

April 14, 2022

Ashley Silva
GM Silva Dairy #2
20361 Turner Ave
Hilmar, CA 95324

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-6287
Project Number: N-1201057

Dear Ms. Silva:

Enclosed for your review and comment is the District's analysis of GM Silva Dairy #2's application for an Authority to Construct to consolidate two existing dairies (GM Silva Dairy #2 (N-6287) and GM Silva Dairy #1 (N-6286)) into one stationary source located at 20316 Crane Ave, Hilmar.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.org). 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. Tim Bush of Permit Services at (559) 230-5913.

Sincerely,



Brian Clements
Director of Permit Services

BC:tb

Enclosures

cc: Courtney Graham, CARB (w/ enclosure) via email
Joe Ramos, F & R Ag Services Inc. (w/ enclosure) via email

Samir Sheikh
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San Joaquin Valley Air Pollution Control District Authority to Construct Application Review

Combine Two Dairies and Implement Large CAF Mitigation Measures

Facility Name: GM Silva Dairy #2
Mailing Address: 20361 Turner Ave
Hilmar, CA 95324
Contact Person: George Silva
Telephone: (209) 652-5707
Application #: N-6287-1-1, '-2-2, '-3-2, '-5-1, and '-6-1
Project #s: N-1201057
Deemed Complete: August 6, 2020

Date: April 5, 2022
Engineers: Tim Bush
Lead Engineer: Brian Clerico

I. Proposal

The two dairies GM Silva #2 (N-6287) and GM Silva #1 (N-6286) were previously owned by different individuals and were separate stationary sources. They have now been brought under a single owner and are contiguous. Therefore, pursuant to District Rule 2201, they are now the same stationary source. At this time, the facility is proposing to combine the two dairies into one dairy while maintaining all current mitigation measures and methods of operation. Per the applicant, there will be operation modifications in the future, but this project will only be combining the mitigation measures for each operation under one permit unit and updating the mitigation measures for dairies with more than 1,000 milk cows where appropriate. The permit descriptions and conditions from facility N-6286 and N-6287 will be combined under the permits for facility N-6287. Conditions that only apply to the dairy operations located at 20316 Crane Avenue will specify "North Dairy," whereas conditions that only apply to the dairy operations located at 20633 Turner Avenue will specify "South Dairy".

In addition the dairy is now exceeding 1,000 milk cows so its considered a large CAFO and required to implement the Large CAFO mitigation measures per District Rule 4570.

Per the consultant, the construction of the freestall authorized by Authority to Construct (ATC) N-6287-2-1 has begun, but will be several months until the project is completed. Therefore N-6287-2-1 will serve as the base permit with the appropriate condition being added to the ATC to allow them to be implemented concurrently.

The two dairies therefore constitute a single stationary source pursuant to Section 3.39 of District Rule 2201, and a large Confined Animal Facility (CAF) pursuant to Section 3.37 of District Rule 4570. Each of the dairies was initially permitted as a medium CAF, but they have become a large CAF due to acquisitions by the applicant. The cow housing and solid manure permit units will therefore be modified to implement the following large CAF mitigation measures:

Cow Housing (N-6287-2)

- Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days.

Solid Manure (N-6287-5)

- Within seventy two (72) hours of removal of solid manure from housing, permittee shall either 1) remove dry manure from the facility, or 2) cover dry manure outside the housing with a weatherproof covering from October through May.
- Within seventy two (72) hours of removal of separated solids from the drying process, permittee shall either 1) remove separated solids from the facility, or 2) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event.

The current proposal does not include any changes to the facility's permitted herd capacity. The large CAFO cow housing mitigation measure is not expected to result in any further emission reductions because it is assumed to have the same control efficiency as the medium CAFO measure it will replace. Pursuant to Section 3.25 of District Rule 2201, the proposed changes constitute a modification of the cow housing, liquid manure handling, and solid manure handling permit units, due to changes in method of operation which necessitate changes in permit conditions.

The draft ATC permits for the proposed modifications are included in Appendix A. The PTOs for the existing operations are included in Appendix B.

II. Applicable Rules

Rule 1070	Inspections (12/17/92)
Rule 2010	Permits Required (12/17/92)
Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4550	Conservation Management Practices (8/19/04)
Rule 4570	Confined Animal Facilities (10/21/10)
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

GM Silva Dairy #2 is located at 20316 Crane Ave, Hilmar (North Dairy) and 20633 Turner Ave, Hilmar (South Dairy). The dairy 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

The primary function of this facility is the production of dairy milk, which is used to make various food products, such as fluid milk,¹ butter, cheese, ice cream, and yogurt. Production of milk requires a herd of mature dairy cows that are lactating (milk cows). A typical dairy herd also includes a certain proportion of non-lactating (support) stock consisting of calves, heifers, bulls, and dry cows.

Milk cows generate anywhere from 130 to 150 pounds of manure per day. The manure is deposited primarily in areas where the cows are housed and fed (cow housing), but a small amount is deposited in the milking barn and other transit areas. The manure is collected and managed in liquid and solid forms. Manure with a total solids content of 20% or higher usually can be handled as a solid, while manure with a total solids content of 10% or less can be handled as a liquid.

Cow Housing

In a freestall barn, cows are grouped in large pens with free access to feed bunks, waterers, and stalls for resting. A standard free-stall barn design has a feed alley in the center of the barn separating two feed bunks on each side. A variety of types of bedding materials are used for animal comfort and to prevent animal injury. An open corral is a large open area where cows are confined, also with unlimited access to feed bunks, water, and possibly an open structure to provide shade. Detailed cow housing arrangements for each dairy are shown in Appendices C, D, and E.

Liquid Manure Handling

The existing liquid manure handling system for N-6287 consists of one storage pond. Liquid manure from the storage pond is applied to cropland as fertilizer/irrigation water. The application is done through flood and furrow irrigation, at agronomic rates in conformance with a nutrient management plan approved by the Regional Water Quality Control Board.

Solid Manure Handling

The facility handles solid manure at all dairy sites as well as separated solids at N-6286 and N-6287. Solids manure and separated solids may be stored in stockpiles, composted, applied to cropland, and/or hauled offsite. Any storage piles outside the cow housing areas are required to be covered to reduce emissions. When applied to land, solid manure and/or separated solids are required to be promptly incorporated into the soil to reduce emissions.

¹ Milk that has been processed in various ways (e.g. pasteurization, homogenization, fortification, etc.) and is intended to be consumed primarily as a beverage.

V. Equipment Listing

Pre-Project Equipment Descriptions

- N-6286-1-0: 805 COW MILKING OPERATION WITH ONE DOUBLE 12 PARALLEL (24 STALLS) MILKING PARLOR
- N-6286-2-0: COW HOUSING - 805 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,005 MATURE COWS (MILK AND DRY); 690 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 3 FREESTALLS WITH FLUSH SYSTEM
- N-6286-3-1: LIQUID MANURE HANDLING SYSTEM CONSISTING OF ONE SETTling BASIN, ONE STORAGE POND, AND MECHANICAL SEPARATOR(S). MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION:
- N-6286-4-0: SOLID MANURE HANDLING CONSISTING OF NONE; WINDROW COMPOSTING; SOLID MANURE HAULED OFFSITE
- N-6286-5-0: FEED STORAGE AND HANDLING CONSISTING OF COVERED FEED STORAGE OR COMMODITY BARN(S), SILAGE PILE(S) AND AG BAG(S) AND TOTAL MIXED RATION FEEDING
- N-6287-1-0: 800 COW MILKING OPERATION WITH ONE DOUBLE PARALLEL (28 STALL) MILKING PARLOR AND ONE FLAT BARN (10 STALL) HOSPITAL MILKING PARLOR
- N-6287-2-1: COW HOUSING - 800 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,100 MATURE COWS (MILK AND DRY); 631 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 3 FREESTALL BARNs WITH FLUSH SYSTEM
- N-6287-3-1: LIQUID MANURE HANDLING SYSTEM CONSISTING OF ONE SETTling BASIN; ONE STORAGE POND; PROCESSING PIT AND MECHANICAL SEPARATOR(S); MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION
- N-6287-5-0: SOLID MANURE HANDLING CONSISTING OF MANURE STOCK PILES
- N-6287-6-0: FEED STORAGE AND HANDLING

Proposed Modifications

The applicant proposes to combine the operations at this dairy under permit N-6287.

- N-6287-1-1: MODIFICATION OF 800 COW MILKING OPERATION WITH ONE DOUBLE PARALLEL (28 STALL) MILKING PARLOR AND ONE FLAT BARN (10 STALL) HOSPITAL MILKING PARLOR: ADD THE REQUIREMENTS OF PERMIT N-6286-1 TO THIS PERMIT AND CANCEL PERMIT N-6286-1-0
- N-6287-2-2: MODIFICATION OF COW HOUSING - 800 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,100 MATURE COWS (MILK AND DRY); 631 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 3 FREESTALL BARNs WITH FLUSH SYSTEM: ADD THE REQUIREMENTS OF PERMIT N-6286-2 TO THIS PERMIT AND CANCEL PERMIT N-6286-2-0; INCLUDE RULE 4570 LARGE CAFO REQUIREMENTS
- N-6287-3-2: MODIFICATION OF LIQUID MANURE HANDLING SYSTEM CONSISTING OF ONE SETTLING BASIN; MECHANICAL SEPARATOR(S); MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION: ADD THE REQUIREMENTS OF PERMIT N-6286-3 TO THIS PERMIT AND CANCEL PERMIT N-6286-3-1
- N-6287-5-1: MODIFICATION OF SOLID MANURE HANDLING CONSISTING OF MANURE STOCK PILES: ADD THE REQUIREMENTS OF PERMIT N-6286-4 TO THIS PERMIT AND CANCEL PERMIT N-6286-4-0; INCLUDE RULE 4570 LARGE CAFO REQUIREMENTS
- N-6287-6-1: MODIFICATION OF FEED STORAGE AND HANDLING: ADD THE REQUIREMENTS OF PERMIT N-6286-5 TO THIS PERMIT AND CANCEL PERMIT N-6286-5-0

Post-Project Equipment Descriptions

- N-6287-1-1: 1605 COW MILKING OPERATION NORTH DAIRY WITH ONE DOUBLE PARALLEL (28 STALL) MILKING PARLOR AND ONE FLAT BARN (10 STALL) HOSPITAL MILKING PARLOR SOUTH DAIRY WITH ONE DOUBLE 12 PARALLEL (24 STALLS) MILKING PARLOR
- N-6287-2-2: COW HOUSING - 1605 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 2105 MATURE COWS (MILK AND DRY); 1321 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND NORTH DAIRY 3 FREESTALL BARNs WITH FLUSH SYSTEM AND SOUTH DAIRY 3 FREESTALLS WITH FLUSH SYSTEM
- N-6287-3-2: LIQUID MANURE HANDLING SYSTEM CONSISTING OF NORTH DAIRY ONE SETTLING BASIN; ONE STORAGE POND; PROCESSING PIT AND MECHANICAL SEPARATOR(S); MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION SOUTH DAIRY ONE SETTLING BASIN, ONE STORAGE POND, AND MECHANICAL SEPARATOR(S) MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION

- N-6287-5-1: SOLID MANURE HANDLING CONSISTING OF NORTH DAIRY MANURE STOCK PILES SOUTH DAIRY CONSISTING OF NONE; WINDROW COMPOSTING; SOLID MANURE HAULED OFFSITE
- N-6287-6-1: FEED STORAGE AND HANDLING SOUTH DAIRY CONSISTING OF COVERED FEED STORAGE OR COMMODITY BARN(S), SILAGE PILE(S) AND AG BAGS

VI. Emission Control Technology Evaluation

Particulate matter (PM₁₀), volatile organic compounds (VOC), hydrogen sulfide (H₂S) and ammonia (NH₃) are the major pollutants of concern from dairy operations. PM₁₀ emissions are generated primarily from the action of cows' hooves on dust and dry manure, which is subsequently picked up by wind and entrained into the atmosphere. VOC emissions are generated from the ruminant digestive process (i.e. enteric emissions), decomposition and fermentation of feed, and decomposition of organic matter in manure. NH₃ and H₂S emissions are generated from microbial metabolization of nitrogen and sulfur compounds in manure. The quantity of these emissions depends directly on the herd size and profile.²

Various management practices such as feeding according to NRC guidelines, frequent flushing of feed lanes and walkways, shade structures in open corrals, and frequent corral surface grooming can be used to control emissions from dairies.

The applicant proposes to maintain the lagoon pH between 6.5 and 7.5 to ensure compliance with the emission mitigation requirements of District Rule 4570. This mitigation measure is expected to reduce VOC emissions by at least 10%.

VII. General Calculations

A. Assumptions

- Potential to emit calculations will be based on the permitted limits for the different age categories of cows in the existing herds.
- N-6286 and N-6287 constitute a single stationary source pursuant to Section 3.39 of District Rule 2201 and constitute a large Confined Animal Facility (CAF) pursuant to Sections 3.29 and 3.37 of District Rule 4570.
- Only non-fugitive emissions are considered when determining major source status. For this facility the lagoons are the only sources of non-fugitive emissions.
- The conditions on the existing PTOs are based on the Rule 4570 Phase II mitigation measures originally proposed via application/project #s N-1104293 and N-1104294.
- All PM₁₀ emissions from the cows will be allocated to the cow housing permit units.

² Herd size refers to the total number of cows, whereas profile refers to the specific categories (e.g. lactating, dry, heifer, calf) that constitute the herd.

- All H₂S emissions will be allocated to the liquid manure permit units - lagoons.
- The PM₁₀ control efficiency for shade structures is from a District document titled "Dairy/Feedlot PM₁₀ Mitigation Practices and their Control Efficiencies."³
- The PM₁₀ emission factors are from a District document titled "Dairy and Feedlot PM₁₀ Emissions Factors,"⁴ which compiled data from studies performed by Texas A&M and ASAE, and a USDA/UC Davis report, quantifying dairy and feedlot emissions.
- The VOC emission factors for milk cows are from a District document titled "Air Pollution Control Officer's Revision to the Dairy VOC Emission Factors, February 2012."⁵ Volatile solids excretion ratios were used to derive the proportionate VOC emission factors for dry cows and support stock.
- The NH₃ emission factor for milk cows is based on California Air Resources Board's dairy cattle ammonia emission factor.⁶ Manure-based VOC emission ratios were used to apportion the NH₃ emission factor to the various emissions units. Further, nitrogen excretion ratios were used to derive the proportionate NH₃ emission factors for dry cows and support stock.
- VOC and NH₃ calculations for support stock (heifers and bulls) use emission factors for large heifers.
- All the Rule 4570 mitigation measures evaluated are expected to result in VOC emission reductions. Where a specific control efficiency has not been determined, a conservative 10% control efficiency will be assumed, unless noted otherwise.

B. Emission Factors

Detailed emission factors are listed in the emissions calculation spreadsheets in Appendix C and Appendix D ('Dairy Emission Factors' sheet).

³ http://www.valleyair.org/busind/pto/dpag/Dairy_PM10_Control_Efficiencies.pdf

⁴ http://www.valleyair.org/busind/pto/dpag/FYI_%20Dairy_Feedlot_PM10_Emission_Factor.pdf

⁵ [http://www.valleyair.org/busind/pto/emission_factors/2012-Final-Dairy-EE-Report/FinalDairyEFReport\(2-23-12\).pdf](http://www.valleyair.org/busind/pto/emission_factors/2012-Final-Dairy-EE-Report/FinalDairyEFReport(2-23-12).pdf)

⁶ <http://www.arb.ca.gov/ei/areasrc/livestockemisfwp.pdf>

C. Calculations

1. Pre-Project Potential to Emit (PE1)

A summary of daily and annual pre-project emissions for the modified units is shown in the following table. Detailed emission calculations for each dairy operation are shown in Appendices C and D.

N-6286

PE1								
Permit Unit	PM10		VOC		NH ₃		H ₂ S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
N-6286-1-0	0.0	0	0.9	338	0.3	110	0.0	0
N-6286-2-0	19.9	7,230	32.6	11,952	62.8	22,970	0.0	0
N-6286-3-1	0.0	0	8.4	3,082	22.5	8,237	0.4	129
N-6286-4-0	0.0	0	1.6	593	8.4	3,082	0.0	0
N-6286-5-0	0.0	0	42.1	15,363	0.0	0	0.0	0

N-6287

PE1								
Permit Unit	PM10		VOC		NH ₃		H ₂ S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
N-6287-1-0	0.0	0	0.9	336	0.3	109	0.0	0
N-6287-2-0	6.5	2,371	35.3	12,858	64.7	23,609	0.0	0
N-6287-3-1	0.0	0	8.6	3,143	23.2	8,467	0.4	133
N-6287-5-0	0.0	0	1.7	606	8.7	3,166	0.0	0
N-6287-6-0	0.0	0	47.1	17,195	0.0	0	0.0	0

2. Post-Project Potential to Emit (PE2)

A summary of daily and annual post-project emissions for the modified units is shown in the following table. Detailed emission calculations for each dairy operation are shown in Appendices C and D.

As stated above, the operations at facility N-6286 will be permitted under facility N-6287. Therefore, the potential to emit at facility N-6286 will be set to zero and added to the potential to emit for facility N-6287.

N-6286

PE2								
Permit Unit	PM10		VOC		NH ₃		H ₂ S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
N-6286-1-0	0.0	0	0.0	0	0.0	0	0.0	0
N-6286-2-0	0.0	0	0.0	0	0.0	0	0.0	0
N-6286-3-1	0.0	0	0.0	0	0.0	0	0.0	0
N-6286-4-0	0.0	0	0.0	0	0.0	0	0.0	0
N-6286-5-0	0.0	0	0.0	0	0.0	0	0.0	0

N-6287

PE2								
Permit Unit	PM10		VOC		NH ₃		H ₂ S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
N-6287-1-1	0.0	0	1.8	674	0.6	219	0.0	0
N-6287-2-2	26.4	9,601	67.9	24,810	127.5	46,579	0.0	0
N-6287-3-2	0.0	0	17.0	6,225	45.7	16,704	0.8	262
N-6287-5-1	0.0	0	3.3	1,199	17.1	6,248	0.0	0
N-6287-6-1	0.0	0	89.2	32,558	0.0	0	0.0	0

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.

SSPE1 calculations are summarized in the following table. Detailed calculations are included in Appendices C and D.

N-6286

SSPE1 (lb/yr)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
N-6286-1-0	0	0	0	0	338	110	0
N-6286-2-0	0	0	7,230	0	11,952	22,970	0
N-6286-3-1	0	0	0	0	3,082	8,237	129
N-6286-4-0	0	0	0	0	593	3,082	0
N-6286-5-0	0	0	0	0	15,363	0	0
SSPE1	0	0	7,230	0	31,328	34,399	129

N-6287

SSPE1 (lb/yr)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
N-6287-1-0	0	0	0	0	336	109	0
N-6287-2-0	0	0	2,371	0	12,858	23,609	0
N-6287-3-1	0	0	0	0	3,143	8,467	133
N-6287-5-0	0	0	0	0	606	3,166	0
N-6287-6-0	0	0	0	0	17,195	0	0
SSPE1	0	0	2,371	0	34,138	35,351	133

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.

SSPE2 calculations are summarized in the following table. The values represent the addition of the emission of like units at each dairy (example N-6286 -1+ N-6287-1).

SSPE2 (lb/yr)							
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃	H ₂ S
N-6287-1-1	0	0	0	0	674	219	0
N-6287-2-2	0	0	9,601	0	24,810	46,579	0
N-6287-3-2	0	0	0	0	6,225	16,704	262
N-6287-5-1	0	0	0	0	1,199	6,248	0
N-6287-6-1	0	0	0	0	32,558	0	0
SSPE2	0	0	9,601	0	65,466	69,750	262

5. Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a major source is a stationary source with an SSPE2 equal to or exceeding one or more of the major source thresholds shown in Table 3-3. 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 engines (i.e. engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the source categories specified in 40 CFR 51.165

Agricultural operations do not belong to any of the source categories specified in 40 CFR 51.165. Since this facility is an agricultural operation, fugitive emissions shall not be included in determining whether it is a major stationary source.

