District Rule 2201]
13. The quantity of almonds processed through the hulling/shelling operation shall not exceed 37,600 meat tons in any year. [District Rule 2201]
14. The PM10 emissions from the hulling/shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
15. The hulling/shelling operation shall not operate more than 180 days per year. [District Rule 2201]
16. The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]
17. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
18. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
19. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1319-5-3

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND PRECLEANING OPERATION SERVED BY AN LMC WEST MODEL 594-LP-12
BAGHOUSE: LOWER ANNUAL THROUGHPUT LIMIT FROM 172,800 TO 149,000 FIELD WEIGHT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
7. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
8. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
9. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-1319-5-3 : Dec 19 2016 5:15PM - CLERICOB : Joint Inspection NOT Required

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10. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
11. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
12. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
13. The quantity of almonds processed through the precleaning operation shall not exceed 960 field weight tons in any one day. [District Rule 2201]
14. The quantity of almonds processed through the precleaning operation shall not exceed 149,000 field weight tons in any year. [District Rule 2201]
15. The PM10 emissions from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
16. The PM10 emissions from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
17. The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this receiving and precleaning operation. [District Rule 2201]
18. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
19. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
20. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1319-6-4

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND HULLING AND SHELLING OPERATION SERVED BY TWO LMC WEST MODEL 450-LP-12 BAGHOUSES AND ONE LMC MODEL 312-LP-12 BAGHOUSE: CORRECT EMISSION FACTOR BASIS FROM FIELD WEIGHT TONS TO MEAT TONS AND LOWER ANNUAL THROUGHPUT FROM 43,200 TO 37,600 MEAT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Visible emissions from each baghouse serving the hulling and shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
7. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
8. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

N-1319-6-4 : Dec 19 2016 5:15PM - CLERICOB : Joint Inspection NOT Required

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9. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
10. The cleaning frequency and duration of each baghouse shall be adjusted to optimize the control efficiency. [District Rule 2201]
11. Material removed from each baghouses shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
12. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 6.0 inches water column. [District Rule 2201]
13. The amount of almonds processed through the hulling and shelling operation shall not exceed 240 meat tons in any one day. [District Rule 2201]
14. The quantity of almonds processed through the precleaning operation shall not exceed 37,600 meat tons in any year. [District Rule 2201]
15. The PM10 emissions from the hulling and shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
16. The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]
17. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
18. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
19. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1319-8-1

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND RECEIVING AND PRECLEANING OPERATION WITH RECEIVING PITS, SHAKERS, DESTONERS, PREHULLERS, ELEVATORS, AUGERS, ASPIRATORS, BINS, AND CONVEYORS SERVED BY TWO 62,500 CFM DONALDSON 528 LP 12 BAGHOUSES: REVISE EMISSION FACTOR BASIS FROM BAGHOUSE AIR FLOW AND GRAIN LOADING TO THROUGHPUT AND AP-42 EMISSION FACTOR AND LIMIT ANNUAL THROUGHPUT TO 272,000 FIELD WEIGHT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Visible emissions from each baghouse serving the precleaning operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
7. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-1319-8-1: Dec 19 2016 5:15PM - CLERICOB - Joint Inspection NOT Required

8. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
9. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
10. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
11. Each baghouse cleaning frequency and duration shall be adjusted to optimize the control efficiency. [District Rule 2201]
12. Material removed from dust collector(s) shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
13. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 5.5 inches water column. [District Rule 2201]
14. Controlled PM10 emissions from each Donaldson 528 LP 12 dust collector shall not exceed 0.001 gr/scf. [District Rule 2201]
15. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
16. The quantity of almonds processed through the receiving and precleaning operation shall not exceed 2,880 field weight tons in any one day. [District Rule 2201]
17. The quantity of almonds processed through the receiving and precleaning operation shall not exceed 270,000 field weight tons in any year. [District Rule 2201]
18. The PM10 emissions from the unloading operation shall not exceed 0.0005 pounds per field weight ton. [District Rule 2201]
19. The PM10 emissions from the almond precleaning operation shall not exceed 0.015 pounds per field weight ton. [District Rule 2201]
20. The permittee shall maintain daily and cumulative annual records of the quantity (in field weight tons) of almonds processed through this receiving and precleaning operation. [District Rule 2201]
21. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
22. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1319-9-1

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

MODIFICATION OF ALMOND HULLING AND SHELLING OPERATION WITH FEEDERS, DECKS, CRACKERS, DESTONERS, SHEAR ROLLERS, ELEVATORS, HOPPERS, ASPIRATORS, AUGERS, AND CONVEYORS SERVED BY THREE 120,000 CFM DONALDSON 780 LP 12 BAGHOUSES: REVISE EMISSION FACTOR BASIS FROM BAGHOUSE AIR FLOW AND GRAIN LOADING TO THROUGHPUT AND AP-42 EMISSION FACTOR AND LIMIT ANNUAL THROUGHPUT TO 68,000 MEAT TONS

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Visible emissions from each baghouse serving the hulling and shelling operation shall not equal or exceed 5% opacity for a period or periods aggregating more than three minutes in any one hour. [District Rule 2201]
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
7. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-1319-9-1 : Dec 19 2019 5:15PM - CLERICOB : Joint Inspection NOT Required

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8. Each baghouse shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The gauge shall be maintained in good working condition at all times and shall be located in an easily accessible location. [District Rule 2201]
9. Each baghouse shall be maintained and operated according to manufacturer's specifications. [District Rule 2201]
10. Replacement bags numbering at least 10% of the total number of bags in the largest baghouse using each type of bag shall be maintained on the premises. [District Rule 2201]
11. The cleaning frequency and duration of each baghouse shall be adjusted to optimize the control efficiency. [District Rule 2201]
12. Material removed from the baghouses shall be disposed of in a manner preventing entrainment into the atmosphere. [District Rule 2201]
13. When in operation, the differential pressure of each baghouse shall not be less than 0.5 inches water column nor greater than 5.5 inches water column. [District Rule 2201]
14. Controlled PM10 emissions from each Donaldson 780 LP 12 dust collector shall not exceed 0.001 gr/scf. [District Rule 2201]
15. The amount of almonds processed through the hulling and shelling operation shall not exceed 480 meat tons in any one day. [District Rule 2201]
16. The quantity of almonds processed through the precleaning operation shall not exceed 68,000 meat tons in any year. [District Rule 2201]
17. The PM10 emissions from the hulling and shelling operation shall not exceed 0.065 pounds per meat ton. [District Rule 2201]
18. A daily log shall be maintained that includes the date and daily quantity, in meat tons, and cumulative annual quantity of almonds processed through this hulling/shelling operation. [District Rule 2201]
19. The permittee shall maintain daily and cumulative annual records of the quantity (in meat tons) of almonds processed through this hulling and shelling operation. [District Rule 2201]
20. Differential operating pressure shall be monitored and recorded on each day that each baghouse operates. [District Rule 2201]
21. Records of all maintenance of each baghouse, including all change outs of filter media, shall be maintained. [District Rule 2201]
22. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1319-10-0

LEGAL OWNER OR OPERATOR: MINTURN HULLER COOP, INC.