40 CFR 71.2 defines fugitive emissions as “those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening.” In 2005, the California Air Pollution Control Officers Association (CAPCOA) issued guidance for estimating VOC emissions from dairy farms. This guidance determined that VOC emissions from the milking centers, cow housing areas, corrals, common manure storage areas, and land application of manure are considered fugitive since they are not physically contained and could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening. The guidance also determined that VOC emissions from liquid manure lagoons and storage ponds are not considered fugitive because emission collection technologies for liquid manure systems exist. The District has researched this issue and concurs with the CAPCOA determinations, as discussed in more detail below:

Milking Parlor

The mechanical ventilation system could arguably be utilized to capture emissions from the milking parlor. In order to achieve and maintain the negative pressure required for this purpose, the adjoining holding area would also need to be completely enclosed. However, enclosing the holding area is not practical due to the continuous movement of cows in and out of the barn throughout the day. In addition, the capital outlay required to enclose this large area would be prohibitive. The District therefore determines that emissions from the milking parlor cannot reasonably be captured, and are to be considered fugitive.

Cow Housing

Although there are smaller dairy farms that have enclosed housing barns, such barns are usually not fully enclosed and do not include any systems for the collection of emissions. In addition, the airflow requirements for dairy cows are extremely high, primarily for herd health reasons. Airflow requirements are expected to be even higher in places such as the San Joaquin Valley, where daytime temperatures can exceed 110 degrees for prolonged periods during the summer months. Given the high air flow rates that will be involved, collection and control of the exhaust from housing barns is not only impractical but also cost prohibitive. The District therefore determines that emissions from housing barns cannot reasonably be captured, and are to be considered fugitive.

Manure Storage Areas

Solid manure is typically stored in the housing areas, as mounds or piles in individual corrals or pens. Some manure may also be stored in piles outside the housing areas while awaiting land application, shipment offsite, or other uses. Thus, manure storage areas are widely distributed over the dairy site, making it impractical to capture emissions from any significant proportion of the solid manure. The District therefore determines that emissions from manure storage areas cannot reasonably be captured, and are to be considered fugitive.

Land Application

Since manure has to be applied over large expanses of cropland (hundreds or even thousands of acres), there is no practical method that can be used to capture the associated emissions. The District therefore determines that emissions from land application of manure cannot reasonably be captured, and are to be considered fugitive.

Feed Handling and Storage

Silage and total mixed rations (TMR) are the primary sources of emissions from feed storage and handling.

Silage is stored in several tarped/covered piles and/or plastic bags. One end/face of the pile/bag that is actively being used to prepare feed rations must remain open to allow extraction of the silage. A front-end loader is used to extract silage from the open face of the pile throughout the day as the feed rations for the various groups or categories of cows are prepared. A significant proportion of silage pile emissions are associated with this open face, which is exposed to the atmosphere and frequently disturbed during silage extraction. Due to the need to access the pile's open face throughout the day, it is not practical to enclose it or equip it with any kind of device or system that could be used to capture of emissions.

TMR is prepared by mixing silage with various additives such as seeds, grains, and molasses. Because the quality of silage degrades fairly rapidly upon exposure to air, TMR is prepared only when needed and promptly distributed to the feed lanes for consumption. Most of the TMR emissions are thus emitted from the feed lanes, which are located inside the housing barns, where the TMR will remain exposed to the air for at least several hours as the cows feed. As previously discussed, collection and control of emissions from housing barns is not only impractical but also cost prohibitive.

The District therefore determines that emissions from feed handling and storage cannot reasonably be captured, and are to be considered fugitive.

As previously stated, emissions from liquid manure lagoons and storage ponds have already been determined to be non-fugitive. The facility's non-fugitive stationary source potential emissions are summarized in the following tables:

N-6286

Non-Fugitive SSPE1 (lb/year)						
Category	NO_x	SO_x	PM₁₀	CO	VOC	H₂S
N-6286-3-1 - Lagoon	0	0	0	0	1,481	0
Non-Fugitive SSPE1	0	0	0	0	1,481	0

N-6287

Non-Fugitive SSPE1 (lb/year)						
Category	NO_x	SO_x	PM₁₀	CO	VOC	H₂S
N-6287-3-1 - Lagoon	0	0	0	0	1,511	0
Non-Fugitive SSPE1	0	0	0	0	1,511	0

Non-Fugitive SSPE2 (lb/year)						
Category	NO_x	SO_x	PM₁₀	CO	VOC	H₂S
N-6287-3-2 - Lagoon	0	0	0	0	2,992	0
Non-Fugitive SSPE2	0	0	0	0	2,992	0

The Rule 2201 major source determination is summarized in the following table:

Rule 2201 Major Source Determination						
Category	NO_x	SO_x	PM₁₀	PM_{2.5}	CO	VOC
SSPE1 (lb/yr)	0	0	0	0	0	1,511
SSPE2 (lb/yr)	0	0	0	0	0	2,992
Major source threshold (lb/yr)	20,000	140,000	140,000	140,000	200,000	20,000
Major Source? (Y/N)	N	N	N	N	N	N

Note: PM_{2.5} assumed to be equal to PM₁₀

As shown 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

In determining if a stationary source is a PSD major source, the following sources of emissions shall not be included:

- Emissions from non-road engines (i.e. engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the source categories specified in 40 CFR 52.21(b)(1)(iii)

Agricultural operations do not belong to any of the source categories specified in specified in 40 CFR 52.21(b)(1)(i). Since this facility is an agricultural operation, fugitive emissions shall not be included in determining whether it is a PSD major source; and the PSD major source threshold is 250 tons/yr (tpy) for any regulated NSR pollutant.

The non-fugitive stationary source emissions from the preceding section have been converted into tons.⁷ The PSD major source determination is summarized in the following table:

PSD Major Source Determination						
Category	NO₂	VOC	SO₂	CO	PM	PM₁₀
Estimated facility PE before project increase (tpy)	0	0.8	0.0	0.0	0.0	0.0
PSD major source threshold (tpy)	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 major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

⁷ (lb/yr) / (2,000 lb/ton) = tons/yr (tpy).

6. Baseline Emissions (BE)

The BE calculations are performed, pollutant by pollutant, for each emissions unit involved in the project. The BE are subsequently used to calculate the quarterly net emissions change (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.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant.

Therefore BE = PE1.

As calculated in Section VII.C.1 above, PE1 is summarized in the following table:

Permit Unit	BE (lb/year)					
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
N-6287-1-0	0	0	0	0	0	336
N-6287-2-0	0	0	2,371	2,371	0	12,858
N-6287-3-1	0	0	0	0	0	3,143
N-6287-5-0	0	0	0	0	0	606
N-6287-6-0	0	0	0	0	0	17,195

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, the project does not constitute an SB 288 major modification.

8. Federal Major Modification / New Major Source

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.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is 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. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification and no further discussion is required.

New Major Source

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

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)

- PM
- PM₁₀
- Hydrogen sulfide (H₂S)
- Total reduced sulfur (including H₂S)

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.

Note that fugitive emissions are not included here, as dairies are not one of the source categories listed in 40 CFR 52.21(b)(1)(iii).

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Total PE from New and Modified Units	0	1.5	0	0	0	0
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 database (emissions profile screen). Detailed QNEC calculations are included in Appendix F.

VIII. COMPLIANCE

Rule 1070 Inspections

This rule allows the District to perform inspections for the purpose of obtaining information necessary to determine whether air pollution sources are in compliance with applicable rules and regulations. The rule also allows the District to require record keeping, to make inspections and to conduct tests of air pollution sources. The following conditions will be listed on the ATC as a mechanism to ensure compliance:

- {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
- {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]

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 actions⁸:

⁸Except 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. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (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.

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

As discussed in Section I above, there are no new emissions units associated with this project. Therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

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

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another. BACT is therefore not triggered under this category.

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

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

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

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

The facility has proposed to combine contiguous dairies N-6286 and N-6287 into one stationary source. However, the facility has not proposed to modify any emission units at either of the former dairies. Therefore there is no increase AIPE for any emissions unit at the dairy.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does not constitute an SB 288 and/or Federal Major Modification for any pollutant. BACT is therefore not triggered under this category.

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals 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/yr)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	0	0	9,601	0	65,466
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	Yes

2. Quantity of Offsets Required

Pursuant to Section 4.6.9 of District Rule 2201, agricultural sources that are not major sources are exempt from offsets. As demonstrated in Section VII.C.5 above, this facility is not a major source. Therefore, this source is exempt from offsets.

C. Public Notification

1. Applicability

Public noticing is required for:

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

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 Sections 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. There are no new emissions units associated with this project. Therefore public noticing is not required for this project for PE > 100 lb/day.

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	0	0	20,000 lb/year	No
SO _x	0	0	54,750 lb/year	No
PM ₁₀	2,371	9,601	29,200 lb/year	No
CO	0	0	200,000 lb/year	No
VOC	34,138	65,466	20,000 lb/year	No

As demonstrated 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	0	0	0	20,000 lb/year	No
SO _x	0	0	0	20,000 lb/year	No
PM ₁₀	9,601	2,371	7,230	20,000 lb/year	No
CO	0	0	0	20,000 lb/year	No
VOC	65,466	34,138	31,328	20,000 lb/year	Yes
NH ₃	69,750	35,351	34,399	20,000 lb/year	Yes
H ₂ S	262	133	129	20,000 lb/year	No

As demonstrated above, the SSIPEs for VOC and NH₃ were greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

e. Title V Significant Permit Modification

Since this facility does not have a Title V operating permit, this change is not a Title V significant Modification, and therefore public noticing is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for VOC and NH₃ emissions with an SSIPE in excess of 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District's website prior to the issuance of the ATC 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.

For dairies, the DEL is satisfied based on the number and types of cows at the dairy. The number and types of cows are listed in the permit equipment description for the milking parlor and cow housing permits. Additionally, the following District Rule 2201 conditions will be placed on the ATC permits:

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- North Dairy at 20316 Crane Ave, Hilmar and South Dairy at 20633 Turner Ave, Hilmar constitute the same stationary source. [District Rule 2201]
- {4484} Permittee shall flush or hose milk parlor immediately prior to, immediately after, or during each milking. [District Rules 2201 and 4570]
- {4485} Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rules 2201 and 4570]

N-6287-2-1

- North Dairy at 20316 Crane Ave, Hilmar and South Dairy at 20633 Turner Ave, Hilmar constitute the same stationary source. [District Rule 2201]
- {4452} If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]
- {4486} Permittee shall pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. [District Rules 2201 and 4570]
- {4489} Permittee shall flush or scrape freestall flush lanes at least three (3) times per day. [District Rules 2201 and 4570]
- {4492} Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rules 2201 and 4570]
- {4499} Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rules 2201 and 4570]
- {4501} Permittee shall clean manure from corrals at least four (4) times per year with at least sixty (60) days between each cleaning, or permittee shall clean corrals at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]

- {4554} Permittee shall implement at least one of the following corral mitigation measures: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less and shall slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; 2) maintain corrals to ensure proper drainage preventing water from standing more than forty-eight hours; or 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface except during periods of rainy weather. [District Rules 2201 and 4570]
- {4508} Permittee shall scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock. [District Rules 2201 and 4570]
- {4512} South Dairy: If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if permittee has selected to comply by cleaning the manure from under the corral shades, then permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rules 2201 and 4570]
- {4513} Shade structures shall be installed in any of the following ways: 1) constructed with a light permeable roofing material; 2) uphill of any slope in the corral; 3) installed so that the structure has a North/South orientation. OR Permittee shall clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral. [District Rules 2201 and 4570]
- {4518} Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rules 2201 and 4570]
- {4671} The number of calves may exceed the value stated in the equipment description as long as the total support stock (heifers, bulls, and calves) does not exceed the combined value stated in the equipment description, and there is no increase in the number of hutches or corrals. [District Rules 2010 and 2201]
- {4518} South Dairy: Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rules 2201 and 4570]

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- North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
- {4452} If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]
- {4538} Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rules 2201 and 4570]
- {4550} Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rules 2201 and 4570]

N-6287-5-1

- North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
- {4452} If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]
- {4529} Within seventy two (72) hours of removal of separated solids from the drying process, permittee shall either 1) remove separated solids from the facility, or 2) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event. [District Rules 2201 and 4570]
- {4541} Permittee shall incorporate all solid manure within seventy-two (72) hours of land application. [District Rules 2201 and 4570]

N-6287-6-1

- North Dairy at 20316 Crane Ave, Hilmar and South Dairy at 20633 Turner Ave, Hilmar constitute the same stationary source. [District Rule 2201]
- {4452} If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]
- {4454} Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rules 2201 and 4570]
- {4456} Permittee shall push feed so that it is within three feet of feedlane fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]
- {4458} Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
- {4460} Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
- {4462} Permittee shall feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. [District Rules 2201 and 4570]
- {4468} South Dairy: For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rules 2201 and 4570]
- {4469} South Dairy: Permittee shall cover all silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least five (5) mils (0.005 inches) thick, multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material. Silage piles shall be covered within seventy-two (72) hours of last delivery of material to the pile. Sheets of material used to cover silage shall overlap so that silage is not exposed where the sheets meet. [District Rules 2201 and 4570]

- {4471} South Dairy: Permittee shall select and implement one of the following mitigation measures for building each silage pile at the facility: Option 1) build the silage pile such that the average bulk density is at least 44 lb/cu ft for corn silage and 40 lb/cu ft for other silage types, as measured in accordance with Section 7.11 of District Rule 4570; Option 2) Adjust filling parameters when creating the silage pile to achieve an average bulk density of at least 44 lb/cu ft for corn silage and at least 40 lb/cu ft for other silage types as determined using a District-approved spreadsheet; or Option 3) build silage piles using crops harvested with the applicable minimum moisture content, maximum Theoretical Length of Chop (TLC), and roller opening identified in District Rule 4570, Table 4.1, 1.d and manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. Records of the option chosen as a mitigation measure for building each silage pile shall be maintained. [District Rules 2201 and 4570]
- {4474} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall harvest corn used for the pile at an average moisture content of at least 65% and harvest other silage crops for the pile at an average moisture content of at least 60%. [District Rules 2201 and 4570]
- {4476} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall adjust setting of equipment used to harvest crops for the pile to incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable: 1) Corn with no processing: TLC not exceeding 1/2 inch, 2) Processed Corn: TLC not exceeding 3/4 inch and roller opening of 1-4 mm, 3) Alfalfa/Grass: TLC not exceeding 1.0 inch, 4) Other silage crops: TLC not exceeding 1/2 inch. [District Rules 2201 and 4570]
- {4478} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset; public notification and daily emission limit requirements of Rule 2201. The following conditions are listed on the ATC:

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- {4485} Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

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- {4500} Permittee shall maintain records demonstrating that water pipes and troughs are inspected and leaks are repaired at least once every seven (7) days. [District Rules 2201 and 4570]
- {4502} Permittee shall demonstrate that manure from corrals are cleaned at least four (4) times per year with at least sixty (60) days between each cleaning or demonstrate that corrals are cleaned at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]
- {4555} Permittee shall either 1) maintain sufficient records to demonstrate that corrals are maintained to ensure proper drainage preventing water from standing for more than forty-eight hours or 2) maintain records of dates pens are groomed (i.e., harrowed, raked, or scraped, etc.). [District Rules 2201 and 4570]
- {4556} Permittee shall maintain records demonstrating that concrete lanes in corrals are scraped, vacuumed, or flushed at least once every day for mature cows and at least once every seven (7) days for support stock. [District Rules 2201 and 4570]
- {4516} South Dairy: If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if Permittee has selected to comply by cleaning the manure from under the corral shades, then Permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rules 2201 and 4570]

- {4519} Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rules 2201 and 4570]
- {4449} Permittee shall maintain a record of the number of animals of each species and production group at the facility and shall maintain quarterly records of any changes to this information. [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

N-6287-3-2

- North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
- {4551} Permittee shall maintain records to demonstrate liquid manure did not stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570] [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

N-6287-5-1

- North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
- {4542} Permittee shall maintain records to demonstrate that all solid manure has been incorporated within seventy-two (72) hours of land application. [District Rules 2201 and 4570]
- Permittee shall keep records of dates when manure is removed from the facility or permittee shall maintain records to demonstrate that dry manure piles outside the pens are covered with a weatherproof covering from October through May. [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

N-6287-6-1

- North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]

- {4455} Permittee shall maintain records of feed content, formulation, and quantity of feed additive utilized, to demonstrate compliance with National Research Council (NRC) guidelines. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
- {4457} Permittee shall maintain an operating plan or record that requires feed to be pushed within three feet of feedlane fence within two hours of putting out the feed, or use of a feed trough or other structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]
- {4459} Permittee shall maintain an operating plan or record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
- {4461} Permittee shall maintain records demonstrating grain is/was stored in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
- {4463} Permittee shall maintain records to demonstrate animals are fed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]
- {4470} South Dairy: Permittee shall maintain records of the thickness and type of cover used to cover each silage pile. Permittee shall also maintain records of the date of the last delivery of material to each silage pile and the date each pile is covered. [District Rules 2201 and 4570]
- {4472} South Dairy: For each silage pile that Option 1 (Measured Bulk Density) is chosen as a mitigation measure for building the pile, records of the measured bulk density shall be maintained. [District Rules 2201 and 4570]
- {4473} South Dairy: For each silage pile that Option 2 (Bulk Density Determined by Spreadsheet) is chosen as a mitigation measure for building the pile, records of the filling parameters entered into the District-approved spreadsheet to determine the bulk density shall be maintained. [District Rules 2201 and 4570]

- {4475} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records of the average percent moisture of crops harvested for silage shall be maintained. [District Rules 2201 and 4570]
- {4477} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records that equipment used to harvest crops for the pile was set to the required TLC and roller opening for the type of crop harvested shall be maintained. [District Rules 2201 and 4570]
- {4479} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall maintain a plan that requires that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]
- {4480} South Dairy: Permittee shall select and implement at least two of the following mitigation measures for management of silage piles at the facility: Option 1) manage silage piles such that only one silage pile has an uncovered face and the total exposed surface area is less than 2,150 square feet, or manage multiple uncovered silage piles such that the total exposed surface area of all uncovered silage piles is less than 4,300 square feet; Option 2) use a shaver/facer to remove silage from the silage pile, or shall use another method to maintain a smooth vertical surface on the working face of the silage pile; or Option 3) inoculate silage with homolactic lactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage, apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at the rate specified by the manufacturer to reduce yeast counts when forming silage piles, or apply other additives at rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA. Records of the options chosen for managing each silage pile shall be maintained. [District Rules 2201 and 4570]
- {4481} South Dairy: If Option 1 (Limiting Exposed Area of Silage) is chosen as a mitigation measure for managing silage piles, the permittee shall calculate and record the maximum (largest part of pile) total exposed area of each silage pile. Records of the maximum calculated area shall be maintained. [District Rules 2201 and 4570]

- {4482} South Dairy: For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for managing the pile, the permittee shall maintain records that a shaver/facer was used to remove silage from the pile or shall visually inspect the pile at least daily to verify that the working face was smooth and maintain records of the visual inspections. [District Rules 2201 and 4570]
- {4483} South Dairy: For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for managing the pile, records shall be maintained of the type additive (e.g. inoculants, preservative, other District & EPA-approved additive), the quantity of the additive applied to the pile, and a copy of the manufacturers instructions for application of the additive. [District Rules 2201 and 4570]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA 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 E](#) 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}.

Rule 2410 Prevention of Significant Deterioration

This project does not result in an increase in emissions for any pollutant and therefore cannot result in a new PSD major source or a PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

As demonstrated in Section VII.C.5, this facility's potential emissions do not exceed any major source thresholds of Rule 2201. Therefore, this facility is not a major source and Rule 2520 does not apply.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).

Pursuant to Section 4.12, emissions subject to or specifically exempt from Regulation VIII (Fugitive PM10 Prohibitions) are exempt from Rule 4101.

Pursuant to District Rule 8011, Section 4.12, on-field agricultural sources are exempt from the requirements of Regulation VIII.

On-field agricultural sources are defined in Rule 8011, Section 3.35 as the following:

- Activities conducted solely for the purpose of preparing land for the growing of crops or the raising of fowl or animals, such as brush or timber clearing, grubbing, scraping, ground excavation, land leveling, grading, turning under stalks, disking, or tilling;

Therefore, activities conducted solely for the purpose of raising fowl or animals are exempt from the requirements of Regulation VIII and Rule 4101.

Rule 4102 Nuisance

This rule prohibits the discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. According to the District's records, there have been no public nuisance complaints or violations associated with the operations of this facility.

Since the proposed modifications do not fundamentally alter the nature of the facility's operations, continued compliance with the requirements of this rule is expected.

California Health & Safety Code Section 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.

The District has determined that although there was a change in ownership of the N-6286 stationary source, resulting in the N-6287 facility calculations to increase, there were no actual increases in emission from each individual emissions unit operating at the now combined stationary source. Due to no increase or change in orientation in any individual emissions unit, an RMR is not required.

Rule 4550 Conservation Management Practices

This rule applies to agricultural operation sites located within the San Joaquin Valley Air Basin. The purpose of this rule is to limit fugitive dust emissions from agricultural operation sites.

Pursuant to Section 5.1, effective on and after July 1, 2004, an owner/operator shall implement the applicable CMPs selected pursuant to Section 6.2 for each agricultural operation site.

Pursuant to Section 5.2, an owner/operator shall prepare and submit a CMP application for each agricultural operation site to the APCO for approval.

The facility has received District approval for its current CMP plan for the dairy. Continued compliance with the requirements of District Rule 4550 is expected.

Rule 4570 Confined Animal Facilities (CAF)

This rule applies to CAF operations located within the San Joaquin Valley air basin. The purpose of the rule is to limit VOC emissions through the implementation of various mitigation measures for each emissions unit.

The facilities were issued permits to implement the requirements of this rule under projects N-11044294 (North Dairy) and N-1104293 (South Dairy). Aside from the changes addressed in the current project, the rest of the previously approved mitigation measures and permit conditions will remain unchanged.

The following conditions will be placed on the ATC permits to ensure continued compliance with the requirements of the rule:

General Conditions

The following conditions will remain unchanged:

- {4452} If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the permittee shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]
- {modified 4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

Cow Milking: N-6287-1

- {4484} Permittee shall flush or hose milk parlor immediately prior to, immediately after, or during each milking. [District Rules 2201 and 4570]
- {4485} Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rules 2201 and 4570]

Cow Housing: N-6287-2

The dairies were initially permitted in the medium CAF category, but they have become a large CAF due to the acquisitions. The freestall bedding mitigation measure for medium CAF will therefore be replaced with the corresponding measure for large CAF.

The following conditions will be changed:

Proposed Permit Conditions:

- {4492} Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rules 2201 and 4570]
- {4493} Permittee shall record either of the following: 1) the dates when manure that is not dry is removed from individual cow freestall beds or 2) the dates when the freestall bedding is raked, harrowed, scraped, or graded. [District Rules 2201 and 4570]

The following permit conditions will remain unchanged:

- {4486} Permittee shall pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. [District Rules 2201 and 4570]
- {4489} Permittee shall flush or scrape freestall flush lanes at least three (3) times per day. [District Rules 2201 and 4570]
- {4490} Permittee shall keep records or maintain an operating plan that requires freestall flush lanes to be flushed or scraped at least three times per day. [District Rules 2201 and 4570]
- {4499} Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rules 2201 and 4570]
- {4500} Permittee shall maintain records demonstrating that water pipes and troughs are inspected and leaks are repaired at least once every seven (7) days. [District Rules 2201 and 4570] N

- {4501} Permittee shall clean manure from corrals at least four (4) times per year with at least sixty (60) days between each cleaning, or permittee shall clean corrals at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]
- {4502} Permittee shall demonstrate that manure from corrals is cleaned out at least four (4) times per year with at least sixty (60) days between each cleaning or demonstrate that corrals are cleaned at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]
- {4554} Permittee shall implement at least one of the following corral mitigation measures: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less and shall slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; 2) maintain corrals to ensure proper drainage preventing water from standing more than forty-eight hours; or 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface except during periods of rainy weather. [District Rules 2201 and 4570]
- {4555} Permittee shall either 1) maintain sufficient records to demonstrate that corrals are maintained to ensure proper drainage preventing water from standing for more than forty-eight hours or 2) maintain records of dates pens are groomed (i.e., harrowed, raked, or scraped, etc.). [District Rules 2201 and 4570]
- {4508} Permittee shall scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock. [District Rules 2201 and 4570]
- {4556} Permittee shall maintain records demonstrating that concrete lanes in corrals are scraped, vacuumed, or flushed at least once every day for mature cows and at least once every seven (7) days for support stock. [District Rules 2201 and 4570]
- {4513} Shade structures shall be installed in any of the following ways: 1) constructed with a light permeable roofing material; 2) uphill of any slope in the corral; 3) installed so that the structure has a North/South orientation. OR Permittee shall clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral. [District Rules 2201 and 4570]
- {4516} If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if Permittee has selected to comply by cleaning the manure from under the corral shades, then Permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rules 2201 and 4570]

- {4518} Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rules 2201 and 4570]
- {4519} Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rules 2201 and 4570]
- {4449} Permittee shall maintain a record of the number of animals of each species and production group at the facility and shall maintain quarterly records of any changes to this information. [District Rules 2201 and 4570]
- {4671} The number of calves may exceed the value stated in the equipment description as long as the total support stock (heifers, bulls, and calves) does not exceed the combined value stated in the equipment description, and there is no increase in the number of hutches or corrals. [District Rules 2201 and 4570]

Liquid Manure: N-6287-3

The following permit conditions will remain unchanged:

- {4538} Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rules 2201 and 4570]
- {4550} Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rules 2201 and 4570]

Solid Manure

Since the dairies have become a large CAF, a mitigation measure for solid manure will be added to the permits.

N-6287-5

The following conditions will be changed:

Current Permit Conditions to Be Removed

- No permit conditions will be removed.

Proposed New Permit Conditions

- {4529} Within seventy two (72) hours of removal of separated solids from the drying process, permittee shall either 1) remove separated solids from the facility, or 2) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event. [District Rules 2201 and 4570]
- {4527} Permittee shall keep records of dates when manure is removed from the facility or permittee shall maintain records to demonstrate that dry manure piles outside the pens are covered with a weatherproof covering from October through May. [District Rules 2201 and 4570]

The following permit conditions will remain unchanged:

- {4541} Permittee shall incorporate all solid manure within seventy-two (72) hours of land application. [District Rules 2201 and 4570]
- {4542} Permittee shall maintain records to demonstrate that all solid manure has been incorporated within seventy-two (72) hours of land application. [District Rules 2201 and 4570]

Feed Storage and Handling

N-6287-6

The following permit conditions will remain unchanged:

- {4454} Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rules 2201 and 4570]
- {4455} Permittee shall maintain records of feed content, formulation, and quantity of feed additive utilized, to demonstrate compliance with National Research Council (NRC) guidelines. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
- {4456} Permittee shall push feed so that it is within three feet of feedlane fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]
- {4457} Permittee shall maintain an operating plan or record that requires feed to be pushed within three feet of feedlane fence within two hours of putting out the feed, or use of a feed trough or other structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]

- {4458} Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
- {4459} Permittee shall maintain an operating plan or record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
- {4460} Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
- {4461} Permittee shall maintain records demonstrating grain is/was stored in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
- {4462} Permittee shall feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. [District Rules 2201 and 4570]
- {4463} Permittee shall maintain records to demonstrate animals are fed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
- {4468} South Dairy: For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rules 2201 and 4570]
- {4469} South Dairy: Permittee shall cover all silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least five (5) mils (0.005 inches) thick, multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material. Silage piles shall be covered within seventy-two (72) hours of last delivery of material to the pile. Sheets of material used to cover silage shall overlap so that silage is not exposed where the sheets meet. [District Rules 2201 and 4570]
- {4470} South Dairy: Permittee shall maintain records of the thickness and type of cover used to cover each silage pile. Permittee shall also maintain records of the date of the last delivery of material to each silage pile and the date each pile is covered. [District Rules 2201 and 4570]

- {4471} South Dairy: Permittee shall select and implement one of the following mitigation measures for building each silage pile at the facility: Option 1) build the silage pile such that the average bulk density is at least 44 lb/cu ft for corn silage and 40 lb/cu ft for other silage types, as measured in accordance with Section 7.11 of District Rule 4570; Option 2) Adjust filling parameters when creating the silage pile to achieve an average bulk density of at least 44 lb/cu ft for corn silage and at least 40 lb/cu ft for other silage types as determined using a District-approved spreadsheet; or Option 3) build silage piles using crops harvested with the applicable minimum moisture content, maximum Theoretical Length of Chop (TLC), and roller opening identified in District Rule 4570, Table 4.1, 1.d and manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. Records of the option chosen as a mitigation measure for building each silage pile shall be maintained. [District Rules 2201 and 4570]
- {4472} South Dairy: For each silage pile that Option 1 (Measured Bulk Density) is chosen as a mitigation measure for building the pile, records of the measured bulk density shall be maintained. [District Rules 2201 and 4570]
- {4473} South Dairy: For each silage pile that Option 2 (Bulk Density Determined by Spreadsheet) is chosen as a mitigation measure for building the pile, records of the filling parameters entered into the District-approved spreadsheet to determine the bulk density shall be maintained. [District Rules 2201 and 4570]
- {4474} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall harvest corn used for the pile at an average moisture content of at least 65% and harvest other silage crops for the pile at an average moisture content of at least 60%. [District Rules 2201 and 4570]
- {4475} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records of the average percent moisture of crops harvested for silage shall be maintained. [District Rules 2201 and 4570]
- {4476} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall adjust setting of equipment used to harvest crops for the pile to incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable: 1) Corn with no processing: TLC not exceeding 1/2 inch, 2) Processed Corn: TLC not exceeding 3/4 inch and roller opening of 1-4 mm, 3) Alfalfa/Grass: TLC not exceeding 1.0 inch, 4) Other silage crops: TLC not exceeding 1/2 inch. [District Rules 2201 and 4570]

- {4477} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records that equipment used to harvest crops for the pile was set to the required TLC and roller opening for the type of crop harvested shall be maintained. [District Rules 2201 and 4570]
- {4478} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]
- {4479} South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall maintain a plan that requires that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]
- {4480} South Dairy: Permittee shall select and implement at least two of the following mitigation measures for management of silage piles at the facility: Option 1) manage silage piles such that only one silage pile has an uncovered face and the total exposed surface area is less than 2,150 square feet, or manage multiple uncovered silage piles such that the total exposed surface area of all uncovered silage piles is less than 4,300 square feet; Option 2) use a shaver/facer to remove silage from the silage pile, or shall use another method to maintain a smooth vertical surface on the working face of the silage pile; or Option 3) inoculate silage with homolactic lactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage, apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at the rate specified by the manufacturer to reduce yeast counts when forming silage piles, or apply other additives at rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA. Records of the options chosen for managing each silage pile shall be maintained. [District Rules 2201 and 4570]
- {4481} South Dairy: If Option 1 (Limiting Exposed Area of Silage) is chosen as a mitigation measure for managing silage piles, the permittee shall calculate and record the maximum (largest part of pile) total exposed area of each silage pile. Records of the maximum calculated area shall be maintained. [District Rules 2201 and 4570]
- {4482} South Dairy: For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for managing the pile, the permittee shall maintain records that a shaver/facer was used to remove silage from the pile or shall visually inspect the pile at least daily to verify that the working face was smooth and maintain records of the visual inspections. [District Rules 2201 and 4570]

- {4483} South Dairy: For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for managing the pile, records shall be maintained of the type additive (e.g. inoculants, preservative, other District & EPA-approved additive), the quantity of the additive applied to the pile, and a copy of the manufacturers instructions for application of the additive. [District Rules 2201 and 4570]
- {4453} Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

Based on the preceding discussion, compliance with the requirements of this rule is expected.

California Health & Safety Code Section 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

District is a Lead Agency and Project not Covered Under Cap-and-Trade

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 District's engineering evaluation (Appendix C and Appendix D) 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 performed an Engineering Evaluation (this document) for the proposed project and determined that the project will not have a significant effect on the environment. The District finds that the project is exempt per the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

To ensure that issuance of this permit does not conflict with any conditions imposed by any local agency permit process, the following existing permit condition will remain on the ATC permits:

- {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]

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 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. Pending a successful NSR Public Noticing period, issue ATCs N-6287-1-1, -2-1, -3-2, -5-1, and -6-1 subject to the permit conditions on the drafts attached in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-6287-1-1	3020-06	Cow Milking Operation	\$128
N-6287-2-2	3020-06	Cow Housing	\$128
N-6287-3-2	3020-06	Liquid Manure Management	\$128
N-6287-5-1	3020-06	Solid Manure Management	\$128
N-6287-6-1	3020-06	Feed Storage and Handling	\$128

Appendices

- A: Draft ATC Permits
- B: Current PTOs
- C: Dairy Emissions Calculations for N-6286
- D: Dairy Emissions Calculations for N-6287
- E: Ambient Air Quality Analysis
- F: QNEC

Appendix A

Draft ATC Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-6287-1-1

LEGAL OWNER OR OPERATOR: GM SILVA DAIRY #2
MAILING ADDRESS: 20361 TURNER AVE
HILMAR, CA 95324

LOCATION: 20316 CRANE AVE
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:

MODIFICATION OF 800 COW MILKING OPERATION WITH ONE DOUBLE PARALLEL (28 STALL) MILKING PARLOR AND ONE FLAT BARN (10 STALL) HOSPITAL MILKING PARLOR: ADD THE REQUIREMENTS OF PERMIT N-6286-1 TO THIS PERMIT AND CANCEL PERMIT N-6286-1-0

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]

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.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-6287-1-1 : Apr 14 2022 11:50AM - BUSHT : Joint Inspection NOT Required

5. North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
6. Permittee shall flush or hose milk parlor immediately prior to, immediately after, or during each milking. [District Rules 2201 and 4570]
7. Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rules 2201 and 4570]
8. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-6287-2-2

LEGAL OWNER OR OPERATOR: GM SILVA DAIRY #2
MAILING ADDRESS: 20361 TURNER AVE
HILMAR, CA 95324

LOCATION: 20316 CRANE AVE
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:

MODIFICATION OF COW HOUSING - 800 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,100 MATURE COWS (MILK AND DRY); 631 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 2 FREESTALL BARNs WITH FLUSH SYSTEM: ADD THE REQUIREMENTS OF PERMIT N-6286-2 TO THIS PERMIT AND CANCEL PERMIT N-6286-2-0

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]

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.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-6287-2-2 : Apr 14 2022 11:52AM - BUSHT : Joint Inspection NOT Required

5. North Dairy at 20316 Crane Ave., Hilmar and South Dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
6. Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rules 2201 and 4570]
7. Permittee shall record either of the following: 1) the dates when manure that is not dry is removed from individual cow freestall beds or 2) the dates when the freestall bedding is raked, harrowed, scraped, or graded. [District Rules 2201 and 4570]
8. Permittee shall pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. [District Rules 2201 and 4570]
9. Permittee shall flush or scrape freestall flush lanes at least three (3) times per day. [District Rules 2201 and 4570]
10. Permittee shall keep records or maintain an operating plan that requires freestall flush lanes to be flushed or scraped at least three times per day. [District Rules 2201 and 4570]
11. Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rules 2201 and 4570]
12. Permittee shall maintain records demonstrating that water pipes and troughs are inspected and leaks are repaired at least once every seven (7) days. [District Rules 2201 and 4570]
13. Permittee shall clean manure from corrals at least four (4) times per year with at least sixty (60) days between each cleaning, or permittee shall clean corrals at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]
14. Permittee shall demonstrate that manure from corrals are cleaned at least four (4) times per year with at least sixty (60) days between each cleaning or demonstrate that corrals are cleaned at least once between April and July and at least once between September and December. [District Rules 2201 and 4570]
15. Permittee shall implement at least one of the following corral mitigation measures: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less and shall slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; 2) maintain corrals to ensure proper drainage preventing water from standing more than forty-eight hours; or 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface except during periods of rainy weather. [District Rules 2201 and 4570]
16. Permittee shall either 1) maintain sufficient records to demonstrate that corrals are maintained to ensure proper drainage preventing water from standing for more than forty-eight hours or 2) maintain records of dates pens are groomed (i.e., harrowed, raked, or scraped, etc.). [District Rules 2201 and 4570]
17. Permittee shall scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock. [District Rules 2201 and 4570]
18. Permittee shall maintain records demonstrating that concrete lanes in corrals are scraped, vacuumed, or flushed at least once every day for mature cows and at least once every seven (7) days for support stock. [District Rules 2201 and 4570]
19. Shade structures shall be installed in any of the following ways: 1) constructed with a light permeable roofing material; 2) uphill of any slope in the corral; 3) installed so that the structure has a North/South orientation. OR Permittee shall clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral. [District Rules 2201 and 4570]
20. South Dairy: If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if Permittee has selected to comply by cleaning the manure from under the corral shades, then Permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rules 2201 and 4570]

21. South Dairy: Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rules 2201 and 4570]
22. Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rules 2201 and 4570]
23. Permittee shall maintain a record of the number of animals of each species and production group at the facility and shall maintain quarterly records of any changes to this information. [District Rules 2201 and 4570]
24. {4671} The number of calves may exceed the value stated in the equipment description as long as the total support stock (heifers, bulls, and calves) does not exceed the combined value stated in the equipment description, and there is no increase in the number of hutches or corrals. [District Rule 2010]
25. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-6287-3-2

LEGAL OWNER OR OPERATOR: GM SILVA DAIRY #2
MAILING ADDRESS: 20361 TURNER AVE
HILMAR, CA 95324

LOCATION: 20316 CRANE AVE
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:

MODIFICATION OF LIQUID MANURE HANDLING SYSTEM CONSISTING OF ONE SETTLING BASIN; MECHANICAL SEPARATOR(S); MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION: ADD THE REQUIREMENTS OF PERMIT N-6286-3 TO THIS PERMIT AND CANCEL PERMIT N-6286-3-1

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]

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.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-6287-3-2 : Apr 14 2022 11:52AM - BUSHT : Joint Inspection NOT Required

5. North Dairy at 20316 Crane Ave, Hilmar and South Dairy at 20633 Turner Ave, Hilmar constitute the same stationary source. [District Rule 2201]
6. Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rules 2201 and 4570]
7. Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rules 2201 and 4570]
8. Permittee shall maintain records to demonstrate liquid manure did not stand in the fields for more than twenty-four (24) hours after irrigation. [District Rules 2201 and 4570]
9. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-6287-5-1

LEGAL OWNER OR OPERATOR: GM SILVA DAIRY #2
MAILING ADDRESS: 20361 TURNER AVE
HILMAR, CA 95324

LOCATION: 20316 CRANE AVE
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:

MODIFICATION OF SOLID MANURE HANDLING CONSISTING OF MANURE STOCK PILES: ADD THE REQUIREMENTS OF PERMIT N-6286-4 TO THIS PERMIT AND CANCEL PERMIT N-6286-4-0

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]

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.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-6287-5-1 : Apr 14 2022 11:53AM - BUSHT : Joint Inspection NOT Required

5. North Dairy at 20316 Crane Ave, Hilmar and South Dairy at 20633 Turner Ave, Hilmar constitute the same stationary source. [District Rule 2201]
6. Within seventy two (72) hours of removal of separated solids from the drying process, permittee shall either 1) remove separated solids from the facility, or 2) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed twenty-four (24) hours per event. [District Rules 2201 and 4570]
7. Permittee shall keep records of dates when manure is removed from the facility or permittee shall maintain records to demonstrate that dry manure piles outside the pens are covered with a weatherproof covering from October through May. [District Rules 2201 and 4570]
8. Permittee shall incorporate all solid manure within seventy-two (72) hours of land application. [District Rules 2201 and 4570]
9. Permittee shall maintain records to demonstrate that all solid manure has been incorporated within seventy-two (72) hours of land application. [District Rules 2201 and 4570]
10. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-6287-6-1

LEGAL OWNER OR OPERATOR: GM SILVA DAIRY #2
MAILING ADDRESS: 20361 TURNER AVE
HILMAR, CA 95324

LOCATION: 20316 CRANE AVE
HILMAR, CA 95324

EQUIPMENT DESCRIPTION:

MODIFICATION OF FEED STORAGE AND HANDLING: ; ADD THE REQUIREMENTS OF PERMIT N-6286-5 TO THIS PERMIT AND CANCEL PERMIT N-6286-5-0

CONDITIONS

1. {3215} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. {3216} Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. {3658} This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rules 2201 and 4570]

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.