MAILING ADDRESS: PO BOX 760
CHOWCHILLA, CA 93610-0545

LOCATION: 9080 S MINTURN RD
CHOWCHILLA, CA 93610

EQUIPMENT DESCRIPTION:

AIR BURNERS INC. MODEL S-220 AIR CURTAIN INCINERATOR WITH ELECTRIC POWERED FAN

CONDITIONS

1. Authorities to Construct N-1319-3-3, '-4-3, '-5-3, '-6-4, '-8-1, '-9-1, and '-10-0 shall be implemented concurrently. [District Rule 2201]
2. Within 12 months of initial operation of this air curtain incinerator, the operator shall submit a complete application for a Title V operating permit to the District for compliance with New Source Performance Standard Subpart CCCC - Standards of Performance for Commercial and Industrial Solid Waste Incineration Units. [40 CFR 60.2242]
3. The air curtain incinerator shall be operated according to manufacturer's specifications and in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
4. The air curtain incinerator shall burn only almond wood waste material that has been generated onsite as a byproduct of almond processing. [District Rule 2201]
5. The air curtain incinerator shall be located at the following coordinates: UTM - 10S, 742534 E, 4115656 N. [District Rule 2201]
6. Active burning inside the air curtain shall only be conducted from 7:00 am to 5:00 pm from September 21 through June 21. [District Rule 2201]
7. Active burning inside the air curtain shall only be conducted from 7:00 am to 7:00 pm from June 22 through September 20. [District Rule 2201]
8. The permittee shall maintain operational control or restrict public access to the adjacent parcel of land east of the facility boundary. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

N-1319-10-0 : Dec 22 2016 12:07PM - CLERICOB : Joint Inspection NOT Required

9. The air curtain incinerator shall burn no more than 50 tons of almond wood waste material in any one day. [District Rules 2201 and 4102]
10. The air curtain incinerator shall burn no more than 10,000 tons of almond wood waste material in any year. [District Rules 2201 and 4102]
11. The amount of wood ash handled shall not exceed 1.5 tons in any one day. [District Rules 2201 and 4102]
12. The amount of wood ash handled shall not exceed 300 tons in any year. [District Rules 2201 and 4102]
13. Wood ash removed from the firebox shall be handled, stored, and disposed of in a manner minimizing entrainment into the atmosphere. [District Rule 2201]
14. For conducting a cold start, the operator shall use a propane or butane torch, driptorch, or flare to ignite the material inside the air curtain incinerator. No accelerants (e.g. gasoline, diesel fuel, kerosene, turpentine) may be used. [District Rules 2201 and 4102]
15. Emissions (in units of pounds per ton of almond wood waste material) from the air curtain incinerator shall not exceed any of the following limits: 1.0 lb-NO_x/ton, 0.1 lb-SO_x/ton, 1.1 lb-PM₁₀/ton, 2.6 lb-CO/ton, or 1.1 lb-VOC/ton. [District Rule 2201]
16. Emissions from wood ash handling and storage shall not exceed 0.46 lb-PM₁₀/ton. [District Rule 2201]
17. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
18. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
19. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
20. During the startup period that is within the first 30 minutes of operation, visible emissions from the air curtain incinerator shall not exceed 35 percent opacity as determined by the average of three, 30 minute blocks consisting of five 6-minute average opacity values. [District Rule 2201]
21. After the startup period, visible emissions from the air curtain incinerator shall not exceed 10 percent opacity as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values. [District Rule 2201]
22. Compliance with the opacity limits on this permit shall be determined by EPA Method 9. [District Rule 4101]
23. Observers for the opacity compliance demonstration shall be certified according to the procedure in EPA Method 9. [District Rule 4101]
24. Within 60 days of the air curtain incinerator reaching a material burn rate representative of normal operation, and no later than 180 days after commencing operation, the operator shall conduct an initial test for opacity. [District Rule 1081]
25. The operator shall conduct periodic testing for opacity at least once every 12 calendar months. [District Rule 1081]
26. The permittee shall submit to the District the opacity test results report in paper or electronic format within 60 days of completion of the field test. [District Rule 1081]
27. The operator shall keep records of all initial and annual opacity test results and reports onsite in either paper copy or electronic format for at least 5 years. [District Rule 1070]
28. The permittee shall maintain daily and cumulative annual records of the tons of wood material burned in the air curtain incinerator [District Rule 1070]
29. {3246} All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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