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

N-6287-6-1 : Apr 14 2022 11:53AM -- BUSHT : Joint Inspection NOT Required

5. North dairy at 20316 Crane Ave., Hilmar and South dairy at 20633 Turner Ave., Hilmar constitute the same stationary source. [District Rule 2201]
6. Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rules 2201 and 4570]
7. Permittee shall maintain records of feed content, formulation, and quantity of feed additive utilized, to demonstrate compliance with National Research Council (NRC) guidelines. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
8. Permittee shall push feed so that it is within three feet of feedlane fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]
9. Permittee shall maintain an operating plan or record that requires feed to be pushed within three feet of feedlane fence within two hours of putting out the feed, or use of a feed trough or other structure designed to maintain feed within reach of the animals. [District Rules 2201 and 4570]
10. Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
11. Permittee shall maintain an operating plan or record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rules 2201 and 4570]
12. Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
13. Permittee shall maintain records demonstrating grain is/was stored in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rules 2201 and 4570]
14. Permittee shall feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. [District Rules 2201 and 4570]
15. Permittee shall maintain records to demonstrate animals are fed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rules 2201 and 4570]
16. South Dairy: For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rules 2201 and 4570]
17. South Dairy: Permittee shall cover all silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least five (5) mils (0.005 inches) thick, multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material. Silage piles shall be covered within seventy-two (72) hours of last delivery of material to the pile. Sheets of material used to cover silage shall overlap so that silage is not exposed where the sheets meet. [District Rules 2201 and 4570]
18. South Dairy: Permittee shall maintain records of the thickness and type of cover used to cover each silage pile. Permittee shall also maintain records of the date of the last delivery of material to each silage pile and the date each pile is covered. [District Rules 2201 and 4570]
19. South Dairy: Permittee shall select and implement one of the following mitigation measures for building each silage pile at the facility: Option 1) build the silage pile such that the average bulk density is at least 44 lb/cu ft for corn silage and 40 lb/cu ft for other silage types, as measured in accordance with Section 7.11 of District Rule 4570; Option 2) Adjust filling parameters when creating the silage pile to achieve an average bulk density of at least 44 lb/cu ft for corn silage and at least 40 lb/cu ft for other silage types as determined using a District-approved spreadsheet; or Option 3) build silage piles using crops harvested with the applicable minimum moisture content, maximum Theoretical Length of Chop (TLC), and roller opening identified in District Rule 4570, Table 4.1, 1.d and manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. Records of the option chosen as a mitigation measure for building each silage pile shall be maintained. [District Rules 2201 and 4570]

CONDITIONS CONTINUE ON NEXT PAGE

20. South Dairy: For each silage pile that Option 1 (Measured Bulk Density) is chosen as a mitigation measure for building the pile, records of the measured bulk density shall be maintained. [District Rules 2201 and 4570]
21. South Dairy: For each silage pile that Option 2 (Bulk Density Determined by Spreadsheet) is chosen as a mitigation measure for building the pile, records of the filling parameters entered into the District-approved spreadsheet to determine the bulk density shall be maintained. [District Rules 2201 and 4570]
22. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall harvest corn used for the pile at an average moisture content of at least 65% and harvest other silage crops for the pile at an average moisture content of at least 60%. [District Rules 2201 and 4570]
23. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records of the average percent moisture of crops harvested for silage shall be maintained. [District Rules 2201 and 4570]
24. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall adjust setting of equipment used to harvest crops for the pile to incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable: 1) Corn with no processing: TLC not exceeding 1/2 inch, 2) Processed Corn: TLC not exceeding 3/4 inch and roller opening of 1-4 mm, 3) Alfalfa/Grass: TLC not exceeding 1.0 inch, 4) Other silage crops: TLC not exceeding 1/2 inch. [District Rules 2201 and 4570]
25. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records that equipment used to harvest crops for the pile was set to the required TLC and roller opening for the type of crop harvested shall be maintained. [District Rules 2201 and 4570]
26. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]
27. South Dairy: For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall maintain a plan that requires that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rules 2201 and 4570]
28. South Dairy: Permittee shall select and implement at least two of the following mitigation measures for management of silage piles at the facility: Option 1) manage silage piles such that only one silage pile has an uncovered face and the total exposed surface area is less than 2,150 square feet, or manage multiple uncovered silage piles such that the total exposed surface area of all uncovered silage piles is less than 4,300 square feet; Option 2) use a shaver/facer to remove silage from the silage pile, or shall use another method to maintain a smooth vertical surface on the working face of the silage pile; or Option 3) inoculate silage with homolactic lactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage, apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at the rate specified by the manufacturer to reduce yeast counts when forming silage piles, or apply other additives at rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA. Records of the options chosen for managing each silage pile shall be maintained. [District Rules 2201 and 4570]
29. South Dairy: If Option 1 (Limiting Exposed Area of Silage) is chosen as a mitigation measure for managing silage piles, the permittee shall calculate and record the maximum (largest part of pile) total exposed area of each silage pile. Records of the maximum calculated area shall be maintained. [District Rules 2201 and 4570]
30. South Dairy: For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for managing the pile, the permittee shall maintain records that a shaver/facer was used to remove silage from the pile or shall visually inspect the pile at least daily to verify that the working face was smooth and maintain records of the visual inspections. [District Rules 2201 and 4570]

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CONDITIONS CONTINUE ON NEXT PAGE

31. South Dairy: For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for managing the pile, records shall be maintained of the type additive (e.g. inoculants, preservative, other District & EPA-approved additive), the quantity of the additive applied to the pile, and a copy of the manufacturers instructions for application of the additive. [District Rules 2201 and 4570]
32. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rules 2201 and 4570]

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Appendix B
Current PTOs

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6286-1-0

EXPIRATION DATE: 12/31/2025

EQUIPMENT DESCRIPTION:

805 COW MILKING OPERATION WITH ONE DOUBLE 12 PARALLEL (24 STALLS) MILKING PARLOR

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall flush or hose milk parlor immediately prior to, immediately after, or during each milking. [District Rule 4570]
6. Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rule 4570]
7. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6286-2-0

EXPIRATION DATE: 12/31/2025

EQUIPMENT DESCRIPTION:

COW HOUSING - 805 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,005 MATURE COWS (MILK AND DRY); 690 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 3 FREESTALL BARNs WITH FLUSH SYSTEM

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. [District Rule 4570]
6. Permittee shall flush or scrape freestall flush lanes at least three (3) times per day. [District Rule 4570]
7. Permittee shall keep records or maintain an operating plan that requires freestall flush lanes to be flushed or scraped at least three times per day. [District Rule 4570]
8. Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every fourteen (14) days. [District Rule 4570]
9. Permittee shall record either of the following: 1) the dates when manure that is not dry is removed from individual cow freestall beds or 2) the dates when the freestall bedding is raked, harrowed, scraped, or graded. [District Rule 4570]
10. Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rule 4570]
11. Permittee shall maintain records demonstrating that water pipes and troughs are inspected and leaks are repaired at least once every seven (7) days. [District Rule 4570]
12. Permittee shall clean manure from corrals at least four (4) times per year with at least sixty (60) days between each cleaning, or permittee shall clean corrals at least once between April and July and at least once between September and December. [District Rule 4570]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. Permittee shall demonstrate that manure from corrals are cleaned at least four (4) times per year with at least sixty (60) days between each cleaning or demonstrate that corrals are cleaned at least once between April and July and at least once between September and December. [District Rule 4570]
14. Permittee shall implement at least one of the following corral mitigation measures: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less and shall slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; 2) maintain corrals to ensure proper drainage preventing water from standing more than forty-eight hours; or 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface except during periods of rainy weather. [District Rule 4570]
15. Permittee shall either 1) maintain sufficient records to demonstrate that corrals are maintained to ensure proper drainage preventing water from standing for more than forty-eight hours or 2) maintain records of dates pens are groomed (i.e., harrowed, raked, or scraped, etc.). [District Rule 4570]
16. Permittee shall scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock. [District Rule 4570]
17. Permittee shall maintain records demonstrating that concrete lanes in corrals are scraped, vacuumed, or flushed at least once every day for mature cows and at least once every seven (7) days for support stock. [District Rule 4570]
18. If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if permittee has selected to comply by cleaning the manure from under the corral shades, then permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rule 4570]
19. Shade structures shall be installed in any of the following ways: 1) constructed with a light permeable roofing material; 2) uphill of any slope in the corral; 3) installed so that the structure has a North/South orientation. OR Permittee shall clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral. [District Rule 4570]
20. If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if Permittee has selected to comply by cleaning the manure from under the corral shades, then Permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rule 4570]
21. Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rule 4570]
22. Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rule 4570]
23. Permittee shall maintain a record of the number of animals of each species and production group at the facility and shall maintain quarterly records of any changes to this information. [District Rule 4570]
24. The number of calves may exceed the value stated in the equipment description as long as the total support stock (heifers, bulls, and calves) does not exceed the combined value stated in the equipment description, and there is no increase in the number of hutches or corrals. [District Rule 2010]
25. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6286-3-1

EXPIRATION DATE: 12/31/2025

EQUIPMENT DESCRIPTION:

LIQUID MANURE HANDLING SYSTEM CONSISTING OF SETTLING BASIN(S); MECHANICAL SEPARATOR(S); ONE STORAGE POND; MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rule 4570]
6. Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]
7. Permittee shall maintain records to demonstrate liquid manure did not stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]
8. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6286-4-0

EXPIRATION DATE: 12/31/2025

EQUIPMENT DESCRIPTION:

SOLID MANURE HANDLING CONSISTING OF NONE; WINDROW COMPOSTING; SOLID MANURE HAULED OFFSITE

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall incorporate all solid manure within seventy-two (72) hours of land application. [District Rule 4570]
6. Permittee shall maintain records to demonstrate that all solid manure has been incorporated within seventy-two (72) hours of land application. [District Rule 4570]
7. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6286-5-0

EXPIRATION DATE: 12/31/2025

EQUIPMENT DESCRIPTION:

FEED STORAGE AND HANDLING CONSISTING OF COVERED FEED STORAGE OR COMMODITY BARN(S), SILAGE PILE(S) AND AG BAG(S) AND TOTAL MIXED RATION FEEDING

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rule 4570]
6. Permittee shall maintain records of feed content, formulation, and quantity of feed additive utilized, to demonstrate compliance with National Research Council (NRC) guidelines. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rule 4570]
7. Permittee shall push feed so that it is within three feet of feedlane fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the animals. [District Rule 4570]
8. Permittee shall maintain an operating plan or record that requires feed to be pushed within three feet of feedlane fence within two hours of putting out the feed, or use of a feed trough or other structure designed to maintain feed within reach of the animals. [District Rule 4570]
9. Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rule 4570]
10. Permittee shall maintain an operating plan or record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rule 4570]
11. Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 4570]
12. Permittee shall maintain records demonstrating grain is/was stored in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 4570]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. Permittee shall feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. [District Rule 4570]
14. Permittee shall maintain records to demonstrate animals are fed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rule 4570]
15. For bagged silage/feedstuff, permittee shall utilize a sealed feed storage system (e.g., ag bag). [District Rule 4570]
16. Permittee shall cover all silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least five (5) mils (0.005 inches) thick, multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material. Silage piles shall be covered within seventy-two (72) hours of last delivery of material to the pile. Sheets of material used to cover silage shall overlap so that silage is not exposed where the sheets meet. [District Rule 4570]
17. Permittee shall maintain records of the thickness and type of cover used to cover each silage pile. Permittee shall also maintain records of the date of the last delivery of material to each silage pile and the date each pile is covered. [District Rule 4570]
18. Permittee shall select and implement one of the following mitigation measures for building each silage pile at the facility: Option 1) build the silage pile such that the average bulk density is at least 44 lb/cu ft for corn silage and 40 lb/cu ft for other silage types, as measured in accordance with Section 7.11 of District Rule 4570; Option 2) Adjust filling parameters when creating the silage pile to achieve an average bulk density of at least 44 lb/cu ft for corn silage and at least 40 lb/cu ft for other silage types as determined using a District-approved spreadsheet; or Option 3) build silage piles using crops harvested with the applicable minimum moisture content, maximum Theoretical Length of Chop (TLC), and roller opening identified in District Rule 4570, Table 4.1, 1.d and manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. Records of the option chosen as a mitigation measure for building each silage pile shall be maintained. [District Rule 4570]
19. For each silage pile that Option 1 (Measured Bulk Density) is chosen as a mitigation measure for building the pile, records of the measured bulk density shall be maintained. [District Rule 4570]
20. For each silage pile that Option 2 (Bulk Density Determined by Spreadsheet) is chosen as a mitigation measure for building the pile, records of the filling parameters entered into the District-approved spreadsheet to determine the bulk density shall be maintained. [District Rule 4570]
21. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall harvest corn used for the pile at an average moisture content of at least 65% and harvest other silage crops for the pile at an average moisture content of at least 60%. [District Rule 4570]
22. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records of the average percent moisture of crops harvested for silage shall be maintained. [District Rule 4570]
23. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall adjust setting of equipment used to harvest crops for the pile to incorporate the following parameters for Theoretical Length of Chop (TLC) and roller opening, as applicable: 1) Corn with no processing: TLC not exceeding 1/2 inch, 2) Processed Corn: TLC not exceeding 3/4 inch and roller opening of 1-4 mm, 3) Alfalfa/Grass: TLC not exceeding 1.0 inch, 4) Other silage crops: TLC not exceeding 1/2 inch. [District Rule 4570]
24. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, records that equipment used to harvest crops for the pile was set to the required TLC and roller opening for the type of crop harvested shall be maintained. [District Rule 4570]
25. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall manage silage material delivery such that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rule 4570]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

26. For each silage pile that Option 3 (Moisture, TLC, Roller Opening, & Material Delivery) is chosen as a mitigation measure for building the pile, the permittee shall maintain a plan that requires that the thickness of the layer of un-compacted material delivered on top of the pile is no more than six (6) inches. [District Rule 4570]
27. Permittee shall select and implement at least two of the following mitigation measures for management of silage piles at the facility: Option 1) manage silage piles such that only one silage pile has an uncovered face and the total exposed surface area is less than 2,150 square feet, or manage multiple uncovered silage piles such that the total exposed surface area of all uncovered silage piles is less than 4,300 square feet; Option 2) use a shaver/facer to remove silage from the silage pile, or shall use another method to maintain a smooth vertical surface on the working face of the silage pile; or Option 3) inoculate silage with homolactic lactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage, apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at the rate specified by the manufacturer to reduce yeast counts when forming silage piles, or apply other additives at rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA. Records of the options chosen for managing each silage pile shall be maintained. [District Rule 4570]
28. If Option 1 (Limiting Exposed Area of Silage) is chosen as a mitigation measure for managing silage piles, the permittee shall calculate and record the maximum (largest part of pile) total exposed area of each silage pile. Records of the maximum calculated area shall be maintained. [District Rule 4570]
29. For each silage pile that Option 2 (Shaver/Facer or Smooth Face) is chosen as a mitigation measure for managing the pile, the permittee shall maintain records that a shaver/facer was used to remove silage from the pile or shall visually inspect the pile at least daily to verify that the working face was smooth and maintain records of the visual inspections. [District Rule 4570]
30. For each silage pile that Option 3 (Silage Additives) is chosen as a mitigation measure for managing the pile, records shall be maintained of the type additive (e.g. inoculants, preservative, other District & EPA-approved additive), the quantity of the additive applied to the pile, and a copy of the manufacturers instructions for application of the additive. [District Rule 4570]
31. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6287-1-0

EXPIRATION DATE: 12/31/2024

EQUIPMENT DESCRIPTION:

800 COW MILKING OPERATION WITH ONE DOUBLE PARALLEL (28 STALL) MILKING PARLOR AND ONE FLAT BARN (10 STALL) HOSPITAL MILKING PARLOR

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall flush or hose milk parlor immediately prior to, immediately after, or during each milking. [District Rule 4570]
6. Permittee shall provide verification that milk parlors are flushed or hosed prior to, immediately after, or during each milking. [District Rule 4570]
7. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6287-2-0

EXPIRATION DATE: 12/31/2024

EQUIPMENT DESCRIPTION:

COW HOUSING - 800 MILK COWS NOT TO EXCEED A COMBINED TOTAL OF 1,100 MATURE COWS (MILK AND DRY); 631 SUPPORT STOCK (HEIFERS, CALVES, AND BULLS); AND 2 FREESTALL BARNs WITH FLUSH SYSTEM

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. [District Rule 4570]
6. Permittee shall flush or scrape freestall flush lanes at least three (3) times per day. [District Rule 4570]
7. Permittee shall keep records or maintain an operating plan that requires freestall flush lanes to be flushed or scraped at least three times per day. [District Rule 4570]
8. Permittee shall remove manure that is not dry from individual cow freestall beds or shall rake, harrow, scrape, or grade freestall bedding at least once every seven (7) days. [District Rule 4570]
9. Permittee shall record either of the following: 1) the dates when manure that is not dry is removed from individual cow freestall beds or 2) the dates when the freestall bedding is raked, harrowed, scraped, or graded. [District Rule 4570]
10. Permittee shall inspect water pipes and troughs and repair leaks at least once every seven (7) days. [District Rule 4570]
11. Permittee shall maintain records demonstrating that water pipes and troughs are inspected and leaks are repaired at least once every seven (7) days. [District Rule 4570]
12. Permittee shall clean manure from corrals at least four (4) times per year with at least sixty (60) days between each cleaning, or permittee shall clean corrals at least once between April and July and at least once between September and December. [District Rule 4570]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. Permittee shall demonstrate that manure from corrals are cleaned at least four (4) times per year with at least sixty (60) days between each cleaning or demonstrate that corrals are cleaned at least once between April and July and at least once between September and December. [District Rule 4570]
14. Permittee shall implement at least one of the following corral mitigation measures: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 square feet or less and shall slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 square feet per animal; 2) maintain corrals to ensure proper drainage preventing water from standing more than forty-eight hours; or 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface except during periods of rainy weather. [District Rule 4570]
15. Permittee shall either 1) maintain sufficient records to demonstrate that corrals are maintained to ensure proper drainage preventing water from standing for more than forty-eight hours or 2) maintain records of dates pens are groomed (i.e., harrowed, raked, or scraped, etc.). [District Rule 4570]
16. Permittee shall scrape, vacuum or flush concrete lanes in corrals at least once every day for mature cows and every seven (7) days for support stock. [District Rule 4570]
17. Permittee shall maintain records demonstrating that concrete lanes in corrals are scraped, vacuumed, or flushed at least once every day for mature cows and at least once every seven (7) days for support stock. [District Rule 4570]
18. Shade structures shall be installed in any of the following ways: 1) constructed with a light permeable roofing material; 2) uphill of any slope in the corral; 3) installed so that the structure has a North/South orientation. OR Permittee shall clean manure from under corral shades at least once every fourteen (14) days, when weather permits access into the corral. [District Rule 4570]
19. If permittee has selected to comply using shades constructed with a light permeable roofing material, then permittee shall maintain records, such as design specifications, demonstrating that the shade structures are equipped with such roofing material or if Permittee has selected to comply by cleaning the manure from under the corral shades, then Permittee shall maintain records demonstrating that manure is cleaned from under the shades at least once every fourteen (14) days, as long as weather permits access to corrals. [District Rule 4570]
20. Permittee shall manage corrals such that the manure depth in the corral does not exceed twelve (12) inches at any time or point, except for in-corral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. However, permittee must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. [District Rule 4570]
21. Permittee shall measure and document the depth of manure in the corrals at least once every ninety (90) days. [District Rule 4570]
22. Permittee shall maintain a record of the number of animals of each species and production group at the facility and shall maintain quarterly records of any changes to this information. [District Rule 4570]
23. The number of calves may exceed the value stated in the equipment description as long as the total support stock (heifers, bulls, and calves) does not exceed the combined value stated in the equipment description, and there is no increase in the number of hutches or corrals. [District Rule 2010]
24. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6287-3-1

EXPIRATION DATE: 12/31/2024

EQUIPMENT DESCRIPTION:

LIQUID MANURE HANDLING SYSTEM CONSISTING OF ONE SETTLING BASIN; ONE STORAGE POND;
PROCESSING PIT AND MECHANICAL SEPARATOR(S); MANURE IS LAND APPLIED THROUGH FLOOD IRRIGATION

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall remove solids with a solid separator system, prior to the manure entering the lagoon. [District Rule 4570]
6. Permittee shall not allow liquid manure to stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]
7. Permittee shall maintain records to demonstrate liquid manure did not stand in the fields for more than twenty-four (24) hours after irrigation. [District Rule 4570]
8. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6287-5-0

EXPIRATION DATE: 12/31/2024

EQUIPMENT DESCRIPTION:

SOLID MANURE HANDLING CONSISTING OF MANURE STOCK PILES

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall incorporate all solid manure within seventy-two (72) hours of land application. [District Rule 4570]
6. Permittee shall maintain records to demonstrate that all solid manure has been incorporated within seventy-two (72) hours of land application. [District Rule 4570]
7. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: N-6287-6-0

EXPIRATION DATE: 12/31/2024

EQUIPMENT DESCRIPTION:
FEED STORAGE AND HANDLING

PERMIT UNIT REQUIREMENTS

1. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 1070]
2. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 1070]
3. This permit does not authorize the violation of any conditions established for this facility in the Conditional Use Permit (CUP), Special Use Permit (SUP), Site Approval, Site Plan Review (SPR), or other approval documents issued by a local, state, or federal agency. [Public Resources Code 21000-21177: California Environmental Quality Act]
4. If a licensed veterinarian or a certified nutritionist determines that any VOC mitigation measure will be required to be suspended as a detriment to animal health or necessary for the animal to molt, the owners/operators must notify the District in writing within forty-eight (48) hours of the determination including the duration and the specific health condition requiring the mitigation measure to be suspended. If the situation is expected to exist longer than a thirty-day (30) period, the owner/operator shall submit a new emission mitigation plan designating a mitigation measure to be implemented in lieu of the suspended mitigation measure. [District Rule 4570]
5. Permittee shall feed all animals according to National Research Council (NRC) guidelines. [District Rule 4570]
6. Permittee shall maintain records of feed content, formulation, and quantity of feed additive utilized, to demonstrate compliance with National Research Council (NRC) guidelines. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rule 4570]
7. Permittee shall push feed so that it is within three feet of feedlane fence within two hours of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the animals. [District Rule 4570]
8. Permittee shall maintain an operating plan or record that requires feed to be pushed within three feet of feedlane fence within two hours of putting out the feed, or use of a feed trough or other structure designed to maintain feed within reach of the animals. [District Rule 4570]
9. Permittee shall begin feeding total mixed rations within two hours of grinding and mixing rations. [District Rule 4570]
10. Permittee shall maintain an operating plan or record of when feeding of total mixed rations began within two hours of grinding and mixing rations. [District Rule 4570]
11. Permittee shall store grain in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 4570]
12. Permittee shall maintain records demonstrating grain is/was stored in a weatherproof storage structure or under a weatherproof covering from October through May. [District Rule 4570]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

13. Permittee shall feed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. [District Rule 4570]
14. Permittee shall maintain records to demonstrate animals are fed steam-flaked, dry rolled, cracked or ground corn or other steam-flaked, dry rolled, cracked or ground cereal grains. Records such as feed company guaranteed analyses (feed tags), ration sheets, or feed purchase records may be used to meet this requirement. [District Rule 4570]
15. Permittee shall keep and maintain all records for a minimum of five (5) years and shall make records available to the APCO and EPA upon request. [District Rule 4570]

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

Appendix C

Dairy Emissions Calculations for N-6286

Pre-Project Facility Information

1. Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
2. Does the facility have an anaerobic treatment lagoon?
3. Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
4. Does the facility land apply solid manure?
Answering "yes" assumes worst case.
5. Is any scraped manure sent to a lagoon/storage pond?
Answering "yes" assumes worst case.

Pre-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	805				805		
Dry Cows	100		100		200		
Support Stock (Heifers, Calves, and Bulls)	200		490		690		
Large Heifers					0		
Medium Heifers					0		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	805
Total Mature Cows	1,005
Support Stock (Heifers, Calves, and Bulls)	690
Total Calves	0
Total Dairy Head	1,695

Pre-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	25	60
Alfalfa	0		
Wheat	1	10	10

Post-Project Facility Information

1. Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
2. Does the facility have an anaerobic treatment lagoon?
3. Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
4. Does the facility land apply solid manure?
Answering "yes" assumes worst case.
5. Is any scraped manure sent to a lagoon/storage pond?
Answering "yes" assumes worst case.
6. Does this project result in an increase or relocation of uncovered surface area for any lagoon/storage pond?

Post-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	805				805		
Dry Cows	100		100		200		
Support Stock (Heifers, Calves, and Bulls)	200		490		690		
Large Heifers					0		
Medium Heifers					0		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	805
Total Mature Cows	1,005
Support Stock (Heifers, Calves, and Bulls)	690
Total Calves	0
Total Dairy Head	1,695

Post-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn	1	25	60
Alfalfa			
Wheat	1	10	10

VOC Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Enteric Emissions Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Feed according to NRC guidelines	10%	10%
Total Control Efficiency			10%	10%
Milking Parlor Floor Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Flush or hose milk parlor immediately prior to, immediately after, or during each milking. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	10%
Total Control Efficiency			19%	19%

Cow Housing				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Enteric Emissions Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
Total Control Efficiency			10%	10%
Corrals/Pens Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Inspect water pipes and troughs and repair leaks at least once every seven days. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF.</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dairies: Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement). Heifer/Calf Ranches:</i> Scrape corrals twice a year with at least 90 days between cleanings, excluding in-coral mounds. <i>Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Scrape, vacuum, or flush concrete lanes in corrals at least once every day for mature cows and every seven days for support stock, or clean concrete lanes such that the depth of manure does not exceed 12 inches at any point or time. <i>Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Implement one of the following: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 sq ft or less and slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 sq ft; 2) maintain corrals to ensure proper drainage preventing water from standing more than 48 hrs; 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface. <i>Note: If selected for dairies > 999 milk cows, CE already included in EF.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structures such that they are constructed with a light permeable roofing material. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Install all shade structures uphill of any slope in the corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Clean manure from under corral shades at least once every 14 days, when weather permits access into corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structure so that the structure has a North/South orientation. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Manage corrals such that the manure depth in the corral does not exceed 12 inches at any time or point, except for in-coral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The manure facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Knockdown fence line manure build-up prior to it exceeding a height of 12 inches at any time or point. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Use lime or a similar absorbent material in the corral according to the manufacturer's recommendation to minimize moisture in the corrals.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	0%	0%
Total Control Efficiency			52.17%	52.17%
Bedding Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%

<input type="checkbox"/>	<input type="checkbox"/>	Use non-manure-based bedding and non-separated solids based bedding for at least 90% of the bedding material, by weight, for freestalls (e.g. rubber mats, almond shells, sand, or waterbeds).	0%	0%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	For a large dairy (1,000 milk cows or larger) or a heifer/calf ranch - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 7 days.	0%	10%
<input checked="" type="checkbox"/>	<input type="checkbox"/>	(D) For a medium dairy only (500 to 999 milk cows) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 14 days.	10%	0%
Total Control Efficiency			19.00%	19.00%
Lanes Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. Note: No control efficiency at this time.	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dairies: Flush, scrape, or vacuum freestall flush lanes immediately prior to or after, or during each milking; or flush or scrape freestall flush lanes at least 3 times per day. Heifer/Calf Ranches: Vacuum, scrape, or flush freestalls at least once every seven days.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	(D) Have no animals in exercise pens or corrals at any time.	0%	0%
Total Control Efficiency			19.00%	19.00%

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Lagoons/Storage Ponds Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Use phototropic lagoon	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Use an anaerobic treatment lagoon designed according to NRCS Guideline No. 359, or aerobic treatment lagoon, or mechanically aerated lagoon, or covered lagoon digester vented to a control device with minimum 95% control	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Maintain lagoon pH between 6.5 and 7.5	0%	0%
Total Control Efficiency			19.00%	19.00%
Liquid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic or aerobic treatment lagoon, aerobic lagoon, or digester system	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Allow liquid manure to stand in the fields for no more than 24 hours after irrigation. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Apply liquid/slurry manure via injection with drag hose or similar apparatus	0%	0%
Total Control Efficiency			19.00%	19.00%

Solid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Solid Manure Storage Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	LARGE CAFO ONLY: Within 72 hours of removal from housing, either a) remove dry manure from the facility, or b) cover dry manure outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	0%	10%
Total Control Efficiency			10.00%	19.00%
Separated Solids Piles Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	LARGE CAFO ONLY: Within 72 hours of removal from the drying process, either a) remove separated solids from the facility, or b) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	0%	10%
Total Control Efficiency			10.00%	19.00%
Solid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Incorporate all solid manure within 72 hours of land application. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF. Note: No additional control given for rapid manure incorporation (e.g. BACT requirement).	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon or digester system.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Apply no solid manure with a moisture content of more than 50%	0%	0%
Total Control Efficiency			19.00%	19.00%

Silage and TMR				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Corn/Alfalfa/Wheat Silage Mitigations				
		1. Utilize a sealed feed storage system (e.g. Ag-Bag) for bagged silage, or		

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>2. Cover the surface of silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least 5 mils thick (0.005 inches), multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material within 72 hours of last delivery of material to the pile, and implement one of the following:</p> <p>a) build silage piles such that the average bulk density is at least 44 lb/cu-ft for corn silage and 40 lb/cu-ft for other silage types, as measured in accordance with Section 7.10 of Rule 4570,</p> <p>b) when creating a silage pile, adjust filling parameters to assure a calculated average bulk density of at least 44 lb/cu-ft for corn silage and at least 40 lb/cu-ft for other silage types, using a spreadsheet approved by the District,</p> <p>c) harvest silage crop at > or = 65% moisture for corn; and >= 60% moisture for alfalfa/grass and other silage crops; manage silage material delivery such that no more than 6 inches of materials are uncompacted on top of the pile; and incorporate the applicable Theoretical Length of Chop (TLC) and roller opening for the crop being harvested.</p> <p>For dairies - implement <u>two</u> of the following: For heifer/calf ranches - implement <u>one</u> of the following:</p> <p>Manage Exposed Silage. a) manage silage piles such that only one silage pile has an uncovered face and the uncovered face has a total exposed surface area of less than 2,150 sq. ft., or b) manage multiple uncovered silage piles such that the total exposed surface area of all silage piles is less than 4,300 sq ft.</p> <p>Maintain Silage Working Face. a) use a shaver/facer to remove silage from the silage pile, or b) maintain a smooth vertical surface on the working face of the silage pile</p> <p>Silage Additive: a) inoculate silage with homolactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage or apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at a rate specified by the manufacturer to reduce yeast counts when forming silage pile; or b) apply other additives at specified rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA.</p>	39.0%	39.0%
Total Control Efficiency*			39.00%	39.00%

*Assumes 25% control for density mitigation measures and 10% each for the two optional measures, resulting in an overall control of 39%. The same conservative control efficiency will be applied to the sealed feed storage system (Ag-Bag).

		TMR Mitigations		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Push feed so that it is within 3 feet of feedlane fence within 2 hrs of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the cows.	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Begin feeding total mixed rations within 2 hrs of grinding and mixing rations. <i>Note: If selected for dairies > 999 milk cows, control efficiency already included in EF.</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed steam-flaked, dry rolled, cracked or ground corn or other ground cereal grains.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Remove uneaten wet feed from feed bunks within 24 hrs after the end of a rain event.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	(D) For total mixed rations that contain at least 30% by weight of silage, feed animals total mixed rations that contain at least 45% moisture.	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines. <i>Note: If selected for dairies, control efficiency already included in EF.</i>	0%	0%
Total Control Efficiency			27.10%	27.10%

Ammonia Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Milking Parlor Floor Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
Total Control Efficiency			28%	28%

Cow Housing				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Corrals/Pens Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. OR Use lime or a similar absorbent material in the corral according to the manufacturer's recommendation to minimize moisture in the corrals. OR Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	50%	50%
Total Control Efficiency			64%	64%
Bedding Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Use non-manure-based bedding and non-separated solids based bedding for at least 90% of the bedding material, by weight, for freestalls (e.g. rubber mats, almond shells, sand, or waterbeds). OR For a large dairy only (1,000 milk cows or larger) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 7 days. OR For a medium dairy only (500 to 999 milk cows) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 14 days.	47.7%	47.7%
Total Control Efficiency			47.70%	62.34%
Lanes Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
Total Control Efficiency			28%	28%

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Lagoons/Storage Ponds Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use phototropic lagoon OR Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.	0%	80%
Total Control Efficiency			28.0%	85.6%
Liquid Manure Land Application Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic treatment lagoon	0%	0%
Total Control Efficiency			0.00%	28.00%

Solid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Solid Manure Land Application Mitigations				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	0%	28%
<input type="checkbox"/>	<input type="checkbox"/>	Incorporate all solid manure within 72 hours of land application. AND Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon or digester system. AND Apply no solid manure with a moisture content of more than 50%	0%	0%
Total Control Efficiency			0.00%	28.00%

Dairy Emission Factors

		lb/hd-yr Dairy Emissions Factors for Holstein Cows																													
		Milk Cows				Dry Cows				Large Heifers (15 to 24 months)				Medium Heifers (7 to 14 months)				Small Heifers (3 to 6 months)				Calves (0 - 3 months)				Bulls					
		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled			
		<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2		
Milking Parlor	VOC	Enteric Emissions in Milking Parlors	0.43	0.41	0.39	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Milking Parlor Floor	0.04	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Total	0.47	0.44	0.42	0.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NH3	Total	0.19	0.19	0.14	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Cow Housing	VOC	Enteric Emissions in Cow Housing	3.89	3.69	3.50	3.50	2.33	2.23	2.10	2.10	1.81	1.71	1.63	1.63	1.23	1.17	1.11	1.11	0.69	0.65	0.62	0.62	0.32	0.31	0.29	0.29	1.10	1.04	0.99	0.99	
		Corrals/Pens	10.00	6.60	4.78	4.78	5.40	3.59	2.58	2.58	4.20	2.76	2.01	2.01	2.85	1.88	1.36	1.36	1.60	1.04	0.77	0.77	0.75	0.50	0.36	0.36	2.55	1.67	1.22	1.22	
		Bedding	1.05	1.00	0.85	0.85	0.57	0.54	0.46	0.46	0.44	0.42	0.36	0.36	0.30	0.28	0.24	0.24	0.17	0.16	0.14	0.14	0.08	0.08	0.06	0.06	0.27	0.25	0.22	0.22	
	Lanes	0.84	0.80	0.68	0.68	0.45	0.44	0.37	0.37	0.35	0.33	0.29	0.29	0.24	0.23	0.19	0.19	0.13	0.13	0.11	0.11	0.06	0.06	0.05	0.05	0.21	0.20	0.17	0.17		
	Total	15.78	12.09	9.81	9.81	8.75	6.80	5.51	5.51	6.81	5.22	4.28	4.28	4.62	3.56	2.91	2.91	2.59	1.98	1.63	1.63	1.22	0.95	0.77	0.77	4.13	3.16	2.60	2.60		
		NH3	Enteric Emissions in Cow Housing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Corrals/Pens	41.90	41.90	15.08	15.08	21.20	21.20	7.63	7.63	11.00	11.00	3.96	3.96	7.90	7.90	2.84	2.84	6.00	6.00	2.16	2.16	1.80	1.80	0.65	0.65	15.30	15.30	5.51	5.51	
		Bedding	6.30	6.30	3.29	3.27	3.20	3.20	1.67	1.20	1.70	1.70	0.89	0.64	1.20	1.20	0.63	0.45	0.90	0.90	0.47	0.34	0.30	0.30	0.16	0.11	2.30	2.30	1.20	0.87	
		Lanes	5.10	5.10	3.67	3.67	2.60	2.60	1.87	1.87	1.30	1.30	0.94	0.94	1.00	1.00	0.72	0.72	0.70	0.70	0.50	0.50	0.20	0.20	0.14	0.14	1.90	1.90	1.37	1.37	
		Total	53.30	53.30	22.05	21.13	27.00	27.00	11.18	10.71	14.00	14.00	5.79	5.54	10.10	10.10	4.19	4.02	7.60	7.60	3.13	3.00	2.30	2.30	0.95	0.90	19.50	19.50	8.08	7.74	
Liquid Manure Handling	VOC	Lagoons/Storage Ponds	1.52	1.30	1.23	1.23	0.82	0.71	0.66	0.66	0.64	0.54	0.52	0.52	0.43	0.37	0.35	0.35	0.24	0.21	0.20	0.20	0.11	0.10	0.09	0.09	0.40	0.33	0.32	0.32	
		Liquid Manure Land Application	1.64	1.40	1.33	1.33	0.89	0.76	0.72	0.72	0.69	0.58	0.56	0.56	0.47	0.40	0.38	0.38	0.26	0.22	0.21	0.21	0.12	0.11	0.10	0.10	0.42	0.35	0.34	0.34	
		Total	3.16	2.70	2.56	2.56	1.71	1.47	1.38	1.38	1.33	1.13	1.08	1.08	0.90	0.77	0.73	0.73	0.51	0.43	0.41	0.41	0.24	0.21	0.19	0.19	0.82	0.68	0.66	0.66	
	NH3	Lagoons/Storage Ponds	8.20	8.20	5.90	1.18	4.20	4.20	3.02	0.80	2.20	2.20	1.58	0.32	1.50	1.50	1.08	0.22	1.20	1.20	0.86	0.17	0.35	0.35	0.25	0.05	3.00	3.00	2.16	0.43	
		Liquid Manure Land Application	8.90	8.90	8.90	6.41	4.50	4.50	4.50	3.24	2.30	2.30	2.30	1.66	1.70	1.70	1.70	1.22	1.30	1.30	0.94	0.37	0.37	0.27	0.27	3.23	3.23	3.23	2.33		
		Total	17.10	17.10	14.80	7.59	8.70	8.70	7.52	3.84	4.50	4.50	3.88	1.97	3.20	3.20	2.78	1.44	2.50	2.50	2.16	1.11	0.72	0.72	0.62	0.32	6.23	6.23	5.39	2.76	
Solid Manure Handling	VOC	Solid Manure Storage	0.16	0.15	0.14	0.13	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.03	
		Separated Solids Piles	0.06	0.06	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02		
		Solid Manure Land Application	0.39	0.33	0.32	0.32	0.21	0.18	0.17	0.17	0.16	0.14	0.13	0.13	0.11	0.09	0.09	0.09	0.06	0.05	0.05	0.05	0.03	0.03	0.02	0.02	0.10	0.08	0.08	0.08	
	Total	0.61	0.54	0.51	0.49	0.33	0.29	0.28	0.27	0.26	0.23	0.22	0.21	0.17	0.15	0.15	0.14	0.14	0.10	0.09	0.08	0.08	0.05	0.04	0.04	0.04	0.16	0.14	0.14	0.13	
		NH3	Solid Manure Storage	0.95	0.95	0.95	0.95	0.48	0.48	0.48	0.48	0.25	0.25	0.25	0.25	0.18	0.18	0.18	0.18	0.13	0.13	0.13	0.13	0.04	0.04	0.04	0.04	0.35	0.35	0.35	0.35
			Separated Solids Piles	0.38	0.38	0.38	0.38	0.19	0.19	0.19	0.19	0.10	0.10	0.10	0.10	0.07	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.14	0.14	0.14	0.14
		Solid Manure Land Application	2.09	2.09	2.09	1.50	1.06	1.06	1.06	0.76	0.55	0.55	0.55	0.40	0.39	0.39	0.39	0.28	0.30	0.30	0.30	0.22	0.09	0.09	0.09	0.06	0.76	0.76	0.76	0.55	
		Total	3.42	3.42	3.42	2.83	1.73	1.73	1.73	1.43	0.90	0.90	0.90	0.75	0.64	0.64	0.64	0.53	0.48	0.48	0.48	0.40	0.15	0.15	0.15	0.12	1.25	1.25	1.25	1.04	

Silage and TMR (Total Mixed Ration) Emissions (µg/m ² -min)					
Feed Storage and Handling	VOC	Silage Type	Uncontrolled	EF1	EF2
				Corn Silage	34,681
		Alfalfa Silage	17,458	10,649	10,649
		Wheat Silage	43,844	26,745	26,745
		TMR	13,056	9,518	9,518

Assumptions: 1) Each silage pile is completely covered except for the front face and 2) Rations are fed within 48 hours.

PM ₁₀ Emission Factors (lb/hd-yr)		
Type of Cow	Dairy EF	Source
Cows in Freestalls	1.37	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
Milk/Dry in Loafing Barns	2.73	SJVAPCD
Heifers/Bulls in Loafing Barns	5.28	SJVAPCD
Calves in Loafing Barns	0.69	SJVAPCD
Milk/Dry in Corrals	5.46	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
Support Stock (Heifers/Bulls) in Open Corrals	10.55	Based on a USDA/UC Davis report quantifying dairy and feedlot emissions in Tulare & Kern Counties (April '01)
Large Heifers in Open Corrals	8.01	SJVAPCD
Calf (under 3 mo.) open corrals	1.37	SJVAPCD
Calf on-ground hutches	0.343	SJVAPCD
Calf above-ground flushed	0.069	SJVAPCD
Calf above-ground scraped	0.206	SJVAPCD

The controlled PM₁₀ EF will be calculated based on the specific PM₁₀ mitigation measures, if any, for each freestall, corral, or calf hutch area. See the PM Mitigation Measures for calculations.

Post-Project PM10 Mitigation Measures

Post-Project PM10 Mitigation Measures															
Housing Name(s) # (s)	or	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk
1		Milk	freestall	milk cows	805	805	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		Dry	freestall	dry cows	100	100	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		Support	freestall	support stock	200	200	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		Dry	open corral	dry cows	100	100		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5		Support	open corral	support stock	490	490		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40								<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Project PM10 Mitigation Measures for New Housing Units at an Expanding Dairy															
Housing Name(s) # (s)	or	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk
1							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Project Total # of Cows				1,695											

Pre-Project Potential to Emit - Cow Housing

Pre-Project Potential to Emit - Cow Housing												
	Housing Name(s) or # (s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Milk	milk cows	805	9.81	22.05	1.37	21.6	7,897	48.6	17,751	3.0	1,103
2	Dry	dry cows	100	5.51	11.18	1.37	1.5	551	3.1	1,118	0.4	137
3	Support	support stock	200	4.28	5.79	1.37	2.3	856	3.2	1,157	0.8	274
4	Dry	dry cows	100	5.51	11.18	5.46	1.5	551	3.1	1,118	1.5	546
5	Support	support stock	490	4.28	5.79	10.55	5.7	2,097	7.8	2,835	14.2	5,170
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40												
Pre-Project Total # of Cows			1,695				32.6	11,952	65.8	23,979	19.9	7,230

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,695	32.6	11,952	65.8	23,979	19.9	7,230

Calculations:

Annual PE 1 for each pollutant (lb/yr) = Controlled EF (lb/hd-yr) x # of cows (hd)
 Daily PE1 for each pollutant (lb/day) = [Controlled EF (lb/hd-yr) x # of cows (hd)] ÷ 365 (day/yr)

Post-Project Potential to Emit - Cow Housing

Post-Project Potential to Emit - Cow Housing												
Housing Name(s) or # (s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)	
1	Milk	milk cows	805	9.81	21.13	1.37	21.6	7,897	46.6	17,008	3.0	1,103
2	Dry	dry cows	100	5.51	10.71	1.37	1.5	551	2.9	1,071	0.4	137
3	Support	support stock	200	4.28	5.54	1.37	2.3	856	3.0	1,107	0.8	274
4	Dry	dry cows	100	5.51	10.71	5.46	1.5	551	2.9	1,071	1.5	546
5	Support	support stock	490	4.28	5.54	10.55	5.7	2,097	7.4	2,713	14.2	5,170
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Post-Project # of Cows (non-expansion)		1,695					32.6	11,952	62.8	22,970	19.9	7,230

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Potential to Emit - Cow Housing: New Housing Units at an Expanding Dairy												
Housing Name(s) or # (s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
Total # of Cows From Expansion		0					0.0	0	0.0	0	0.0	0

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,695	32.6	11,952	62.8	22,970	19.9	7,230

Calculations:
 Annual PE 2 for each pollutant (lb/yr) = Controlled EF (lb/hd-yr) x # of cows (hd)
 Daily PE2 for each pollutant (lb/day) = [Controlled EF (lb/hd-yr) x # of cows (hd)] ÷ 365 (day/yr)

Pre-Project Potential to Emit (PE1)

Pre-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows	805	0	0	0	805	
Dry Cows	100	0	100	0	200	
Support Stock (Heifers, Calves and Bulls)	200	0	490	0	690	
Large Heifers	0	0	0	0	0	
Medium Heifers	0	0	0	0	0	
Small Heifers	0	0	0	0	0	
Bulls	0	0	0	0	0	
	Calf Hutches				Calf Corrals	
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped
Calves	0	0	0	0	0	0

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft ²)
Corn	1	25	60	1,246
Alfalfa	0	0	0	
Wheat	1	10	10	89

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.9	338	0.3	110

Cow Housing						
Cow	VOC		NH3		PM10	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Total	32.6	11,952	65.8	23,979	19.9	7,230

Liquid Manure Handling						
Cow	VOC		NH3		H2S*	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	5.6	2,061	32.6	11,914	0.3	95
Dry Cows	0.8	276	4.1	1,504	0	12
Support Stock (Heifers, Calves and Bulls)	2.0	745	7.3	2,677	0.1	22
Large Heifers	0.0	0	0.0	0	0	0
Medium Heifers	0.0	0	0.0	0	0	0
Small Heifers	0.0	0	0.0	0	0	0
Calves	0.0	0	0.0	0	0	0
Bulls	0.0	0	0.0	0	0	0
Total	8.4	3,082	44.0	16,095	0.4	129

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	1.1	411	7.5	2,753
Dry Cows	0.2	56	0.9	346
Support Stock (Heifers, Calves and Bulls)	0.4	152	1.7	621
Large Heifers	0.0	0	0.0	0
Medium Heifers	0.0	0	0.0	0
Small Heifers	0.0	0	0.0	0
Calves	0.0	0	0.0	0
Bulls	0.0	0	0.0	0
Total	1.7	618	10.1	3,720

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	7.8	2,832
Alfalfa Emissions	0.0	0
Wheat Emissions	0.7	256
TMR	33.6	12,275
Total	42.1	15,363

Total Daily Pre-Project Potential to Emit (lb/day)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	0.9	0.3	0.0
Cow Housing	0.0	0.0	19.9	0.0	32.6	65.8	0.0
Liquid Manure	0.0	0.0	0.0	0.0	8.4	44.0	0.4
Solid Manure	0.0	0.0	0.0	0.0	1.7	10.1	0.0
Feed Handling	0.0	0.0	0.0	0.0	42.1	0.0	0.0
Total	0.0	0.0	19.9	0.0	85.7	120.2	0.4

Total Annual Pre-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	338	110	0
Cow Housing	0	0	7,230	0	11,952	23,979	0
Liquid Manure	0	0	0	0	3,082	16,095	129
Solid Manure	0	0	0	0	618	3,720	0
Feed Handling	0	0	0	0	15,363	0	0
Total	0	0	7,230	0	31,354	43,904	129

Calculations for milking parlor:

Annual PE = (# milk cows) x (EF1 lb-pollutant/hd-yr)

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculations for cow housing:

See detailed calculations under Cow Housing Calculations worksheet.

Calculations for liquid manure and solid manure handling:

Annual PE = [(# milk cows) x (EF1 lb-pollutant/hd-yr)] + [(# dry cows) x (EF1 lb-pollutant/hd-yr)] + [(# large heifers) x (EF1 lb-pollutant/hd-yr)] + [(# medium heifers) x (EF1 lb-pollutant/hd-yr)] + [(# small heifers) x (EF1 lb-pollutant/hd-yr)] + [(# calves) x (EF1 lb-pollutant/hd-yr)] + [(# bulls) x (EF1 lb-pollutant/hd-yr)]

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

The H2S emission factor is assumed to be 10% of the NH3 lagoon/storage pond(s) emission factor, for each respective herd size.

Calculations for silage emissions:

Annual PE = (EF1) x (area ft²) x (0.0929 m²/ft²) x (8,760 hr/yr) x (60 min/hr) x 2.20E-9 lb/μg

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculation for TMR emissions:

Annual PE = (# cows) x (EF1) x (0.658 m³) x (525,600 min/yr) x (2.20E-9 lb/μg)

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Notes are not included in TMR calculation.

*Since there will be no change to the lagoons/storage ponds surface area, no change in H2S emissions is expected. Therefore, it will be assumed that PE1 for H2S emissions is equal to PE2 for H2S emissions.

Major Source Emissions (lb/yr)					
Permit	NOx	SOx	PM10	CO	VOC
Milk Parlor	0	0	0	0	0
Cow Housing	0	0	0	0	0
Liquid Manure	0	0	0	0	1,481
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	1,481

Greenhouse Gas Emissions - CEQA

Uncontrolled GHG Emission Factors (lbs/hd-yr)						
Animal Type	CH4 (Anaerobic Treatment Lagoon)	CH4 (Lagoon)	CH4 (Manure Spreading)	CH4 (Solid Manure Storage)	CH4 (Enteric)	CO2 Equivalent Multiplier for CH4
Milk Cows	513	307.8	3.5	27.7	271.5	21
Dry Cows	513	307.8	3.5	27.7	271.5	21
Support Stock*	110.4	110.4	1.6	--	151.6	21
Large Heifers	110.4	110.4	1.6	--	151.6	21
Medium Heifers	110.4	110.4	1.6	--	100.5	21
Small Heifers	110.4	110.4	1.6	--	100.5	21
Calves	--	--	--	--	--	--
Bulls*	110.4	110.4	1.6	--	151.6	21

Uncontrolled GHG Emission Factors (lbs/hd-yr)					
Animal Type	N2O (Anaerobic Treatment Lagoon)	N2O (Manure Spreading)	N2O (Solid Manure Storage)	N2O (Enteric)	CO2 Equivalent Multiplier for N2O
Milk Cows	1.5	0	2.6	0	310
Dry Cows	1.5	0	2.6	0	310
Support Stock*	1.4	0	--	0	310
Large Heifers	1.4	0	--	0	310
Medium Heifers	1.4	0	--	0	310
Small Heifers	1.4	0	--	0	310
Calves	--	0	--	0	--
Bulls*	1.4	0	--	0	310

*Emission factors for Support Stock and Bulls assumed to be the same as Large Heifers.

1 short ton = 0.9072 metric ton

CO2e from CH4 = [CH4 (anaerobic treatment) lagoon + CH4 manure spreading + CH4 solid manure storage + CH4 enteric] x 21 x 0.9072 metric tons/short tons + 2000 lb/ton

CO2e from N2O = [N2O anaerobic treatment lagoon + N2O manure spreading + N2O solid manure storage + N2O enteric] x 310 x 0.9072 metric tons/short tons + 2000 lb/ton

Pre-Project CO2e Emissions

Pre-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	805	307.8	21.0	2,360
Dry Cows	200	307.8	21.0	586
Support Stock	690	110.4	21.0	726
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	0	--	--	0
Bulls	0	110.4	21.0	0

Pre-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd yr)	CH4 Solid Manure Storage (lbs/hd yr)	CH4 Enteric (lbs/hd yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	805	3.5	27.7	271.5	21.0	2,321
Dry Cows	200	3.5	27.7	271.5	21.0	577
Support Stock	690	1.6	--	151.6	21.0	1,007
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	0	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Pre-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	805	0.0	310.0	0
Dry Cows	200	0.0	310.0	0
Support Stock	690	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	0	0.0	--	0
Bulls	0	0.0	310.0	0

Pre-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd yr)	N2O Solid Manure Storage (lbs/hd yr)	N2O Enteric (lbs/hd yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	805	0.0	2.6	0.0	310.0	294
Dry Cows	200	0.0	2.6	0.0	310.0	73
Support Stock	690	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	0	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Pre-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	4,681	294	4,976
Dry Cows	1,163	73	1,236
Support Stock	1,733	0	1,733
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	7,944		

Post-Project CO2e Emissions

Post-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	805	307.8	21.0	2,360
Dry Cows	200	307.8	21.0	586
Support Stock	690	110.4	21.0	726
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	0	--	--	0
Bulls	0	110.4	21.0	0

Post-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd yr)	CH4 Solid Manure Storage (lbs/hd yr)	CH4 Enteric (lbs/hd yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	805	3.5	27.7	271.5	21.0	2,321
Dry Cows	200	3.5	27.7	271.5	21.0	577
Support Stock	690	1.6	--	151.6	21.0	1,007
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	0	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Post-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	805	0.0	310.0	0
Dry Cows	200	0.0	310.0	0
Support Stock	690	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	0	0.0	--	0
Bulls	0	0.0	310.0	0

Post-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd yr)	N2O Solid Manure Storage (lbs/hd yr)	N2O Enteric (lbs/hd yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	805	0.0	2.6	0.0	310.0	294
Dry Cows	200	0.0	2.6	0.0	310.0	73
Support Stock	690	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	0	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Post-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	4,681	294	4,976
Dry Cows	1,163	73	1,236
Support Stock	1,733	0	1,733
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	7,944		

Change in CO2e Emissions

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (metric tons/yr)	Post-Project CO2e (metric tons/yr)	Change (metric tons/yr)
Milk Cows	4,976	4,976	0
Dry Cows	1,236	1,236	0
Support Stock	1,733	1,733	0
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	0		

Appendix D

Dairy Emissions Calculations for N-6287

Pre-Project Facility Information

- Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
- Does the facility have an anaerobic treatment lagoon?
- Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
- Does the facility land apply solid manure?
Answering "yes" assumes worst case.
- Is any scraped manure sent to a lagoon/storage pond?
Answering "yes" assumes worst case.

Pre-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	800				800		
Dry Cows	250			50	300		
Support Stock (Heifers, Calves, and Bulls)	631				631		
Large Heifers					0		
Medium Heifers					0		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	800
Total Mature Cows	1,100
Support Stock (Heifers, Calves, and Bulls)	631
Total Calves	0
Total Dairy Head	1,731

Pre-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

Post-Project Facility Information

- Does this facility house Holstein or Jersey cows?
Most facilities house Holstein cows unless explicitly stated on the PTO or application.
- Does the facility have an anaerobic treatment lagoon?
- Does the facility land apply liquid manure?
Answering "yes" assumes worst case.
- Does the facility land apply solid manure?
Answering "yes" assumes worst case.
- Is any scraped manure sent to a lagoon/storage pond?
Answering "yes" assumes worst case.
- Does this project result in an increase or relocation of uncovered surface area for any lagoon/storage pond?

Post-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	800				800		
Dry Cows	250			50	300		
Support Stock (Heifers, Calves, and Bulls)	631				631		
Large Heifers					0		
Medium Heifers					0		
Small Heifers					0		
Bulls					0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves							0

Total Herd Summary	
Total Milk Cows	800
Total Mature Cows	1,100
Support Stock (Heifers, Calves, and Bulls)	631
Total Calves	0
Total Dairy Head	1,731

Post-Project Silage Information			
Feed Type	Max # Open Piles	Max Height (ft)	Max Width (ft)
Corn			
Alfalfa			
Wheat			

This spreadsheet serves only as a resource to calculate potential emissions from dairies, and may not reflect the final emissions used by the District due to parameters not addressed in this spreadsheet and/or omissions from the spreadsheet. Any other permissible equipment (e.g. IC engines, gasoline tanks, etc.) at a facility will need to be calculated separately. All final calculations used in permitting projects will be conducted by District staff.

VOC Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Enteric Emissions Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Feed according to NRC guidelines	10%	10%
Total Control Efficiency			10%	10%
Milking Parlor Floor Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(D) Flush or hose milk parlor immediately prior to, immediately after, or during each milking. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	10%
Total Control Efficiency			19%	19%

Cow Housing				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Enteric Emissions Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
Total Control Efficiency			10%	10%
Corrals/Pens Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Inspect water pipes and troughs and repair leaks at least once every seven days. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF.</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dairies: Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. <i>Note: If selected for dairies > 999 milk cows, CE is already included in EF. Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i> Heifer/Calf Ranches: Scrape corrals twice a year with at least 90 days between cleanings, excluding in-coral mounds. <i>Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Scrape, vacuum, or flush concrete lanes in corrals at least once every day for mature cows and every seven days for support stock, or clean concrete lanes such that the depth of manure does not exceed 12 inches at any point or time. <i>Note: No additional control given for increased cleaning frequency (e.g. BACT requirement).</i>	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Implement one of the following: 1) slope the surface of the corrals at least 3% where the available space for each animal is 400 sq ft or less and slope the surface of the corrals at least 1.5% where the available space for each animal is more than 400 sq ft; 2) maintain corrals to ensure proper drainage preventing water from standing more than 48 hrs; 3) harrow, rake, or scrape pens sufficiently to maintain a dry surface. <i>Note: If selected for dairies > 999 milk cows, CE already included in EF.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structures such that they are constructed with a light permeable roofing material. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Install all shade structures uphill of any slope in the corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input type="checkbox"/>	<input type="checkbox"/>	Clean manure from under corral shades at least once every 14 days, when weather permits access into corral. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input type="checkbox"/>	<input type="checkbox"/>	Install shade structure so that the structure has a North/South orientation. <i>Note: If selected for dairies > 999 milk cows, the control efficiency will be 5% since the EF used includes a partial control for this measure.</i>		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Manage corrals such that the manure depth in the corral does not exceed 12 inches at any time or point, except for in-coral mounding. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The manure facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible. <i>Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.</i>	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Knockdown fence line manure build-up prior to it exceeding a height of 12 inches at any time or point. Manure depth may exceed 12 inches when corrals become inaccessible due to rain events. The facility must resume management of the manure depth of 12 inches or lower immediately upon the corral becoming accessible.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Use lime or a similar absorbent material in the corral according to the manufacturer's recommendation to minimize moisture in the corrals.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	0%	0%
Total Control Efficiency			46.86%	46.86%
Bedding Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%

<input type="checkbox"/>	<input type="checkbox"/>	Use non-manure-based bedding and non-separated solids based bedding for at least 90% of the bedding material, by weight, for freestalls (e.g. rubber mats, almond shells, sand, or waterbeds).	0%	0%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	For a large dairy (1,000 milk cows or larger) or a heifer/calf ranch - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 7 days.	0%	10%
<input checked="" type="checkbox"/>	<input type="checkbox"/>	(D) For a medium dairy only (500 to 999 milk cows) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 14 days.	10%	0%
Total Control Efficiency			19.00%	19.00%
Lanes Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Pave feedlanes, where present, for a width of at least 8 feet along the corral side of the feedlane fence for milk and dry cows and at least 6 feet along the corral side of the feedlane for heifers. Note: No control efficiency at this time.	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dairies: Flush, scrape, or vacuum freestall flush lanes immediately prior to or after, or during each milking; or flush or scrape freestall flush lanes at least 3 times per day. Heifer/Calf Ranches: Vacuum, scrape, or flush freestalls at least once every seven days.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	(D) Have no animals in exercise pens or corrals at any time.	0%	0%
Total Control Efficiency			19.00%	19.00%

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Lagoons/Storage Ponds Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Use phototropic lagoon	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Use an anaerobic treatment lagoon designed according to NRCS Guideline No. 359, or aerobic treatment lagoon, or mechanically aerated lagoon, or covered lagoon digester vented to a control device with minimum 95% control	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Maintain lagoon pH between 6.5 and 7.5	0%	0%
Total Control Efficiency			19.00%	19.00%
Liquid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic or aerobic treatment lagoon, aerobic lagoon, or digester system	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Allow liquid manure to stand in the fields for no more than 24 hours after irrigation. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF.	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Apply liquid/slurry manure via injection with drag hose or similar apparatus	0%	0%
Total Control Efficiency			19.00%	19.00%

Solid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Solid Manure Storage Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	LARGE CAFO ONLY: Within 72 hours of removal from housing, either a) remove dry manure from the facility, or b) cover dry manure outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	0%	10%
Total Control Efficiency			10.00%	19.00%
Separated Solids Piles Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	LARGE CAFO ONLY: Within 72 hours of removal from the drying process, either a) remove separated solids from the facility, or b) cover separated solids outside the housing with a weatherproof covering from October through May, except for times when wind events remove the covering, not to exceed 24 hours per event.	0%	10%
Total Control Efficiency			10.00%	19.00%
Solid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	10%	10%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Incorporate all solid manure within 72 hours of land application. Note: If selected for dairies > 999 milk cows, control efficiency is already included in EF. Note: No additional control given for rapid manure incorporation (e.g. BACT requirement).	10%	10%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon or digester system.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Apply no solid manure with a moisture content of more than 50%	0%	0%
Total Control Efficiency			19.00%	19.00%

Silage and TMR				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	VOC Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Corn/Alfalfa/Wheat Silage Mitigations				
		1. Utilize a sealed feed storage system (e.g. Ag-Bag) for bagged silage, or		

<input type="checkbox"/>	<input type="checkbox"/>	<p>2. Cover the surface of silage piles, except for the area where feed is being removed from the pile, with a plastic tarp that is at least 5 mils thick (0.005 inches), multiple plastic tarps with a cumulative thickness of at least 5 mils (0.005 inches), or an oxygen barrier film covered with a UV resistant material within 72 hours of last delivery of material to the pile, and implement one of the following:</p> <p>a) build silage piles such that the average bulk density is at least 44 lb/cu-ft for corn silage and 40 lb/cu-ft for other silage types, as measured in accordance with Section 7.10 of Rule 4570,</p> <p>b) when creating a silage pile, adjust filling parameters to assure a calculated average bulk density of at least 44 lb/cu-ft for corn silage and at least 40 lb/cu-ft for other silage types, using a spreadsheet approved by the District,</p> <p>c) harvest silage crop at > or = 65% moisture for corn; and >= 60% moisture for alfalfa/grass and other silage crops; manage silage material delivery such that no more than 6 inches of materials are uncompacted on top of the pile; and incorporate the applicable Theoretical Length of Chop (TLC) and roller opening for the crop being harvested.</p> <p>For dairies - implement <u>two</u> of the following: For heifer/calf ranches - implement <u>one</u> of the following:</p> <p>Manage Exposed Silage. a) manage silage piles such that only one silage pile has an uncovered face and the uncovered face has a total exposed surface area of less than 2,150 sq. ft., or b) manage multiple uncovered silage piles such that the total exposed surface area of all silage piles is less than 4,300 sq ft.</p> <p>Maintain Silage Working Face. a) use a shaver/facer to remove silage from the silage pile, or b) maintain a smooth vertical surface on the working face of the silage pile</p> <p>Silage Additive: a) inoculate silage with homolactic acid bacteria in accordance with manufacturer recommendations to achieve a concentration of at least 100,000 colony forming units per gram of wet forage or apply propionic acid, benzoic acid, sorbic acid, sodium benzoate, or potassium sorbate at a rate specified by the manufacturer to reduce yeast counts when forming silage pile; or b) apply other additives at specified rates that have been demonstrated to reduce alcohol concentrations in silage and/or VOC emissions from silage and have been approved by the District and EPA.</p>	0.0%	0.0%
Total Control Efficiency*			0.00%	0.00%

*Assumes 25% control for density mitigation measures and 10% each for the two optional measures, resulting in an overall control of 39%. The same conservative control efficiency will be applied to the sealed feed storage system (Ag-Bag).

		TMR Mitigations		
<input type="checkbox"/>	<input type="checkbox"/>	(D) Push feed so that it is within 3 feet of feedlane fence within 2 hrs of putting out the feed or use a feed trough or other feeding structure designed to maintain feed within reach of the cows.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	(D) Begin feeding total mixed rations within 2 hrs of grinding and mixing rations. <i>Note: If selected for dairies > 999 milk cows, control efficiency already included in EF.</i>	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Feed steam-flaked, dry rolled, cracked or ground corn or other ground cereal grains.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	Remove uneaten wet feed from feed bunks within 24 hrs after the end of a rain event.	0%	0%
<input type="checkbox"/>	<input type="checkbox"/>	(D) For total mixed rations that contain at least 30% by weight of silage, feed animals total mixed rations that contain at least 45% moisture.	0%	0%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines. <i>Note: If selected for dairies, control efficiency already included in EF.</i>	0%	0%
Total Control Efficiency			0.00%	0.00%

Ammonia Mitigation Measures and Control Efficiencies

Milking Parlor				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Milking Parlor Floor Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
Total Control Efficiency			28%	28%

Cow Housing				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Corrals/Pens Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Clean manure from corrals at least four times per year with at least 60 days between cleaning, or clean corrals at least once between April and July and at least once between September and December. OR Use lime or a similar absorbent material in the corral according to the manufacturer's recommendation to minimize moisture in the corrals. OR Apply thymol to the corral soil in accordance with the manufacturer's recommendation.	50%	50%
Total Control Efficiency			64%	64%
Bedding Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Use non-manure-based bedding and non-separated solids based bedding for at least 90% of the bedding material, by weight, for freestalls (e.g. rubber mats, almond shells, sand, or waterbeds). OR For a large dairy only (1,000 milk cows or larger) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 7 days. OR For a medium dairy only (500 to 999 milk cows) - Remove manure that is not dry from individual cow freestall beds or rake, harrow, scrape, or grade freestall bedding at least once every 14 days.	47.7%	47.7%
Total Control Efficiency			62.34%	62.34%
Lanes Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
Total Control Efficiency			28%	28%

Liquid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Lagoons/Storage Ponds Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Use phototropic lagoon OR Remove solids from the waste system with a solid separator system, prior to the waste entering the lagoon.	80%	80%
Total Control Efficiency			85.6%	85.6%
Liquid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input type="checkbox"/>	<input type="checkbox"/>	Only apply liquid manure that has been treated with an anaerobic treatment lagoon	0%	0%
Total Control Efficiency			28.00%	28.00%

Solid Manure Handling				
Measure Proposed?		Mitigation Measure(s) per Emissions Point	NH3 Control Efficiency (%)	
Pre-Project	Post-Project		Pre-Project	Post-Project
Solid Manure Land Application Mitigations				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Feed according to NRC guidelines	28%	28%
<input type="checkbox"/>	<input type="checkbox"/>	Incorporate all solid manure within 72 hours of land application. AND Only apply solid manure that has been treated with an anaerobic treatment lagoon, aerobic lagoon or digester system. AND Apply no solid manure with a moisture content of more than 50%	0%	0%
Total Control Efficiency			28.00%	28.00%

Dairy Emission Factors

		lb/hd-yr Dairy Emissions Factors for Holstein Cows																													
		Milk Cows				Dry Cows				Large Heifers (15 to 24 months)				Medium Heifers (7 to 14 months)				Small Heifers (3 to 6 months)				Calves (0 - 3 months)				Bulls					
		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled		Uncontrolled		Controlled			
<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2	<1000 milk cows	≥1000 milk cows	EF1	EF2				
Milking Parlor	VOC	Enteric Emissions in Milking Parlors	0.43	0.41	0.39	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Milking Parlor Floor	0.04	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Total	0.47	0.44	0.42	0.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NH3	Total	0.19	0.19	0.14	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Cow Housing	VOC	Enteric Emissions in Cow Housing	3.89	3.69	3.50	3.50	2.33	2.23	2.10	2.10	1.81	1.71	1.63	1.63	1.23	1.17	1.11	1.11	0.69	0.65	0.62	0.62	0.32	0.31	0.29	0.29	1.10	1.04	0.99	0.99	
		Corrals/Pens	10.00	6.60	5.31	5.31	5.40	3.59	2.87	2.87	4.20	2.76	2.23	2.23	2.85	1.88	1.51	1.51	1.60	1.04	0.85	0.85	0.75	0.50	0.40	0.40	2.55	1.67	1.36	1.36	
		Bedding	1.05	1.00	0.85	0.85	0.57	0.54	0.46	0.46	0.44	0.42	0.36	0.36	0.30	0.28	0.24	0.24	0.17	0.16	0.14	0.14	0.08	0.08	0.06	0.06	0.27	0.25	0.22	0.22	
	Lanes	0.84	0.80	0.68	0.68	0.45	0.44	0.37	0.37	0.35	0.33	0.29	0.29	0.24	0.23	0.19	0.19	0.13	0.13	0.11	0.11	0.06	0.06	0.05	0.05	0.21	0.20	0.17	0.17		
	Total	15.78	12.09	10.34	10.34	8.75	6.80	5.80	5.80	6.81	5.22	4.51	4.51	4.62	3.56	3.06	3.06	2.59	1.98	1.72	1.72	1.22	0.95	0.81	0.81	4.13	3.16	2.73	2.73		
		NH3	Enteric Emissions in Cow Housing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Corrals/Pens	41.90	41.90	15.08	15.08	21.20	21.20	7.63	7.63	11.00	11.00	3.96	3.96	7.90	7.90	2.84	2.84	6.00	6.00	2.16	2.16	1.80	1.80	0.65	0.65	15.30	15.30	5.51	5.51	
		Bedding	6.30	6.30	2.37	2.37	3.20	3.20	1.20	1.20	1.70	1.70	0.64	0.64	1.20	1.20	0.45	0.45	0.90	0.90	0.34	0.34	0.30	0.30	0.11	0.11	2.30	2.30	0.87	0.87	
		Lanes	5.10	5.10	3.67	3.67	2.60	2.60	1.87	1.87	1.30	1.30	0.94	0.94	1.00	1.00	0.72	0.72	0.70	0.70	0.50	0.50	0.20	0.20	0.14	0.14	1.90	1.90	1.37	1.37	
		Total	53.30	53.30	21.13	21.13	27.00	27.00	10.71	10.71	14.00	14.00	5.54	5.54	10.10	10.10	4.02	4.02	7.60	7.60	3.00	3.00	2.30	2.30	0.90	0.90	19.50	19.50	7.74	7.74	
Liquid Manure Handling	VOC	Lagoons/Storage Ponds	1.52	1.30	1.23	1.23	0.82	0.71	0.66	0.66	0.64	0.54	0.52	0.52	0.43	0.37	0.35	0.35	0.24	0.21	0.20	0.20	0.11	0.10	0.09	0.09	0.40	0.33	0.32	0.32	
		Liquid Manure Land Application	1.64	1.40	1.33	1.33	0.89	0.76	0.72	0.72	0.69	0.58	0.56	0.56	0.47	0.40	0.38	0.38	0.26	0.22	0.21	0.21	0.12	0.11	0.10	0.10	0.42	0.35	0.34	0.34	
		Total	3.16	2.70	2.56	2.56	1.71	1.47	1.38	1.38	1.33	1.13	1.08	1.08	0.90	0.77	0.73	0.73	0.51	0.43	0.41	0.41	0.24	0.21	0.19	0.19	0.82	0.68	0.66	0.66	
	NH3	Lagoons/Storage Ponds	8.20	8.20	1.18	1.18	4.20	4.20	0.60	0.60	2.20	2.20	0.32	0.32	1.50	1.50	0.22	0.22	1.20	1.20	0.17	0.17	0.35	0.35	0.05	0.05	3.00	3.00	0.43	0.43	
		Liquid Manure Land Application	8.90	8.90	6.41	6.41	4.50	4.50	3.24	3.24	2.30	2.30	1.66	1.66	1.70	1.70	1.22	1.22	1.30	1.30	0.94	0.94	0.37	0.37	0.27	0.27	3.23	3.23	2.33	2.33	
		Total	17.10	17.10	7.59	7.59	8.70	8.70	3.84	3.84	4.50	4.50	1.97	1.97	3.20	3.20	1.44	1.44	2.50	2.50	1.11	1.11	0.72	0.72	0.32	0.32	6.23	6.23	2.76	2.76	
Solid Manure Handling	VOC	Solid Manure Storage	0.16	0.15	0.14	0.13	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.04	0.04	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.03		
		Separated Solids Piles	0.06	0.06	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02		
		Solid Manure Land Application	0.39	0.33	0.32	0.32	0.21	0.18	0.17	0.17	0.16	0.14	0.13	0.13	0.11	0.09	0.09	0.09	0.06	0.05	0.05	0.05	0.03	0.03	0.02	0.02	0.10	0.08	0.08	0.08	
	Total	0.61	0.54	0.51	0.49	0.33	0.29	0.28	0.27	0.26	0.23	0.22	0.21	0.17	0.15	0.15	0.14	0.10	0.09	0.08	0.08	0.05	0.04	0.04	0.04	0.16	0.14	0.14	0.13		
		NH3	Solid Manure Storage	0.95	0.95	0.95	0.95	0.48	0.48	0.48	0.48	0.25	0.25	0.25	0.25	0.18	0.18	0.18	0.18	0.13	0.13	0.13	0.13	0.04	0.04	0.04	0.04	0.35	0.35	0.35	0.35
			Separated Solids Piles	0.38	0.38	0.38	0.38	0.19	0.19	0.19	0.19	0.10	0.10	0.10	0.10	0.07	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.14	0.14	0.14	0.14
		Solid Manure Land Application	2.09	2.09	1.50	1.50	1.06	1.06	0.76	0.76	0.55	0.55	0.40	0.40	0.39	0.39	0.28	0.28	0.30	0.30	0.22	0.22	0.09	0.09	0.06	0.06	0.76	0.76	0.55	0.55	
		Total	3.42	3.42	2.83	2.83	1.73	1.73	1.43	1.43	0.90	0.90	0.75	0.75	0.64	0.64	0.53	0.53	0.48	0.48	0.40	0.40	0.15	0.15	0.12	0.12	1.25	1.25	1.04	1.04	

Silage and TMR (Total Mixed Ration) Emissions (µg/m ² -min)					
Feed Storage and Handling	VOC	Silage Type	Uncontrolled	EF1	EF2
				Corn Silage	34,681
		Alfalfa Silage	17,458	17,458	17,458
		Wheat Silage	43,844	43,844	43,844
		TMR	13,056	13,056	13,056

Assumptions: 1) Each silage pile is completely covered except for the front face and 2) Rations are fed within 48 hours.

PM ₁₀ Emission Factors (lb/hd-yr)		
Type of Cow	Dairy EF	Source
Cows in Freestalls	1.37	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
Milk/Dry in Loafing Barns	2.73	SJVAPCD
Heifers/Bulls in Loafing Barns	5.28	SJVAPCD
Calves in Loafing Barns	0.69	SJVAPCD
Milk/Dry in Corrals	5.46	Based on a Summer 2003 study by Texas A&M ASAE at a West Texas Dairy
Support Stock (Heifers/Bulls) in Open Corrals	10.55	Based on a USDA/UC Davis report quantifying dairy and feedlot emissions in Tulare & Kern Counties (April '01)
Large Heifers in Open Corrals	8.01	SJVAPCD
Calf (under 3 mo.) open corrals	1.37	SJVAPCD
Calf on-ground hutches	0.343	SJVAPCD
Calf above-ground flushed	0.069	SJVAPCD
Calf above-ground scraped	0.206	SJVAPCD

The controlled PM₁₀ EF will be calculated based on the specific PM₁₀ mitigation measures, if any, for each freestall, corral, or calf hutch area. See the PM Mitigation Measures for calculations.

Post-Project PM10 Mitigation Measures

Post-Project PM10 Mitigation Measures															
Housing Name(s) or #s	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk	
1	Milk	freestall	800	800	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Dry	freestall	300	300	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Sup	freestall	631	631	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Barn on ATC -2-1	freestall		200		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
31						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
35						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Post-Project PM10 Mitigation Measures for New Housing Units at an Expanding Dairy															
Housing Name(s) or #s	Type of Housing	Type of cow	Total # of cows in Each Housing Structure(s)	Maximum Design Capacity of Each Structure	# of Combined Housing Structures in row	Shaded Corrals	Downwind Shelterbelts	Upwind Shelterbelts	No exercise pens, non-manure bedding	No exercise pens, manure bedding	Fibrous layer	Bi-weekly scraping Corrals/Pens	Sprinkling Corrals/Pens	Feed Young Stock Near Dusk	
1						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Post-Project Total # of Cows			1,731												

Pre-Project Potential to Emit - Cow Housing

Pre-Project Potential to Emit - Cow Housing												
	Housing Name(s) or #s	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1	Milk	milk cows	800	10.34	21.13	1.37	22.7	8,272	46.3	16,903	3.0	1,096
2	Dry	dry cows	250	5.8	10.71	1.37	4.0	1,450	7.3	2,677	0.9	343
3	Sup	support stock	631	4.51	5.54	1.37	7.8	2,846	9.6	3,493	2.4	864
4	Dry Cow	dry cows	50	5.8	10.71	5.46	0.8	290	1.5	535	0.7	273
5	Barn on ATC -2-1	milk cows										
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
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37												
38												
39												
40												
Pre-Project Total # of Cows			1,731				35.3	12,858	64.7	23,608	7.0	2,576

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Pre-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,731	35.3	12,858	64.7	23,608	7.0	2,576

Calculations:

Annual PE 1 for each pollutant (lb/yr) = Controlled EF (lb/hd-yr) x # of cows (hd)
 Daily PE1 for each pollutant (lb/day) = [Controlled EF (lb/hd-yr) x # of cows (hd)] ÷ 365 (day/yr)

Post-Project Potential to Emit - Cow Housing

Post-Project Potential to Emit - Cow Housing												
Housing Name(s) or # (s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)	
1	Milk	milk cows	800	10.34	21.13	1.37	22.7	8,272	46.3	16,903	3.0	1,096
2	Dry	dry cows	300	5.8	10.71	1.37	4.8	1,740	8.8	3,213	1.1	411
3	Sup	support stock	631	4.51	5.54	1.37	7.8	2,846	9.6	3,493	2.4	864
4	Barn on ATC-2-1	milk cows										
5												
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34												
35												
36												
37												
38												
39												
40												
Post-Project # of Cows (non-expansion)		1,731				35.3	12,858	64.7	23,609	6.5	2,371	

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Potential to Emit - Cow Housing: New Housing Units at an Expanding Dairy											
Housing Name(s) or # (s)	Type of Cow	# of Cows	Controlled VOC EF (lb/hd-yr)	Controlled NH3 EF (lb/hd-yr)	Controlled PM10 EF (lb/hd-yr)	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
Total # of Cows From Expansion		0				0.0	0	0.0	0	0.0	0

*Multiple emissions units (freestalls, corrals, calf hutch areas, etc.) are combined in these rows.

Post-Project Totals						
Total # of Cows	VOC (lb/day)	VOC (lb/yr)	NH3 (lb/day)	NH3 (lb/yr)	PM10 (lb/day)	PM10 (lb/yr)
1,731	35.3	12,858	64.7	23,609	6.5	2,371

Calculations:

Annual PE 2 for each pollutant (lb/yr) = Controlled EF (lb/hd-yr) x # of cows (hd)
 Daily PE2 for each pollutant (lb/day) = [Controlled EF (lb/hd-yr) x # of cows (hd)] ÷ 365 (day/yr)

Pre-Project Potential to Emit (PE1)

Pre-Project Herd Size						
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals	
Milk Cows	800	0	0	0	800	
Dry Cows	250	0	0	50	300	
Support Stock (Heifers, Calves and Bulls)	631	0	0	0	631	
Large Heifers	0	0	0	0	0	
Medium Heifers	0	0	0	0	0	
Small Heifers	0	0	0	0	0	
Bulls	0	0	0	0	0	
	Calf Hutches				Calf Corrals	
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped
Calves	0	0	0	0	0	0

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft ²)
Corn	0	0	0	
Alfalfa	0	0	0	
Wheat	0	0	0	

Milking Parlor				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	0.9	336	0.3	109

Cow Housing					
Cow	VOC		NH3		PM10
	lb/day	lb/yr	lb/day	lb/yr	lb/day
Total	35.3	12,858	64.7	23,608	7.0

Liquid Manure Handling						
Cow	VOC		NH3		H2S*	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	5.6	2,048	16.6	6,072	0.3	94
Dry Cows	1.1	414	3.2	1,152	0	18
Support Stock (Heifers, Calves and Bulls)	1.9	681	3.4	1,243	0.1	20
Large Heifers	0.0	0	0.0	0	0	0
Medium Heifers	0.0	0	0.0	0	0	0
Small Heifers	0.0	0	0.0	0	0	0
Calves	0.0	0	0.0	0	0	0
Bulls	0.0	0	0.0	0	0	0
Total	8.6	3,143	23.2	8,467	0.4	133

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	1.1	408	6.2	2,264
Dry Cows	0.2	84	1.2	429
Support Stock (Heifers, Calves and Bulls)	0.4	139	1.3	473
Large Heifers	0.0	0	0.0	0
Medium Heifers	0.0	0	0.0	0
Small Heifers	0.0	0	0.0	0
Calves	0.0	0	0.0	0
Bulls	0.0	0	0.0	0
Total	1.7	631	8.7	3,166

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	0.0	0
Alfalfa Emissions	0.0	0
Wheat Emissions	0.0	0
TMR	47.1	17,195
Total	47.1	17,195

Total Daily Pre-Project Potential to Emit (lb/day)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	0.9	0.3	0.0
Cow Housing	0.0	0.0	7.0	0.0	35.3	64.7	0.0
Liquid Manure	0.0	0.0	0.0	0.0	8.6	23.2	0.4
Solid Manure	0.0	0.0	0.0	0.0	1.7	8.7	0.0
Feed Handling	0.0	0.0	0.0	0.0	47.1	0.0	0.0
Total	0.0	0.0	7.0	0.0	93.6	96.9	0.4

Total Annual Pre-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	336	109	0
Cow Housing	0	0	2,576	0	12,858	23,608	0
Liquid Manure	0	0	0	0	3,143	8,467	133
Solid Manure	0	0	0	0	631	3,166	0
Feed Handling	0	0	0	0	17,195	0	0
Total	0	0	2,576	0	34,164	35,351	133

Calculations for milking parlor:

Annual PE = (# milk cows) x (EF1 lb-pollutant/hd-yr)

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculations for cow housing:

See detailed calculations under Cow Housing Calculations worksheet.

Calculations for liquid manure and solid manure handling:

Annual PE = [(# milk cows) x (EF1 lb-pollutant/hd-yr)] + [(# dry cows) x (EF1 lb-pollutant/hd-yr)] + [(# large heifers) x (EF1 lb-pollutant/hd-yr)] + [(# medium heifers) x (EF1 lb-pollutant/hd-yr)] + [(# small heifers) x (EF1 lb-pollutant/hd-yr)] + [(# calves) x (EF1 lb-pollutant/hd-yr)] + [(# bulls) x (EF1 lb-pollutant/hd-yr)]

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

The H2S emission factor is assumed to be 10% of the NH3 lagoon/storage pond(s) emission factor, for each respective herd size.

Calculations for silage emissions:

Annual PE = (EF1) x (area ft²) x (0.0929 m²/ft²) x (8,760 hr/yr) x (60 min/hr) x 2.20E-9 lb/μg

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculation for TMR emissions:

Annual PE = (# cows) x (EF1) x (0.658 m³) x (525,600 min/yr) x (2.20E-9 lb/μg)

Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Notes are not included in TMR calculation.

*Since there will be no change to the lagoons/storage ponds surface area, no change in H2S emissions is expected. Therefore, it will be assumed that PE1 for H2S emissions is equal to PE2 for H2S emissions.

Major Source Emissions (lb/yr)					
Permit	NOx	SOx	PM10	CO	VOC
Milk Parlor	0	0	0	0	0
Cow Housing	0	0	0	0	0
Liquid Manure	0	0	0	0	1,511
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	1,511

Post-Project Potential to Emit (PE2)

Post-Project Herd Size							
Herd	Flushed Freestalls	Scraped Freestalls	Flushed Corrals	Scraped Corrals	Total # of Animals		
Milk Cows	800	0	0	0	800		
Dry Cows	250	0	0	50	300		
Support Stock (Heifers, Calves, and Bulls)	631	0	0	0	631		
Large Heifers	0	0	0	0	0		
Medium Heifers	0	0	0	0	0		
Small Heifers	0	0	0	0	0		
Bulls	0	0	0	0	0		
	Calf Hutches				Calf Corrals		Total # of Calves
	Aboveground Flushed	Aboveground Scraped	On-Ground Flushed	On-Ground Scraped	Flushed	Scraped	
Calves	0	0	0	0	0	0	0

Silage Information				
Feed Type	Maximum # Open Piles	Maximum Height (ft)	Maximum Width (ft)	Open Face Area (ft²)
Corn	0	0	0	
Alfalfa	0	0	0	
Wheat	0	0	0	

Milking Parlor				
	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows				
Total	0.9	336	0.3	109

Cow Housing					
	VOC		NH3		PM10
	lb/day	lb/yr	lb/day	lb/yr	lb/day
Total	35.3	12,858	65	23,609	7

Liquid Manure Handling						
Cow	VOC		NH3		H2S	
	lb/day	lb/yr	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	5.6	2,048	16.6	6,072	0.3	94
Dry Cows	1.1	414	3.2	1,152	0	18
Support Stock (Heifers, Calves, and Bulls)	1.9	681	3.4	1,243	0.1	20
Large Heifers	0.0	0	0.0	0	0	0
Medium Heifers	0.0	0	0.0	0	0	0
Small Heifers	0.0	0	0.0	0	0	0
Calves	0.0	0	0.0	0	0	0
Bulls	0.0	0	0.0	0	0	0
Total	8.6	3,143	23.2	8,467	0.4	133

Solid Manure Handling				
Cow	VOC		NH3	
	lb/day	lb/yr	lb/day	lb/yr
Milk Cows	1.1	392	6.2	2,264
Dry Cows	0.2	81	1.2	429
Support Stock (Heifers, Calves, and Bulls)	0.4	133	1.3	473
Large Heifers	0.0	0	0.0	0
Medium Heifers	0.0	0	0.0	0
Small Heifers	0.0	0	0.0	0
Calves	0.0	0	0.0	0
Bulls	0.0	0	0.0	0
Total	1.7	606	8.7	3,166

Feed Handling and Storage		
	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/yr)
Corn Emissions	0.0	0
Alfalfa Emissions	0.0	0
Wheat Emissions	0.0	0
TMR	47.1	17,195
Total	47.1	17,195

Total Daily Post-Project Potential to Emit (lb/day)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0.0	0.0	0.0	0.0	0.9	0.3	0.0
Cow Housing	0.0	0.0	6.5	0.0	35.3	64.7	0.0
Liquid Manure	0.0	0.0	0.0	0.0	8.6	23.2	0.4
Solid Manure	0.0	0.0	0.0	0.0	1.7	8.7	0.0
Feed Handling	0.0	0.0	0.0	0.0	47.1	0.0	0.0
Total	0.0	0.0	6.5	0.0	93.6	96.9	0.4

Total Annual Post-Project Potential to Emit (lb/yr)							
Permit	NOx	SOx	PM10	CO	VOC	NH3	H2S
Milking Parlor	0	0	0	0	336	109	0
Cow Housing	0	0	2,371	0	12,858	23,609	0
Liquid Manure	0	0	0	0	3,143	8,467	133
Solid Manure	0	0	0	0	606	3,166	0
Feed Handling	0	0	0	0	17,195	0	0
Total	0	0	2,371	0	34,138	35,352	133

Calculations for milking parlor:
 Annual PE = (# milk cows) x (EF2 lb-pollutant/hd-yr)
 Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculations for cow housing:
 See detailed calculations under Cow Housing Calculations worksheet.

Calculations for liquid manure and solid manure handling:
 Annual PE = [(# milk cows) x (EF1 lb-pollutant/hd-yr)] + [(# dry cows) x (EF2 lb-pollutant/hd-yr)] + [(# large heifers) x (EF2 lb-pollutant/hd-yr)] + [(# medium heifers) x (EF2 lb-pollutant/hd-yr)] + [(# small heifers) x (EF2 lb-pollutant/hd-yr)] + [(# calves) x (EF2 lb-pollutant/hd-yr)] + [(# bulls) x (EF2 lb-pollutant/hd-yr)]
 Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

The H2S emission factor is assumed to be 10% of the NH3 lagoon/storage pond(s) emission factor, for each respective herd size.

Calculations for silage emissions:
 Annual PE = (EF2) x (area ft²) x (0.0929 m²/ft²) x (8,760 hr/yr) x (60 min/hr) x 2.20E-9 lb/µg
 Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calculation for TMR emissions:
 Annual PE = (# cows) x (EF2) x (0.658 m²) x (525,600 min/yr) x (2.20E-9 lb/µg)
 Daily PE = (Annual PE lb/yr) ÷ (365 day/yr)

Calves are not included in TMR calculation.

Major Source Emissions (lb/yr)					
Permit	NOx	SOx	PM10	CO	VOC
Milk Parlor	0	0	0	0	0
Cow Housing	0	0	0	0	0
Liquid Manure	0	0	0	0	1,511
Solid Manure	0	0	0	0	0
Feed Handling	0	0	0	0	0
Total	0	0	0	0	1,511

Greenhouse Gas Emissions - CEQA

Uncontrolled GHG Emission Factors (lbs/hd-yr)						
Animal Type	CH4 (Anaerobic Treatment Lagoon)	CH4 (Lagoon)	CH4 (Manure Spreading)	CH4 (Solid Manure Storage)	CH4 (Enteric)	CO2 Equivalent Multiplier for CH4
Milk Cows	513	307.8	3.5	27.7	271.5	21
Dry Cows	513	307.8	3.5	27.7	271.5	21
Support Stock*	110.4	110.4	1.6	--	151.6	21
Large Heifers	110.4	110.4	1.6	--	151.6	21
Medium Heifers	110.4	110.4	1.6	--	100.5	21
Small Heifers	110.4	110.4	1.6	--	100.5	21
Calves	--	--	--	--	--	--
Bulls*	110.4	110.4	1.6	--	151.6	21

Uncontrolled GHG Emission Factors (lbs/hd-yr)					
Animal Type	N2O (Anaerobic Treatment Lagoon)	N2O (Manure Spreading)	N2O (Solid Manure Storage)	N2O (Enteric)	CO2 Equivalent Multiplier for N2O
Milk Cows	1.5	0	2.6	0	310
Dry Cows	1.5	0	2.6	0	310
Support Stock*	1.4	0	--	0	310
Large Heifers	1.4	0	--	0	310
Medium Heifers	1.4	0	--	0	310
Small Heifers	1.4	0	--	0	310
Calves	--	0	--	0	--
Bulls*	1.4	0	--	0	310

*Emission factors for Support Stock and Bulls assumed to be the same as Large Heifers.

1 short ton = 0.9072 metric ton

CO2e from CH4 = [CH4 (anaerobic treatment) lagoon + CH4 manure spreading + CH4 solid manure storage + CH4 enteric] x 21 x 0.9072 metric tons/short tons + 2000 lb/ton

CO2e from N2O = [N2O anaerobic treatment lagoon + N2O manure spreading + N2O solid manure storage + N2O enteric] x 310 x 0.9072 metric tons/short tons + 2000 lb/ton

Pre-Project CO2e Emissions

Pre-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	800	307.8	21.0	2,346
Dry Cows	300	307.8	21.0	880
Support Stock	631	110.4	21.0	664
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	0	--	--	0
Bulls	0	110.4	21.0	0

Pre-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd yr)	CH4 Solid Manure Storage (lbs/hd-yr)	CH4 Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	800	3.5	27.7	271.5	21.0	2,307
Dry Cows	300	3.5	27.7	271.5	21.0	865
Support Stock	631	1.6	--	151.6	21.0	921
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	0	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Pre-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	800	0.0	310.0	0
Dry Cows	300	0.0	310.0	0
Support Stock	631	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	0	0.0	--	0
Bulls	0	0.0	310.0	0

Pre-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd yr)	N2O Solid Manure Storage (lbs/hd-yr)	N2O Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	800	0.0	2.6	0.0	310.0	292
Dry Cows	300	0.0	2.6	0.0	310.0	110
Support Stock	631	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	0	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Pre-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	4,652	292	4,945
Dry Cows	1,745	110	1,854
Support Stock	1,584	0	1,584
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	8,383		

Post-Project CO2e Emissions

Post-Project Lagoon CO2e Emissions from CH4 (metric tons/yr)				
Animal Type	Number of Cows	CH4 Lagoons (lb/hd yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	800	307.8	21.0	2,346
Dry Cows	300	307.8	21.0	880
Support Stock	631	110.4	21.0	664
Large Heifers	0	110.4	21.0	0
Medium Heifers	0	110.4	21.0	0
Small Heifers	0	110.4	21.0	0
Calves	0	--	--	0
Bulls	0	110.4	21.0	0

Post-Project Non-Lagoons CO2e Emissions from CH4 (metric tons/yr)						
Animal Type	Number of Cows	CH4 Manure Spreading (lbs/hd yr)	CH4 Solid Manure Storage (lbs/hd-yr)	CH4 Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	800	3.5	27.7	271.5	21.0	2,307
Dry Cows	300	3.5	27.7	271.5	21.0	865
Support Stock	631	1.6	--	151.6	21.0	921
Large Heifers	0	1.6	--	151.6	21.0	0
Medium Heifers	0	1.6	--	100.5	21.0	0
Small Heifers	0	1.6	--	100.5	21.0	0
Calves	0	--	--	--	--	0
Bulls	0	1.6	--	151.6	21.0	0

Post-Project Lagoon CO2e Emissions from N2O (metric tons/yr)				
Animal Type	Number of Cows	N2O Lagoons (lb/hd-yr)	CO2e Multiplier	CO2e Lagoons (metric tons/yr)
Milk Cows	800	0.0	310.0	0
Dry Cows	300	0.0	310.0	0
Support Stock	631	0.0	310.0	0
Large Heifers	0	0.0	310.0	0
Medium Heifers	0	0.0	310.0	0
Small Heifers	0	0.0	310.0	0
Calves	0	0.0	--	0
Bulls	0	0.0	310.0	0

Post-Project Non-Lagoons CO2e Emissions from N2O (metric tons/yr)						
Animal Type	Number of Cows	N2O Manure Spreading (lbs/hd yr)	N2O Solid Manure Storage (lbs/hd-yr)	N2O Enteric (lbs/hd-yr)	Multiplier	CO2e Non-Lagoons (metric tons/yr)
Milk Cows	800	0.0	2.6	0.0	310.0	292
Dry Cows	300	0.0	2.6	0.0	310.0	110
Support Stock	631	0.0	--	0.0	310.0	0
Large Heifers	0	0.0	--	0.0	310.0	0
Medium Heifers	0	0.0	--	0.0	310.0	0
Small Heifers	0	0.0	--	0.0	310.0	0
Calves	0	0.0	--	0.0	--	0
Bulls	0	0.0	--	0.0	310.0	0

Total Post-Project CO2e Emissions (metric tons/yr)			
Animal Type	CO2e from CH4	CO2e from N2O	Total
Milk Cows	4,652	292	4,945
Dry Cows	1,745	110	1,854
Support Stock	1,584	0	1,584
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	8,383		

Change in CO2e Emissions

Change in Project GHG Emissions			
Animal Type	Pre-Project CO2e (metric tons/yr)	Post-Project CO2e (metric tons/yr)	Change (metric tons/yr)
Milk Cows	4,945	4,945	0
Dry Cows	1,854	1,854	0
Support Stock	1,584	1,584	0
Large Heifers	0	0	0
Medium Heifers	0	0	0
Small Heifers	0	0	0
Calves	0	0	0
Bulls	0	0	0
Total	0		

Appendix E

Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District

Risk Management Review and Ambient Air Quality Analysis

To: Tim Bush – Permit Services
 From: Adrian Ortiz – Technical Services
 Date: February 09, 2021
 Facility Name: GM SILVA DAIRY #2
 Location: 20316 CRANE AVE, HILMAR
 Application #(s): N-6287-1-1, -2-2, -3-2, -5-1, -6-1
 Project #: N-1201057

1.1 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	NA		NA		
NO _x	NA				NA
SO _x	NA	NA		NA	NA
PM10				NA	NA
PM2.5				NA	NA

2. Project Description

Technical Services received a request on May 12, 2020 to perform an Ambient Air Quality Analysis (AAQA) for the following:

- Unit -1-1, 2-2, 3-2, 5-1, 6-1: The two dairies GM Silva #2 (N-6287) and GM Silva #1 (N-6286) are now owned and operated by the same individual and are considered the same stationary source. At his time the facility is proposing to combine the two dairies into one dairy while maintaining all current mitigation measures and methods of operation. Per the applicant there will be operation modifications in the future, but this project will only be adding the mitigation measures for each operation under one permit unit and updating the mitigation measures for Dairies with > 1,000 milk cows where appropriate

3. AAQA Report

The District has determined that although there was a change in ownership of the N-6286 stationary source, resulting in the N-6287 facility calculations to increase, there were no actual increases in emission from each individual emissions unit operating at the now combined stationary source. Due to no increase or change in orientation in any individual emissions unit, an AAQA is not required.

4. Conclusion

4.1 AAQA

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

5. Attachments

- A. Modeling request from the project engineer
- B. Additional information from the applicant/project engineer

Appendix F

QNEC

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/qtr.

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

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

N-6287-1

$$\begin{aligned} \text{PE2}_{\text{quarterly}} &= \text{PE2}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 674 \text{ lb VOC/year} \div 4 \text{ qtr/year} \\ &= 1,150 \text{ lb VOC/qtr} \end{aligned}$$

$$\begin{aligned} \text{PE1}_{\text{quarterly}} &= \text{PE1}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 336 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 1,150 \text{ lb VOC/qtr} \end{aligned}$$

N-6287-1

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	168.50	84.00	84.50

N-6287-2

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	2,400.25	592.75	1807.50
CO	0	0	0
VOC	6,202.50	3,214.50	2988.00

N-6287-3

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	1,556.25	785.75	770.50

N-6287-5

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	299.75	151.50	148.25

N-6287-6

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	8,139.50	4298.75	3840.75